

Appendix G

Biological Resources Technical Report



BONANZA PEAK SOLAR PROJECT

Biological Resources Technical Report

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ACRONYMS/ABBREVIATIONS

ACE	Areas of Conservation Emphasis
ARD	aquatic resource delineation
ARDR	aquatic resources delineation report
Development Area	2,400-acre (or less) area within which all Project features would be constructed
BGEPA	Bald and Golden Eagle Protection Act
BIOS	Biographic Information and Observation System
burrowing owl	western burrowing owl
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CDNPA	California Desert Native Plants Act
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DCH	Designated Critical Habitat
desert tortoise	Agassiz's desert tortoise
DRECP	Desert Renewable Energy Conservation Plan
FESA	Federal Endangered Species Act
FNANM	Flora of North America North of Mexico
FR	Federal Register
Inyo County	Inyo County Planning Department
Ironwood	Ironwood Consultants
Km	Kilometer
Km ²	Per square kilometer
MBTA	Migratory Bird Treaty Act
MER	Mineral and Energy Resources
NEPA	National Environmental Policy Act
NPPA	Native Plant Protection Act
Project	Bonanza Peak Solar Project
Project Area	3,382-acre private property within which the Project development would be sited
SSC	Species of Special Concern
report	Biological Resources Technical Report
RWQCB	Regional Water Quality Control Board
Stantec	Stantec Consulting Services Inc.



Bonanza Peak Solar Project – Biological Resources Technical Report

USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WL	Watch List



Executive Summary

The Bonanza Peak Solar Project is a proposed 500-megawatt solar generation facility that will include photovoltaic arrays, a substation, and other electrical equipment. Stantec Consulting Services Inc. composed this Biological Resources Technical Report to inform the development footprint (i.e., to avoid or reduce possible impacts on natural communities, jurisdictional or regulated habitats or features, or plant and animal species of elevated conservation status), describe the environmental setting, and inform discretionary permitting by the Inyo County Planning Department. It contains a combination of reviews of biological surveys conducted for a previously proposed Project on substantially the same footprint, updated searches for and review of reasonably obtainable public domain data (e.g., agency databases, published reports) for the current Project Area and surroundings, and a summary of the methods and results for all biological surveys that have been conducted for the Project; these biological studies have focused on regulated habitats and jurisdictional resources, special-status plant species, and special-status animal species. Accordingly, this Biological Resources Technical Report provides a compilation of data collected over a long interval, which includes past Project proposals on substantially the same footprint as the current Project Area, as well as updated data to remain current and valid.

The 3,382-acre Project Area would be located on private lands in the Charleston View Solar Energy Development Area in southeastern Inyo County, adjacent to the Nevada state line just north of California State Route 178. It would have a Developed Area of no greater than 2,400 acres, as dictated by the Inyo County Renewable Energy General Plan Amendment. This Biological Resources Technical Report considers the portion of the Project located in Inyo County, California; thus, biological resource data regarding the Nevada-located components of the Project—the energy generation tie-in to a point of interconnection to an electrical substation in Nevada—are not included.

The Project is bordered by the Pahrump Valley to the northeast; the town of Charleston View, California, 1 mile to the south; the Nopah Range to the west and southwest; and the town of Pahrump, Nevada, 25 miles to the north and is located on predominantly flat, arid, sparsely vegetated, open land in the southern portion of the Pahrump Valley. The dominant vegetation is typical of alkali desert scrub and desert scrub vegetation native to southeastern California, with *Larrea tridentata* (creosote bush) dominating or co-dominating vegetation alliances in the eastern third of the Project Area and *Atriplex confertifolia* shrubland alliance (shadscale scrub) dominating the western two-thirds of the Project Area.

The literature review included the biological studies conducted for a prior proposed Project and database queries regarding potential occurrence of special status-species and policies relating to these special-status natural resources within the vicinity of the Project. According to the 2010 and 2011 biological studies that were conducted for the Hidden Hills Solar Project, several special-status plant and animal species were observed on the proposed Project site, including eight California Rare Plant Rank system ranked plant species and 10 wildlife species, which include desert tortoise (*Gopherus agassizii*) and burrowing owl (*Athene cunicularia*). At least three species of cactus and 11 species of invasive, non-native plants were also documented during the surveys. Furthermore, a query of the California Department of Fish and Wildlife's California Natural Diversity Database, focused on the US Geological Survey *Calvada Springs, Mound Spring, and Stump Spring* 7.5-minute topographic quadrangles and all



surrounding quadrangles within California, suggested that 30 special-status plant species and 19 special status animal species have some potential to occur. Furthermore, a review of the features mapped in the 3D National Hydrology Database and/or National Wetlands Inventory database and information from the Hidden Hills Solar Project suggested that jurisdictional aquatic features were likely present.

Between 2020 and 2025, several field studies have been conducted for biological resources and species under state and federal agency jurisdiction; these studies are further detailed as follows:

Resource or Species	Source 1		Source 2		Source 3	
	Author	Year	Author	Year	Author	Year
Aquatic Resources	Stantec	2024	Stantec	2025	–	–
Botanical Resources	Stantec	2025	–	–	–	–
Desert Tortoise	Ironwood	2020	Stantec	2024	Allied Pacific Partners	2025
Burrowing Owl	Stantec	2025	–	–	–	–

The information provided from these field studies, combined with information gathered from the desktop review, can be used to guide compliance with applicable federal and state regulations. A summary of the results included in this Biological Resources Technical Report are as follows:

- Aquatic Resources** – Sixty-nine aquatic resources were mapped for potential jurisdiction within the 2024 and 2025 aquatic resource delineation study areas. All 69 resources were ephemeral and therefore unlikely to be subject to jurisdiction of the US Army Corps of Engineers; concurrence from the US Army Corps of Engineers has been requested. All 69 resources potentially fall under the jurisdiction of both the California Department of Fish and Wildlife and the Lahontan Regional Water Quality Control Board. Therefore, a California Department of Fish and Wildlife Lake and Streambed Alteration Agreement and a Regional Water Quality Control Board water quality certification and/or water discharge permit will likely be required. These results and permitting assumptions are considered preliminary pending agency verification.
- Botanical Resources** – Eight special-status plant species were detected within the botanical survey area, totaling more than 1,400 individual plants, including three species listed by the California Native Plant Society with California Rare Plant Rank 2B.1 or 2B.2 and five species protected under the California Desert Native Plants Act. No federal or state-listed threatened or endangered species were observed. The species with a California Rare Plant Rank should be analyzed under the California Environmental Quality Act, as they meet the definition of Rare or Endangered under California Environmental Quality Act Guidelines § 15125(c) and/or § 15380. California Desert Native Plants Act species require a county-issued permit prior to removal. Eight additional special-status species (four annual, four perennial) known to occur within the survey area were not detected during the 2025 surveys, likely due to extreme drought conditions. These species should still be considered present for California Environmental Quality Act analysis, as they persist in the seed bank or are dormant and may germinate or resume growth under more favorable conditions.



Eighteen Manual of California Vegetation associations were mapped within the survey area; 5 (407.4 acres) associations are classified as sensitive natural communities by the California Department of Fish and Wildlife. These communities typically consist of native plant assemblages and are not necessarily defined by the presence of special-status plant species. California Department of Fish and Wildlife typically requires a 1:1 or greater mitigation ratio for impacted sensitive natural communities, depending on community type. Final mitigation ratios are usually determined in consultation with the California Department of Fish and Wildlife.

Due to the presence of noxious weeds throughout the survey area, a noxious weed management plan should be developed prior to ground disturbance. For the purposes of this report, noxious weeds are defined as species rated as High by the California Invasive Plant Council and/or listed by the California Department of Food and Agriculture as noxious weeds under California Code of Regulations Section 4500.

- **Wildlife Resources** – Both desert tortoise, a federally and state-listed wildlife species, and burrowing owl, a state candidate listed species, habitat, sign, and individuals were identified during the surveys. Additional wildlife species given special-status rankings by the California Department of Fish and Wildlife were also observed during the surveys. A California Department of Fish and Wildlife Incidental Take Permit for both desert tortoise and burrowing owl will likely be required if full avoidance of individuals and/or habitat is unfeasible. US Fish and Wildlife Service consultation regarding the Federal Endangered Species Act Section 10 will likely be required for impacts to desert tortoise individuals and/or habitat. In addition, avoidance and minimization measures for special-status wildlife species will likely be required to be included in the Project's California Environmental Quality Act analysis and Streambed Alteration Agreement.

Following the agency coordination and permitting recommendations described in this Biological Resources Technical Report will help ensure the Project is in compliance with the California Environmental Quality Act. Potential adverse effects on any species identified as a candidate, sensitive, or special-status species may be addressed through methods of avoidance and minimization and/or mitigation and will be agreed upon through consultation with the California Department of Fish and Wildlife and the US Fish and Wildlife Service. Similarly, potential adverse effects on any regulated aquatic resources, riparian habitat, or other sensitive natural communities can be addressed through methods of avoidance and minimization and/or mitigation agreed upon through consultation with the California Department of Fish and Wildlife, Regional Water Quality Control Board, and Inyo County Planning Department.



1 Introduction

1.1 Purpose

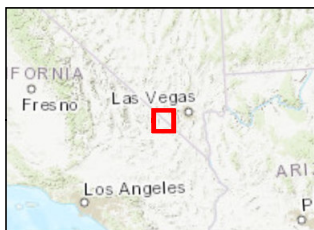
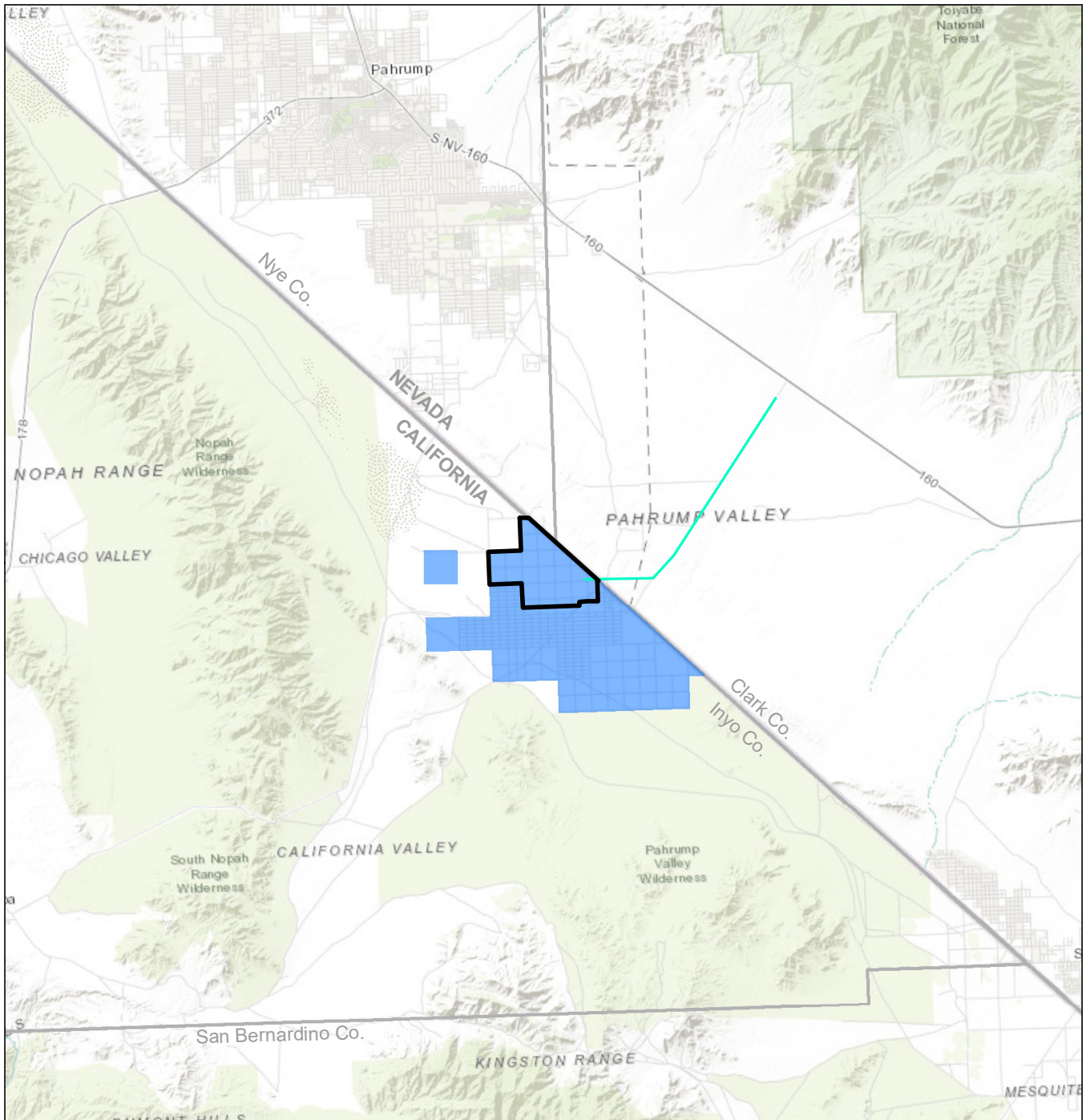
This Biological Resources Technical Report (report) addresses biological resources in and around the proposed Bonanza Peak Solar Project (Project). The report describes the environmental conditions within the vicinity of the Project and evaluates the potential for biological resources to occur, with an emphasis on jurisdictional and regulated habitats and features, special-status plant and wildlife species (i.e. those listed as endangered or threatened or given another designation by the state or federal government owing to heightened conservation concern), and wildlife corridors and movement. Together, this summary of prior studies, desktop data review, and field surveys will inform analysis during California Environmental Quality Act (CEQA) review and State of California regulatory agency permitting and compliance requirements.

1.2 Project Description

Bonanza Peak Solar, LLC, is proposing to construct, own, operate, maintain, and ultimately decommission the Project, a utility-scale solar photovoltaic energy-generating facility. The Project would be located on privately owned land within the Charleston View Solar Energy Development Area designated by Inyo County (Figure 1-1). The Project would include photovoltaic arrays, a substation, an operations and maintenance building, internal access roads, and a generation tie-in line. Within the 3,382-acre proposed Project Area (Project Area), an area of no greater than 2,400 acres would be developed (Development Area; Figure 1-2).

An approximately 9-mile-long 230-kilovolt generation tie-in line would be located on land managed by the US Bureau of Land Management in Nye and Clark Counties, Nevada (Figure 1-1). The Project would connect to the existing GridLiance 230-kilovolt transmission line at the Trout Canyon switchyard in Nevada. Approximately 0.5 miles of the generation tie-in line would be in Inyo County, and the remaining 8.5 miles would be in Nevada. This report addresses the portion of the Project located in Inyo County, California.





- Project Area (3,382 acres)
- Gen-tie Alignment
- Charleston View Solar Energy Development Area

0 2 4 miles
1:300,000
(At original document size of 8.5x11)



Project Location
Inyo County, CA

Prepared by PG on 2025-11-04
TR by DA on 2025-11-04

Client/Project
174 Power Global Corp.
Bonanza Peak Solar Project

185706575

Figure No.
1-1

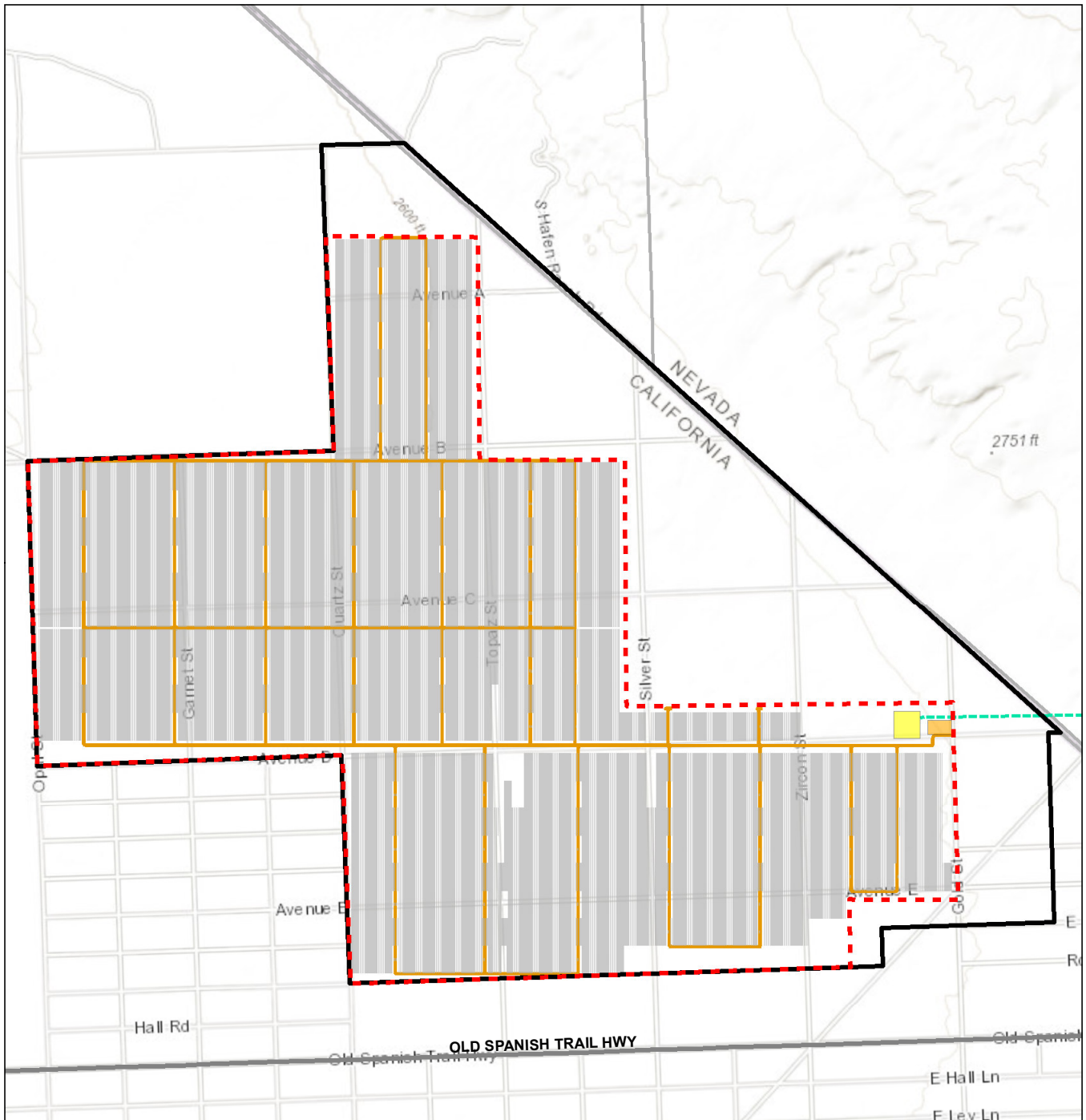
Title
Project Vicinity

Notes
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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Notes

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
2. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

- Project Area (3,382 acres)
- Area of Development (not to exceed 2,400 acres)
- Solar Collector Array
- Project Substation
- Operations and Maintenance Building
- Internal Access Roads
- Gen-tie Alignment

0 0.25 0.5 miles
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(At original document size of 8.5x11)



Project Location
Inyo County, CA

Prepared by PG on 2025-11-04
TR by DA on 2025-11-04

Client/Project

185706575

174 Power Global Corp.
Bonanza Peak Solar Project

Figure No.

1-2

Title

Project Area

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2 Environmental Setting

2.1 Setting

The Project Area is bordered by the Pahrump Valley to the northeast; the town of Charleston View, California, 1 mile to the south; the Nopah Range to the west and southwest; and the town of Pahrump, Nevada, 25 miles to the north. The Project would be located within the US Geological Survey *Calvada Springs*, *Mound Spring*, and *Stump Spring* 7.5-minute topographic quadrangles on predominantly flat, arid, sparsely vegetated, open land in the southern portion of the Pahrump Valley. Representative photographs were taken during the prior field studies conducted within the Project Area and are included as Appendix A.

Elevations within the Project Area range from 2,500 feet to 2,600 feet above mean sea level. At the Pahrump (25 miles north of the Project) National Oceanic and Atmospheric Administration weather station, average annual temperatures range from 16 to 111 degrees Fahrenheit and annual precipitation averages 4.81 inches (National Weather Service 2024).

2.2 Soils

The Project Area is located within the Basin and Range geomorphic province, characterized by interior drainage to lakes and playas, with horst and graben structures (i.e., basins and ranges). Near the Project, the two main geomorphic processes are fluvial erosion and deposition and eolian deflation and deposition (Appendix B). Field observations of soils range from packed clay/silt to unconsolidated silt and gravel, with some consolidated, friable soils on the eastern side of the Project Area (Appendix B; Ironwood 2021).

2.3 Hydrology

The southern Pahrump Valley is a structural depression bordered by the Spring Mountains to the northeast and the Nopah Range to the west. According to the 3D National Hydrography Dataset, the study area is predominantly in the Trout Canyon–Frontal Pahrump Valley subwatershed. A small portion within the southern edge of the Project Area is in the Stump Spring–Calvada Springs subwatershed (Appendix B).

Hydrology in the Project Area is mainly driven by precipitation and seasonal flows that originate in the Spring Mountains to the northeast. The site drains diagonally from the northeast boundary to the middle of the site, where the direction of flow shifts to a northwest direction toward the nearest dry lakebed. These waters flow southwest out of Trout Canyon and form a complex system of washes that fan out and dissipate as they move southwest and into the valley floor (Appendix B).



2.4 Vegetation and Land Cover

The vegetation in the Project area is generally typical of alkali desert scrub and desert scrub vegetation native to southeastern California and is dominated by two types: *Larrea tridentata*–*Ambrosia dumosa* shrubland alliance (creosote bush–white bursage scrub) on the east and *Atriplex confertifolia* shrubland alliance (shadscale scrub) in the central-west. The western two-thirds of the study area is also interspersed with areas of low vegetative cover dominated by noxious weeds such as cheatgrass (*Bromus tectorum*) and saltlover (*Halogeton glomeratus*) (Appendix D). Complete vegetation descriptions are included in Section 5.1 and further detailed in the *Botanical Resources Survey Report* (Appendix D).

The site is gridded by dirt roads. Other evidence of anthropogenic disturbance was observed during field surveys, including off-highway vehicle tracks, trails, trash, residences and outbuildings, and evidence of historic cattle grazing (Appendix B; Appendix C; Appendix D).

3 Regulatory Setting

3.1 Federal Regulations

3.1.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 requires all federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA into other planning requirements and prepare appropriate NEPA documents to facilitate better environmental decision-making. NEPA requires federal agencies to review and comment on federal agency environmental plans and documents when the agency has jurisdiction by law or special expertise with respect to any environmental impacts involved (42 US Code 4321–4327; 40 CFR 1500–1508). These guidelines establish an overall federal process for the environmental evaluation of projects.

In the absence of a federal agency, NEPA may be triggered through the undertaking of a federal action, such as initiating Section 10 of the Federal Endangered Species Act, through the development of a habitat conservation plan, which is further discussed in Section 3.1.2 below.

3.1.2 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) provisions protect federally listed threatened and endangered species and their habitats from unlawful “take” and ensure that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of Designated Critical Habitat (DCH). Under FESA, take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any of the specifically enumerated conduct.” The US Fish and Wildlife Service (USFWS) regulations define harm to mean “an act which



actually kills or injures wildlife.” Such an act “may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering” (50 Code of Federal Regulations [CFR] Section 17.3). This definition is currently proposed to be changed.

DCH is defined in FESA Section 3(5)(A) as “(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features: (I) essential to the conservation of the species; (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species upon a determination by the Secretary of Commerce or the Secretary of the Interior that such areas are essential for the conservation of the species.” The effects analyses for DCH must consider the role of the critical habitat in both the continued survival and the eventual recovery (i.e., the conservation) of the species in question, consistent with the 2024 Ninth Circuit judicial opinion *Gifford Pinchot Task Force v. USFWS*.

Activities that may result in take of individuals are regulated by the USFWS under Section 7 and Section 10, and are further described below. The USFWS produces an annual Candidate Notice of Review (72 Federal Register [FR] 69034). Candidate species are not afforded any legal protection under FESA; however, candidate species typically receive special attention from federal and state agencies during the environmental review process.

Section 7 of the FESA requires federal agencies to ensure that their actions do not jeopardize the existence of any endangered or threatened species or adversely modify their critical habitats. Specifically, it mandates that federal agencies consult with the USFWS or National Oceanic and Atmospheric Administration Fisheries to assess the potential impacts of their actions on listed species and their habitats (CRS 2023). This section emphasizes the importance of interagency cooperation in the conservation of endangered species. It also grants authority to federal agencies to assist in the conservation efforts of these species (USFWS n.d.a; CFR n.d.).

Section 10 of the FESA allows for the issuance of permits under specific conditions. It enables the Secretary to permit actions that would otherwise be prohibited, such as taking listed species for scientific purposes or to enhance their propagation and survival. This section also provides a mechanism for non-federal entities to obtain permits for incidental take of listed species, provided they develop a Habitat Conservation Plan (HCP) (USFWS n.d.b).

3.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 US Code 703–711) makes it unlawful to possess, buy, sell, purchase, barter, or take any migratory bird listed in Title 50 of CFR Part 10. “Take” is defined as possession or destruction of migratory birds, their nests, and eggs. Disturbances that cause nest abandonment or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA. The MBTA prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of Agriculture. The MBTA encompasses whole birds, parts of birds, bird nests, and eggs.



3.1.4 Bald and Golden Eagle Protection Act of 1940

The Bald and Golden Eagle Protection Act of 1940 (BGEPA) (16 US Code 668, enacted by 54 Stat. 250) protects bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this act. Take of bald and golden eagles is defined as follows: “disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior” (72 FR 31132; 50 CFR 22.3).

The USFWS is the primary federal authority charged with the management of golden eagles in the United States. USFWS guidance on the applicability of current BGEPA statutes and mitigation is currently under review. On November 10, 2009, the USFWS implemented rules (74 FR 46835) governing the take of golden and bald eagles. The rules were released under the existing BGEPA, which has been the primary regulatory protection for unlisted eagle populations since 1940.

All activities that may disturb or incidentally take an eagle or its nest as a result of an otherwise legal activity must be permitted by the USFWS under the BGEPA. The definition of disturb (72 FR 31132) includes interfering with normal breeding, feeding, or sheltering behavior to the degree that it causes or is likely to cause decreased productivity or nest abandonment. If a permit is required, due to the current uncertainty on the status of golden eagle populations in the western United States, it is expected that permits would only be issued for safety emergencies or if conservation measures implemented in accordance with a permit would result in a reduction of ongoing take or a net take of zero.

3.1.5 Clean Water Act Section 401 and Section 404

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into waters of the United States and regulating quality standards for surface waters. Section 401 certification, issued by the Regional Water Quality Control Board (RWQCB), pertains to the discharge of pollutants into waters of the United States. The discharge must comply with the provisions of the CWA. This application is specific to the RWQCB in which the subject property site is located. CWA Section 404 regulates the discharge of dredged or fill material into waters of the United States, which includes certain wetlands. Activities requiring a Section 404 permit include fill for development, infrastructure development, water resource Projects, and mining Projects.

3.1.6 Department of the Interior Memorandum

A July 15, 2025, US Department of the Interior memorandum requires submission to the Office of the Executive Secretariat and Regulatory Affairs, subsequent review by the Office of the Deputy Secretary, and final review by the Office of the Secretary for all federal decisions, actions, consultations, and other undertakings related to wind and solar energy facilities by Department of the Interior agencies, including the US Fish and Wildlife Service (USDOI 2025).



3.2 State Regulations

3.2.1 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, enacted in 1969, protects the quality of all waters in California and established the State Water Resources Control Board and nine Regional Water Quality Control Boards, which implement and enforce the Act. Any activity that involves any discharge of dredged or fill material into waters of the State, including wetlands, is subject to regulation by the Lahontan Regional Water Quality Control Board Waste Discharge Requirements.

3.2.2 California Environmental Quality Act

CEQA establishes state policy to prevent significant and avoidable damage to the environment by requiring changes in Projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by state lead agencies. Regulations for implementation are found in the CEQA Guidelines published by the California Natural Resources Agency. These guidelines establish an overall process for the environmental evaluation of Projects in California.

Appendix G of the CEQA Guidelines establishes a process for biological resource evaluation for Projects in California by selecting one of four checkboxes (potentially significant impact, less than significant impact with mitigation incorporated, less than significant impact, and no impact) as an answer for each of six questions. These questions address whether the Project would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife (CDFW) or USFWS?
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFW or USFWS?
3. Have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means?
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors or impede the use of native wildlife nursery sites?
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
6. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved, local, regional, or statute habitat conservation plan?



3.2.3 California Fish and Game Code

The California Legislature has delegated to the Fish and Game Commission a variety of powers within California statutes that constitute the California Fish and Game Code (CFGF). Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by the CDFW under Sections 3503 and 3503.5 of the CFGF. Activities that would result in the taking, possessing, or destroying of any birds of prey; taking or possessing of any migratory nongame bird as designated in the MBTA; taking, possessing, or needlessly destroying the nest or eggs of any raptors or nongame birds protected by the MBTA; or taking of any nongame bird are prohibited. Birds of prey are protected in California under CFGF Section 3503.5, which states it is “unlawful to take, possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto.”

CFGF Sections 3511, 4700, 5050, and 5515 include provisions that define and protect Fully Protected species. The classification of Fully Protected species was the state’s initial effort in the 1960s to identify and provide additional protection to those animals that were exceptionally rare or faced possible extinction, and this classification predates the California Endangered Species Act (CESA). The CDFW’s Fully Protected species provisions include the following: (1) prohibiting take or possession “at any time” of the species listed in the statute with few exceptions; (2) no provision to authorize the issuance of permits or licenses for “take” of Fully Protected species; and (3) a statement that no previously issued permits or licenses for take of these species “shall have any force or effect” for authorizing take or possession. The CDFW also maintains lists of Species of Special Concern (SSC). Species on these lists have a limited distribution or the extents of their habitats have been reduced substantially such that threat to their populations may be imminent. SSC may receive special attention during environmental review, but they do not have statutory protection.

Sections 1600–1603 of the CFGF state that it is unlawful for any person or agency to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources or to use any material from the streambeds without first notifying the CDFW. A Lake and Streambed Alteration Agreement must be obtained if effects are expected to occur. The regulatory definition of a stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports wildlife, fish, or other aquatic life. This definition includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. The CDFW’s jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife.

3.2.4 California Endangered Species Act

CESA protects state-listed threatened and endangered species. The CDFW regulates activities that may result in take of individuals (take is defined as “hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill”). Habitat degradation or modification is not expressly included in the definition of take under the CFGF. Additionally, the CFGF contains lists of vertebrate species



designated as Fully Protected (CFGC Sections 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]).

Senate Bill 147, passed on July 10, 2023, authorizes take of a Fully Protected species resulting from impacts attributable to the implementation of specified Projects if certain conditions are satisfied, including, among others, the conditions required for the issuance of an Incidental Take Permit (LegiScan 2023). Solar development Projects are included in the list of specified Projects, and golden eagles are included in the list of applicable Fully Protected species.

3.2.5 Native Plant Protection Act

Under CFGC Sections 1900 to 1913, the Native Plant Protection Act (NPPA) requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of the CDFW at least 10 days in advance of any change in land use. This allows the CDFW to salvage listed plant species that would otherwise be destroyed. A Project applicant is required to conduct botanical inventories and consult with the CDFW during Project planning to comply with the provisions of the NPPA and sections of CEQA that apply to rare or endangered plants.

3.2.6 California Desert Native Plants Act

Under Division 23 of the California Food and Agriculture Code, the California Desert Native Plants Act (CDNPA) applies within the boundaries of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties and protects harvest of certain species of plants on both private and public lands. Under the CDNPA, covered plants may be removed upon issuance of appropriate tags and seals obtained from the county sheriff or commissioner for a fee. The Project applicant is required to coordinate with the Inyo County Agricultural Commissioner's Office to comply with the CDNPA.

3.3 Other Applicable Plans, Policies, and Ordinances

3.3.1 Inyo County General Plan

All proposed land use and development activities in Inyo County are subject to compliance with Inyo County's general plan. In 2015, Inyo County amended the general plan to include the Renewable Energy General Plan Amendment (Inyo County 2015). The Renewable Energy General Plan Amendment serves to govern issues related to renewable energy solar development and includes land use policies such as sustainable water use and energy resource goals and policies. All goals, policies, and measures related to biological resource protection are as follows:

- Sustainable Water Use: The use of water for a renewable energy solar facility will not exceed the annual rate of replacement of that water so that groundwater mining is avoided and so



that adverse impacts to biological resources (including wildlife) due to hydrological impacts caused by water use are avoided.

- Goal Mineral and Energy Resources (MER)-2: Avoid, Minimize, Mitigate. Ensure that renewable energy solar facility development is conducted appropriately to avoid, minimize, or mitigate the impacts from such development on the social, economic, visual, and environmental resources of Inyo County.
- Policy MER-2.6: Avoid, Minimize, or Mitigate Impacts. The county shall work with renewable energy solar developers and other agencies to avoid, minimize, or mitigate impacts to the social, economic, visual, and environmental resources of Inyo County from renewable energy solar facility development.
- Policy MER-2.10: Protect Vegetation. Inyo County shall require that renewable energy solar facility developers use mowing and/or other methods that do not include ground-scraping during the construction and/or operation of solar facility developments (access roads and infrastructure are excluded from this requirement).
- Energy Resources Implementation Measures: Work with applicants to maintain pre-Project vegetation during the construction and operation of renewable energy solar facilities and/or to plant new native, low-water-use vegetation or agriculture crops as dust control measures.

The Renewable Energy General Plan Amendment also serves to limit the total allowable acreage per solar energy development area and total allowed megawatt development per solar energy group. For the Eastern Solar Energy Group, which contains the Charleston View Solar Energy Development Area, the total allowable development area is 2,400 acres and the total allowable capacity is 500 megawatts.

3.3.2 California Native Plant Society Rare Plant Program

The mission of the California Native Plant Society (CNPS) Rare Plant Program is to develop current, accurate information on the distribution, ecology, and conservation status of California's rare and endangered plants and to use this information to promote science-based plant conservation in California. Once a plant species has undergone a review process, information on all aspects of the species (listing status, habitat, distribution, threats, etc.) is entered into the online CNPS Inventory and given a California Rare Plant Rank (CRPR).

Vascular plants listed as rare or endangered by the CNPS, but that may not have designated status under state endangered species legislation, are defined by the following CRPRs:

- 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 2A – Plants presumed extirpated in California but common elsewhere



- CRPR 2B – Plants rare, threatened, or endangered in California but more common elsewhere
- CRPR 3 – Plants about which more information is needed
- CRPR 4 – Plants of limited distribution (a watch list)

In addition to the CRPR designations above, the CNPS adds a Threat Rank as an extension onto the CRPR and designates the level of endangerment by a 1 to 3 ranking, with 1 being the most endangered and 3 being the least endangered, as follows:

- 0.1 – Seriously threatened in California (high degree/immediacy of threat)
- 0.2 – Moderately threatened in California (moderate degree/immediacy of threat)
- 0.3 – Not very threatened in California (low degree/immediacy of threats or no current threats known)



4 Methods

4.1 Literature and Database Review

Biological resource data from the Hidden Hills Solar Project, a proposed Project with a development footprint overlapping the current Project's Development Area, was reviewed. According to the biological resources section of the Application for Certification, several special-status plant and animal species were observed during the fall 2010 and spring 2011 surveys, including eight CRPR-ranked plant species and 10 wildlife species, which include desert tortoise (*Gopherus agassizii*) and burrowing owl (*Athene cunicularia*) (Hidden Hills Solar, LLC 2011). At least three species of cactus and 11 species of invasive, non-native plants were also documented during the surveys. Sixty-nine desert ephemeral streams were also mapped within the proposed Hidden Hills Solar Project site.

A query of the CDFW California Natural Diversity Database (CNDDDB) special-status plant and animal records was conducted using the RareFind 5 internet application (CNDDDB 2025). The query consisted of three US Geological Survey quadrangles that include the Project Area (*Calvada Springs, Mound Spring, and Stump Spring*) and eight immediately adjacent in California: *Blackwater Mine, Horse Thief Springs, Nopah Peak, North of Tecopa Pass, Sixmile Spring, Tecopa Pass, Green Monster Mine, and West of Shenandoah Peak* (Appendix E). The results of the CNDDDB query for species occurrences with the Project Area and the surrounding quadrangles within California are included on Figure 4-1. A species list for the Project Area generated from the USFWS Information for Planning and Consultation database was also reviewed (Appendix F). The CNPS Rare Plant Inventory was also queried for all CRPR 1, 2, 3, and 4 species occurring in the same quadrangles included in the CNDDDB query (Appendix G).

Tables with query results for special-status plants, animals, and their potential to occur are included in Section 5 of this report. For the purposes of this report, special-status plant and/or animal species are defined as the following:

- Species listed as rare, threatened, or endangered by the CDFW and protected under CESA
- Species that are proposed for listing by California as threatened or endangered under CESA (14 California Code of Regulations 670.5)
- Species that are listed or proposed for listing as threatened or endangered under FESA
- Species that are recognized as California SSC or watch list (WL) species by the CDFW
- Plant species that meet the criteria for listing, even if not currently included on any list as described in CEQA Guidelines Section 15380[b], [c], and [d]; plants that may meet this definition include the following:
 - Plants ranked as "rare, threatened, or endangered in California" by the CNPS as CRPR 1 or 2 plant species



- Plants that may warrant consideration based on local significance or recent biological information (CEQA Guidelines Section 15380[d]), which may include CRPR 3 (plants about which more information is needed to determine their status) and CRPR 4 (plants of limited distribution)
- Species Fully Protected by CFGC Sections 3511, 4700, 5050, or 5515
- Species located in areas of expressed concern to resource/regulatory agencies or local jurisdictions
- Species included on the CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2025a)
- Plant species covered under the CDNPA listed in Chapter 3, Division 23, of the California Food and Agriculture Code
- Birds protected by the MBTA or CFGC

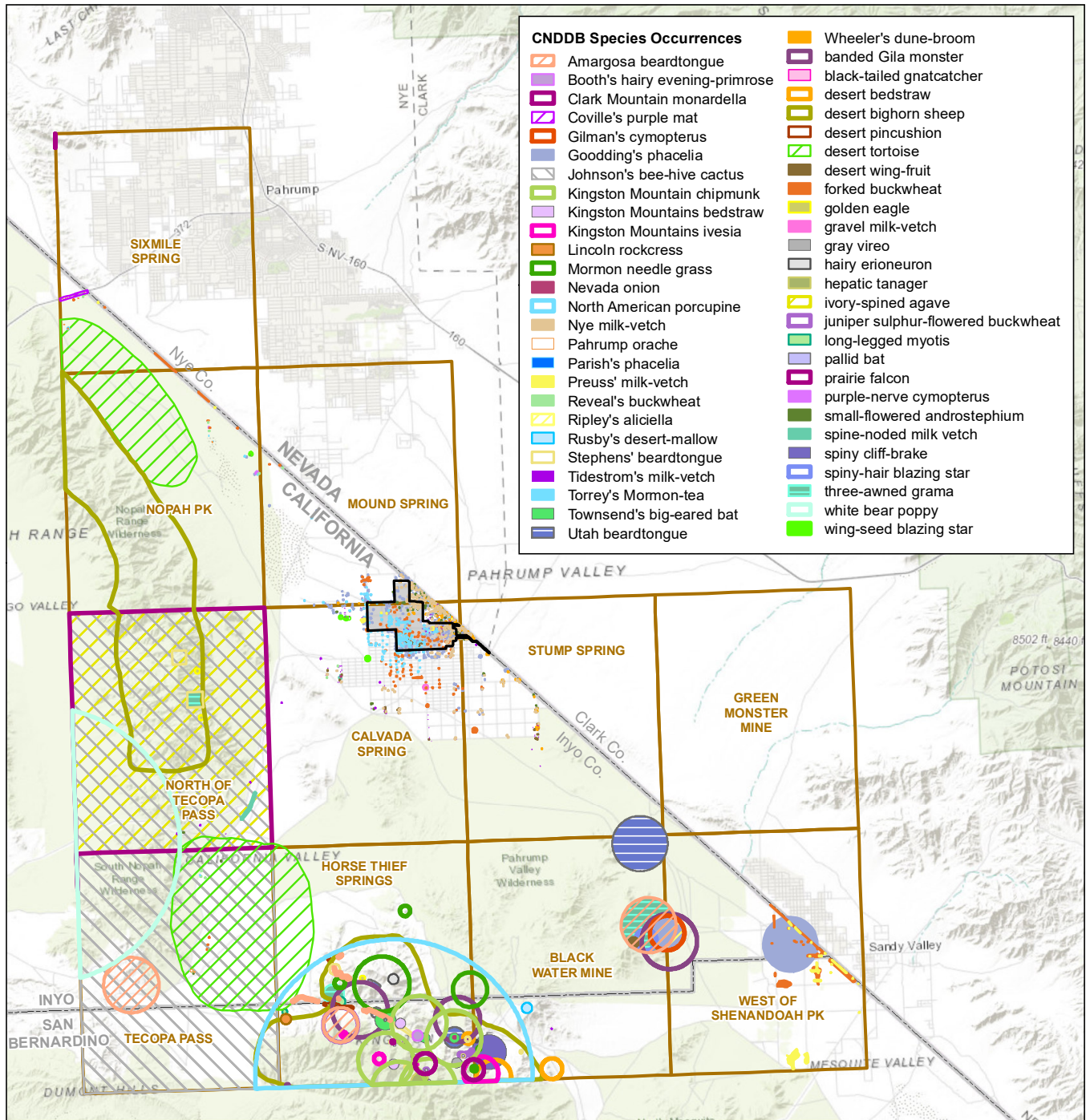
The CDFW designates some natural communities as “sensitive,” which includes natural communities that are rare in the state or throughout its entire range. “Sensitive natural communities,” as defined by the CDFW, are vegetation alliances or associations with a state rarity ranking of S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable). Communities with a state ranking of S4 (apparently secure) or S5 (secure) are not considered sensitive. Sensitive natural communities are not defined by the presence of special-status plant species; they typically contain several native species that together form an assemblage that is considered rare. The CDFW has not yet provided state rarity rankings for all associations. Sensitive natural communities, including associations not yet ranked but considered sensitive, are included in the current CDFW Sensitive Natural Communities List (CDFW 2023).

Additional data regarding the potential occurrence of special-status species and policies relating to these special-status natural resources were gathered from the following sources:

- Natural Community Conservation Plans/Habitat Conservation Plans (CDFW 2024a)
- Inventory of Rare and Endangered Vascular Plants of California (CNPS 2025a)
- USFWS Information for Planning and Consultation (USFWS 2024a; Appendix F)¹

¹. Per the July 15, 2025, Department of Interior memo titled Departmental Review Procedures for Decisions, Actions, Consultations, and other Undertakings Related to Wind and Solar Energy Facilities, this Project is not eligible to use the USFWS Information for Planning and Consultation website. For the purposes of this report, the site was used for informational purposes only, not as formal consultation with the USFWS.





CNDDDB Species Occurrences

- Amargosa beardtongue
- Booth's hairy evening-primrose
- Clark Mountain monardella
- Coville's purple mat
- Gilman's cymopterus
- Goodding's phacelia
- Johnson's bee-hive cactus
- Kingston Mountain chipmunk
- Kingston Mountains bedstraw
- Kingston Mountains ivesia
- Lincoln rockcress
- Mormon needle grass
- Nevada onion
- North American porcupine
- Nye milk-vetch
- Pahrump orache
- Parish's phacelia
- Preuss' milk-vetch
- Reveal's buckwheat
- Ripley's aliciella
- Rusby's desert-mallow
- Stephens' beardtongue
- Tidestrom's milk-vetch
- Torrey's Mormon-tea
- Townsend's big-eared bat
- Utah beardtongue

- Wheeler's dune-broom
- banded Gila monster
- black-tailed gnatcatcher
- desert bedstraw
- desert bighorn sheep
- desert pincushion
- desert tortoise
- desert wing-fruit
- forked buckwheat
- golden eagle
- gravel milk-vetch
- gray vireo
- hairy erioneuron
- hepatic tanager
- ivory-spined agave
- juniper sulphur-flowered buckwheat
- long-legged myotis
- pallid bat
- prairie falcon
- purple-nerve cymopterus
- small-flowered androstephium
- spine-noded milk vetch
- spiny cliff-brake
- spiny-hair blazing star
- three-awned grama
- white bear poppy
- wing-seed blazing star



- Project Area
- CNDDDB Query Area (USGS Quads)
- Area of Development

0 2.5 5 miles
1:350,000
(At original document size of 8.5x11)



Project Location
Inyo County, CA

Prepared by PG on 2025-11-04
TR by DA on 2025-11-04

Client/Project

174 Power Global Corp.
Bonanza Peak Solar Project

185706575

Figure No.
4-1

Title
**Species Occurrences within the
California Natural Diversity
Database (CNDDDB) Query Area**

Notes

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
2. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

4.2 Field Surveys Conducted

4.2.1 Wetlands and Other Waters

Two aquatic resource delineations (ARDs) have been conducted for the Project. The initial ARD was conducted for the Project by a team of Stantec Consulting Services Inc. (Stantec) biologists from September 30 to October 3, 2024, and an accompanying aquatic resources delineation report (ARDR) was drafted. The 2024 ARD study area covered 2,558.2 acres, equivalent to the Project development area at that time plus a 200-foot buffer. However, since the 2024 ARD, the Project Area has been adjusted to include generation tie-in areas and an access route to the nearest state highway. The 2025 ARD study area covered an additional 150.2 acres, for a total ARD survey area of 2,708.4 acres, and the ARDs were conducted by Stantec biologists in May and June of 2025.

The purpose of the ARDs was to inform Project permitting of aquatic resources for the following jurisdictions:

- US Army Corps of Engineers (USACE), pursuant to Section 404 of the CWA and the Amended 2023 Final Rule
- Lahontan RWQCB, pursuant to the state's Porter-Cologne Water Quality Control Act (California Water Code, Chapter 2, Section 13050) and/or Section 401 of the CWA
- CDFW, pursuant to Section 1600 of the CFGC

The ARD followed the routine determination method given in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the revised procedures in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a). In addition, "other waters" were delineated based on indicators of an ordinary high water mark. The ordinary high water mark was determined using the approach outlined in *A Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the United States* (USACE 2008b). For the 2024 ARD, the US Environmental Protection Agency's *User Manual for a Beta Streamflow Duration Assessment Method for the Arid West of the United States* (Mazor et al. 2023) was also followed to gather additional data to support regime determinations; the updated final October 2024 manual was used during the 2025 field work (Mazor et al. 2024). The USACE *Delineating Playas in the Arid Southwest: A Literature Review* was also referenced (USACE 2001). Finally, the California Energy Commission and CDFW's Mapping Episodic Stream Activity (Brady and Vyverberg 2013) protocol was also followed.

Both surveys were conducted on foot, and all aquatic resources found onsite were mapped and documented. The field teams visited locations of features mapped in the 3D National Hydrography Dataset and/or National Wetlands Inventory database while traversing the study area to document presence or absence of the features. Data were collected to a sufficient level of detail to inform the jurisdictional assessment for each relevant regulatory agency on a by-feature basis.



The results of both years' survey efforts have been incorporated into a revised ARDR (Appendix B) and are discussed in Section 5 of this report.

4.2.2 Botanical Resources

Stantec conducted a protocol-level floristic survey over two survey periods to correlate with the blooming periods of the species identified in the desktop review (CNPS 2001; CDFW 2018a). The first round of surveys for the field assessment was conducted April 27 to May 2 and May 5 to May 9, 2025; the second round was conducted August 4 to 8 and August 11 to 14, 2025. The botanical survey area included 2,708.4 acres of contiguous parcels divided into 0.5- by 0.5-mile sections, and each section was divided into transects approximately 300 feet wide. The survey area associated with the gen-tie and access route was divided into transects as appropriate. Per CDFW/CNPS guidelines, all areas were meandered on foot, ensuring as close to 100 percent visual coverage as possible; intuitive control was used to adjust meander widths as appropriate. Plant species identification and nomenclature followed the Jepson eFlora (2025). The treatment for the genus *Ephedra* in the Jepson eFlora does not currently include *E. torreyana* (Torrey's ephedra), the *Ephedra* treatment from the *Flora of North America North of Mexico* (FNANM) was used to key out all ephedras within the botanical survey area (Stevensen 2021). Stantec botanists sampled vegetation cover and mapped vegetation communities and land cover types in Field Maps within the survey area during both survey visits. After completion of field work, vegetation was classified using the MCV (CNPS 2025b). Each vegetation association was checked for sensitivity against the CDFW Natural Community List (CDFW 2025b).

To the extent practicable, nearby reference populations of special-status plant species were visited to determine whether the species was identifiable at the time of the survey. Reference sites were visited on April 27, May 8, and August 4, 2025. Complete survey details including full field methods, reference site visits, survey personnel, and photographs are in the *Botanical Resources Survey Report* (Appendix D).

Noxious weed locations were also mapped, including general counts and phenology. For the purposes of the botanical survey, noxious weeds are defined as those rated by the California Invasive Plant Council (Cal-IPC) as High on the current list (Cal-IPC 2025) and/or species included on the California Department of Food and Agriculture's (CDFA's) Weed Pest Rating list (CDFA 2021) or listed as a noxious weed in the California Code of Regulations (CCR) Section 4500.

4.2.3 Special Status Wildlife

4.2.3.1 DESERT TORTOISE

Three desert tortoise surveys have been conducted for the Project. All three surveys were conducted under the direction of an authorized desert tortoise biologist, using USFWS guidance and protocol, to determine presence or absence of desert tortoise, estimate the number of tortoises by age class, and estimate the density of desert tortoises.



The first survey was conducted by biologists from Ironwood Consultants, a Stantec subconsultant, October 15 to 24, 2020 (Ironwood 2021); it covered 3,100 acres and included the 2,783-acre Project footprint at that time as well as a 150-foot perimeter buffer (excluding private land areas) and 4.8 kilometers of access roads. The second survey was conducted by Stantec biologists May 20 to 25, 2024 (Stantec 2024); it covered 580.6 acres and surveyed an area just south of the area surveyed by the Ironwood Consultants biologists, encompassing an addition to the Project footprint. The third survey was conducted by Allied Pacific Partners, LLC, biologists April 20, 22, 23-26, 29-30 and May 1-3, 6-10, 13-17, and 20-28, 2025 (Appendix H); it covered 2,452 acres, encompassing the current 2,400-acre Development Area and the 52 acres that covers the gen-tie corridors and access roads.

During the surveys, biologists walked pedestrian transects spaced ten meters apart adjusting for sighting distance and topography, to achieve 100 percent coverage of the area. They searched for and recorded all signs of desert tortoise including live individuals, scat, burrows, tracks, skeletons, or eggshell fragments using submeter accuracy GPS devices. The 2020 survey also documented presence and potential habitat for burrowing owl (*Athene cunicularia*), American badger (*Taxidea taxus*), and desert kit fox (*Vulpes macrotis arsipus*). During the 2020 and 2024 surveys, observations and sign of common wildlife and plant species were also recorded. These surveys were conducted in accordance with the USFWS protocol in Preparing for Any Action that May Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*) (USFWS 2019).

4.2.3.2 BURROWING OWL

A habitat assessment and breeding season protocol surveys for western burrowing owl were conducted by Stantec biologists between March 10 and June 19, 2025 (Appendix C). The surveys were conducted in accordance with CDFW guidelines (CDFW 2012). The objective of the surveys was to determine the presence or absence of the species and, if present, to record breeding activity within the survey area.

The survey area included the Project's proposed 2,400-acre Development Area, the 52 acres that covers the gen-tie corridors and access roads, and a 500-foot buffer extending outward from the Development Area. The surveys were conducted by walking parallel transects roughly 10 meters apart, accounting for topography and sighting distance, through all potential habitat identified by desktop analysis and previous reports.

The habitat assessment, conducted within the survey area concurrently with the first breeding season survey in March 2025, verified the presence of potential habitat within the survey area. Historic burrow observations were visited and verified. Potential burrows were identified, which are defined as burrows or burrow surrogates greater than 11 centimeters in diameter (height and width) and greater than 150 centimeters in depth (Johnson et al. 2010). The vicinity of each potential burrow was searched for burrowing owl activity or sign at each survey event. If determined potentially active, burrows were revisited by Stantec biologists and observed for a longer duration to determine occupation and breeding status. Some areas within the 500-foot buffer were not surveyed due to access restrictions, and instead, were viewed from a distance using binoculars and spotting scopes.



5 Results

5.1 Habitats and Natural Communities

Eleven MCV vegetation alliances and land cover types were mapped within the survey area, 9 of which were further broken down into 18 associations (Table 5-1). One alliance, *Halogeton glomeratus* Sparsely Vegetated Clay Flat (saltlover flat) is not in the MCV, was not assigned an association, and was described for the purposes of this Project. The most abundant MCV vegetation alliance within the survey area is shadscale scrub (912.2 acres), followed by *Larrea tridentata* – *Ambrosia dumosa* Shrubland Alliance (creosote bush – white bursage scrub) (617.5 acres); together, these two alliances account for more than half of the survey area. Of the 18 MCV vegetation associations, 5 (407.4 acres) are considered sensitive natural communities by the CDFW.

The survey area is located in or adjacent to energy infrastructure and developments, Bureau of Land Management lands that have been used for recreational vehicles, and highway corridors. Some of the vegetation within the survey area is highly disturbed by human activity and has been impacted by grading, grazing, and alteration of hydrology. Because of the historical, varying, and ongoing disturbance within and surrounding the survey area, the vegetation communities support a high number of non-native and invasive species such as *Halogeton glomeratus* (saltlover), *Salsola tragus* (Russian thistle), and other non-native grasses and forbs. Representative photographs of vegetation and a map with vegetation communities can be found in the *Botanical Resources Survey Report* (Appendix D).

Table 5-1. Manual of California Vegetation and Land Cover Types Mapped within the Survey Area

Code	Alliance Association(s)	Sensitive?	Acres
Herbaceous			
22.310.00	<i>Chorizanthe rigida</i> – <i>Geraea canescens</i> Desert Pavement Sparsely Vegetated Alliance (Rigid Spineflower – Hairy Desert Sunflower)	–	65.0
33.380.01	<i>Chorizanthe rigida</i> – <i>Geraea canescens</i> Desert Pavement	Y	65.0
N/A	<i>Halogeton glomeratus</i> Sparsely Vegetated Clay Flat (Saltlover Flat) ¹	N	17.4
41.100.00	<i>Sphaeralcea ambigua</i> Herbaceous Alliance (Desert Globemallow Herbaceous Scrub)	–	195.7
41.100.01	<i>Sphaeralcea ambigua</i>	N	195.7
<i>Herbaceous Subtotal</i>			278.1
Shrub			
33.200.00	<i>Ambrosia salsola</i> – <i>Bebbia juncea</i> Shrubland Alliance (Cheesebush – Sweetbush Scrub)	–	27.9



Code	Alliance Association(s)	Sensitive?	Acres
33.200.04	<i>Ambrosia salsola</i> – <i>Atriplex confertifolia</i>	N	26.3
33.200.08	<i>Senna armata</i> – <i>Ambrosia salsola</i>	N	1.6
33.060.00	<i>Atriplex canescens</i> Shrubland Alliance (Fourwing Saltbush Scrub)	–	23.7
33.060.02	<i>Atriplex canescens</i>	N	23.7
36.320.00	<i>Atriplex confertifolia</i> Shrubland Alliance (Shadscale Scrub)	–	912.2
36.320.03	<i>Atriplex confertifolia</i> – <i>Ambrosia dumosa</i>	N	727.7
36.320.06	<i>Atriplex confertifolia</i> – <i>Atriplex canescens</i>	N	61.3
36.320.07	<i>Atriplex confertifolia</i> – <i>Lycium andersonii</i>	Y	123.2
36.310.00	<i>Ambrosia dumosa</i> Shrubland Alliance (White Bursage Scrub)	–	24.5
36.310.01	<i>Ambrosia dumosa</i> Association	Y	24.5
33.185.00	<i>Ephedra nevadensis</i> – <i>Lycium andersonii</i> – <i>Grayia spinosa</i> Shrubland Alliance (Nevada Joint Fir – Anderson's Boxthorn – Spiny Hop Sage Scrub)	–	328.0
33.360.02	<i>Lycium andersonii</i> (provisional)	Y	194.7
33.185.01	<i>Lycium cooperi</i> (provisional)	N	124.6
33.280.04	<i>Ephedra nevadensis</i> – <i>Lycium andersonii</i>	N	8.7
33.010.00	<i>Larrea tridentata</i> Shrubland Alliance (Creosote Bush Scrub)	–	419.9
33.140.04	<i>Larrea tridentata</i>	N	223.4
33.010.17	<i>Larrea tridentata</i> – <i>Atriplex confertifolia</i>	N	182.4
33.010.19	<i>Larrea tridentata</i> / Cryptogamic crust	N	14.1
33.140.00	<i>Larrea tridentata</i> – <i>Ambrosia dumosa</i> Shrubland Alliance (Creosote Bush – White Bursage Scrub)	–	617.5
33.140.42	<i>Larrea tridentata</i> – <i>Ambrosia dumosa</i>	N	543.4
33.140.39	<i>Larrea tridentata</i> – <i>Ambrosia dumosa</i> - <i>Atriplex confertifolia</i>	N	35.2
33.140.35	<i>Larrea tridentata</i> – <i>Ambrosia dumosa</i> / Cryptogamic crust	Y	38.9
<i>Shrub Subtotal</i>			<i>2,353.7</i>
Other			
N/A	Developed	–	76.6
	Dirt Road	N	72.4
	Rural	N	4.2
Total			2,708.4

¹. Vegetation community is not currently described in the MCV and therefore not included in the CDFW's Natural Community List.



5.1.1 Herbaceous

5.1.1.1 **CHORIZANTHE RIGIDA – GERAEEA CANESCENS DESERT PAVEMENT SPARSELY VEGETATED ALLIANCE (RIGID SPINEFLOWER – HAIRY DESERT SUNFLOWER)**

The *Chorizanthe rigida* – *Geraea canescens* Desert Pavement Sparsely Vegetated Alliance (rigid spineflower – hairy desert sunflower) covers a total of 65.0 acres and is concentrated in the southern portion the survey area in scattered patches of desert pavement. Desert pavement observed in the survey area ranged from tightly packed rock fragments and cobble to more loosely aggregated fragments and cobble in a silty-sand matrix. The rock fragments and cobble are characteristically covered in a darker coating of desert varnish.

There is a noticeable decrease in vegetative ground cover within the desert pavement locations, with cover as low as 1 percent. Within the survey area, much of the cover included saltlover, a noxious weed. Characteristic species found within this alliance include *Chorizanthe rigida* (rigid spineflower), Russian thistle, and *Eriogonum* ssp. (buckwheats) as well as scant shrub species including *Ambrosia dumosa*, (white bursage), *Lycium cooperi* (Cooper's box thorn), and *Larrea tridentata* (creosote bush). No living rigid spineflower were observed during the surveys, but many senesced individuals from the previous year were observed within the area. The following MCV association within this vegetation alliance was observed and mapped onsite; the association is considered a sensitive natural community by the CDFW, designated by an asterisk (*) below and in the alliance descriptions that follow in this section:

Chorizanthe rigida – *Geraea canescens* Desert Pavement*

5.1.1.2 **HALOGETON GLOMERATUS SPARSELY VEGETATED CLAY FLAT (SALTLOVER FLAT)**

The *Halogeton glomeratus* Sparsely Vegetated Clay Flat (saltlover flat) covers 17.4 acres and is generally located in the western portion of the survey area in patchy clay flats. This alliance is dominated by saltlover along with large areas of bare, hard-packed clay. This alliance is not described in the MCV but was repeatedly observed within the survey area. Due to the lack of native species observed, this alliance is likely not considered a sensitive natural community by the CDFW.

5.1.1.3 **SPHAERALCEA AMBIGUA HERBACEOUS ALLIANCE (DESERT GLOBEMALLOW HERBACEOUS SCRUB)**

The *Sphaeralcea ambigua* Herbaceous Alliance (desert globemallow herbaceous scrub) covers a total of 195.7 acres and is generally concentrated in the northeast-central portion of the survey area. It occurs in areas that are visibly disturbed from a past sheet flood event, most likely caused by Hurricane Hilary in 2023. This vegetation community is dominated by native forbs including *Sphaeralcea ambigua* (desert globemallow), *Sphaeralcea angustifolia* (narrow-leaved globemallow), *Hoffmannseggia glauca* (pig-nut), *Astragalus lentiginosus* var. *fremontii* (Fremont's milk-vetch), and non-native annuals such as Russian



thistle and saltlover. The following MCV association within this vegetation alliance was observed and mapped onsite; the CDFW does not consider it a sensitive natural community:

Sphaeralcea ambigua spp.

5.1.2 Shrub

5.1.2.1 **AMBROSIA SALSOLA – BEBBIA JUNCEA SHRUBLAND ALLIANCE (CHEESEBUSH – SWEETBUSH SCRUB)**

The *Ambrosia salsola* – *Bebbia juncea* Shrubland Alliance (cheesebush – sweetbush scrub) covers a total of 27.9 acres and occurs at the western edge of the survey area. This alliance is dominated by *Ambrosia salsola* (cheesebush), *Atriplex confertifolia* (shadscale), *Senna armata* (desert senna), and white bursage. Herbaceous species such as prince's plume (*Stanleya pinnata*), desert globemallow, pig-nut, saltlover, and Russian thistle were also observed. The following MCV associations within this vegetation alliance were observed and mapped onsite; neither is considered a sensitive natural community by the CDFW:

Ambrosia salsola – *Atriplex confertifolia*
Senna armata – *Ambrosia salsola*

5.1.2.2 **ATRIPLEX CANESCENS SHRUBLAND ALLIANCE (FOURWING SALTBUCH SCRUB)**

The *Atriplex canescens* Shrubland Alliance (fourwing saltbush scrub) covers a total of 23.7 acres and is located in two stands on the east-central edge of the survey area. Fourwing saltbush is dominant in this alliance, with white bursage present in a lesser amount. Observed herbaceous species include saltlover, desert globemallow, and senesced non-native annual grasses from the 2024 season that were not identifiable. The following MCV association within this vegetation alliance was observed and mapped onsite; the CDFW does not consider it a sensitive natural community:

Atriplex canescens

5.1.2.3 **ATRIPLEX CONFERTIFOLIA SHRUBLAND ALLIANCE (SHADSCALE SCRUB)**

The *Atriplex confertifolia* Shrubland Alliance (shadscale scrub) covers 912.2 acres and is the most abundant vegetation alliance within the survey area. Shadscale scrub dominates the central to western portion of the survey area. Within the alliance, shadscale is co-dominant in this alliance with *Lycium andersonii* (Anderson thornbush), white bursage, and creosote bush. Additional shrub species that were consistently present include Cooper's box thorn and cheesebush. Observed herbaceous species include saltlover, desert globemallow, and prince's plume. The following MCV associations within this vegetation alliance were observed and mapped onsite; one association is considered a sensitive natural community by the CDFW:



Atriplex confertifolia – *Ambrosia dumosa*
Atriplex confertifolia – *Atriplex canescens*
Atriplex confertifolia – *Lycium andersonii**

5.1.2.4 **AMBROSIA DUMOSA SHRUBLAND ALLIANCE (WHITE BURSAGE SCRUB)**

The *Ambrosia dumosa* Shrubland Alliance (white bursage scrub) covers a total of 24.5 acres and is in six scattered patches along the central section of the survey area. Three stands of this alliance were growing on desert pavement, and all stands are dominated by white bursage. Non-native forbs such as Russian thistle and saltlover were also present. One MCV association within this vegetation alliance was observed and mapped onsite and is considered a sensitive natural community by the CDFW:

Ambrosia dumosa Association*

5.1.2.5 **EPHEDRA NEVADENSIS – LYCIUM ANDERSONII – GRAYIA SPINOSA SHRUBLAND ALLIANCE (NEVADA JOINT FIR – ANDERSON’S BOXTHORN – SPINY HOP SAGE SCRUB)**

The *Ephedra nevadensis* – *Lycium andersonii* – *Grayia spinosa* Shrubland Alliance (Nevada joint fir – Anderson’s boxthorn – spiny hop sage scrub) covers a total of 328.0 acres and is concentrated in the southwest corner plus a large stand in the center of the survey area that extends to the west and one in the north. This alliance is co-dominated by *Ephedra nevadensis* (Nevada ephedra), Anderson thornbush, and Cooper’s box thorn. Other shrub species such as creosote, Death Valley ephedra, cheesebush, and white bursage were also observed. Observed herbaceous species include *Lepidium fremontii* (desert pepper grass), saltlover, prince’s plume, rigid spineflower, and desert globemallow. The following MCV associations within this vegetation alliance were observed and mapped onsite; one association is considered a sensitive natural community by the CDFW:

Lycium andersonii (provisional)*
Lycium cooperi (provisional)
Ephedra nevadensis – *Lycium andersonii*

5.1.2.6 **LARREA TRIDENTATA SHRUBLAND ALLIANCE (CREOSOTE BUSH SCRUB)**

The *Larrea tridentata* Shrubland Alliance (creosote bush scrub) covers 419.9 acres and is located along the eastern side of the survey area, where it is interspersed with creosote bush – white bursage scrub. Creosote bush dominates this alliance along with burro weed and Cooper’s box thorn. Herbaceous species observed include saltlover, Russian thistle, and desert globemallow. The following MCV associations within this vegetation alliance were observed and mapped onsite; they are not considered sensitive natural communities by the CDFW:

Larrea tridentata
Larrea tridentata – *Atriplex confertifolia*
Larrea tridentata / Cryptogamic crust



5.1.2.7 ***LARREA TRIDENTATA – AMBROSIA DUMOSA SHRUBLAND ALLIANCE*** **(CREOSOTE BUSH – WHITE BURSAGE SCRUB)**

Creosote bush – white bursage scrub covers 617.5 acres and is the second-most abundant vegetation alliance within the survey area. It is located on the eastern side of the survey area. Creosote bush and white bursage are characteristically co-dominant along with shadscale and *Atriplex polycarpa* (allscale saltbush). Herbaceous species found within mapped occurrences of this alliance include saltlover, pig-nut, and desert globemallow. The following MCV associations within this vegetation alliance were observed and mapped onsite; one association is considered a sensitive natural community by the CDFW:

Larrea tridentata – *Ambrosia dumosa*

Larrea tridentata – *Ambrosia dumosa* – *Atriplex confertifolia*

Larrea tridentata – *Ambrosia dumosa* / Cryptogamic crust*

5.1.3 Other

5.1.3.1 DEVELOPED

Developed areas total 76.6 acres within the survey area and include a gridded dirt road system as well as an area on the east side that is used as a junkyard.

5.2 Noxious Weeds

Four annual noxious weed species were detected in the survey area. These species are listed by Cal-IPC as High, included on the CDFA Weed Pest Rating list, and/or listed as a noxious weed in CCR Section 4500. Noxious weeds are present in most of the botanical survey area, facilitated by historical and ongoing disturbance. All but a few observations were of plants from the 2024 growing season; very few appeared to have germinated in the 2025 growing season. In areas where noxious weeds were not observed, it is likely that they lie dormant in the seed bank and would be detectable in years outside current drought conditions. In addition, there are likely significantly more *Bromus rubens* (red brome) and *Bromus tectorum* (cheat grass) because all those detected were from 2024 and only detectable because they were under larger plants shielded from being blown away. A summary of species is included in Table 5-2; a figure with locations of noxious weeds can be found in the *Botanical Resources Survey Report* (Appendix D).

Table 5-2. Summary of Noxious Weeds Observed within the Survey Area

Scientific Name (common name)	Status ¹	Population Estimate
Chenopodiaceae (Goosefoot Family)		
<i>Halogeton glomeratus</i> (saltlover)	Cal-IPC M, CDFA B*	More than 1 million



Scientific Name (common name)	Status¹	Population Estimate
<i>Salsola tragus</i> (Russian thistle)	Cal-IPC L, CDFA C	200,000
Poaceae (Grass Family)		
<i>Bromus rubens</i> (red brome)	Cal-IPC H, –	5,000
<i>Bromus tectorum</i> (cheat grass)	Cal-IPC H, CDFA C	3,000

¹. Status Codes:

California Invasive Plant Council (Cal-IPC):

Low (L)

Moderate (M)

High (H)

California Department of Food and Agriculture (CDFA):

B: A pest of known economic or environmental detriment, and if present in California, it is of limited distribution

C: A pest of known economic or environmental detriment, and if present in California, it is usually widespread

*: Included on the California Code of Regulations Section 4500 list of California state noxious weeds

5.3 Wetlands and Other Waters

5.3.1 Survey Results

During the 2024 and 2025 ARD, 69 aquatic resources were mapped within the surveyed portion of the Project Area and assessed for potential jurisdiction under USACE, RWQCB, and CDFW. These resources consisted of 64 ephemeral drainages and drainage segments and five watercourses/active floodplains. All resources mapped as CDFW watercourses via the Mapping Episodic Stream Activity protocol were also considered USACE floodplain systems (i.e., compound systems with channel[s] associated with a floodplain) with co-located boundaries. No riparian vegetation, wetlands, seeps, playas, or springs were found in the study area.

All 69 resources were determined to be ephemeral and therefore likely not under the jurisdiction of USACE. In addition, the Project Area is located within a closed basin, and none of the delineated resources have a surface connection to a traditional navigable water, further supporting a determination of no jurisdiction under USACE. A previously issued USACE Approved Jurisdictional Determination (SPK-2024-00318, July 24, 2024) for an unrelated Project within the same watershed supports these findings.

All 69 resources potentially fall under the jurisdiction of both CDFW and the RWQCB. The ARDR further details the characteristics associated with the aquatic features. The results of the ARD are considered preliminary until USACE, RWQCB, and CDFW provide verification. Detailed results of the ARD are



included in the *Bonanza Peak Solar Project: Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment* (Appendix B).

5.4 Designated Critical Habitat and Areas of Conservation Emphasis

5.4.1 Designated Critical Habitat

According to the USFWS Environmental Conservation Online System, which depicts DCH for threatened and endangered species, no DCH for desert tortoise or any other listed species is present in the survey area (USFWS 2024b).

5.4.2 Areas of Conservation Emphasis

Linkages and corridors facilitate regional animal movement and are generally centered within waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Movement, including day-to-day movements of individuals seeking food, shelter, or mates, dispersal of offspring to find new homes, or seasonal migration to find favorable conditions, is essential for the individual fitness of wildlife. Further, it promotes genetic diversity in populations, recolonization of unoccupied habitat after a local population goes extinct, and geographic range shifts in response to global climate change. Disruption of these natural movement patterns by roads, development, or other impediments can alter these essential ecosystem functions and lead to losses of species and critical environmental services.

CDFW's Biographic Information and Observation System (BIOS) Habitat Connectivity Viewer displays both Interstate Connections – California Essential Habitat Connectivity and Areas of Terrestrial Connectivity – Areas of Conservation Emphasis (ACE). The ACE dataset is a compilation and analysis of statewide spatial information in California on biodiversity, rarity and endemism, harvested species, significant habitats, connectivity and wildlife movement, climate vulnerability, climate refugia, and other relevant data (e.g., other conservation priorities such as those identified in the State Wildlife Action Plan, stressors, land ownership). The model addresses as many of CDFW's statewide conservation and recreational mandates as feasible using high-quality data sources (CDFW 2024b).

According to the CDFW BIOS Habitat Connectivity Viewer, the Project Area is located within a CDFW-designated ACE (CDFW 2024b). Three separate model rankings of 2.5-square-mile hexagon grid data are visible within the Project Area, including ACE Rank 1 (Limited Connectivity Opportunity), ACE Rank 3 (Connections with Implementation Flexibility), and ACE Rank 5 (Irreplaceable and Essential Corridors). ACE Rank 5 includes channelized areas as identified in The Nature Conservancy's Omniscape model and priority species movement corridors. The Nature Conservancy-mapped channelized areas are those areas where surrounding land use and barriers are expected to funnel, or concentrate, animal movement. Channelized areas may represent the last available connection(s) between two areas, making them a



high priority for conservation. Further descriptions of the information contained in the dataset of the rankings are included the ACE Dataset Fact Sheet (CDFW 2024c).

The biodiversity scores are based on species distribution and occurrence data from CNDDDB and were not adjusted based on the level of urbanization or disturbance present (CDFW 2018b); thus, any grid area may contain pockets of natural habitat that may support native, rare, or endemic species and the survey data is not uniform across the landscape. Isolated populations of rare species with restricted distributions in disturbed areas can result in high irreplaceability scores in those locations (CDFW 2018b). In the case of the Project Area, the documented large numbers of rare species occurrences may be due in part to the intensity of survey effort in the general vicinity of the Project Area, and not necessarily implicative of uniqueness or high quality of the area as an Irreplaceable and Essential Corridor.

5.5 Special Status Plants

5.5.1 Potential to Occur

The CNDDDB and CNPS Rare Plant Inventory queries returned 50 special status plant species within the queried quads as having potential to occur (Appendix E; Appendix G). None of the species are state or federally-listed species. Based on the review of existing information, species habitat requirements, and habitat characteristics present in the botanical survey area, 30 of the 50 special-status plant species were determined to have some potential to occur in the botanical survey area and are included in Table 5-3; three species were detected during 2025 surveys; eleven species are considered to have a high potential to occur based upon 2011 and 2013 floristic survey results that are also reported in the CNDDDB (Hidden Hills Solar, LLC 2011). An additional three species are considered to have a high potential to occur based on the CNDDDB query results and presence of suitable habitat. A comprehensive list of all special-status plant species detected during 2025 surveys, including species that were not returned in database queries are included in Table 5-4. The potential for special-status plant species to occur within the Project Area was classified under one of five categories as described below.

- **Present:** The species is known to be present or has been recently observed in the Project Area.
- **High:** The species has been observed and documented within 5 miles of the Project Area and potential habitat for the species is present.
- **Moderate:** The species has not been observed and documented within 5 miles of the Project Area, but potential habitat for the species is present.
- **Low:** The Project is located within the range of the species, but no potential habitat exists in the Project Area and no observations have been made within 5 miles.
- **No Potential:** The Project Area is located outside of the species' elevation range, and/or potential habitat to support the species is not present in the Project Area.



Table 5-3. Special-Status Plant Species Evaluated for the Potential to Occur in the Botanical Survey Area (Including 2025 Survey Results)

<i>Scientific Name</i> (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
Agavaceae (Agave Family)					
<i>Agave utahensis</i> var. <i>eborispina</i> (ivory-spined agave)	—/ —/ 1B.3	perennial leaf succulent	Habitat: Mojavean desert scrub (carbonate, rocky slopes) Elevation Range: 3,100–4,495 feet Bloom Window: May–June	Low. This species was observed within 5 miles of the survey area. However, the observation is from 1979 with low location accuracy. Suitable vegetation is present within the survey area, but rocky, carbonate slopes are not.	Not detected.
<i>Agave utahensis</i> var. <i>nevadensis</i> (Clark Mountain agave)	—/ —/ 4.2	perennial leaf succulent	Habitat: Joshua tree “woodland”, Mojavean desert scrub, pinyon and juniper woodland; carbonate (sometimes); volcanic (sometimes) Elevation Range: 2,955–5,200 feet Bloom Window: May–July	Low. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present, but the survey area is not within the known elevation range of this species.	Not detected.
Apiaceae (Carrot Family)					
<i>Cymopterus</i> <i>multinervatus</i> (purple-nerve cymopterus)	—/ —/ 2B.2	perennial herb	Habitat: Mojavean desert scrub, pinyon and juniper woodland; gravelly (sometimes), sandy (sometimes) Elevation Range: 2,590–5,905 feet Bloom Window: March–April	High. This species was observed within the survey area in 2011.	Not detected.



Scientific Name (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
Apocynaceae (Dogbane Family)					
<i>Funastrum utahense</i> (Utah vine milkweed)	–/ –/ 4.2/	perennial herb	Habitat: Mojavean desert scrub, Sonoran desert scrub; gravelly (sometimes), sandy (sometimes) Elevation Range: 330–4,710 feet Bloom Window: (March) April–June (September–October)	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.
Asteraceae (Sunflower Family)					
<i>Chaetadelpha wheeleri</i> (Wheeler's dune- broom)	–/ –/ 2B.2	perennial rhizomatous herb	Habitat: Desert dunes, Great Basin scrub, Mojavean desert scrub; sandy Elevation Range: 2,610–6,235 feet Bloom Window: April–September	High. This species was observed within the survey area in 2011.	Not detected.
Boraginaceae (Borage Family)					
<i>Johnstonella holoptera</i> (winged cryptantha)	–/ –/ 4.3	annual herb	Habitat: Mojavean desert scrub, Sonoran desert scrub Elevation Range: 330–5,545 feet Bloom Window: March–April	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.
Cactaceae (Cactus Family)					
<i>Escobaria chlorantha</i> (desert pincushion)	–/ –/ 2B.1	perennial stem succulent	Habitat: Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland; carbonate, gravelly, rocky Elevation Range: 150–5,595 feet Bloom Window: April–September	Low. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present within the survey area, but carbonate soils are not.	Not detected.



Scientific Name (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
<i>Sclerocactus johnsonii</i> (Johnson's bee- hive cactus)	—/ —/ 2B.2	perennial stem succulent	Habitat: Mojavean desert scrub (granitic) Elevation Range: 1,640–3,935 feet Bloom Window: April–May	Low. This species was observed within 5 miles of the survey area. However, the observation is from 1979 with low location accuracy. Suitable vegetation is present within the survey area, but granitic soils are not.	Not detected.
Celastraceae (Staff-Tree Family)					
<i>Mortonia utahensis</i> (Utah mortonia)	—/ —/ 4.3	perennial evergreen shrub	Habitat: Joshua tree “woodland”, Mojavean desert scrub, pinyon and juniper woodland; carbonate Elevation Range: 2,495–6,890 feet Bloom Window: March–May	Low. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present within the survey area, but carbonate soils are not.	Not detected.
Chenopodiaceae (Goosefoot Family)					
<i>Atriplex argentea</i> var. <i>longitrichoma</i> (Pahrump orache)	—/ —/ 1B.1	annual herb	Habitat: Mojavean desert scrub; alkaline, disturbed areas, roadsides Elevation Range: 2,100–2,790 feet Bloom Window: April–May	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.
Ephedraceae (Ephedra Family)					
<i>Ephedra torreyana</i> (Torrey's Mormon- tea)	—/ —/ 2B.1	perennial evergreen shrub	Habitat: Great Basin scrub; valley bottoms, silt Elevation Range: 2,510–2,660 feet Bloom Window: May	High. This species was observed within the survey area in 2011 and 2020.	Present. Eight hundred seventy-four individuals were detected in the survey area.



Scientific Name (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
Fabaceae (Legume Family)					
<i>Astragalus nutans</i> (Providence Mountains milk- vetch)	—/ —/ 4.3	annual herb	Habitat: Joshua tree “woodland”, Mojavean desert scrub, pinyon and juniper woodland, Sonoran desert scrub; gravelly (sometimes), sandy (sometimes) Elevation Range: 1,475–6,400 feet Bloom Window: March–June (October)	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.
<i>Astragalus nyensis</i> (Nye milk-vetch)	—/ —/ 1B.1	annual herb	Habitat: Mojavean desert scrub; alkaline (sometimes), gravelly, sandy Elevation Range: 2,590–2,675 feet Bloom Window: April–May	High. This species was observed within the survey area in 2011.	Not detected.
<i>Astragalus preussii</i> var. <i>preussii</i> (Preuss’ milk- vetch)	—/ —/ 2B.1	perennial herb	Habitat: Chenopod scrub, Mojavean desert scrub; clay Elevation Range: 2,460–2,640 feet Bloom Window: April–June	High. This species was observed within the survey area in 2011.	Present. Three hundred thirty-seven individuals were detected in the survey area.
<i>Astragalus sabulonum</i> (gravel milk-vetch)	—/ —/ 2B.2	annual/ perennial herb	Habitat: Desert dunes, Mojavean desert scrub, Sonoran desert scrub; flats, gravelly (sometimes), roadsides, sandy (usually), washes Elevation Range: –195 to 3,050 feet Bloom Window: February–June	High. This species was observed within the survey area in 2011.	Not detected.
<i>Astragalus tdestromii</i> (Tidestrom’s milk- vetch)	—/ —/ 2B.2	perennial herb	Habitat: Mojavean desert scrub; carbonate, gravelly (sometimes), sandy (sometimes) Elevation Range: 1,970–5,855 feet Bloom Window: (January) April– July	High. This species was observed within the survey area in 2011.	Present. Nine individuals were detected in the survey area.



Scientific Name (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
<i>Peteria thompsoniae</i> (spine-noded milk- vetch)	—/ —/ 2B.1	perennial herb	Habitat: Mojavean desert scrub (alluvial fans, sandy) Elevation Range: 2,625–2,705 feet Bloom Window: May–June	High. This species has been recently observed within 5 miles of the survey area, and suitable habitat is present.	Not detected.
Hydrophyllaceae (Waterleaf Family)					
<i>Phacelia parishii</i> (Parish's phacelia)	—/ —/ 1B.1	annual herb	Habitat: Mojavean desert scrub, playas; alkaline (sometimes), clay (sometimes) Elevation Range: 1,770–3,935 feet Bloom Window: April–May (June– July)	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.
<i>Phacelia pulchella</i> var. <i>gooddingii</i> (Goodding's phacelia)	—/ —/ 2B.2	annual herb	Habitat: Mojavean desert scrub (clay, often alkaline) Elevation Range: 2,510–3,280 feet Bloom Window: April–June	High. This species was observed within the survey area in 2011.	Not detected.
Loasaceae (Loasa Family)					
<i>Mentzelia pterosperma</i> (wing-seed blazing star)	—/ —/ 2B.2	annual/ perennial herb	Habitat: Mojavean desert scrub; gypseous, clay Elevation Range: 3,740–3,740 feet Bloom Window: April–June	High. This species has been recently observed within 5 miles of the survey area and suitable habitat is present.	Not detected.
<i>Mentzelia tricuspis</i> (spiny-hair blazing star)	—/ —/ 2B.1	annual herb	Habitat: Mojavean desert scrub; gravelly, sandy, slopes, washes Elevation Range: 490–4,200 feet Bloom Window: March–May	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present within the survey area.	Not detected.



Scientific Name (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
Namaceae (Nama Family)					
<i>Nama demissa</i> var. <i>covillei</i> (Coville's purple mat)	—/ —/ 1B.3	annual herb	Habitat: Mojavean desert scrub; dry, flats, roadsides (often), sandy, slopes Elevation Range: ~280 to 5,905 feet Bloom Window: February–May	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.
Nyctaginaceae (Four O'Clock Family)					
<i>Acleisanthes</i> <i>nevadensis</i> (desert wing-fruit)	—/ —/ 2B.1	perennial herb	Habitat: Joshua tree "woodland", Mojavean desert scrub; gravelly, rocky Elevation Range: 2,610–4,100 feet Bloom Window: April–September	High. This species was observed within the survey area in 2011.	Not detected.
Papaveraceae (Poppy Family)					
<i>Arctomecon</i> <i>merriamii</i> (white bear poppy)	—/ —/ 2B.2	perennial herb	Habitat: Chenopod scrub, Mojavean desert scrub; rocky Elevation Range: 1,610–5,905 feet Bloom Window: (March) April–May	Low. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present within the survey area, but rocky soils are not.	Not detected.
Plantaginaceae (Plantain Family)					
<i>Penstemon</i> <i>fruticiformis</i> var. <i>amargosae</i> (Amargosa beardtongue)	—/ —/ 1B.3	perennial herb	Habitat: Mojavean desert scrub Elevation Range: 2,790–4,595 feet Bloom Window: April–June	Low. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present, but the survey area is not within the known elevation range of this species.	Not detected.



<i>Scientific Name</i> (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
Poaceae (Grass Family)					
<i>Bouteloua trifida</i> (three-awned grama)	—/ —/ 2B.3	perennial herb	Habitat: Mojavean desert scrub (carbonate, rocky) Elevation Range: 2,295–6,560 feet Bloom Window: (April) May– September	Low. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present, but carbonate or rocky soils are not.	Not detected.
Polemoniaceae (Phlox Family)					
<i>Aliciella ripleyi</i> (Ripley's aliciella)	—/ —/ 2B.3	perennial herb	Habitat: Mojavean desert scrub (carbonate) Elevation Range: 1,000–6,400 feet Bloom Window: May–July	Low. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present, but carbonate soils are not.	Not detected.
Polygonaceae (Buckwheat Family)					
<i>Eriogonum bifurcatum</i> (forked buckwheat)	—/ —/ 1B.2	annual herb	Habitat: Chenopod scrub (sandy) Elevation Range: 2,115–2660 feet Bloom Window: April–June	High. This species was observed within the survey area in 2011.	Not detected.
<i>Eriogonum contiguum</i> (Reveal's buckwheat)	—/ —/ 2B.3	annual herb	Habitat: Mojavean desert scrub (sandy) Elevation Range: 100–4,330 feet Bloom Window: (February) March– May (June)	High. This species has been recently observed within 5 miles of the survey area, and suitable habitat is present.	Not detected.
Themidaceae (Brodiaea Family)					
<i>Androstephium breviflorum</i> (small-flowered androstephium)	—/ —/ 2B.2	perennial bulbiferous herb	Habitat: Desert dunes, Mojavean desert scrub (bajadas) Elevation Range: 720–2,625 feet Bloom Window: March–April	High. This species was observed within the survey area in 2011.	Not detected.



Scientific Name (common name)	Status: FESA/ CESA/ CRPR¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
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Sources: CNPS 2025a; CNDDDB 2025; Jepson eFlora 2025

¹. Status Codes:

Federal Endangered Species Act (FESA)

California Endangered Species Act (CESA)

CRPR (California Rare Plant Rank) Codes and Extensions:

1B Rare or endangered: plants rare, threatened, or endangered in California and elsewhere, with the majority also being endemic to California

2B Rare or endangered in California: plants rare, threatened, or endangered in California but more common elsewhere

4 Uncommon in California: plants of limited distribution; a watch list

xx.1 Seriously threatened in California

xx.2 Moderately threatened in California

xx.3 Not very threatened in California



5.5.2 Survey Results

A total of 63 plant species were observed during the April/May and August botanical surveys; 4 are considered noxious weeds, 3 are invasive, and the remaining 56 are native species. Of the native species, 8 are special-status; 5 are protected under the CDNPA and three are listed by the CNPS with a CRPR; no federally or state-listed species were detected within the botanical survey area. The three species listed by the CNPS were previously documented in the CNDDDB as occurring within the survey area. A summary of special-status species detections is included in Table 5-4. A complete list of species observed within the survey area is included in Table 5-5. Photographs as well as a map of locations of special-status plants observed within the botanical survey area are included in the *Botanical Resources Survey Report* (Appendix D).

Table 5-4. Summary of Special-Status Plant Species Observed within the Botanical Survey Area

Scientific Name (common name)	Status: FESA/CESA/ CRPR/CDNPA ¹	Number of Plants Observed		
		April/May	August	Total
Agavaceae (Cactus Family)				
<i>Yucca schidigera</i> (Mojave yucca)	–/–/ –/80073	1	–	1
Cactaceae (Cactus Family)				
<i>Cylindropuntia echinocarpa</i> (silver cholla)	–/–/ –/80073	27	27	54
<i>Cylindropuntia ramosissima</i> (pencil cholla)	–/–/ –/80073	2	–	2
<i>Opuntia basilaris</i> var. <i>basilaris</i> (beavertail cactus)	–/–/ –/80073	8	6	14
Ephedraceae (Ephedra Family)				
<i>Ephedra torreyana</i> (Torrey's ephedra)	–/–/ 2B.1/–	805	69	874
Fabaceae (Legume Family)				
<i>Astragalus preussii</i> var. <i>preussii</i> (Preuss' milk-vetch)	–/–/ 2B.1/–	208	129	337
<i>Astragalus tidestromii</i> (Tidestrom's milk-vetch)	–/–/ 2B.2/–	9	–	9
<i>Neltuma odorata</i> (honey mesquite)	–/–/ –/80073	114	38	152



Scientific Name (common name)	Status: FESA/CESA/ CRPR/CDNPA ¹	Number of Plants Observed		
		April/May	August	Total

Sources: CNPS 2025a; CNDDDB 2025; Jepson eFlora 2025

¹ Status Codes:

Federal Endangered Species Act (FESA)

California Endangered Species Act (CESA)

California Rare Plant Rank (CRPR) Codes and Extensions:

1B Rare or endangered: plants rare, threatened, or endangered in California and elsewhere, with the majority also being endemic to California

2B Rare or endangered in California: plants rare, threatened, or endangered in California but more common elsewhere

xx.1 Seriously threatened in California

xx.2 Moderately threatened in California

California Desert Native Plants Act (CDNPA): Section 80073 (80073) plants, or any part thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plants are growing.

Table 5-5. Plant Species Observed within the Botanical Survey Area

Scientific Name	Common Name	Habit	Status ¹
Agavaceae (Agave Family)			
<i>Yucca schidigera</i>	Mojave yucca	tree-like	native, CDNPA
Apocynaceae (Milkweed Family)			
<i>Asclepias erosa</i>	desert milkweed	perennial herb	native
Asteraceae (Sunflower Family)			
<i>Acamptopappus shockleyi</i>	Shockley's goldenhead	shrub	native
<i>Acamptopappus sphaerocephalus</i> var. <i>sphaerocephalus</i>	goldenhead	shrub	native
<i>Ambrosia dumosa</i>	white bursage	shrub	native
<i>Ambrosia salsola</i>	cheesebush	shrub	native
<i>Baileya multiradiata</i>	desert marigold	perennial herb	native
<i>Baileya pleniradiata</i>	wooly marigold	annual, perennial herb	native
<i>Encelia virginensis</i>	Virgin River encelia	shrub	native
<i>Gutierrezia microcephala</i>	sticky snakeweed	shrub (stem succulent)	native
<i>Gutierrezia sarothrae</i>	matchweed	shrub	native
<i>Psilostrophe cooperi</i>	paper flower	shrub	native



Scientific Name	Common Name	Habit	Status ¹
<i>Stephanomeria pauciflora</i>	wire lettuce	perennial herb	native
<i>Tetradymia axillaris</i>	catclaw horsebrush	shrub	native
<i>Xylorhiza tortifolia</i>	Mojave woodyaster	perennial herb	native
Brassicaceae (Mustard Family)			
<i>Lepidium fremontii</i>	desert pepper grass	perennial herb	native
<i>Stanleya pinnata</i> var. <i>pinnata</i>	prince's plume	perennial herb, shrub	native
Cactaceae (Cactus Family)			
<i>Cylindropuntia echinocarpa</i>	silver cholla	shrub (stem succulent)	native, CDNPA
<i>Cylindropuntia ramosissima</i>	pencil cactus	shrub (stem succulent)	native, CDNPA
<i>Opuntia basilaris</i> var. <i>basilaris</i>	beavertail cactus	shrub (stem succulent)	native, CDNPA
Chenopodiaceae (Goosefoot Family)			
<i>Atriplex canescens</i>	fourwing saltbush	shrub	native
<i>Atriplex confertifolia</i>	spiny saltbush	shrub	native
<i>Atriplex polycarpa</i>	allscale saltbush	shrub	native
<i>Halogeton glomeratus</i>	saltlover	annual herb	noxious, Cal-IPC M, CDFA B*
<i>Krascheninnikovia lanata</i>	winter fat	shrub	native
<i>Salsola tragus</i>	Russian thistle	annual herb	noxious, Cal-IPC L, CDFA C
Convolvulaceae (Morning Glory Family)			
<i>Cuscuta denticulata</i>	desert dodder	annual herb, vine (parasitic)	native
Ephedraceae (Ephedra Family)			
<i>Ephedra funerea</i>	Death Valley ephedra	shrub	native
<i>Ephedra nevadensis</i>	Nevada ephedra	shrub	native
<i>Ephedra torreyana</i>	Torrey's ephedra	shrub	rare, CRPR 2B.1
Euphorbiaceae (Spurge Family)			
<i>Euphorbia albomarginata</i>	rattlesnake sandmat	perennial herb	native



Scientific Name	Common Name	Habit	Status ¹
Euphorbiaceae (Spurge Family)			
<i>Astragalus lentiginosus</i> var. <i>fremontii</i>	Fremont's milk-vetch	annual, perennial herb	native
<i>Astragalus preussii</i> var. <i>preussii</i>	Preuss' milk-vetch	perennial herb	rare, CRPR 2B.1
<i>Astragalus tidiestromii</i>	Tidestrom's milk-vetch	perennial herb	rare, CRPR 2B.2
<i>Hoffmannseggia glauca</i>	pig-nut	perennial herb	native
<i>Neltuma odorata</i>	honey mesquite	tree, shrub	native, CDNPA
<i>Psoralea argophylla</i>	Mojave indigo bush	shrub	native
<i>Senna armata</i>	desert senna	shrub	native
Geraniaceae (Geranium Family)			
<i>Erodium cicutarium</i>	coastal heron's bill	annual herb	invasive
Krameriaceae (Rhatany Family)			
<i>Krameria erecta</i>	little-leaved ratany	shrub	native
Malvaceae (Mallow Family)			
<i>Sphaeralcea ambigua</i> var. <i>ambigua</i>	desert globemallow	perennial herb	native
<i>Sphaeralcea angustifolia</i>	narrow-leaved desert mallow	shrub (stem succulent)	native
Onagraceae (Evening Primrose Family)			
<i>Oenothera suffrutescens</i>	linda tarde	perennial herb	native
Plantaginaceae (Plantain Family)			
<i>Plantago ovata</i>	desert plantain	annual herb	native
Poaceae (Grass Family)			
<i>Bromus rubens</i>	red brome	annual grass	noxious, Cal-IPC H
<i>Bromus tectorum</i>	cheat grass	annual grass	noxious, Cal-IPC H, CDFA C
<i>Dasyochloa pulchella</i>	low woolly grass	perennial grass	native
<i>Elymus elymoides</i>	squirrel-tail grass	perennial grass	native
<i>Hilaria rigida</i>	big galleta	perennial grass	native
<i>Schismus arabicus</i>	schismus	annual grass	invasive
<i>Schismus barbatus</i>	old han schismus	annual grass	invasive
<i>Sporobolus airoides</i>	alkali sacaton	perennial grass	native
<i>Stipa hymenoides</i>	rice grass	perennial grass	native



Scientific Name	Common Name	Habit	Status ¹
<i>Stipa speciosa</i>	desert needle grass	perennial grass	native
Polygonaceae (Buckwheat Family)			
<i>Chorizanthe rigida</i>	rigid spineflower	annual herb	native
<i>Eriogonum inflatum</i>	desert trumpet	perennial herb	native
<i>Eriogonum</i> spp.	buckwheat	annual herb	native
<i>Eriogonum trichopes</i>	little desert buckwheat	annual herb	native
Solanaceae (Nightshade Family)			
<i>Lycium andersonii</i>	Anderson thornbush	shrub	native
<i>Lycium cooperi</i>	Cooper's box thorn	shrub	native
<i>Lycium pallidum</i> var. <i>oligospermum</i>	rabbit thorn	shrub	native
Viscaceae (Mistletoe Family)			
<i>Phoradendron californicum</i>	California mesquite mistletoe	shrub (parasitic)	native
Zygophyllaceae (Caltrop Family)			
<i>Larrea tridentata</i>	creosote bush	shrub	native

¹ Status Codes:

California Invasive Plant Council (Cal-IPC):

H: high
M: moderate
L: low

California Department of Food and Agriculture (CDFA) Weed Pest:

B: pests, if present in California, are of limited distribution
C: pests that score low under CDFW analysis and/or are of common occurrence and generally distributed in California.
*: California Code of Regulations Section 4500 Noxious Weed Species

For the purposes of this report, Cal-IPC H and any species on a CDFA list were classified as noxious and mapped.

CRPR (California Rare Plant Rank) Codes and Extensions:

2B Plants rare, threatened, or endangered in California but more common elsewhere

.1 Plants rare, threatened, or endangered in California but more common elsewhere; seriously threatened in California
.2 Plants rare, threatened, or endangered in California but more common elsewhere; fairly threatened in California

California Desert Native Plants Act (CDNPA): Section 80073 plants, or any part thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plants are growing.

5.5.2.1 *EPHEDRA TORREYANA* (TORREY'S EPHEDRA)

A total of 874 individual *Ephedra torreyana* (Torrey's ephedra) were observed within the survey area. This species is a perennial evergreen subshrub with a CRPR of 2B.1: seriously threatened in California but common elsewhere. This species can be difficult to distinguish from another common ephedra species within the survey area, *Ephedra funerea* (Death Valley ephedra), as they both have leaves and bracts in whorls of three and other vegetative characters that overlap or are not diagnostic. The final key break between the two species in the FNANM is based upon cone attachment (sessile or not), which Stantec



botanists observed to be mixed when taken in context of each complete species description. For example, Torrey's ephedra in the FNANM key has "cones always sessile," yet Stantec observed individuals with a short, scaly peduncle (a character for Death Valley ephedra) with seed bract wing measurements and/or seed surfaces that were consistent with Torrey's ephedra. Voucher herbaria specimens for Torrey's ephedra from this location also show a short, scaly peduncle (California Academy of Sciences Catalog #248275). Accordingly, we relied upon measurements to make determinations, which is a discrete metric between the two species rather than a vague sessile versus short peduncle or subjective vegetative characters. Additional support for this approach can be found in Hollander and Wall's 2009 paper on dispersal syndromes of ephedra (Hollander and Wall 2009). Torrey's ephedra is a wind-dispersed seed, while Death Valley ephedra is an intermediate between animal and wind dispersal. This is expressed in seed bract wing width: Torrey's ephedra is 6–10 millimeters wide compared to Death Valley ephedra's 3–5 millimeters. Therefore, positive identification of Torrey's ephedra relied upon the presence of mature reproductive structures (male or female cones). Depending upon the individual plant phenology, in male cones, sporangia exertion; in female cones, seed bract wing width and seed ornamentation, when mature seeds were present. Vegetative plants that co-occurred with reproductive plants identified as Torrey's ephedra were also counted.

Torrey's ephedra was predominantly found in the southern and western sections of the survey area, commonly in the *Atriplex confertifolia* Shrubland Alliance (shadscale scrub) and the *Ephedra nevadensis* – *Lycium andersonii* – *Grayia spinosa* Shrubland Alliance (Nevada joint fir – Anderson's boxthorn – spiny hop sage scrub). It was less frequently found in the *Larrea tridentata* Shrubland Alliance (creosote bush scrub) and *Larrea tridentata* – *Ambrosia dumosa* Shrubland Alliance (creosote bush – white bursage scrub). When first observed in 2011, the occurrences within the survey area represented the first known occurrences of Torrey's ephedra outside Nevada and are 2 of the known 11 occurrences in California (CDFW 2025b).

5.5.2.2 *ASTRAGALUS PREUSSII* VAR. *PREUSSII* (PREUSS' MILK-VETCH)

A total of 337 individual *Astragalus preussii* var. *preussii* (Preuss' milk-vetch) were observed within the survey area. This species is a perennial herb with a CRPR of 2B.1: seriously threatened in California but common elsewhere. One plant was observed in flower, surrounded by nine other plants in early fruit. Approximately 50 percent were vegetative with this year's leaves and last year's dehiscent fruits; 40 percent were in early fruit, and 10 percent had last year's fruit and no new growth. Preuss' milk-vetch was predominantly found concentrated along Avenue D and in the western sections of the survey area in shadscale scrub. A few occurrences were found in creosote bush scrub and creosote bush – white bursage scrub. The occurrences within and surrounding the survey area represent 4 of the known 22 occurrences in California (CDFW 2025b).

5.5.2.3 *ASTRAGALUS TIDESTROMII* (TIDESTROM'S MILK-VETCH)

Nine individual *Astragalus tidestromii* (Tidestrom's milk-vetch) were observed within the survey area. This species is a perennial herb with a CRPR of 2B.2: moderately threatened in California but common elsewhere. All plants were detected in vegetative form in May 2025 within 150 feet of a known reference location for this species. Based upon vegetative match, proximity to a reference site, and what other milk-



vetch species were known to be in the area, this was identified as Tidestrom's milk-vetch. Only four individuals were relocated during late-season surveys and were dying back with no evidence of blooming. Tidestrom's milk-vetch was found concentrated in the northwestern corner of the survey area in shadscale scrub. The occurrences within and surrounding the survey area represent 3 of the known 72 occurrences in California (CDFW 2025b).

5.5.2.4 CALIFORNIA DESERT NATIVE PLANTS ACT SPECIES

Five species covered under Section 80073 of the CDNPA were observed within the survey area: *Yucca schidigera* (Mojave yucca) (1), *Cylindropuntia echinocarpa* (silver cholla) (54), *Cylindropuntia ramosissima* (pencil cholla) (2), *Opuntia basilaris* var. *basilaris* (beavertail cactus) (14), and *Neltuma odorata* (honey mesquite) (154). These species are not listed as special status by the state or CDFW.

5.5.3 Survey Limitations

According to the U.S. Drought Monitor (National Drought Mitigation Center et al. 2025), the survey area was in extreme drought during both survey passes. This was apparent in the limited number of live annual plant species observed, including noxious weeds. Nearly all annual species observed were senesced and left over from the 2024 season and include rigid spineflower, cheat grass, buckwheats, and saltlover. Living annuals observed include *Cuscuta denticulata* (desert dodder), a native species, and *Erodium cicutarium* (coastal heron's bill), a non-native species. The special-status plants detected within the survey area were two perennial milk-vetches and Torrey's ephedra, an evergreen subshrub. Perennials not blooming at the time of the surveys were identifiable based upon presence of last year's fruits, inflorescences, and/or new vegetative growth. None of the other eight special-status species known to be present in the survey area were observed, and none are federally or state-listed. These eight special-status species (four annual, four perennial) that are documented in the CNDDDB as occurring and extant within the survey area were not detected during these surveys and likely did not germinate and/or remained dormant during the 2025 season due to the extreme drought conditions. However, these species should be considered present for the purposes of a CEQA analysis, as the annual species persist in the seed bank and would likely germinate when favorable conditions return. Similarly, perennial species persist in the seedbank and mature plants that may have died back and lay dormant during drought conditions may germinate and/or resume active growth when favorable conditions return.

5.6 Special Status Wildlife

5.6.1 Potential to Occur

The CNDDDB query returned 11 special status animal species within the queried quads as having potential to occur (Appendix E) and the USFWS query added two additional species (Appendix F). Based on the review of existing information, species habitat requirements, and habitat characteristics present in the Project Area, nine of the 13 special-status wildlife species were determined to have some potential to occur in the Project Area and are further discussed in Table 5-6. In addition, 10 species, including eight



species not included in the database query results, are considered present in the wildlife study area (which includes the Project Area along with the proposed access route) based on results of the wildlife surveys conducted (Hidden Hills Solar, LLC 2011; Ironwood 2021; Stantec 2024; Appendix C; Appendix H).

The potential for special-status wildlife species to occur within the Project Area was classified under one of five categories as described below. Table 5-6 lists the species and their potential to occur within the Project Area.

- **Present:** The species is known to be present or has been recently observed in the Project Area.
- **High:** The species has been observed and documented within 5 miles of the Project Area within the last 5 years, and potential habitat for the species is present.
- **Moderate:** The Project is located within the range of the species, there are documented occurrences within 5 miles of the Project Area, and/or potential habitat for the species exists in the Project Area.
- **Low:** The Project is located within the range of the species, and low-quality (e.g., disturbed, agricultural) habitat is present.
- **Absent:** The Project Area is located outside of the species' range, and/or potential habitat to support the species is not present in the Project Area.

Table 5-6. Special Status Animal Species Evaluated for the Potential to Occur in the Project Area (Including 2020, 2024, and 2025 Survey Results)

Scientific Name	Common Name	Status	Habitat Types	Potential to Occur
<i>Antrozous pallidus</i>	Pallid bat	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate. One historic (1968) CNDDDB observation exists in the Kingston Range near Beck Spring, where rocky areas with potential roosting habitat may be present. Individuals may use Project Area for foraging.
<i>Aquila chrysaetos</i>	Golden eagle	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Moderate. Several historic (1977) CNDDDB observations exists in the Nopah and Kingston Ranges, where cliffs with potential nesting habitat may be present. Individuals may use Project Area for foraging.



Scientific Name	Common Name	Status	Habitat Types	Potential to Occur
<i>Asio flammeus</i>	Short-eared owl	SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Present. Potential habitat is present within the Project Area. An individual was identified during the 2025 burrowing owl surveys within the Project Area. The species is likely present as a forager, with nesting habitat more likely associated with wet areas.
<i>Athene cunicularia</i>	Burrowing owl	SC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Owls can be found in habitats highly altered by humans. Below ground nester, dependent upon burrowing mammals, most notably the California ground squirrel (<i>Otospermophilus beecheyi</i>). Nest sites are generally elevated and include look outs and use areas with high density of surrounding burrows. Burrows, usually near a site, are essential for wintering habitat, used for refuge from predators and shelter from weather and roost sites.	Present. Potential habitat, including breeding and wintering habitat, is present within the Project Area. Individuals and sign were identified during the 2020, 2024, and 2025 wildlife surveys, with observations throughout the Project Area.
<i>Buteo swainsoni</i>	Swainson's hawk	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannas, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands or alfalfa or grain fields supporting rodent populations.	Present. Potential habitat is present within the Project Area. An individual was identified during the 2025 burrowing owl survey within the Project Area. Species is likely present as a forager, with nesting habitat more likely associated with grasslands or agricultural areas.
<i>Circus hudsonius</i>	Northern harrier	SSC	Coastal salt and freshwater marsh. Nests and forages in grasslands, from salt grass in desert sink to mountain ciénagas. Nests on ground in shrubby vegetation, usually at marsh edge; nests are built of a large mound of sticks in wet areas.	Present. Potential habitat is present within the Project Area. An individual was identified during the 2020 and 2025 wildlife surveys within the Project Area. The species is likely present as a forager, with nesting habitat more likely associated with wet areas.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Moderate. Several historic (1940, 1968) observations exist in the Kingston Range where abandoned mines or caves with potential roosting habitat may exist. No mesic sites are present in the Project Area. Individuals may use Project Area for foraging.



Scientific Name	Common Name	Status	Habitat Types	Potential to Occur
<i>Danaus plexippus</i>	Monarch butterfly	FC	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	Low. No potential roosting habitat is present within the Project Area. However, individuals may use Project Area for foraging. One desert milkweed (<i>Asclepias erosa</i>) was observed on the project site.
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	FE	Riparian woodlands in Southern California.	Absent. There are no CNDDDB observations of this species within the Project Area, and no potential habitat is present.
<i>Euderma maculatum</i>	Spotted bat	SSC	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.	Moderate. There are no CNDDDB observations of this species within the Project Area. However, potential roosting habitat in the form of rock crevices in cliffs or caves may be present in the nearby Nopah mountains, and individuals may use Project Area for foraging.
<i>Falco mexicanus</i>	Prairie falcon	WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Present. Potential foraging habitat is present within the Project Area. An individual was identified during the 2025 burrowing owl surveys within Project Area. The species is likely present as a forager, with nesting habitat associated with cliffs.
<i>Gopherus agassizii</i>	Desert tortoise	ST, FT	Variety of arid land habitats, usually with sparse vegetation, including sandy flats, rocky foothills, alluvial fans, washes, and canyons.	Present. Potential habitat is present within the eastern portion of the Project Area, where creosote scrub vegetation and friable soils exist. Desert tortoise individuals and sign were recorded during both the 2020 and 2024 desert tortoise surveys.
<i>Heloderma suspectum cinctum</i>	Banded Gila monster	SSC	Inhabits the lower slopes of rocky canyons and arroyos but is also found on desert flats among scrub and succulents. Eggs are laid in soil in excavated nests; thus, soil must be sandy or friable. Found in areas moister than surroundings.	Low. Several observations exist in the Kingston Range where rocky canyons may exist. Very minimal mesic areas, and therefore minimal potential habitat, are present in the Project Area.
<i>Lanius ludovicianus</i>	Loggerhead shrike	SSC	Broken woodlands, savanna, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub, and washes. Prefers open country for hunting, with perches for scanning and fairly dense shrubs and brush for nesting.	Present. Potential habitat is present within the Project Area. Several individuals were identified during the 2020 and 2025 wildlife surveys within the Project Area. Species may nest in areas of dense shrubs and brush.



Scientific Name	Common Name	Status	Habitat Types	Potential to Occur
<i>Lasiurus frantzii</i>	Western red bat	SSC	Roosts primarily in trees, 2–40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Moderate. There are no CNDDDB observations of this species within the Project Area. However, potential roosting habitat may be present in trees outside the Project Area. Individuals may use Project Area for foraging.
<i>Myotis volans</i>	Long-legged myotis		Most common in woodland and forest habitats above 4,000 feet. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees but occasionally in crevices or buildings.	Absent. One observation exists in the Kingston Range where forest habitat may exist. No potential habitat is present in the Project Area.
<i>Ovis canadensis nelsoni</i>	Desert bighorn sheep	FP	Widely distributed from the White Mountains in Mono County to the Chocolate Mountains in Imperial County. Open, rocky, steep areas with available water and herbaceous forage.	Absent. CNDDDB observations exist in the Nopah and Kingston Ranges, where open, rocky, steep areas may be present. No potential habitat is present in the Project Area.
<i>Piranga flava</i>	Hepatic tanager	WL	White fir–pinyon forest on desert peaks, 5,300–8,100 feet elevation. Understory of xerophytic shrubs.	Absent. A CNDDDB observation exists in the Kingston Range. No potential habitat is present in the Project Area.
<i>Poliophtila melanura</i>	Black-tailed gnatcatcher	WL	Primarily inhabits wooded desert wash habitats; also occurs in desert scrub habitat, especially in winter. Nests in desert washes containing mesquite, palo verde, ironwood, acacia; absent from areas where salt cedar introduced.	Low. One observation exists in the Kingston Range where forest habitat may exist. No potential nesting habitat is present in the Project Area, but the species may be present as a forager, especially during the winter.
<i>Taxidea taxus</i>	American badger	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Present. Potential habitat is present within the Project Area. Sign (tracks, scat, burrows) was detected during the 2020 desert tortoise survey throughout the Project Area.
<i>Toxostoma lecontei</i>	LeConte's thrasher	SSC	Desert flats with sparse growth of saltbush and scattered low shrubs. Also found on creosote bush flats with slightly larger mesquites or cholla cactus.	Present. Potential habitat is present within the Project Area. Individuals and sign were identified during the 2020 and 2024 desert tortoise surveys. Species may nest in creosote or mesquite shrubs.
<i>Vireo vicinior</i>	Gray vireo	SSC	Dry chaparral; west of desert, in chamise-dominated habitat; mountains of Mojave Desert, associated with juniper and <i>Artemisia</i> . Forage, nest, and sing in areas formed by a continuous growth of twigs, 1–5 feet above ground.	Absent. One historic (1939) CNDDDB observation exists in the Kingston Range where dry chaparral habitat may exist. No habitat is present in the Project Area.



Scientific Name	Common Name	Status	Habitat Types	Potential to Occur
<i>Vulpes macrotis arsipus</i>	Desert kit fox	State Protected (fur-bearing mammal)	California's Mojave and Colorado deserts. Resides in flat, arid regions with abundant bushes and desert shrub. Preys on rats, rodents, and insects. Digs burrows.	Present. Potential habitat is present within the Project Area. Individuals and sign were identified during the 2020 and 2025 surveys, with observations throughout the Project Area.

Sources: CNDDB 2025; USFWS 2024; Hidden Hills Solar, LLC 2011; Ironwood 2021; Stantec 2024; Appendix C; Appendix H

Federal Rankings:

FE = Federally Endangered

FT = Federally Threatened

FC = Federal Candidate for Listing as Endangered or Threatened

CDFW Rankings:

WL = CDFW Watch List

FP = Fully Protected

SSC = Species of Special Concern

State Rankings:

FP = Fully Protected

SE= State Endangered

ST = State Threatened

SC = State Candidate for Listing as Endangered or Threatened

S1 = Critically Imperiled

S2 = Imperiled

S3 = Vulnerable

S4 = Apparently Secure

5.6.2 Wildlife Species Observations

Sixty wildlife species, including nine special-status species, have been observed in the wildlife surveys study area. A complete list of wildlife species and/or wildlife species sign observed within the wildlife surveys study area is presented in Table 5-7.



Table 5-7. Wildlife Species and/or Sign of Wildlife Observed in the Wildlife Study Area

Scientific Name	Common Name	Status
Birds		
<i>Amphispiza bilineata</i>	Black-throated sparrow	
<i>Anthus rubescens</i>	American pipit	
<i>Artemisiospiza nevadensis</i>	Sagebrush sparrow	
<i>Asio flammeus</i>	Short-eared owl	SSC
<i>Athene cunicularia</i>	Burrowing owl	SC
<i>Auriparus flaviceps</i>	Verdin	
<i>Bubo virginianus</i>	Great-horned owl (pellets)	
<i>Buteo jamaicensis</i>	Red-tailed hawk	
<i>Buteo regalis</i>	Ferruginous hawk	
<i>Buteo swainsoni</i>	Swainson's hawk	ST
<i>Callipepla californica</i>	California quail	
<i>Cathartes aura</i>	Turkey vulture	
<i>Circus hudsonius</i>	Northern harrier	SSC
<i>Chordeiles acutipennis</i>	Lesser nighthawk	
<i>Corvus corax</i>	Common raven	
<i>Eremophila alpestris</i>	Horned lark	
<i>Falco mexicanus</i>	Prairie falcon	
<i>Gallinago delicata</i>	Wilson's snipe	
<i>Geococcyx californianus</i>	Greater roadrunner (tracks)	
<i>Haemorhous mexicanus</i>	House finch	
<i>Hirundo rustica</i>	Barn swallow	
<i>Lanius ludovicianus</i>	Loggerhead shrike	SSC
<i>Melospiza melodia</i>	Song sparrow	
<i>Mimus polyglottos</i>	Northern mockingbird	
<i>Passer domesticus</i>	House sparrow	
<i>Passerculus sandwichensis</i>	Savannah sparrow	
<i>Petrochelidon pyrrhonota</i>	Cliff swallow	
<i>Phalaenoptilus nuttallii</i>	Common poorwill	
<i>Salpinctes obsoletus</i>	Rock wren	



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Scientific Name	Common Name	Status
<i>Sayornis saya</i>	Say's phoebe	
<i>Setophaga coronata</i>	Yellow-rumped warbler	
<i>Spizella breweri</i>	Brewer's sparrow	
<i>Streptopelia decaocto</i>	Eurasian collared dove	
<i>Sturnella neglecta</i>	Western meadowlark	
<i>Thryomanes bewickii</i>	Bewick's wren	
<i>Toxostoma lecontei</i>	LeConte's thrasher	SSC
<i>Trochilidae</i> sp.	Hummingbird sp.	
<i>Tyto alba</i>	Barn owl (feathers)	
<i>Zenaida macroura</i>	Mourning dove	
<i>Zonotrichia leucophrys</i>	White-crowned sparrow	
Mammals		
<i>Ammospermophilus leucurus</i>	Antelope ground squirrel	
<i>Canis latrans</i>	Coyote	
<i>Chiroptera</i> sp.	Bat sp.	
<i>Lepus californicus</i>	Black-tailed jackrabbit	
<i>Taxidea taxus</i>	American badger (tracks, scat, burrows)	SSC
<i>Thomomys bottae</i>	Botta's pocket gopher (burrows)	
<i>Vulpes macrotis arsipus</i>	Desert kit fox	State Protected (fur-bearing mammal)
Reptiles		
<i>Arizona elegans</i>	Glossy snake	
<i>Aspidoscelis tigris</i>	Western whiptail lizard	
<i>Hypsiglena chlorophaea deserticola</i>	Desert nightsnake	
<i>Callisaurus draconoides</i>	Zebra-tailed lizard	
<i>Crotalus cerastes</i>	Desert sidewinder	
<i>Crotalus scutulatus</i>	Mojave rattlesnake	
<i>Dipsosaurus dorsalis</i>	Desert iguana	
<i>Gambelia wislizenii</i>	Long-nosed leopard lizard	
<i>Gopherus agassizii</i>	Desert tortoise	ST, FT
<i>Masticophis flagellum</i>	Coachwhip snake	
<i>Phrynosoma platyrhinos</i>	Desert horned lizard	



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Scientific Name	Common Name	Status
<i>Pituophis catenifer</i>	Gopher snake	
<i>Uta stansburiana</i>	Side-blotched lizard	

Sources: Ironwood 2021; Stantec 2024; Appendix C; Appendix H

Federal Rankings:

FT = Federally Threatened: any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

CDFW Rankings:

SSC = Species of Special Concern: wildlife species that are at risk. SSC are species, subspecies, or distinct population of an animal native to California. SSC are at risk of extinction. SSC are defined by the CDFW and are categorized as in danger of extinction or likely to become endangered.

State Rankings:

ST = State Threatened: although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.

SC = State Candidate for Listing as Endangered or Threatened: a species under review to be listed under CESA as endangered or threatened. A species that may warrant listing under CESA based on the factors specified in the statute and implementing regulations.



5.6.3 Desert Tortoise

5.6.3.1 SURVEY RESULTS

2020 Survey

One live desert tortoise was identified along Stateline Road, which follows the California/Nevada border. Thirty-one other records of sign, including desert tortoise carcasses, were also recorded. The estimated density in the survey area was 0.1 tortoises per square km (km^2), lower than the 1.5 tortoises/ km^2 average density in the Eastern Mojave Desert Tortoise Recovery Unit (USFWS 2011).

Signs of other species-status wildlife and plant species were identified. Signs of both American badger and desert kit fox included carcasses, scat, burrows, and tracks. There was also an abundance of Botta's pocket gopher (*Thomomys bottae*) activity, commensurate with concentrations of American badger activity, likely due to the latter's heavy reliance on pocket gophers as prey. Burrowing owl sign included two live owls, as well as burrows, pellets, whitewash, and tracks. Other special-status bird species observed include LeConte's thrasher (*Toxostoma lecontei*), loggerhead shrike (*Lanius ludovicianus*), and prairie falcon (*Falco mexicanus*). A portion of a horn, possibly from a desert bighorn sheep (*Ovis canadensis nelsoni*), was documented within the survey area and believed to have washed downslope from the nearby mountains. Torrey's Mormon tea (*Ephedra torreyana*) was also identified.

2024 Survey

Two live desert tortoises, both observed in burrows, were identified in the desert scrub habitat within the eastern one-third of the survey area. Two other burrows and one pellet were also recorded, which were believed to be associated with the two live individuals. The estimated density in the survey area was 1.6 tortoises per km^2 , higher than the 1.5 tortoises/ km^2 average density in the Eastern Mojave Desert Tortoise Recovery Unit (USFWS 2011).

Thirty-two plant species, ten bird species, two mammal species, and nine reptile species were observed during the survey. A burrowing owl was seen near a burrow complex in the far western part of the survey area, within alkali desert scrub habitat. The burrow complex appeared to be old predator burrows or diggings.

Significant disturbance from human activity was also observed and recorded in the survey area, including a grid of unpaved roads, residences, and outbuildings in the eastern portion of the survey area as well as evidence of off-road vehicle driving and illegal dumping.

2025 Survey

No live desert tortoises were observed during the 2025 surveys; however, 24 burrows and one pallet, a shallow groove beneath a shrub or other foliage that desert tortoises use to rest in during the day, were observed. The estimated density in the survey area was 0 tortoises per km^2 , lower than the 1.5 tortoises/ km^2 average density in the Eastern Mojave Desert Tortoise Recovery Unit (USFWS 2011).



5.6.4 Burrowing Owl

5.6.4.1 SURVEY RESULTS

Four burrowing owls, two living burrowing owls and two carcasses, were detected during the breeding season surveys, but no pairs or breeding activity were observed. Numerous potential burrowing owl burrows, and burrowing owl sign in the form of whitewash, feathers, pellets, or bones were also observed within the survey area.

Evidence and ground squirrels, mice, insects (especially dragonflies), and reptiles were observed within the survey area, which constitute the prey base for a local burrowing owl population. Burrowing owl predators and sign observed during the survey included short-eared owl (*Asio flammeus*), red-tailed hawk (*Buteo jamaicensis*), prairie falcon, common raven (*Corvus corax*), desert kit fox (*Vulpes macrotis*), and domestic dogs.

Desert kit fox sign in the form of scat, burrows, and tracks, were also observed during the surveys. Other CDFW special-status bird species observed include short-eared owl, Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus hudsonius*), and loggerhead shrike (*Lanius ludovicianus*). All other common wildlife species observed during the surveys were also recorded.



6 Conclusions

The information provided in this report provides a consolidated understanding of the biological resources in the Project Area and can be used to guide compliance with applicable federal and state regulations.

The 2024 and 2025 ARDs and accompanying ARDR indicate that all aquatic resources within the vicinity of the Project Area are considered potentially CDFW- and RWQCB-jurisdictional by definition; the mapped features include 64 drainages and drainage segments and five watercourses/active floodplains. All 69 features were determined to be ephemeral and offer no surface connection to traditional navigable water and therefore likely not under the jurisdiction of USACE. These results are consistent with the existing conditions described in Section 2 above and suggest that further agency consultation and permitting for potential impacts to CDFW and RWQCB jurisdictional waters will be required for the Project. A summary of recommended agency coordination and permitting is further described below in Table 6-1.

Three special-status species listed by the CNPS with a CRPR were detected, with more than 1,200 individual special-status plants mapped within the survey area. None of the species is federally or state listed as threatened or endangered; two are CRPR 2B.1; one is CRPR 2B.2. An additional five species covered under the CDNPA were also mapped within the survey area. The CDNPA species will require a permit issued by the county for any harvesting. Eight special-status species (four annual, four perennial) that are documented in the CNDDDB as occurring and extant within the survey area were not detected during these surveys. These species likely did not germinate and/or remained dormant during the 2025 season due to the extreme drought conditions. However, these species should be considered present for the purposes of a CEQA analysis, as the annual species persist in the seed bank and would likely germinate when favorable conditions return. Similarly, perennial species persist in the seedbank and mature plants that may have died back and lay dormant during drought conditions may germinate and/or resume active growth when favorable conditions return.

Stantec mapped 18 MCV vegetation associations; 5 (407.4 acres) are considered sensitive natural communities by the CDFW. CDFW typically requires a 1:1 or greater mitigation ratio for sensitive natural communities depending on community type. Final mitigation ratios are usually determined in consultation with CDFW. In addition, because noxious weeds are present in varying densities throughout the survey area, a noxious weed management plan should be developed prior to ground disturbance. Similarly, the wildlife data captured from desktop review and field surveys suggest that several special-status animal species may be present in the Project Area. One federally and state-listed wildlife species, desert tortoise, one state candidate listed species, burrowing owl, were observed during both the 2020 and 2024 desert tortoise surveys. Burrowing owl individuals were additionally observed during the 2025 burrowing owl surveys. Additional special-status wildlife species given rankings by the CDFW and CFGC were also observed during the 2020, 2024, and 2025 desert tortoise and burrowing owl surveys (Ironwood 2021; Stantec 2024; Appendix C; Appendix H).



Table 6-1. Recommended Regulatory Agency Coordination and Permitting

Agency	Permit(s)/Consultation	Regulation(s)	Notes
CDFW – Inland Deserts, Region 6	Incidental Take Permit	Regulated by CDFW under CESA Section 2081 for Incidental Take Permit or Section 2080.1 for Consistency Determination	Permit will be required for desert tortoise and/or burrowing owl if full avoidance is unfeasible.
	Lake and Streambed Alteration Agreement	Regulated by CDFW under CFGC Section 1600	Permit will be required for impacts to jurisdictional waters. Avoidance and minimization measures for rare plant species and non-state-listed special-status animal species will be included in the agreement.
USACE – Los Angeles District	CWA Section 404 consultation	Regulated by USACE under CWA Section 404	CWA Section 404 consultation will be required for impacts to potentially jurisdictional waters. An approved jurisdictional determination can be used to verify that aquatic resources onsite are not waters of the United States, do not require a 404, and can be used in RWQCB permitting.
RWQCB – Lahontan	Individual Water Quality Certification and/or Waste Discharge	Regulated by the RWQCB under CWA Section 401 and/or Porter Cologne Act	Permit will be required for impacts to waters of the state.
USFWS – Carlsbad Office	FESA Section 10 consultation	Regulated by FESA Section 10	FESA Section 10 consultation will be required for impacts to desert tortoise individuals and/or habitat.
Inyo County	Permit, tags, and/or seals	Regulated under the California Desert Native Plants Act (CDNPA), Division 23 of the California Food and Agriculture Code	Permit will be required for impacts to species covered under the CDNPA.

Following the agency coordination and permitting recommendations described above in Table 6-1 will help ensure the Project is in compliance with CEQA. The CEQA Appendix G Checklist offers guidance for evaluating potential impacts to biological resources, with all Project-related questions being categorized as either potentially significant impact, less than significant impact with mitigation incorporated, less than significant impact, or no impact. Potential adverse effects on any species identified as a candidate, sensitive, or special-status species, posed as question 1 of the checklist may be addressed through methods of avoidance and minimization and/or mitigation and will be agreed upon through consultation with CDFW and USFWS. Similarly, potential adverse effects on any riparian habitat or other sensitive natural community, posed as question 2 of the checklist, can be addressed through methods of avoidance and minimization and/or mitigation and will be agreed upon through consultation with CDFW. Using the information in this report, no additional studies should be necessary to address the other four questions posed in the checklist.



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Appendix A Project Area Representative Photographs



Project Area Representative Photographs



Photograph 1. Typical alkali desert scrub vegetation community present in the north and western two-thirds of the project area.



Photograph 2. Typical desert scrub vegetation community present in the south and eastern one-third project area.



Photograph 3. Dirt road present in the southern portion of the project area.



Photograph 4. Evidence of off-road vehicle travel in the southern portion of the project area.

Appendix B Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment



Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment

Bonanza Peak Solar Project

July 18, 2025

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Bonanza Peak Solar Project

Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment

Revision	Description	Author	Date	Quality Check	Date	Independent Review	Date



Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment

The conclusions in the Report titled Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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Executive Summary

This Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment (Report) is intended to document and assess for potential agency jurisdiction any aquatic resources that are located within the Bonanza Peak Solar Project (project) in eastern Inyo County, California. Stantec Consulting Services Inc. (Stantec) conducted aquatic resource surveys in a study area that included 2,708.4 acres of contiguous parcels, within which the project would be sited.

The study area is in a low-gradient valley bottom, more than eight miles away from active alluvial fans that originate from the Spring Mountains to the northeast. Flows within the study area are ephemeral and are sourced from direct precipitation and from the low-elevation scarps located to the northeast that are disrupted and muted by unpaved roadcuts (also to northeast of the study area).

Sixty-nine aquatic resources (totaling 21.193 acres and 23,208.853 linear feet) were mapped within the study area and assessed for potential jurisdiction. The 69 resources included 64 ephemeral drainages and drainage segments and five watercourses/active floodplains. No riparian vegetation, wetlands, seeps, playas, or springs were found in the study area. None of the resources are expected to fall under the jurisdiction of the U.S. Army Corps of Engineers (USACE) because they were determined to be isolated and ephemeral. A previously issued USACE Approved Jurisdictional Determination (SPK-2024-00318, July 24, 2024) for an unrelated project within the same watershed supports these findings. However, all aquatic resources mapped within the study area are likely under the jurisdiction of both the Lahontan Regional Water Quality Control Board (Lahontan RWQCB) and the California Department of Fish and Wildlife (CDFW). All jurisdictional assessments in this Report should be considered preliminary until the USACE, Lahontan RWQCB, and CDFW provide verification.



Acronyms / Abbreviations

3DHP	3D National Hydrography Program
AJD	Approved Jurisdictional Determination
APT	Antecedent Precipitation Tool
CDFW	California Department of Fish and Wildlife
Ft	foot/feet
GPS	Global Positioning Service
HU	hydrologic unit
Lahontan RWQCB	Lahontan Regional Water Quality Control Board
Mi	mile(s)
MESA	Mapping Episodic Stream Activity
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PJD	Preliminary Jurisdictional Determination
Project	Bonanza Peak Solar Project
Report	Aquatic Resources Survey Report and Preliminary Jurisdictional Assessment
RPW	Relatively permanent water
SDAM	Beta Stream Duration Assessment Method for the Arid West
SR 160	State Route 160
Stantec	Stantec Consulting Services Inc.
TNW	Traditional Navigable Water
TOB	top-of-bank
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
WOTUS	waters of the United States



1 Introduction

This Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment (Report) documents the potential agency jurisdiction for aquatic resources that are located within the Bonanza Peak Solar Project (Project) in eastern Inyo County, California (Appendix A, Figure 1). Stantec Consulting Services Inc. (Stantec) conducted aquatic resource delineation surveys in a study area that included 2,708.4 acres of contiguous parcels, within which the project will be sited.

This Report summarizes the site characteristics, survey methods and results, and provides an assessment of potential federal and State of California jurisdiction of aquatic resources within the study area. This Report is intended to inform future project permitting of aquatic resources that may fall within the following three jurisdictions:

- United States Army Corps of Engineers (USACE), pursuant to Section 404 of the Clean Water Act and the Amended 2023 Final Rule.
- Lahontan Regional Water Quality Control Board (Lahontan RWQCB), pursuant to the state's Porter-Cologne Water Quality Control Act (California Water Code, Chapter 2, Section 13050) and/or Section 401 of the Clean Water Act.
- California Department of Fish and Wildlife (CDFW), pursuant to Section 1600 of the California Fish and Game Code.

Stantec advises all parties to treat the information contained herein as preliminary until the USACE, Lahontan RWQCB, and CDFW provide verification of jurisdictional assessments.

1.1 Project Description

Bonanza Peak Solar, LLC proposes a utility-scale solar photovoltaic energy generating facility, including solar arrays, [REDACTED] a substation, and an operation building. A generation-tie line would extend northeast from the facility to a point-of-interconnection in Nevada. This Report addresses only the California portion of the project and does not include the Nevada segment of the generation-tie line.

1.2 Project Location and Setting

The study area is in the U.S. Geological Survey (USGS) Calvada Springs, Mound Spring, and Stump Spring 7.5-minute topographic quadrangles. The northeastern edge of the study area ranges from abutting to nearly one mile (mi) west of the California-Nevada Border (Stateline Road); the far western edge of the study area is along Opal Street from Avenue B to Avenue D. The far southern edge of the study area is about 0.25 mi north of Old Spanish Trail Highway. The study area is undeveloped, except for a grid of unimproved dirt roads that divide it into quarter-sections; while some of the roads are passable, many are partially vegetated and in poor driving condition. An abandoned 40-ft by 40-ft fenced



solar array was observed on Avenue D between Topaz Street and Silver Street. In addition, a fenced-in junkyard with boats, trailers, and abandoned vehicles is located at the northeast corner of Avenue E and Gold Street. Off-road tire tracks were present across the study area. Other signs of disturbance were also present, including windblown trash and cattle dung.

1.3 Topography and Hydrology

The study area is in the southern portion of the Pahrump Valley, a depression bordered by the Spring Mountains to the northeast and the Nopah Range to the west. Within the study area, overall topography is extremely low-gradient, with a gentle west-oriented slope. East-to-west elevations range from about 2,690 to 2,560 ft above mean sea level (Appendix A, Figure 2). The northeastern third of the study area has a slightly higher elevation gradient than the southwestern two-thirds; from east to west, the eastern portion decreases around 50 ft in elevation over roughly one mi compared to the western portion that decreases less than 50 ft in elevation over roughly two mi. According to the 3D National Hydrography Program (3DHP) (USGS 2024), the study area is predominantly in the Trout Canyon-Frontal Pahrump Valley subwatershed. The southwestern corner (approximately 10 percent of the study area) is in the Stump Spring-Calvada Springs subwatershed. The Trout Canyon-Frontal Pahrump Valley subwatershed encompasses an area 20 mi northeast of the study area from Griffith Peak in the Spring Mountains to two mi west of the study area, where it terminates at the edge of an unnamed dry lake (playa). The Stump Spring-Calvada Springs subwatershed encompasses an area 20 mi to the east of the study area from the western slope of the Spring Mountains to 0.75 mi west of the study area, where it terminates in the Pahrump Valley. The higher-level hydrologic units and unit codes in which the subwatersheds are located are listed in Table 1 (Figure 1).

Table 1. Regional and Local Hydrologic Unit Codes

Hydrologic Unit (HU) Level	Hydrologic Unit Code	Name
Region (HU 2)	16	Great Basin
Subregion (HU 4)	1606	Central Nevada Desert Basins
Basin (HU 6)	160600	Central Nevada Desert Basins
Subbasin (HU 8)	16060015	Ivanpah-Pahrump Valleys
Watershed (HU 10)	1606001505	Pahrump Valley
	1606001504	Calvada Springs
Subwatershed (HU 12)	160600150504	Trout Canyon-Frontal Pahrump Valley
	160600150404	Stump Spring-Calvada Springs

The main hydrologic resources in the subwatershed are the seasonal flows that originate from the Spring Mountains about 13 mi northeast of the study area. These waters flow southwest out of Trout Canyon (Figure 1) and form a complex wash system that fans out and dissipates as it moves southwest and into the valley floor. Several major roads cut across the wash system with large culvert systems installed to direct flow under them. This includes numerous unpaved roads, as well as Nevada State Route 160 (SR 160). Southwest of SR 160, flows cross badlands and then a series of fault scarps located 0.6 mi and 0.9



mi northeast of the study area. The scarps are situated perpendicular to the flows originating from Trout Wash; these scarps concentrate and redirect remaining diffuse flows that have not already dissipated or evaporated. Flows then continue southwest and meet Stateline road, where they are again interrupted and redirected. Within the study area, hydrology is primarily driven by precipitation as well as some surface flow that originates northeast of the study area, moves to the southwest and is concentrated into small drainages at the southeast study area boundary that dissipate before reaching the center of the study area.

1.4 Soils and Surficial Geology

The study area is located within the Basin and Range Geomorphic Province, characterized by interior drainage to lakes and playas, with horst and graben structures (i.e., basins and ranges). Near the study area, the two main geomorphic processes are fluvial erosion and deposition and eolian deflation and deposition. Soils within the study area have not been mapped by the U.S. Department of Agriculture Natural Resources Conservation Service. However, quaternary surficial geology within a portion of the study area has been mapped by the California Geological Survey (CGS 2012) (Appendix A, Figure 2). Surficial deposits are well-drained and are split into alluvial, mixed alluvial/eolian, and eolian deposits (Table 2).

Table 2. Quaternary Surficial Deposits Within the Study Area

Map Unit	Name	Description
Qa	Alluvial Valley Deposits	Unconsolidated clay, silt, sand, and gravel recently deposited parallel to localized stream valleys and/or spread more regionally onto alluvial flats of larger river valleys; sandy sediment generally more dominant than gravelly sediment.
Qya	Young Alluvial Valley Deposits	Unconsolidated to slightly consolidated, undissected to slightly dissected clay, silt, sand, and gravel along stream valleys and alluvial flats of larger rivers.
Qye	Young Eolian and Dune Deposits	Unconsolidated to slightly consolidated, undissected to slightly dissected windblown sands.

Source: Schmidt and McMackin 2006

1.5 Vegetation

Vegetation within the study area is predominantly *Larrea tridentata*–*Ambrosia dumosa* shrubland alliance (creosote bush–white bursage scrub) on the eastern third and a mixture of *Atriplex confertifolia* shrubland alliance (shadscale scrub) and *Atriplex polycarpa* shrubland alliance (allscale scrub) on the western two-thirds. The western two-thirds of the study area is also interspersed with areas of low vegetative cover dominated by noxious weeds such as cheatgrass (*Bromus tectorum*) and saltlover (*Halogeton glomeratus*).



2 Methods

The aquatic resource assessment consisted of three steps: a desktop review, a field assessment, and a jurisdictional assessment. Methods for each step are described below. Since the field assessment was conducted in late 2024, and then additional areas in spring 2025, desktop review and reports were re-run for each effort, as appropriate. Specifics on survey dates and desktop review across the different efforts are included below.

2.1 Desktop Review

Prior to conducting fieldwork, Stantec reviewed the following map resources:

- U.S. Fish and Wildlife Service National Wetland Inventory (NWI) (USFWS 2024).
- Google Earth color aerial imagery dating back to 1985.
- USGS 7.5-minute topographic maps dating back to 1905.
- USGS 3DHP (USGS 2024).

In addition to these references, Stantec reviewed resources specific to dry washes, as well as local and regional geomorphology, in accordance with CDFW guidance for mapping systems in drylands provided in *MESA: Mapping Episodic Stream Activity* (MESA) (Brady and Vyverberg 2013):

- Geologic Compilation of Quaternary Surficial Deposits in Southern California (CGS 2012).
- Preliminary Surficial Geologic Map Database of the Mesquite Lake 30' x 60' quadrangle (Schmidt and McMackin 2006).
- Ground Water in Pahrump, Mesquite, and Ivanpah Valleys, Nevada and California (USGS 1920).
- Hydrology of the Valley-Fill and Carbonate-Rock Reservoirs, Pahrump Valley, Nevada-California (Malmberg 1967).
- A technical report previously written for the study area was also reviewed:
 - Brightsource Energy Hidden Hills Solar Project, Inyo County, CA, Preliminary Delineation of Jurisdictional Waters of the State (URS 2012).

In addition, the report from Stantec's 2020 aquatic resource delineation for a larger area that encompassed the current study area was also reviewed.

These resources were used to identify potential aquatic resources based on changes in vegetation, topographic changes, and/or visible drainage patterns. Prior to field surveys, Stantec digitized potential resources onto aerial imagery that were then published into the working field map used during field surveys. Aquatic resources mapped during the 2020 delineation were added to the working basemap in addition to any suspected aquatic resources digitized from aerial imagery. Finally, both NWI and 3DHP data were added to the field map (Appendix A, Figure 2).



An evaluation of current (to the field work time frame) climatic conditions, which is required by the USACE to determine if “normal conditions” exist, was conducted prior to field surveys using the antecedent precipitation tool (APT). The APT defines the “normal range” of local conditions based on the previous three-months rainfall data for the area and awards a designation of dry, normal, or wetter than normal for a given observation period (Gutenson and Deters 2023). The APT analysis for the study area used data from the *PAHRUMP 4 NW*, *PAHRUMP 6.3 SSE*, *PAHRUMP 10.5 SSE*, *SHOSHONE*, and *RED ROCK CANYON–SPG MT RCH S* weather stations and the reported results are that there were “normal conditions” at the time of the 2024 and 2025 field assessments. The APT results are included in Appendix B.

2.2 Field Assessment

The aquatic resources field assessment covering 2,558.20 acres of the study area was conducted by a team of four Stantec biologists from September 30 through October 3, 2024. An additional 150.2 acres was added to the study area and surveyed on May 1 and June 18, 2025. Together, both field efforts cover the complete 2,708.4 study area included in this delineation report. The team consisted of wetland delineators Sheryl Creer (Task Lead), Hank Raizen, Meghan Oats, Brendan Cohen, Ryan Blaich, and Dannique Aalbu.

The study area was surveyed on foot, and all aquatic resources were mapped. The team visited locations of resources mapped in the 3DHP and/or NWI databases while traversing the study area, to document presence or absence of the resources. Data were collected to a sufficient level of detail to inform the jurisdictional assessment for each relevant agency on a resource-by-resource basis. The team recorded plant species observed during field surveys using botanical nomenclature following the Jepson eFlora site (Jepson Flora Project 2024). The last rainfall prior to the start of the September/October 2024 field assessment as recorded by the National Oceanic and Atmospheric Administration’s Pahrump 4 NW, NV weather station was 0.05 inch on September 21, 2024 (National Oceanic and Atmospheric Administration 2025). In addition, a significant monsoon event occurred on August 21, 2024, where 1.45 inches of rain fell. No rainfall was recorded for the duration of the September/October 2024 field assessment. The last rainfall prior to the start of the May/June 2025 field assessment as recorded by the National Oceanic and Atmospheric Administration’s Pahrump 4 NW, NV weather station was 0.10 inch on March 14, 2025 (National Oceanic and Atmospheric Administration 2025). No rainfall was recorded for the duration of the May and June 2025 field assessments.

The MESA guidance for mapping dry wash systems emphasizes the use of landscape position and geomorphology to identify resources potentially under CDFW jurisdiction in arid systems. To gain a landscape perspective on the study area’s subwatersheds, biologists visited resources up- and down-gradient of the study area, as well as the intervening landscapes. During the delineation in 2020, Stantec visited Trout Canyon 11 miles to the northeast and the unnamed dry lakebed 2.4 mi to the northwest (Appendix A, Figure 1). Detailed information on resources mapped and jurisdictional assessment methods are provided below.



2.2.1 Wetlands

The definition of a “wetland” varies among the agencies. As such, biologists were prepared to collect a variety of data during the field assessment to establish adequate documentation using the various agency guidelines. The definition of a “wetland” summarized by agency is as follows:

USACE: Wetland delineation per USACE guidance followed the routine determination method given in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the revised procedures in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). This methodology entails examination of specific sample points in both wetlands and uplands (i.e., paired points) to determine the boundaries of wetland resources. Sample points are examined for hydrophytic vegetation, hydric soils, and wetland hydrology. In most cases, by the federal definition, all three parameters must be present for an area to be considered a wetland. Problematic situations, in which only two parameters are met, do occur in the Arid West (outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region), especially in areas that have been altered by human activity. In addition to the routine wetland determination method, Delineating Playas in the Arid Southwest: A Literature Review (Review) was also referred to when applicable (USACE 2001). USACE issued this Review to address the lack of sufficient indicators for determining playa boundaries in the previously listed USACE guidance documents. It provides a summary of pertinent literature and case studies with local indicators applicable to playas.

Lahontan RWQCB: Wetland determination, as defined and adopted on April 2, 2019, by the State Water Resources Control Board follows the USACE three-parameter requirement as outlined above.

CDFW: Previous guidance by CDFW considers riparian canopy and riparian wetlands under the jurisdiction of CDFW when a wetland, shrub, or forest community is associated with a drainage resource or “stream”, which may include USACE hydrophytic vegetation. In the Arid West, specifically desert regions of California, there is often a complete lack of riparian or stream-dependent vegetation due to the ephemeral nature of runoff events. In 2013, California Energy Commission and CDFW released a protocol and field guide for delineating episodic streams in “dryland environments”: MESA: Mapping Episodic Stream Activity. This protocol has overlap with the USACE Arid West ordinary high water mark (OHWM) protocol and is described further below in Section 2.2.2.

Wetland boundaries for the USACE and LRWQCB are determined by following a combination of the limits of hydrophytic vegetation, limits of observed wetland hydrology, topographic breaks, and aerial ortho-photo interpretation. Boundaries for CDFW resources were determined following the MESA protocol, which uses geomorphic units, vegetation, and other upland and hydrology indicators. All test pits and/or wetland/watercourse boundaries were mapped using a sub-meter-accurate Global Positioning System unit (GPS) such as an Arrow EOS GPS Unit™, Bad Elf GNSS™, or Geode GNS3 GNSS Receiver™ paired with Field Maps for ArcGIS™ (Field Maps). All spatial data were collected in the World Geodetic System 84 datum. Representative photographs were taken of sample points and resources (Appendix D).



2.2.2 Other Waters and Watercourses

Drainages and other waters that do not fall within the “wetland” category (e.g., watercourses, floodplains, playas, etc.) but do potentially fall under the jurisdiction of USACE, LRWQCB, and/or CDFW were also mapped within the study area. As with wetlands, the definition of a “drainage” or other water varies between the agencies. As such, the field teams collected a variety of data to establish adequate documentation using the various agency guidelines. The criteria used to determine what constitutes a drainage or other water are summarized below by agency:

USACE: Drainages or “other waters” were delineated based on indicators of an OHWM. The OHWM was determined using the approach outlined in *A Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States* (USACE 2008b) which includes additional guidance for compound or floodplain systems. The following attributes were collected or measured for each mapped drainage: average OHWM width and depth, average top-of-bank (TOB) width and depth, OHWM indicators, and substrate below OHWM. In the case of compound systems, the boundaries of the active floodplain (floodplain) were mapped as a polygon. In addition, the latest regulatory change to the definition of waters of the U.S. (WOTUS) prioritizes regime when making USACE jurisdictional determinations (i.e., ephemeral drainages are no longer WOTUS). The Environmental Protection Agency has since introduced an additional protocol, the *User Manual for a Beta Streamflow Duration Assessment Method (SDAM) for the Arid West of the United States* (Mazor *et al.* 2023) to gather additional data to support regime determinations. The final version of this manual, which combines the Arid West and Western Mountains Region was released after the 2024 surveys and was followed in the May/June 2025 surveys (Mazor *et al.* 2024). The SDAM method was followed in the field along with the standard OHWM determination method. All potential aquatic resources primary or secondary indicators of OHWM were mapped. A digital form that includes both the USACE AW OHWM and beta Arid West SDAM form was completed for each resource.

LRWQCB: All California Regional Water Quality Control Boards follow the USACE methods to determine the presence of another water, following previously listed guidance and methods based on presence of an OHWM.

CDFW: Typically, TOB measurements are noted for each drainage, also called a “stream” and defined under Title 14, California Code of Regulations Section 1.72, as “a body of water that follows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation.” CDFW’s MESA protocol was specifically developed for utility-scale solar projects in the California desert and was followed to document the presence of upland and/or watercourse indicators. This protocol includes mapping of washes or “watercourses” that are the functional equivalent of a riparian wetland located in a temperate location. Under these guidelines, the watercourse is the unit characterized and mapped as an aquatic resource. The MESA protocol includes walking transects across previously identified geomorphic units and documenting indicators, vegetation, and geomorphology using an Episodic Stream Indicator Data Sheet. To cover the entire study area (including areas not identified as potential watercourses), the field teams followed a modified version of the protocol. The teams walked the entire study area generally moving parallel to topographic contour lines across the study area. Upland MESA indicators were noted and mapped as points across the study area. When a potential watercourse was encountered, a transect across the watercourse was established, mapped, and documented on a MESA datasheet with corresponding watercourse



indicator data points. A digital version of this datasheet was completed for each MESA transect. Aquatic resources mapped as CDFW watercourses are typically co-located with USACE floodplains.

In summary, drainages, other waters, and watercourses were mapped following OHWM lines and/or floodplain/watercourse boundaries using presence of geomorphic units and other indicators. Spatial data mapping protocol is the same as outlined above for wetlands: using a GPS unit paired with Field Maps. All spatial data were collected in the World Geodetic System 84 datum. Representative photographs were taken for other waters mapped, in addition to MESA indicator sample points and watercourses. All potentially jurisdictional watercourses and other waters within the study area with primary or secondary indicators of OHWM were mapped.

2.2.3 Negative Data Collection

Suspected drainages and floodplain/watercourse areas within the study area identified during the desktop review were inspected during field surveys and, where necessary, a negative or “upland” sample point was recorded and the area was characterized to document a lack of indicators for all three agencies.

2.3 Preliminary Jurisdictional Assessment

Although each agency must make final jurisdictional determinations for delineated aquatic resources, Stantec conducted a preliminary jurisdictional assessment for each delineated resource after completion of field work and preparation of an aquatic resource map. Each resource was analyzed using a variety of criteria to assess potential jurisdiction under each of the three resource agencies. All jurisdictional assessments in this Report should be considered preliminary until the USACE, LRWQCB, and/or CDFW provide verification. Criteria and considerations used to assess potential jurisdiction under each agency are described below; additional details on each case are included in the results section.

2.3.1 U.S. Army Corps of Engineers

The 2023 Rule as Amended (Final Rule) finalized August 29, 2023, states that the USACE will take jurisdiction over five categories of aquatic resources as described in 33 CFR 328.3(a) and 40 CFR 120.2(a):

- (a)(1) territorial seas, traditional navigable waters (TNW), and interstate waters.
- (a)(2) impoundments of jurisdictional waters.
- (a)(3) relatively permanent waters (RPWs) (i.e., non-ephemeral) that are tributaries to WOTUS.
- (a)(4) wetlands adjacent (i.e., with a continuous surface connection) to WOTUS.
- (a)(5) intrastate lakes and ponds that do not fall in the above categories and are RPWs with a continuous surface connection to WOTUS.

The USACE does not take jurisdiction over eight categories of aquatic resources:

- 1. Waste treatment systems.
- 2. Wetlands in prior converted cropland with no change in use.



3. Ditches (including roadside) excavated wholly in and draining only dry land and are not RPWs.
4. Artificially irrigated areas that would revert to dry land should irrigation cease.
5. Artificial lakes or ponds created on dry land used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.
6. Artificial lakes or ponds, reflecting pools or swimming pools, or other small ornamental bodies of water.
7. Certain water filled depressions created in dry land.
8. Swales and erosional features.

“Adjacency” as defined by the USACE in the Final Rule has been revised to mean having a continuous surface connection in a typical year. Any wetlands mapped within the study area were assessed for jurisdiction based upon on-the-ground recorded observations, a review of current and historical aerial and topographic maps, and previous hydrological and technical reports listed in the desktop review section of this Report. Other waters within the study area were assessed for jurisdiction based upon hydrological regime (i.e., ephemeral, intermittent, or perennial) and connectivity in a typical year. An assessment of connectivity based on a “typical year” was made on a case-by-case basis based upon on-the ground recorded observations, a review of current and historical aerial and topographic maps, and previous hydrological and technical reports listed in the desktop review section of this Report.

Three jurisdictional determination processes are available with the USACE: an Approved Jurisdictional Determination (AJD), a Preliminary Jurisdictional Determination (PJD), or an Aquatic Resource Delineation Verification. In the AJD process, the USACE will decide jurisdiction of aquatic resources on a case-by-case analysis to determine hydrologic regime and connectivity to a TNW. An Aquatic Resource Delineation Verification and PJD are identical processes in that they both verify boundaries of delineated aquatic resources. In addition, a PJD states that any aquatic resources waters observed in the study may be USACE jurisdictional regardless of hydrologic connection to a TNW. The determinations in an AJD are considered final whereas those made during the PJD process may be open to reexamination and amended after initial permit submittal with the USACE. All three processes, when submitted as stand-alone requests, are not prioritized for processing by the USACE, which follows internal guidance for prioritizing requests that accompany permit packages.

For the purposes of supporting a request for an AJD, all aquatic resources were classified as either falling under one of the eight exclusions listed above or as potentially jurisdictional based upon hydrological regime (i.e., an RPW), and hydrological connectivity in a typical year, following guidance included in the USACE (2008b) guide and the Environmental Protection Agency’s SDAM (Mazor *et al.* 2023, 2024).

2.3.2 Lahontan Regional Water Quality Control Board

Under the broad Porter-Cologne Water Quality Control Act definition of waters of the state, all waters defined as “wetlands” under the USACE three-parameter requirement, including isolated resources, would likely be considered LRWQCB jurisdictional. Therefore, all wetlands that meet the three-parameter wetland criteria within the survey area are considered potentially jurisdictional.



The LRWQCB generally takes jurisdiction over all waters defined as “drainages” based upon the presence of OHWM and/or bed and bank; connectivity is not considered. In addition, isolated open waters or impoundments are also generally considered under the jurisdiction of the LRWQCB. Therefore, all drainages or other non-wetland waters within the survey area are considered potentially jurisdictional.

2.3.3 California Department of Fish and Wildlife

Wetlands typically fall under the jurisdiction of CDFW when they are adjacent to or associated with a drainage resource or “stream”. Most of these resources as they occur in drylands would likely be encompassed by the MESA protocol and included in a mapped watercourse. Under Title 14, California Code of Regulations Section 1.72, a “stream” is defined as “a body of water that follows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. This includes watercourses having surface or subsurface flow that support or have supported riparian vegetation. As such, resources not included in a watercourse that exhibited a dominance of hydrophytic vegetation and were associated with a drainage resource, regardless of regime, were also considered potentially jurisdictional. In addition, aquatic resources mapped as watercourses per MESA protocol are considered potentially jurisdictional. Drainages with bed and bank that do not occur within a watercourse (i.e., occur in uplands) are also potentially jurisdictional. In summary, all drainages (including those in watercourses) mapped within the study area were considered potentially CDFW jurisdictional by definition.



3 Results

Sixty-nine aquatic resources totaling 21.193 acres and 23,208.853 linear ft were mapped within the study area and assessed for potential jurisdiction under the USACE, LRWQCB, and CDFW (Appendix C, Figure 3). These resources include 64 drainages and drainage segments and five watercourses/floodplains; no playas, wetlands, or riparian habitats were mapped within the study area. All five resources mapped as USACE floodplains (i.e., compound systems with channel[s] associated with a floodplain) were also classified as CDFW watercourses with co-located boundaries. For the remainder of this Report, the term “floodplain” will be used for resources that are both CDFW watercourses and USACE floodplains, with the boundary defined by both the MESA uplands and OHWM edge, respectively. An SDAM analysis of each aquatic resource resulted in an ephemeral classification for all resources within the survey area. In addition, the survey area is located within a closed basin (Pahrump Valley) and has no connectivity to any TNWs or other WOTUS. Therefore, because of an ephemeral regime and no TNW connectivity, none of the aquatic resources mapped within the survey area are likely to fall under USACE jurisdiction. All 69 aquatic resources are likely under the jurisdiction of both LRWQCB and CDFW.

To support these findings, over 300 points documenting upland indicators or MESA watercourse/floodplain indicators were recorded, and six MESA transects across five watercourses/floodplains were recorded. A summary of all resources onsite, as well as potential jurisdiction grouped by general resource type, is included in Table 3 and



Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment

3 Results

Table 4, respectively. Additional details and jurisdictional assessment information for each resource is included in Appendix C, representative photographs in Appendix D, and data sheets in Appendix E. A list of plant species observed during field surveys is included in Appendix F.

Table 3: Summary of Aquatic Resources within the Study Area

Resource Type	Number of Resources	Acres ¹	Linear Feet
Ephemeral drainage	64	1.126	23,208.853
Ephemeral watercourse/floodplain	5	20.067	--
Total	69	21.193	23,208.853

Notes:

¹Acreage was calculated using linear feet and ordinary high watermark width



Table 4: Summary of Potentially Jurisdictional Aquatic Resources within the Study Area

Resource Type	USACE			RWQCB ¹			CDFW ²		
	Count	Acres	Linear Feet	Count	Acres	Linear Feet	Count	Acres	Linear Feet
Ephemeral drainage	--	--	--	64	1.126	23,208.853	64	1.126	23,208.853
Ephemeral watercourse/floodplain	--	--	--	5	20.067	--	5	20.067	--
Total	--	--	--	69	21.193	23,208.853	69	21.193	23,208.853

Notes:

¹ RWQCB acreage was calculated using OHWM width.

² CDFW acreage was calculated using TOB width which was co-located with the OHWM in all drainages mapped within the study area.

3.1 Other Waters and Watercourses

A total of 64 drainages and/or drainage segments totaling 21.193 acres and 23,208.853 linear ft were characterized, mapped, and assessed for potential jurisdiction under the USACE, Lahontan RWQCB, and CDFW. These drainages were all in uplands (i.e., not within a compound floodplain system bounded by upland geomorphic units). Flows generally travel east to west or northeast to southwest following study area topography. None of the 64 drainages exhibited development of a top of bank width distinct from the location of the OHWM, an overall indicator of the ephemeral nature of the hydrological regime within the study area. OHWM width ranged from one ft to eight ft, with 2.0 ft the most frequently observed width; OHWM depth ranged from 0.1 ft to 1.5 ft, with 0.5 ft the most frequently observed depth. Detailed information for each resource, including field observations and a jurisdictional assessment, is included in Appendix C.

Five floodplains were mapped within the study area; all support at least one low flow channel segment and many discontinuous and braided channels within the mapped floodplain unit. All the floodplains mapped were “weak” in the sense that none supported one main low flow channel that served as the primary hydrologic influence and ran the entire reach of the floodplain. Rather, low flow channels were discontinuous and reached a maximum of 2 ft wide and 0.25 ft deep, and in most cases, were not distinct from other channels in the floodplain. Based on these observations, the mapped floodplains were weakly developed and difficult to distinguish due to the overall diffuse nature of flow across the study area. Areas of sheet flow bounded by upland geomorphic units with at least one segment of a low flow channel were mapped as floodplain aquatic resources.

Hydrology within the study area has been significantly altered by a series of north-south and east-west roadcuts, plus one diagonally (northeast-southwest) oriented roadcut. These roadcuts, (particularly the north-south oriented) alter hydrology by blocking and ultimately concentrating what would be diffuse sheet flow into channels and weak floodplains. This is most obvious in the southeast corner of the study area, especially at the intersection of Avenue D and Gold Street where three road cuts and a junkyard block, redirect, and concentrate flows.



3.2 Negative Data

Over three hundred data points in upland areas were mapped in areas with only upland indicators, but more frequently in areas that showed mixed upland and sheet flow indicators. These “mixed” indicators were not observed in association with channels characterized by an OHWM and were not bounded within upland geomorphic units associated with floodplains. These areas show “mixed” indicators likely as evidence of a relatively recent significant but not necessarily recurring precipitation event where diffuse flows left behind indicators of sheet flow across an area of upland. The 1.45 in of rain that fell on August 21, 2024, is likely the event that caused the widespread sheet flow indicators. Mixed indicators observed together include bioturbation, rounding of surface forms, litter in place (upland); surface sediment cracks, small riffles, and sediment deposition (sheet flow). Upland indicators most observed include rubified surfaces, fractured rock in place, deflated surfaces, and cryptobiotic crust. Representative photographs of indicators are included in (Appendix D, D.2).



4 Conclusion and Summary

Sixty-nine aquatic resources totaling 21.193 acres and 23,208.853 linear ft were mapped within the study area and assessed for potential jurisdiction. The 69 resources included 64 ephemeral drainages and five watercourses (Table 3). No riparian vegetation, wetlands, seeps, or springs were found in the study area.

Based on the definitions, regulations, and guidance listed in Section 2.3, none of the resources are expected to fall under the jurisdiction of the USACE because they were determined to be isolated and ephemeral. In addition, an AJD (SPK-2024-00318, July 24, 2024) for an unrelated project issued by the USACE supports these findings. This AJD found that all drainages in the review area were not WOTUS based upon regime and lack of connectivity to a TNW. While the review area for this AJD is upstream and outside (approximately 1.5 mi northeast) of the study area for this project, it encompasses the same watershed. Included in the AJD is one unnamed stream that is shown flowing through the Bonanza Peak project study area and terminating in the dry lakebed to the northwest of the project. This is the same dry lakebed that the aquatic resources within the survey area would terminate in, if they continued across the study area. Based upon the findings in this Report and with AJD SPK-2024-00318 as precedent, none of the aquatic resources are expected to fall under the jurisdiction of the USACE. However, all aquatic resources mapped within the study area are likely under the jurisdiction of both Lahontan RWQCB and CDFW.

Flows within the study area are ephemeral and are sourced from direct precipitation as well as flows from the low-elevation scarps located to the northeast that are disrupted and muted by unpaved roadcuts that also occur to the northeast of the study area. The geomorphic context of the study area is a low-gradient valley bottom, more than 8 miles away from active alluvial fans that originate from the Spring Mountains to the northeast. All jurisdictional assessments in this Report should be considered preliminary until the USACE, Lahontan RWQCB, and CDFW provide verification.



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Appendices



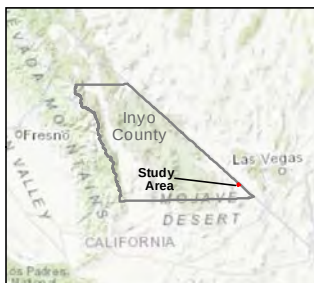
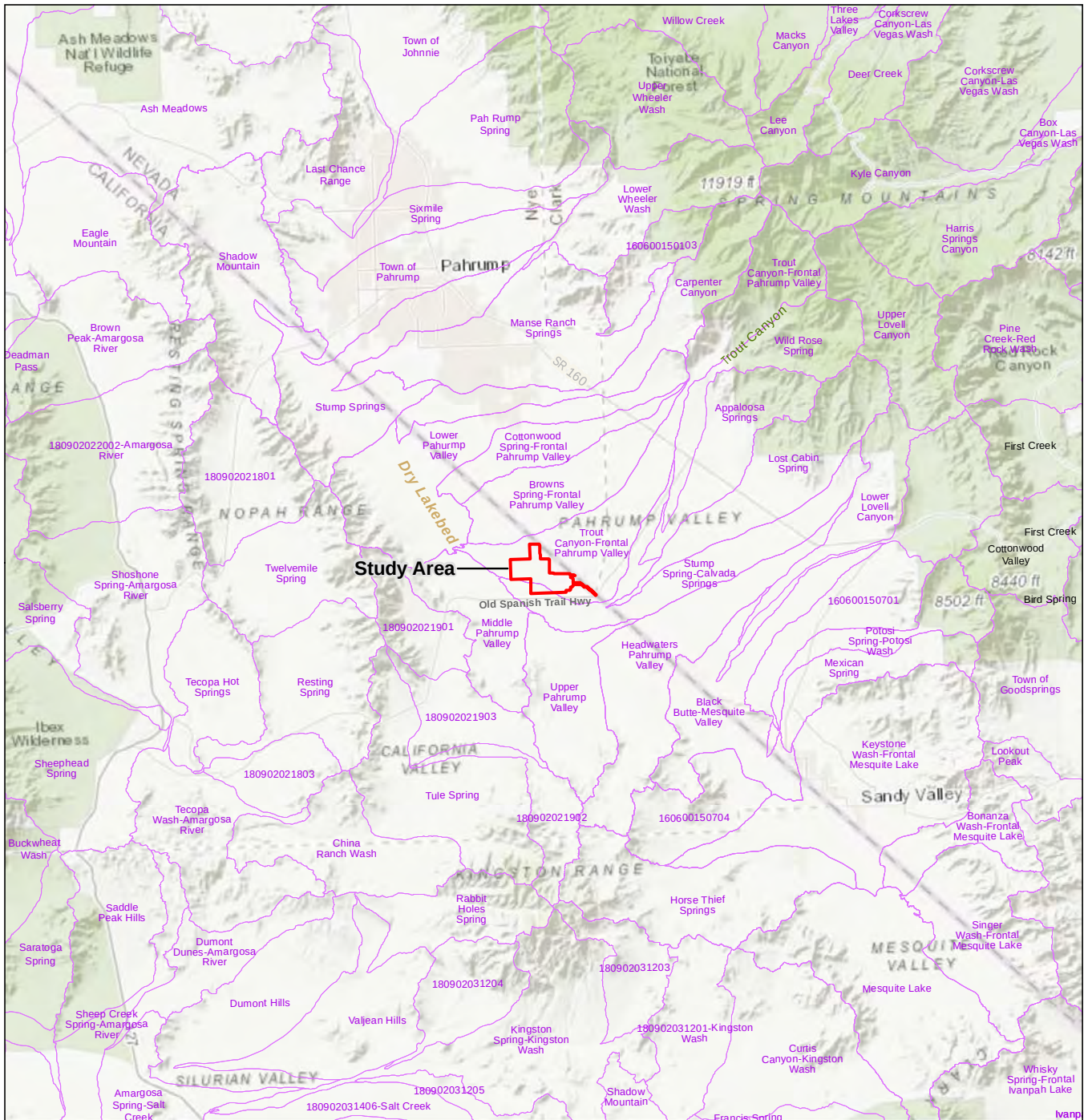
Appendix A Figures

Figure 1 Project Location

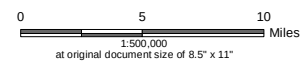
Figure 2 Surficial Geology and Topography

Figure 3 Aquatic Resources within the Study Area





- Study Area (2,709.2 acres)
- USGS HUC-12 Watersheds



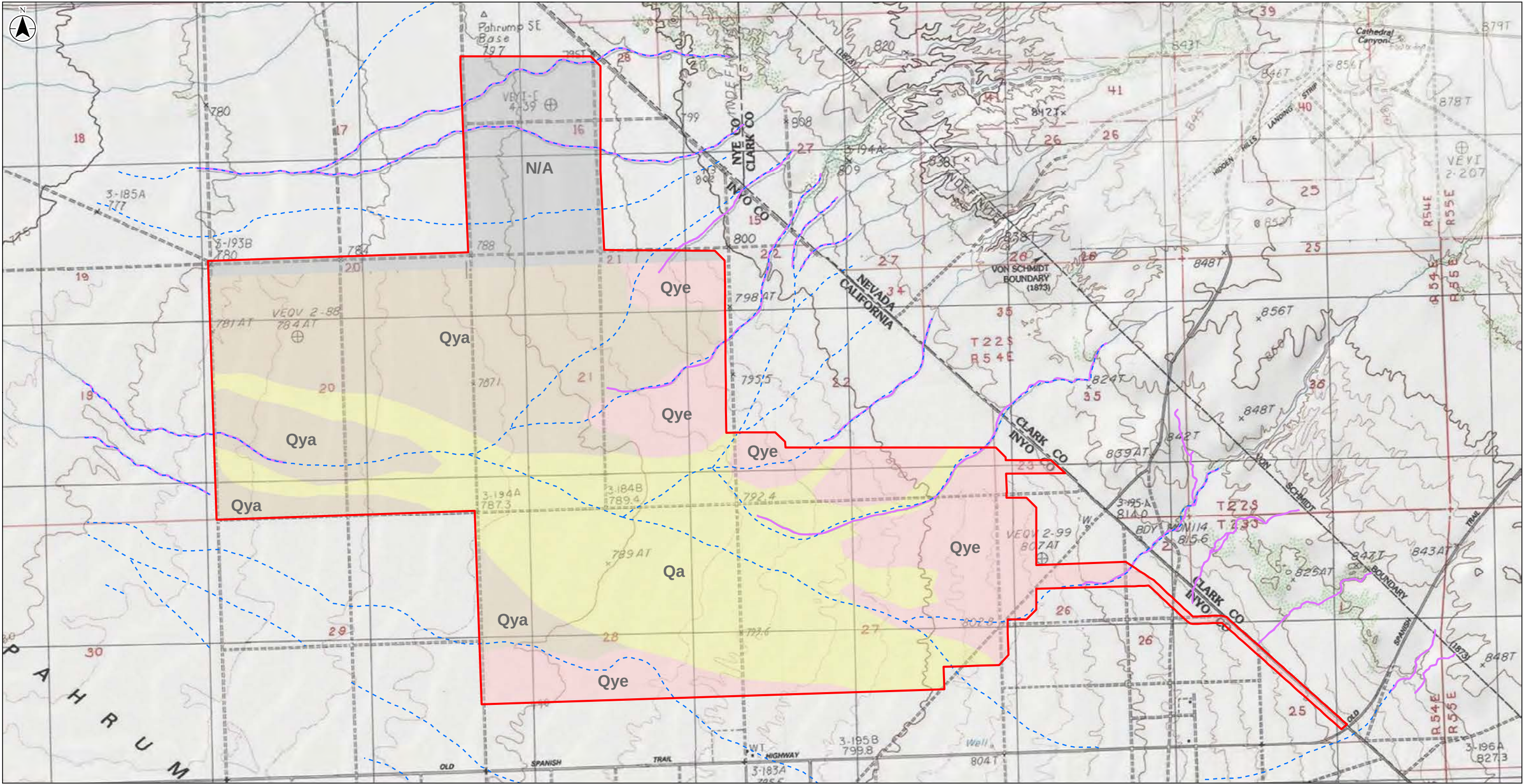
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Prepared by PG on 2025-07-16
Technical Review by SC on 2025-07-17

Client/Project:
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
1
Title

Project Location

Notes
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
2. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



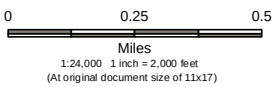
Study Area (2,709.2 acres)

- Quaternary Surficial Deposits**
- Qa: Alluvial Valley Deposits
 - Qya: Young Alluvial Valley Deposits
 - Qye: Young Eolian and Dune Deposits
 - N/A: No Data

Source: Department of Conservation, California Geological Survey, Special Report 217: Geologic Compilation of Quaternary Surficial Deposits in Southern California, 2012.

- National Hydrography Dataset Flowline *
- National Wetlands Inventory **

* Source: U.S. Geological Survey, National Hydrography Dataset, 2024.
** Source: U.S. Fish and Wildlife Service, National Wetlands Inventory, 2024.



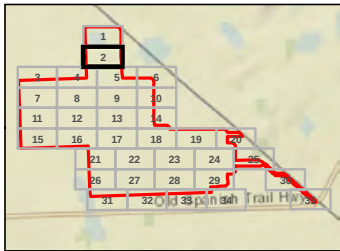
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Project Location
Inyo County, California
Prepared by PG on 2025-07-16
Technical Review by SC on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
2
Title
Surficial Geology and Topography

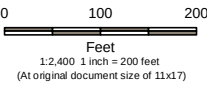


- Study Area (2,709.2 acres)
- Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--------------------------|---------------------------------------|
| Ordinary High Water Mark | MESA Transect |
| Top of Bank | MESA Component: Upland |
| Watercourse/Floodplain | MESA Component: Watercourse |
| | Ordinary High Water Mark Sample Point |

¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



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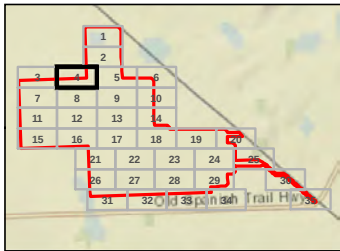


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



- Study Area (2,709.2 acres)

Control Point
- Potential CDFW/LRWQCB Resources¹

Ordinary High Water Mark

Top of Bank

Watercourse/Floodplain

MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point

¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.
- N

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100

200

Feet

1:2,400 1 inch = 200 feet

(At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet

2. Base Imagery: ESRI World Imagery Map web mapping service
- Project Location

Inyo County, California

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Technical Review by S. Creer on 2025-07-17

Client/Project

Bonanza Peak Solar, LLC

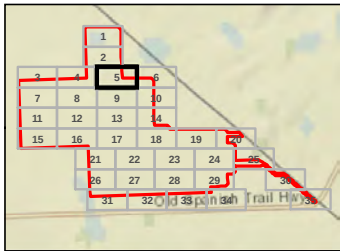
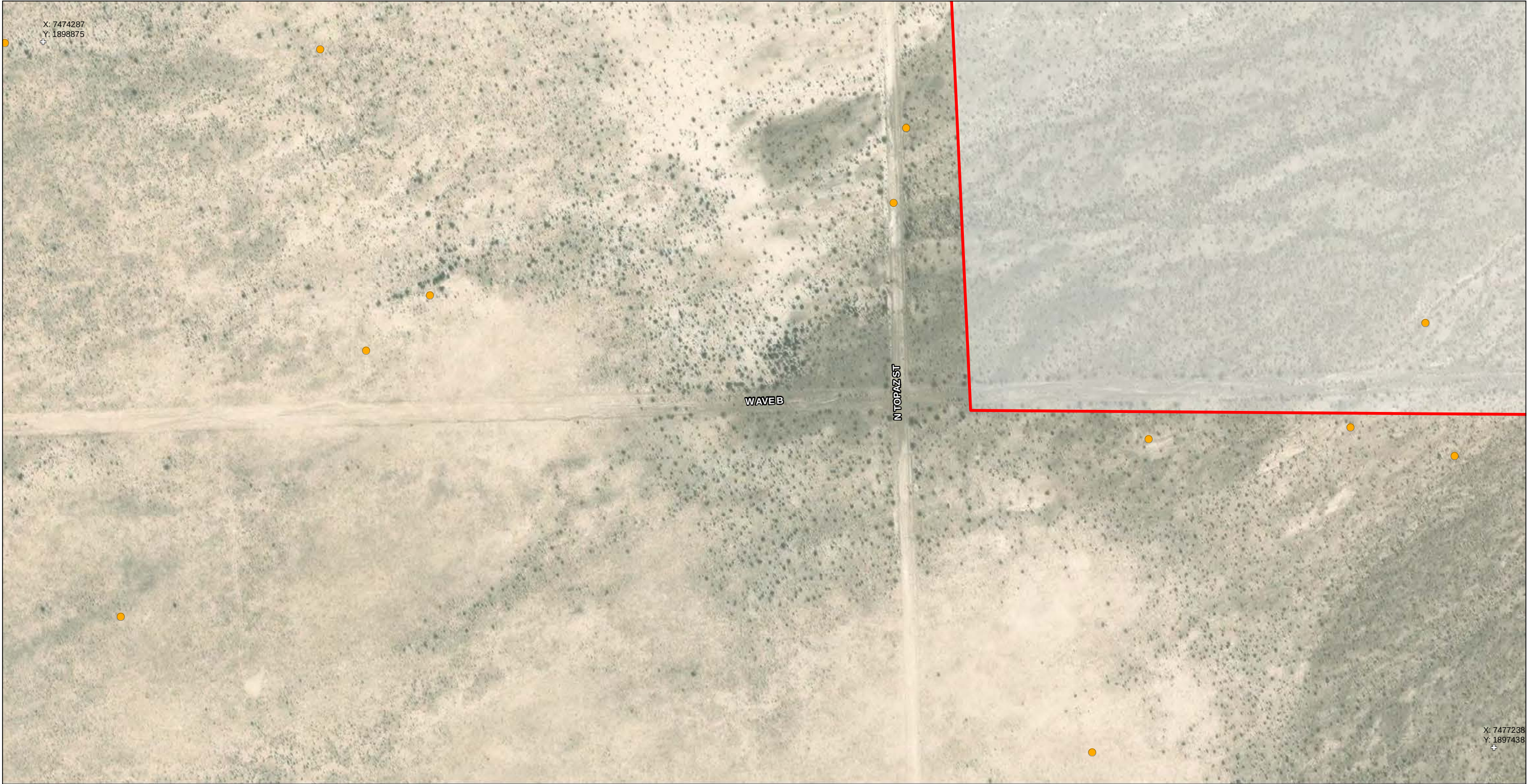
Bonanza Peak Solar

Figure No.

3

Title

Aquatic Resources in the Study Area
-
- Page 4 of 35
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- Study Area (2,709.2 acres)

Control Point
- Potential CDFW/LRWQCB Resources¹

Ordinary High Water Mark

Top of Bank

Watercourse/Floodplain

MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point

¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.
- N

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Feet

1:2,400 1 inch = 200 feet

(At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet

2. Base Imagery: ESRI World Imagery Map web mapping service
- Project Location

Inyo County, California

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Technical Review by S. Creer on 2025-07-17

Client/Project

Bonanza Peak Solar, LLC

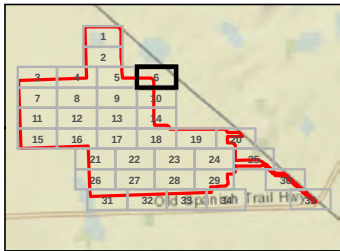
Bonanza Peak Solar

Figure No.

3

Title

Aquatic Resources in the Study Area
-
- Page 5 of 35



- Study Area (2,709.2 acres)

Control Point
- Potential CDFW/LRWQCB Resources¹

Ordinary High Water Mark

Top of Bank

Watercourse/Floodplain

MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point
- ¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.
- N

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100

200

Feet

1:2,400 1 inch = 200 feet

(At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet

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- Project Location

Inyo County, California

Client/Project

Bonanza Peak Solar, LLC

Bonanza Peak Solar

Figure No.

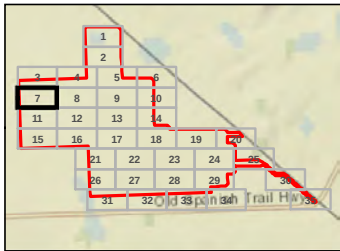
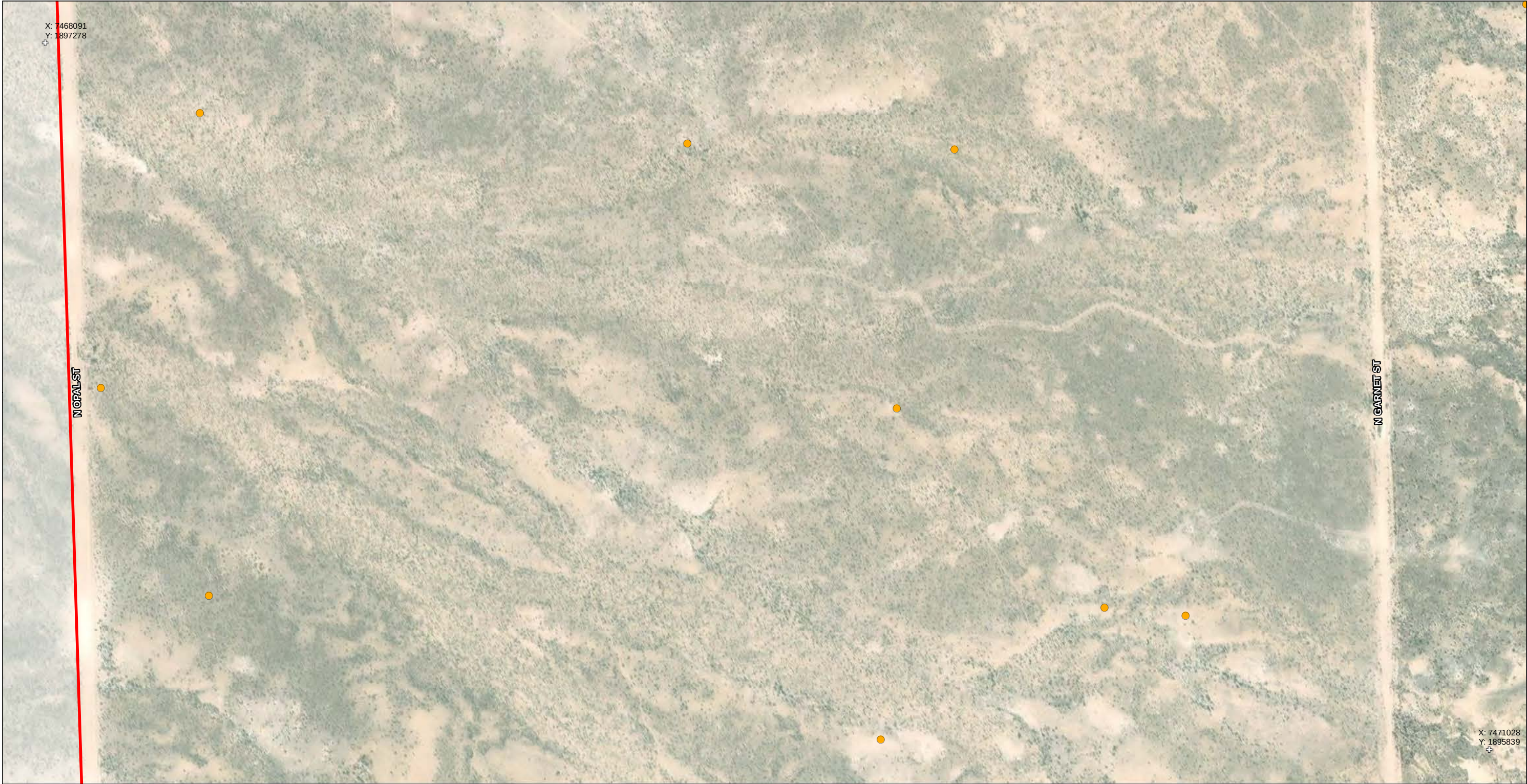
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Aquatic Resources in the Study Area

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-
- Page 6 of 35



 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--|---|
|  Ordinary High Water Mark |  MESA Transect |
|  Top of Bank |  MESA Component: Upland |
|  Watercourse/Floodplain |  MESA Component: Watercourse |
| |  Ordinary High Water Mark Sample Point |

¹**USACE Resources:** All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



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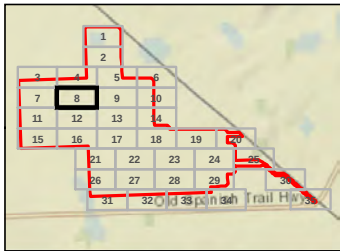
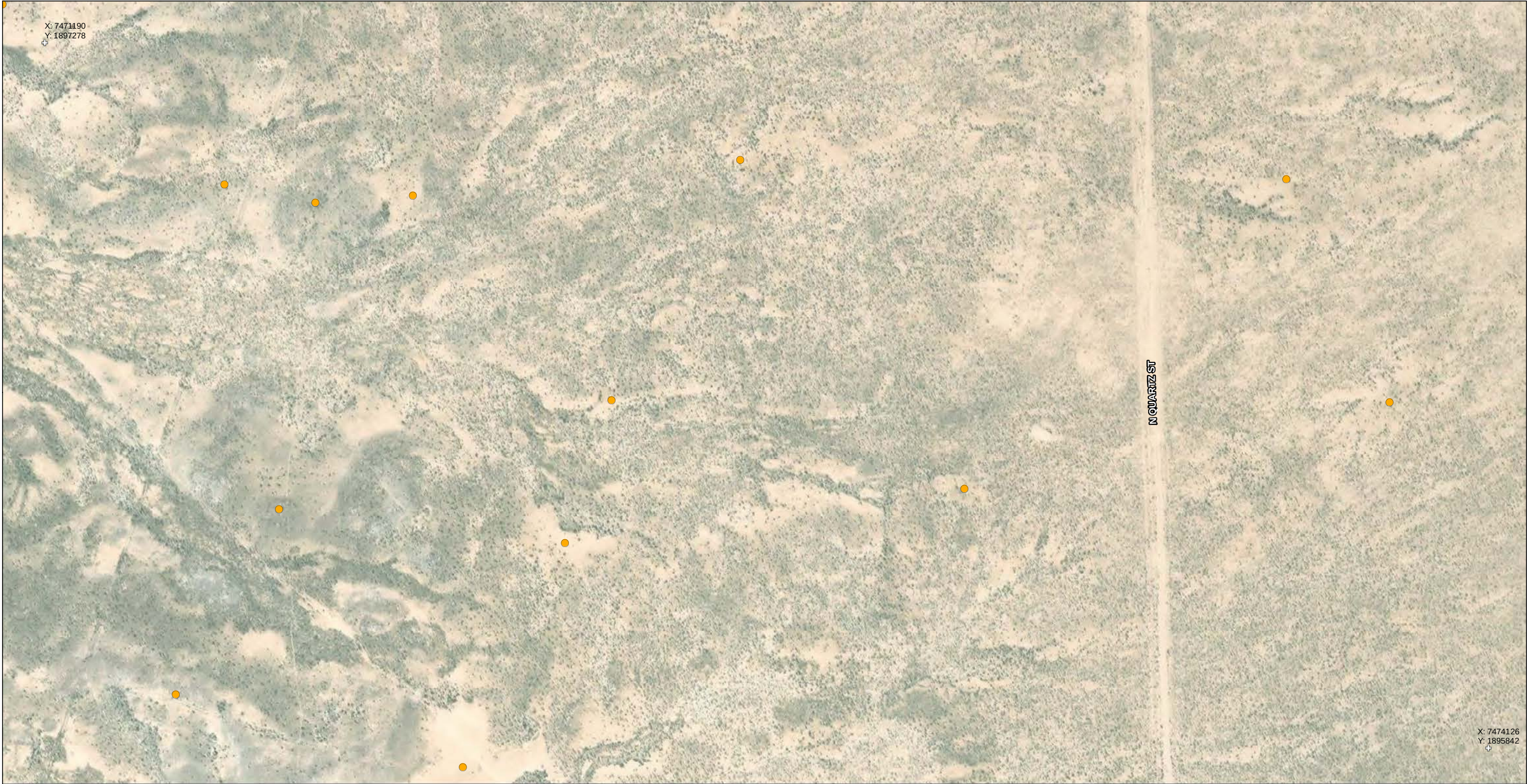
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California IV FIPS 0404 Feet
2. Base Imagery: ESRI World Imagery Map web
mapping service



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Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
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Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



- Study Area (2,709.2 acres)

Control Point
- Potential CDFW/LRWQCB Resources¹

Ordinary High Water Mark

Top of Bank

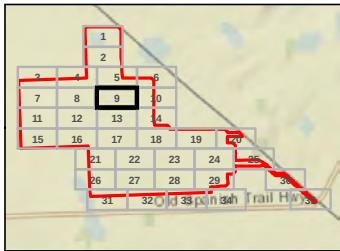
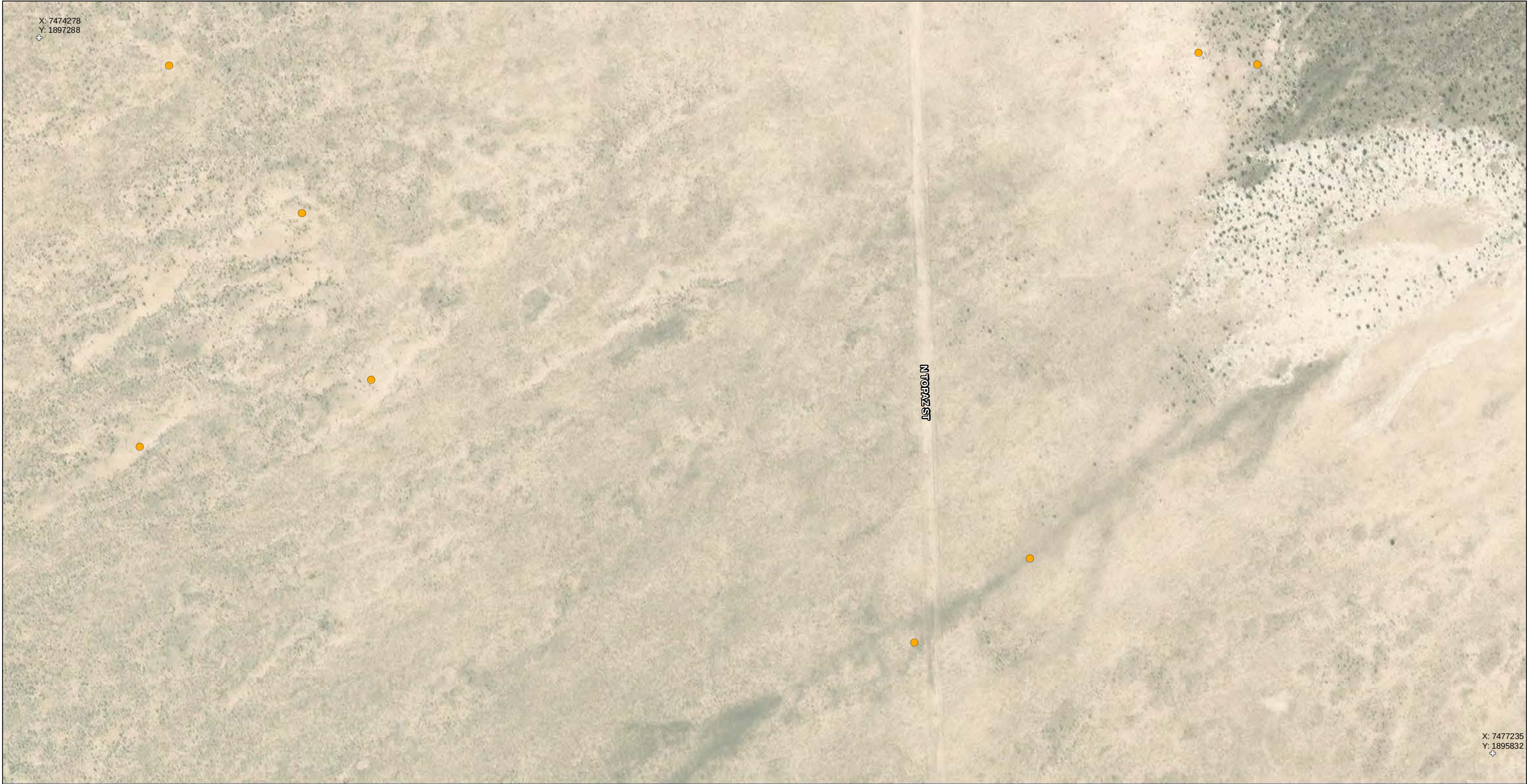
Watercourse/Floodplain

MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point
- ¹**USACE Resources:** All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.
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- Notes
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
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-
- Project Location
Inyo County, California
- Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17
- Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar
- Figure No.
3
Title
Aquatic Resources in the Study Area
- Page 8 of 35
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 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--|---|
|  Ordinary High Water Mark |  MESA Transect |
|  Top of Bank |  MESA Component: Upland |
|  Watercourse/Floodplain |  MESA Component: Watercourse |
| |  Ordinary High Water Mark Sample Point |

¹**USACE Resources:** All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



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(At original document size of 11x17)

Notes
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California IV FIPS 0404 Feet
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mapping service

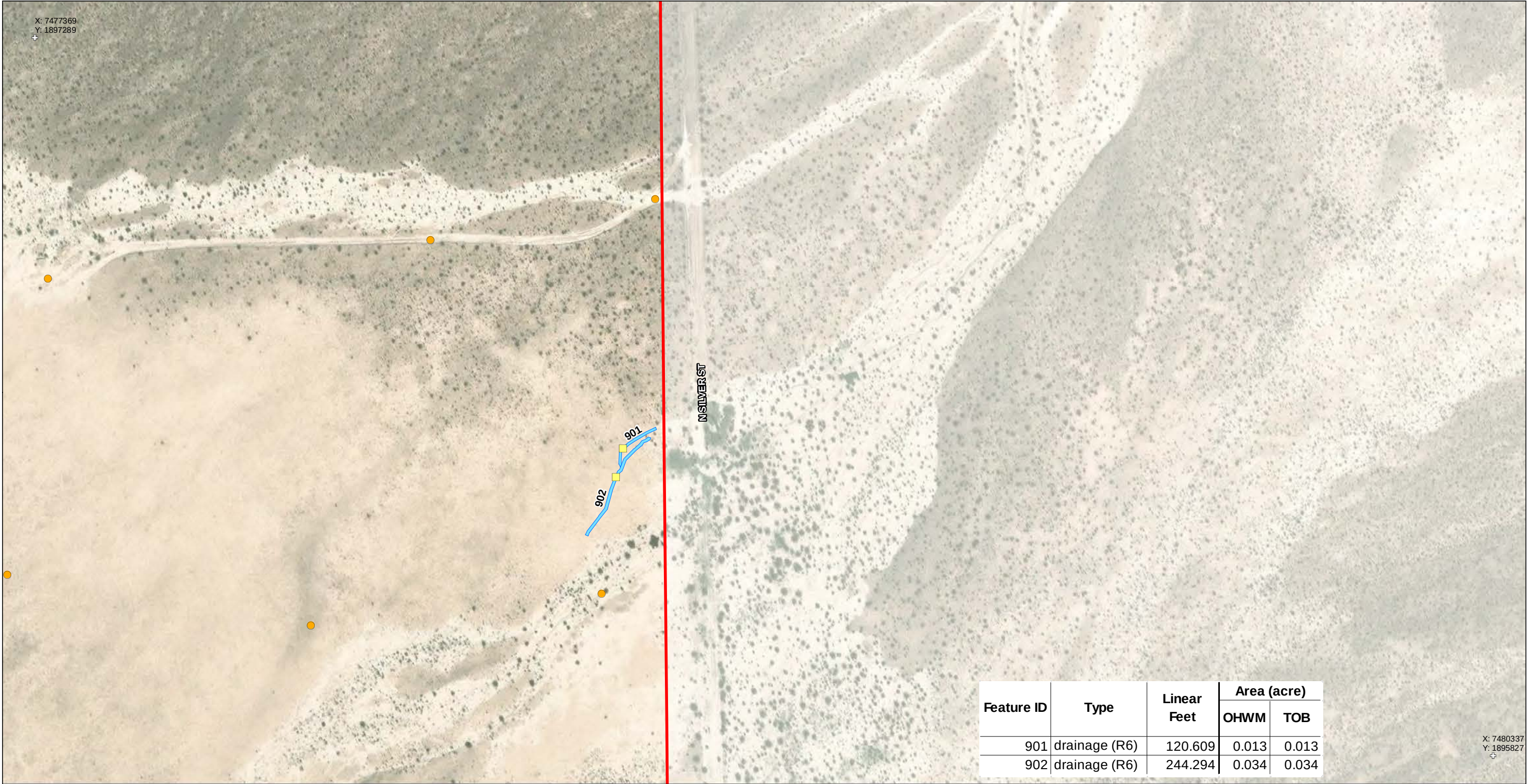


Project Location
Inyo County, California

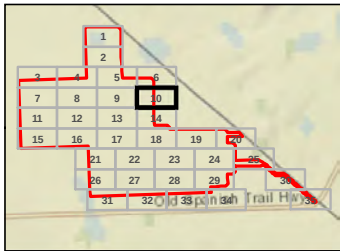
Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



Feature ID	Type	Linear Feet	Area (acre)	
			OHWM	TOB
901	drainage (R6)	120.609	0.013	0.013
902	drainage (R6)	244.294	0.034	0.034

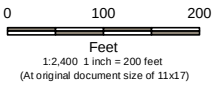


 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

-  Ordinary High Water Mark
-  MESA Transect
-  Top of Bank
-  MESA Component: Upland
-  Watercourse/Floodplain
-  MESA Component: Watercourse
-  Ordinary High Water Mark Sample Point

¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



Notes
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
2. Base Imagery: ESRI World Imagery Map web mapping service

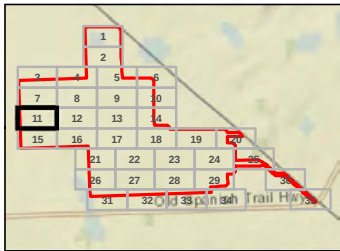
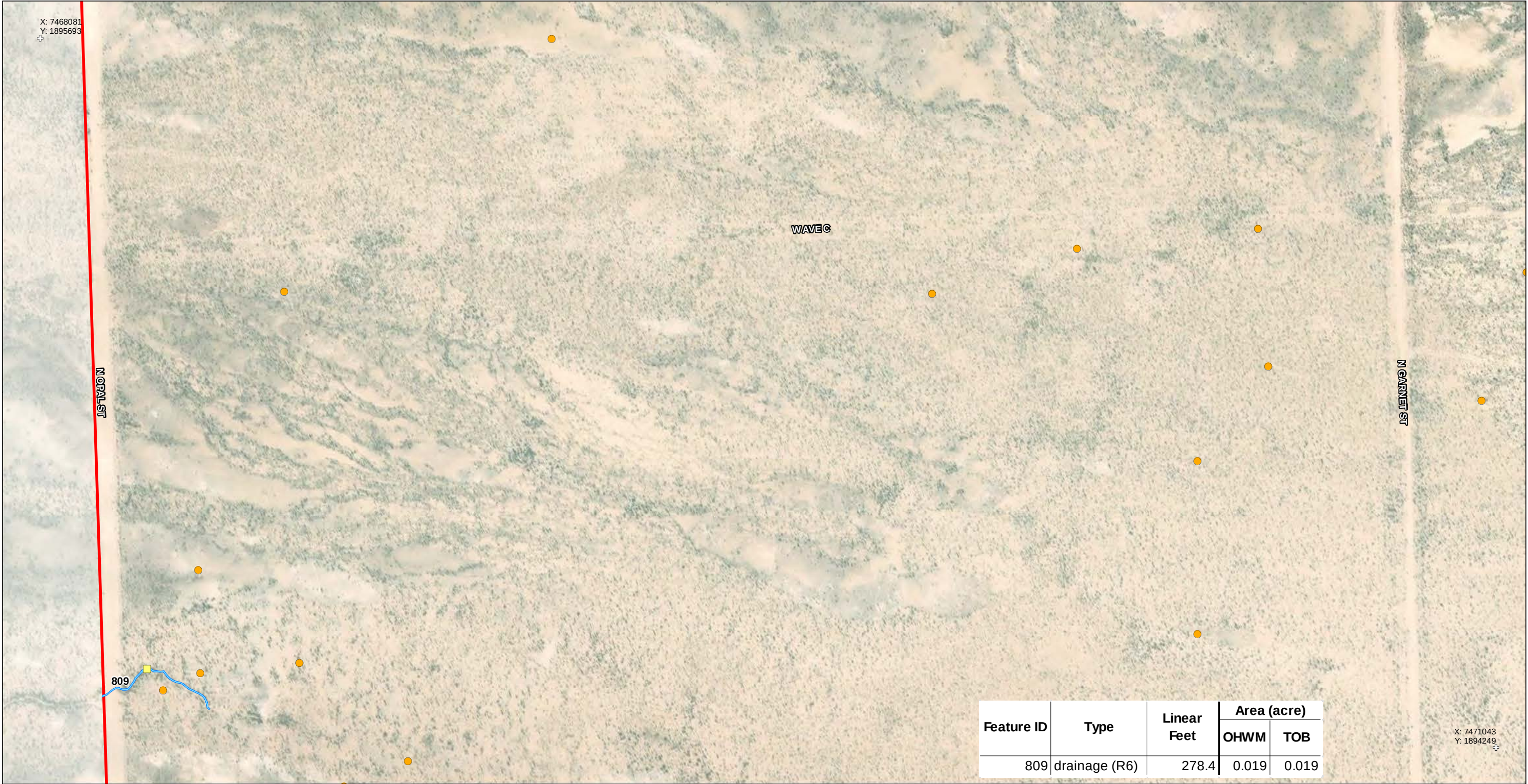


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area

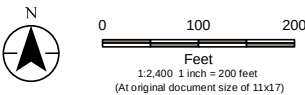


 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

-  Ordinary High Water Mark
-  MESA Component: Upland
-  MESA Component: Watercourse
-  Ordinary High Water Mark Sample Point
-  Top of Bank
-  Watercourse/Floodplain
-  MESA Transect

¹**USACE Resources:** All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



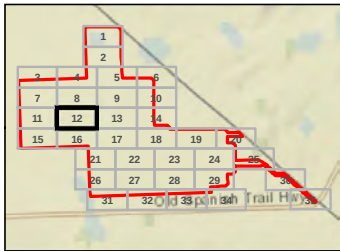
Notes
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
2. Base Imagery: ESRI World Imagery Map web mapping service



Project Location: Inyo County, California
Prepared by: P. Glendening on 2025-07-16
Technical Review by: S. Creer on 2025-07-17

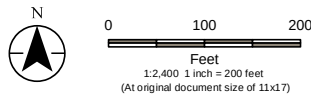
Client/Project: Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.: 3
Title: Aquatic Resources in the Study Area



- Study Area (2,709.2 acres)**
- Potential CDFW/LRWQCB Resources¹**
- Study Area (2,709.2 acres)
 - Control Point
 - Ordinary High Water Mark
 - Top of Bank
 - Watercourse/Floodplain
 - MESA Transect
 - MESA Component: Upland
 - MESA Component: Watercourse
 - Ordinary High Water Mark Sample Point

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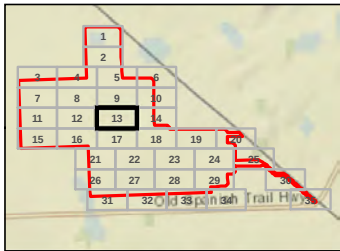
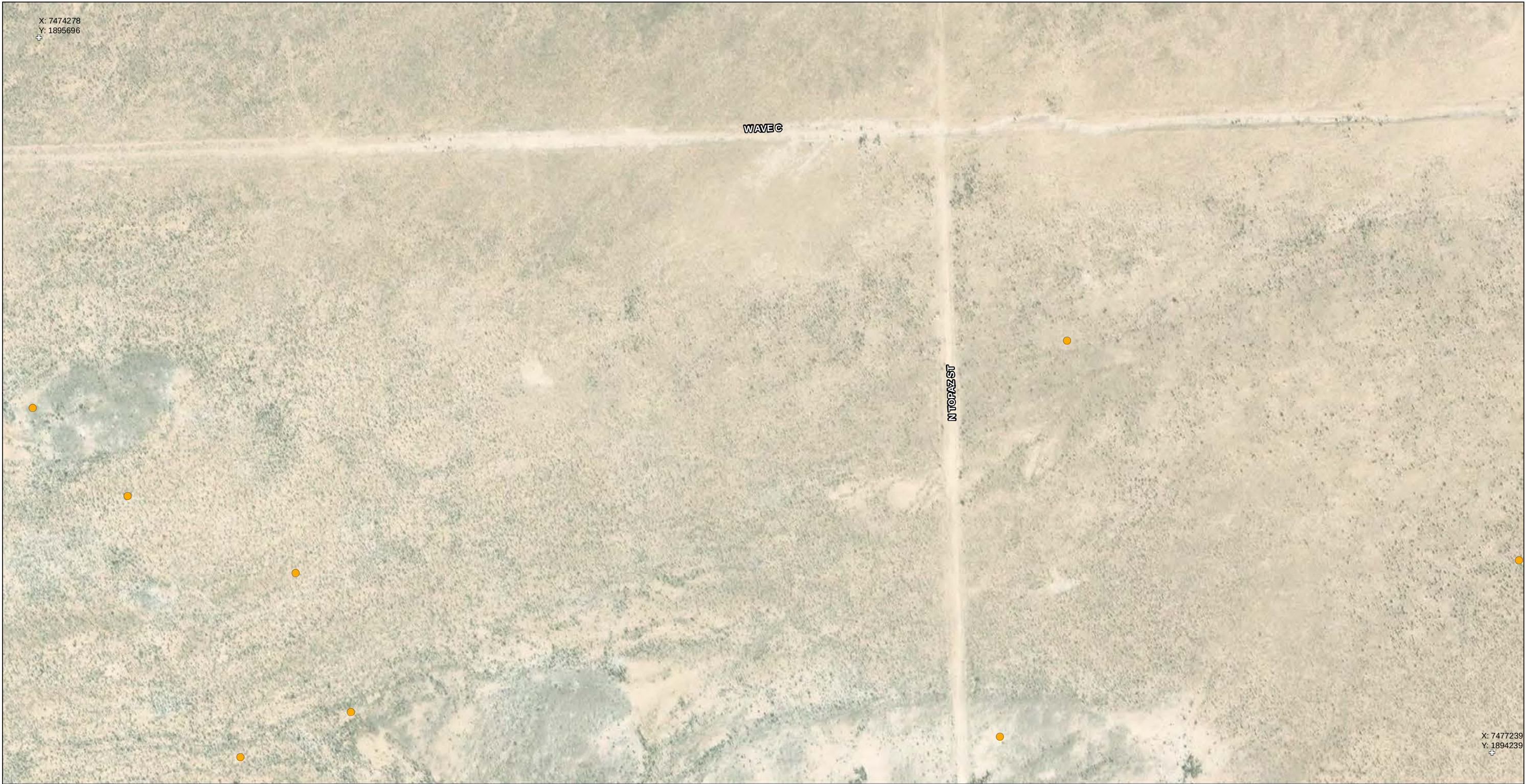


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



- Study Area (2,709.2 acres)

Control Point
- Potential CDFW/LRWQCB Resources¹

Ordinary High Water Mark

Top of Bank

Watercourse/Floodplain

MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point

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Feet

1:2,400 1 inch = 200 feet

(At original document size of 11x17)

Notes

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2. Base Imagery: ESRI World Imagery Map web mapping service
- Project Location

Inyo County, California

Prepared by P. Glendening on 2025-07-16

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Client/Project

Bonanza Peak Solar, LLC

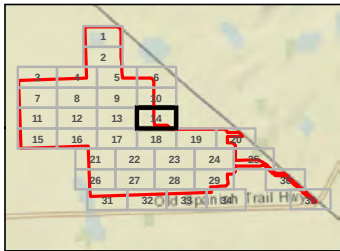
Bonanza Peak Solar

Figure No.

3

Title

Aquatic Resources in the Study Area
-
- Page 13 of 35



 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--|---|
|  Ordinary High Water Mark |  MESA Transect |
|  Top of Bank |  MESA Component: Upland |
|  Watercourse/Floodplain |  MESA Component: Watercourse |
| |  Ordinary High Water Mark Sample Point |

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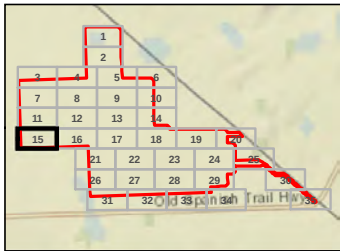
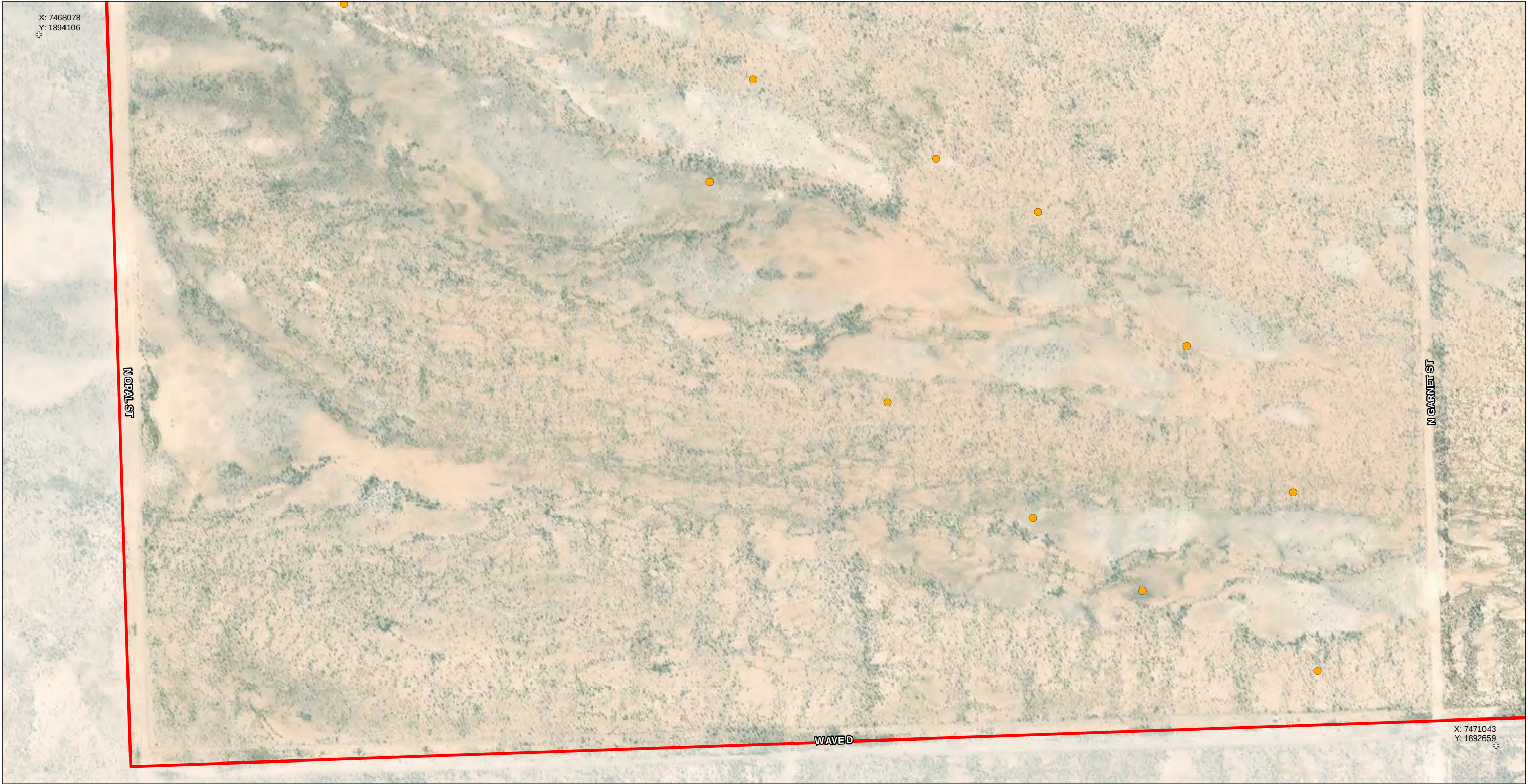


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

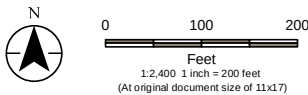
Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



- Study Area (2,709.2 acres)**
- Potential CDFW/LRWQCB Resources¹**
- Ordinary High Water Mark
 - Top of Bank
 - Watercourse/Floodplain
 - MESA Transect
 - MESA Component: Upland
 - MESA Component: Watercourse
 - Ordinary High Water Mark Sample Point

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Notes
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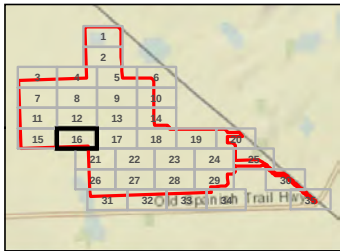


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--|---|
|  Ordinary High Water Mark |  MESA Transect |
|  Top of Bank |  MESA Component: Upland |
|  Watercourse/Floodplain |  MESA Component: Watercourse |
| |  Ordinary High Water Mark Sample Point |

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Notes
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California IV FIPS 0404 Feet
2. Base Imagery: ESRI World Imagery Map web
mapping service



Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

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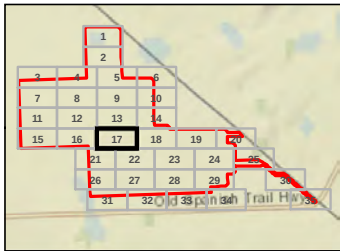
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.

3

**Aquatic Resources in the Study
Area**

Page 16 of 35



 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--|---|
|  Ordinary High Water Mark |  MESA Transect |
|  Top of Bank |  MESA Component: Upland |
|  Watercourse/Floodplain |  MESA Component: Watercourse |
| |  Ordinary High Water Mark Sample Point |

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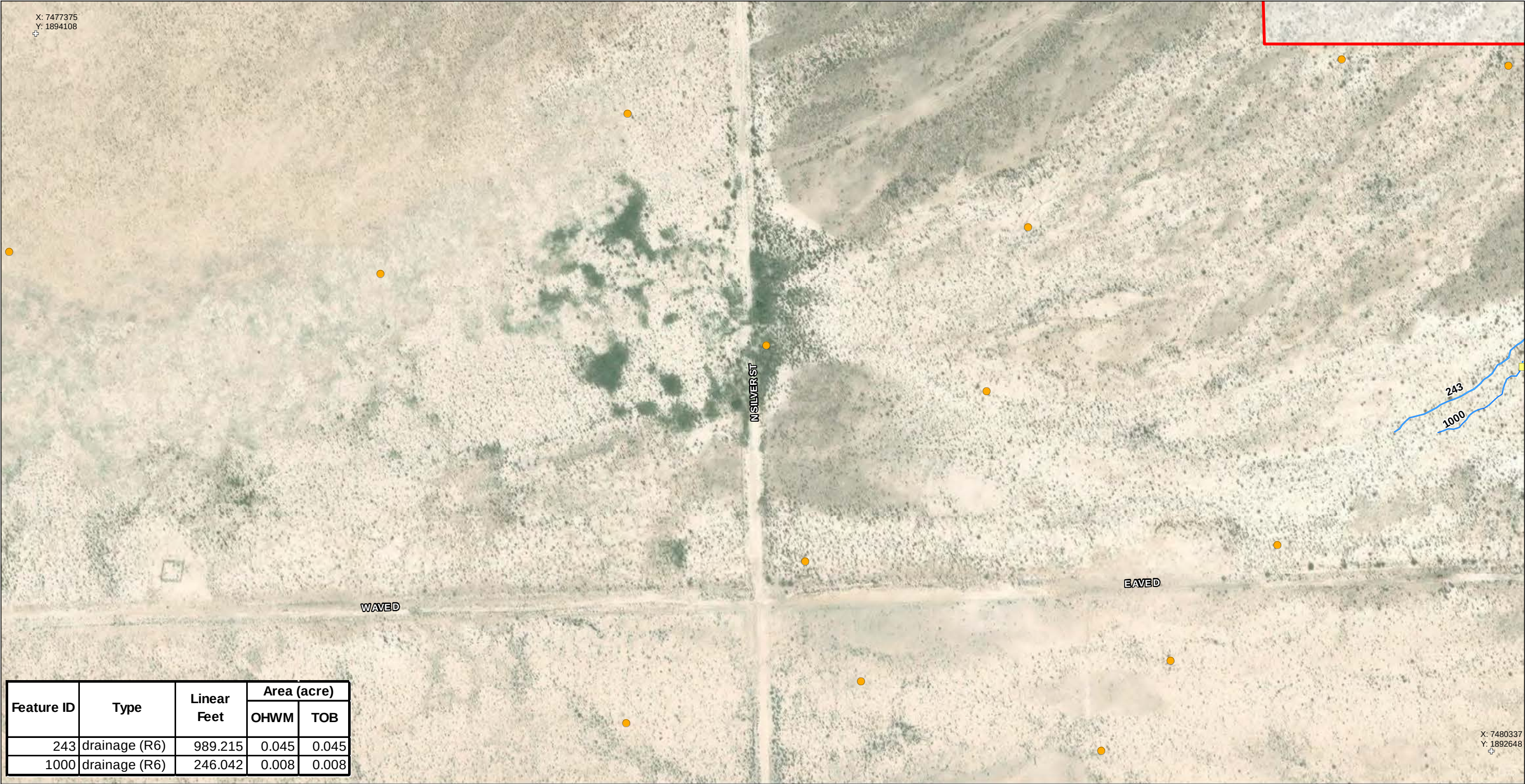
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1. Coordinate System: NAD 1983 StatePlane
California IV FIPS 0404 Feet
2. Base Imagery: ESRI World Imagery Map web
mapping service



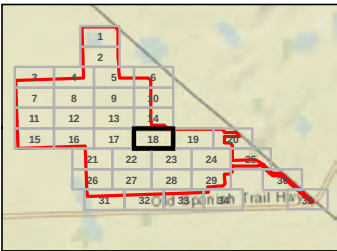
Project Location
Inyo County, California
Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



Feature ID	Type	Linear Feet	Area (acre)	
			OHWM	TOB
243	drainage (R6)	989.215	0.045	0.045
1000	drainage (R6)	246.042	0.008	0.008



- Study Area (2,709.2 acres)

Control Point
- Potential CDFW/LRWQCB Resources¹

Ordinary High Water Mark

Top of Bank

Watercourse/Floodplain

MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point

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- N

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Feet

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Notes

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet

2. Base Imagery: ESRI World Imagery Map web mapping service
- Project Location

Inyo County, California

Prepared by P. Glendening on 2025-07-16

Technical Review by S. Creer on 2025-07-17

Client/Project

Bonanza Peak Solar, LLC

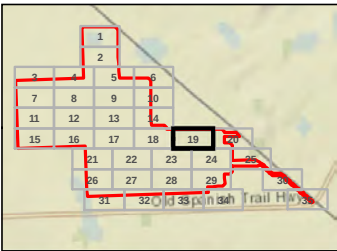
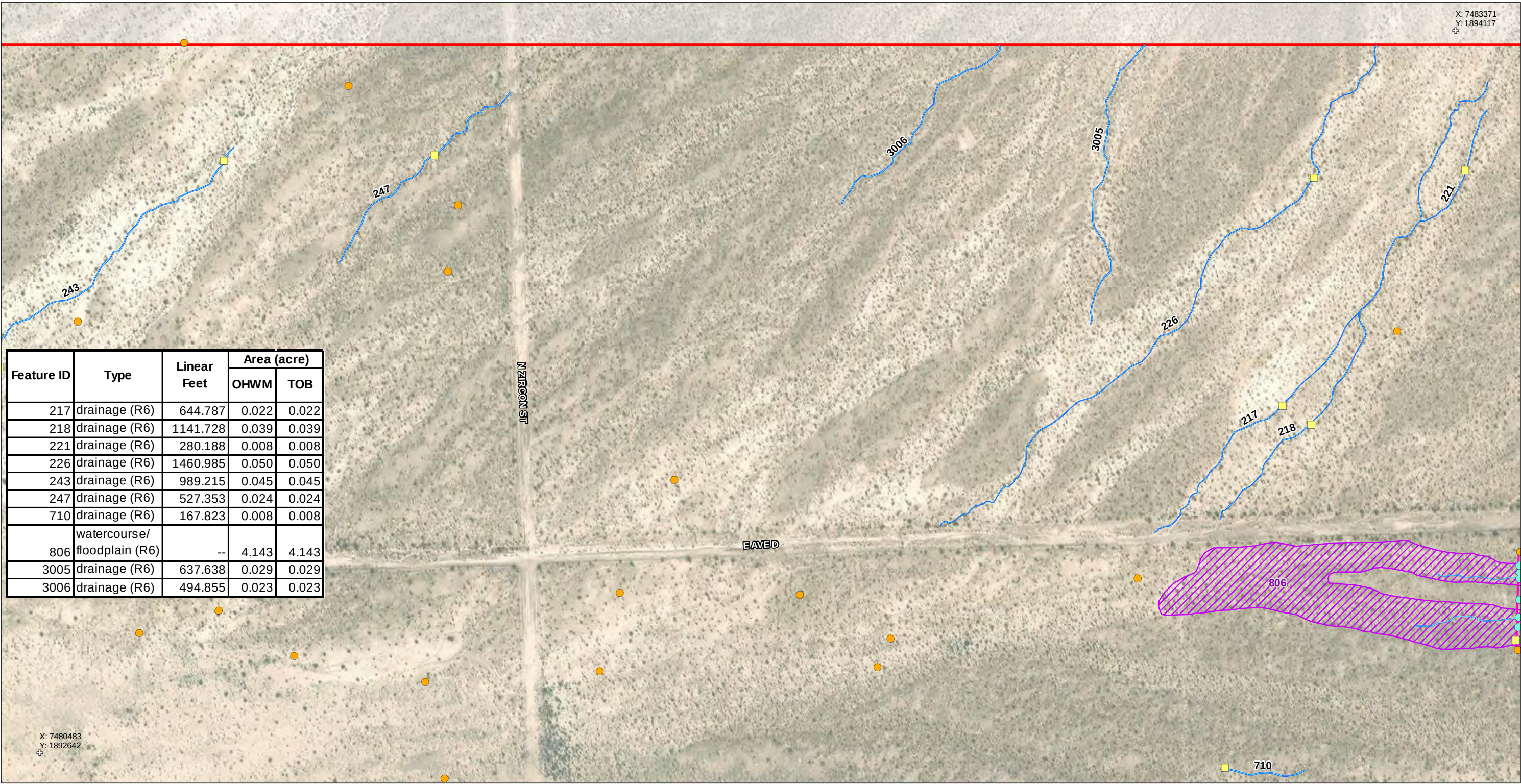
Bonanza Peak Solar

Figure No.

3

Title

Aquatic Resources in the Study Area
-
- Page 18 of 35



- Study Area (2,709.2 acres)

Control Point
- Potential CDFW/LRWQCB Resources¹

Ordinary High Water Mark

Top of Bank

Watercourse/Floodplain

MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point
- ¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.

N

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Feet

1:2,400 1 inch = 200 feet

(At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet

2. Base Imagery: ESRI World Imagery Map web mapping service

Project Location

Inyo County, California

Client/Project

Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.

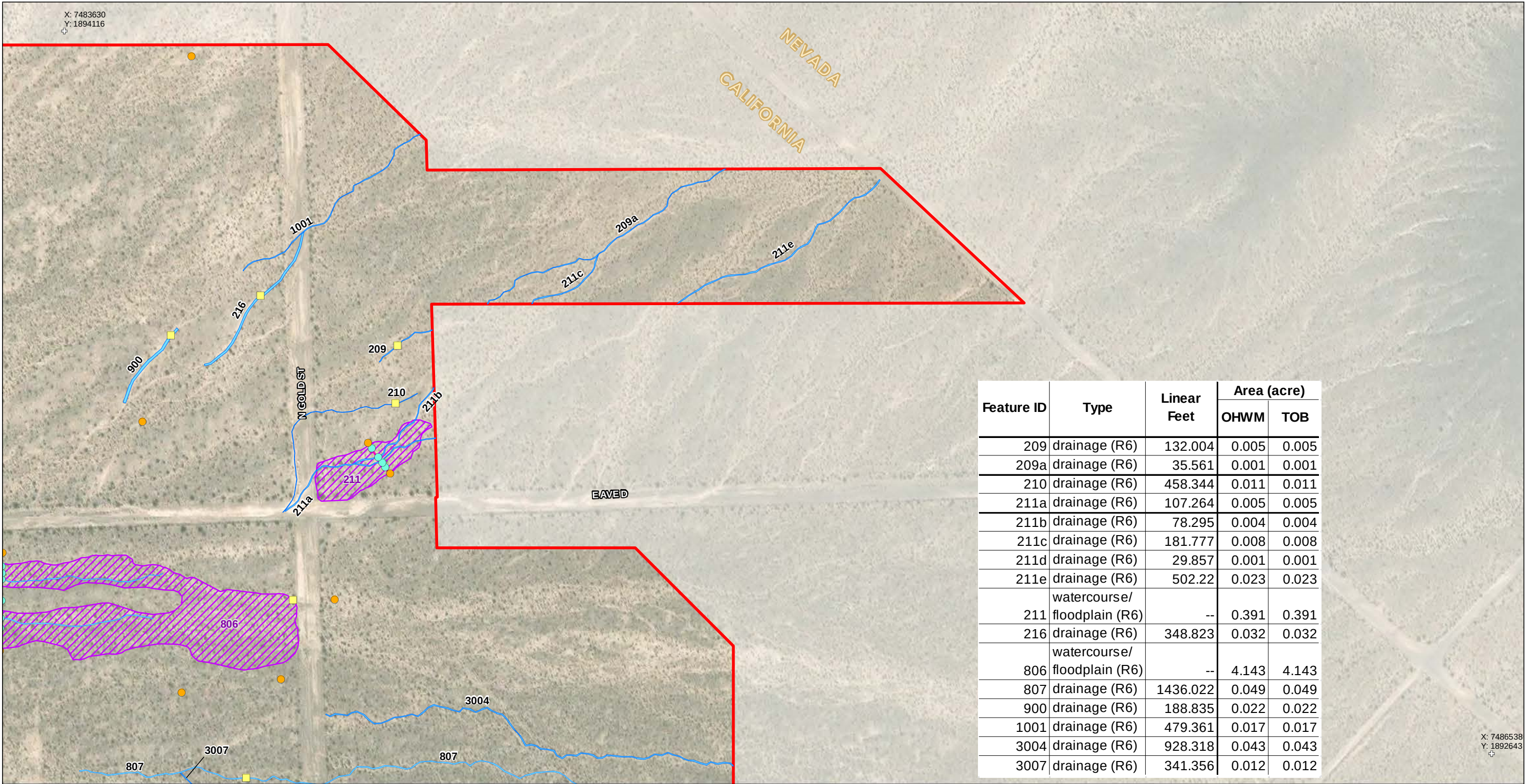
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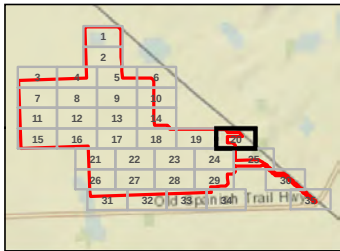
Aquatic Resources in the Study Area

Prepared by P. Glendening on 2025-07-16

Technical Review by S. Creer on 2025-07-17



Feature ID	Type	Linear Feet	Area (acre)	
			OHWM	TOB
209	drainage (R6)	132.004	0.005	0.005
209a	drainage (R6)	35.561	0.001	0.001
210	drainage (R6)	458.344	0.011	0.011
211a	drainage (R6)	107.264	0.005	0.005
211b	drainage (R6)	78.295	0.004	0.004
211c	drainage (R6)	181.777	0.008	0.008
211d	drainage (R6)	29.857	0.001	0.001
211e	drainage (R6)	502.22	0.023	0.023
211	watercourse/ floodplain (R6)	--	0.391	0.391
216	drainage (R6)	348.823	0.032	0.032
806	watercourse/ floodplain (R6)	--	4.143	4.143
807	drainage (R6)	1436.022	0.049	0.049
900	drainage (R6)	188.835	0.022	0.022
1001	drainage (R6)	479.361	0.017	0.017
3004	drainage (R6)	928.318	0.043	0.043
3007	drainage (R6)	341.356	0.012	0.012



- Study Area (2,709.2 acres)

Control Point
- Ordinary High Water Mark

Top of Bank

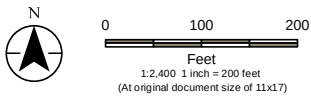
Watercourse/Floodplain
- MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point

¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



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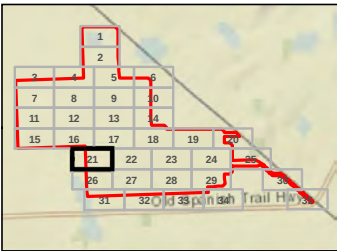


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



Study Area (2,709.2 acres)

Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--------------------------|---------------------------------------|
| Ordinary High Water Mark | MESA Transect |
| Top of Bank | MESA Component: Upland |
| Watercourse/Floodplain | MESA Component: Watercourse |
| | Ordinary High Water Mark Sample Point |

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California IV FIPS 0404 Feet
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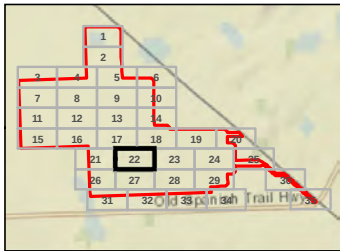
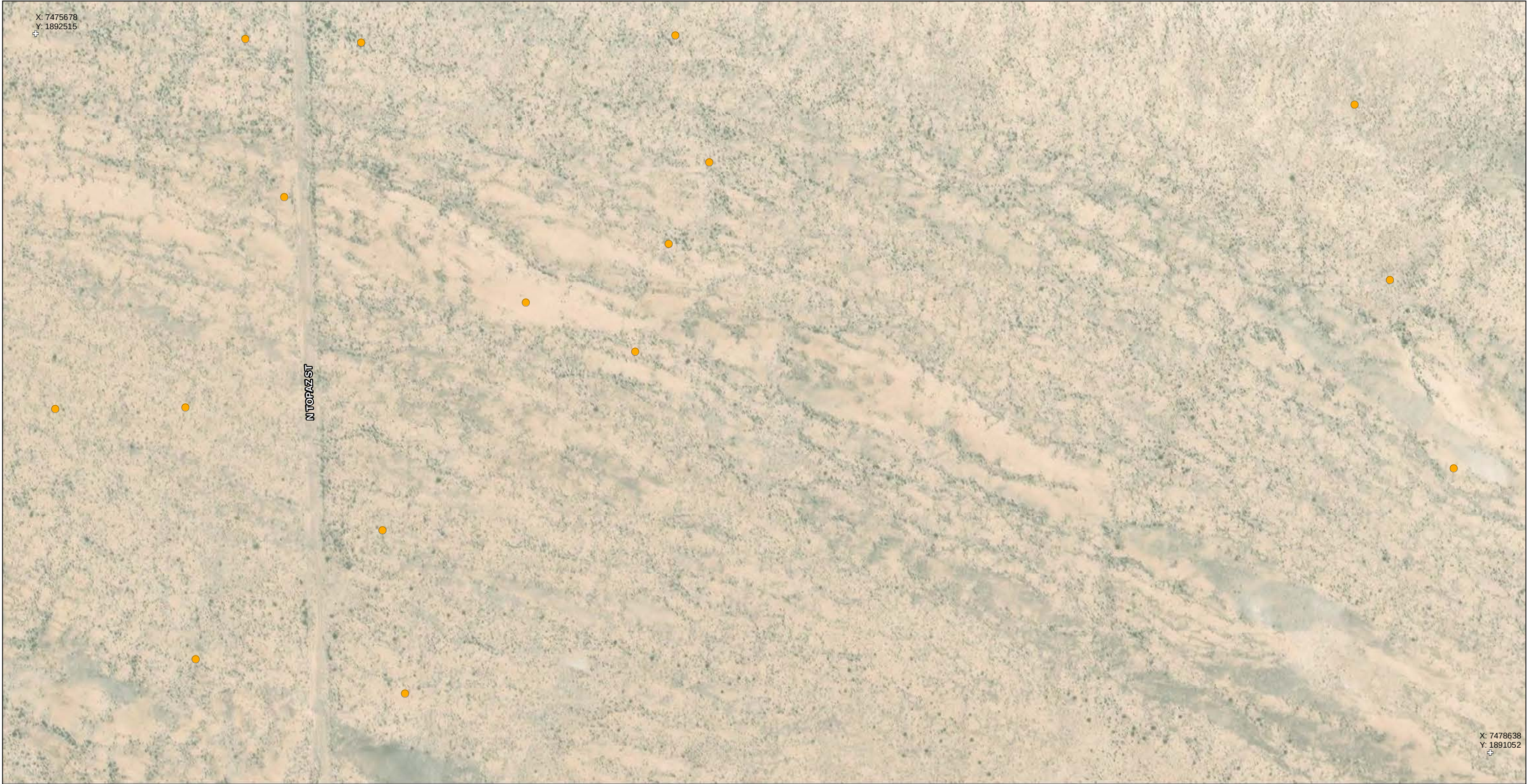


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area

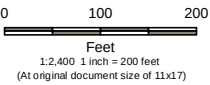


 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--|---|
|  Ordinary High Water Mark |  MESA Transect |
|  Top of Bank |  MESA Component: Upland |
|  Watercourse/Floodplain |  MESA Component: Watercourse |
| |  Ordinary High Water Mark Sample Point |

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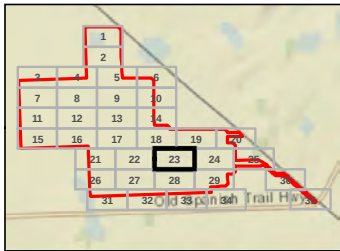


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



- Study Area (2,709.2 acres)

Control Point
- Potential CDFW/LRWQCB Resources¹

Ordinary High Water Mark

Top of Bank

Watercourse/Floodplain

MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point

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Feet

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Notes

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- Project Location

Inyo County, California

Client/Project

Bonanza Peak Solar, LLC

Bonanza Peak Solar

Figure No.

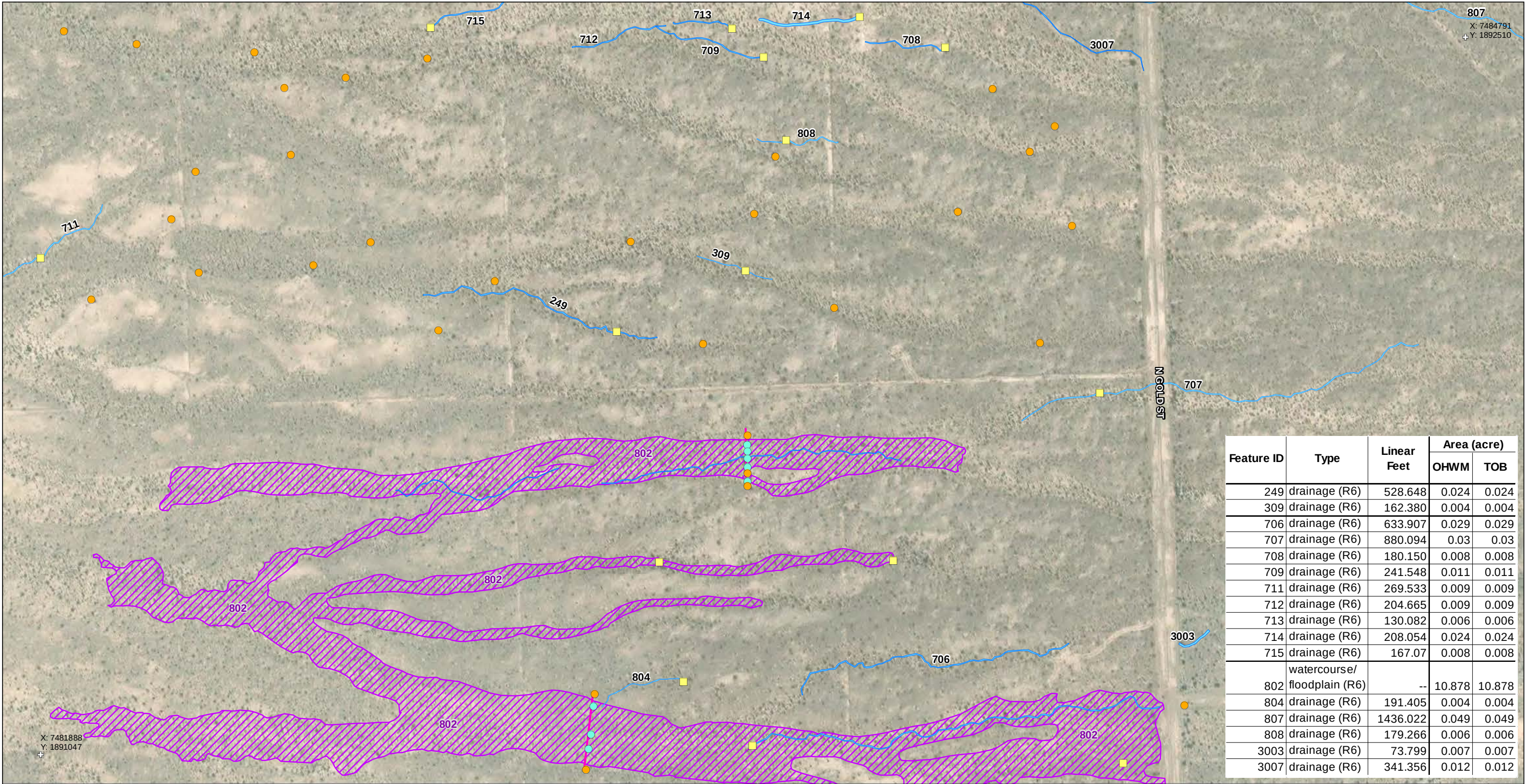
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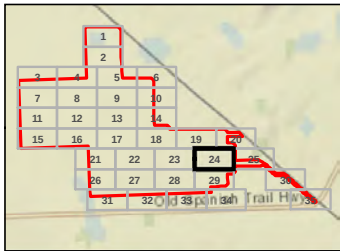
Aquatic Resources in the Study Area

Prepared by P. Glendening on 2025-07-16

Technical Review by S. Creer on 2025-07-17
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- Page 23 of 35



Feature ID	Type	Linear Feet	Area (acre)	
			OHWM	TOB
249	drainage (R6)	528.648	0.024	0.024
309	drainage (R6)	162.380	0.004	0.004
706	drainage (R6)	633.907	0.029	0.029
707	drainage (R6)	880.094	0.03	0.03
708	drainage (R6)	180.150	0.008	0.008
709	drainage (R6)	241.548	0.011	0.011
711	drainage (R6)	269.533	0.009	0.009
712	drainage (R6)	204.665	0.009	0.009
713	drainage (R6)	130.082	0.006	0.006
714	drainage (R6)	208.054	0.024	0.024
715	drainage (R6)	167.07	0.008	0.008
802	watercourse/ floodplain (R6)	--	10.878	10.878
804	drainage (R6)	191.405	0.004	0.004
807	drainage (R6)	1436.022	0.049	0.049
808	drainage (R6)	179.266	0.006	0.006
3003	drainage (R6)	73.799	0.007	0.007
3007	drainage (R6)	341.356	0.012	0.012



- Study Area (2,709.2 acres)

Control Point
- Ordinary High Water Mark

Top of Bank

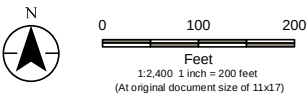
Watercourse/Floodplain
- MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point

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Notes
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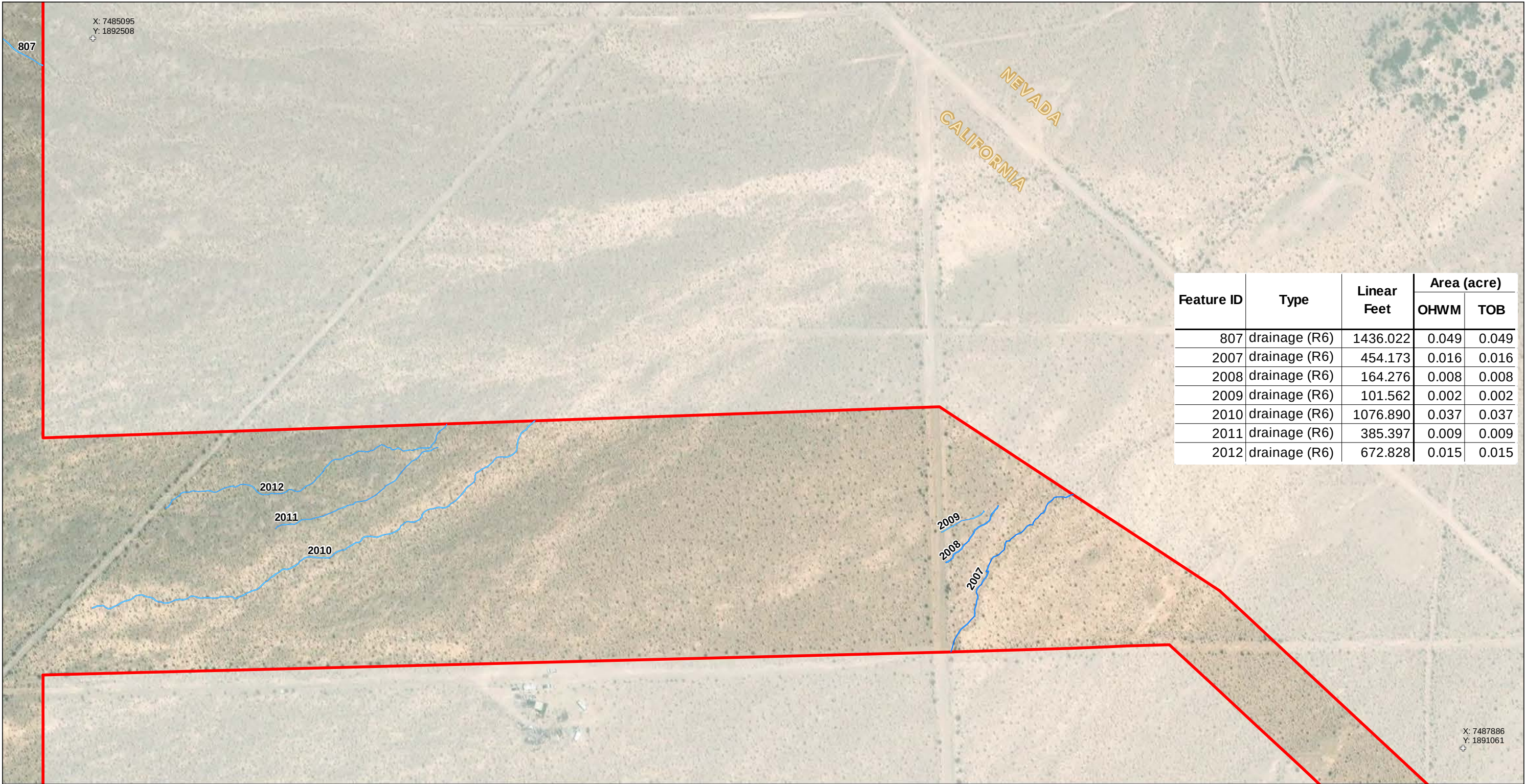


Project Location
Inyo County, California

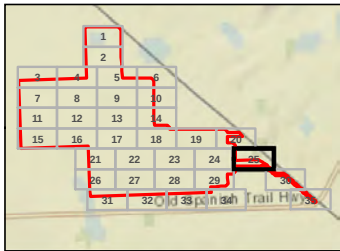
Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



Feature ID	Type	Linear Feet	Area (acre)	
			OHWM	TOB
807	drainage (R6)	1436.022	0.049	0.049
2007	drainage (R6)	454.173	0.016	0.016
2008	drainage (R6)	164.276	0.008	0.008
2009	drainage (R6)	101.562	0.002	0.002
2010	drainage (R6)	1076.890	0.037	0.037
2011	drainage (R6)	385.397	0.009	0.009
2012	drainage (R6)	672.828	0.015	0.015

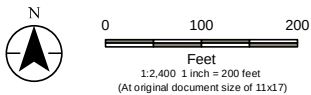


Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- Ordinary High Water Mark
- Top of Bank
- Watercourse/Floodplain
- MESA Transect
- MESA Component: Upland
- MESA Component: Watercourse
- Ordinary High Water Mark Sample Point

¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



Notes
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
2. Base Imagery: ESRI World Imagery Map web mapping service

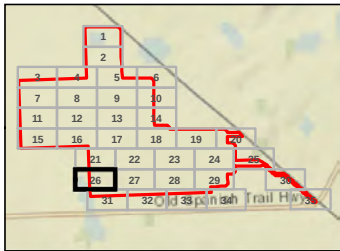
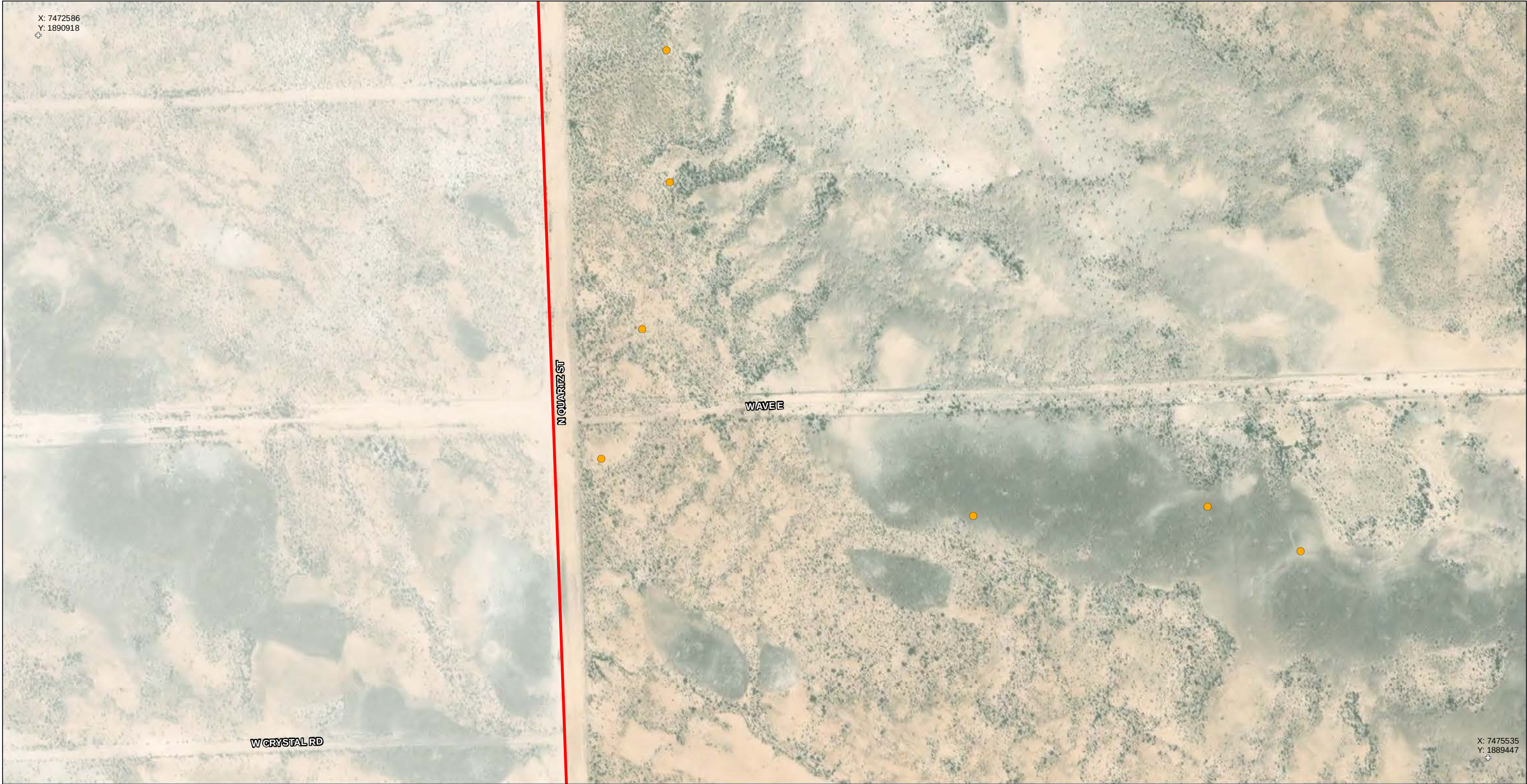


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



Study Area (2,709.2 acres)

Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--------------------------|---------------------------------------|
| Ordinary High Water Mark | MESA Transect |
| Top of Bank | MESA Component: Upland |
| Watercourse/Floodplain | MESA Component: Watercourse |
| | Ordinary High Water Mark Sample Point |

¹**USACE Resources:** All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



0 100 200
Feet
1:2,400 1 inch = 200 feet
(At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 StatePlane
California IV FIPS 0404 Feet
2. Base Imagery: ESRI World Imagery Map web
mapping service



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Inyo County, California

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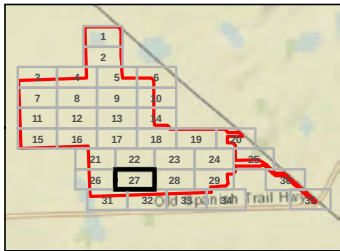
Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



X: 7475685
Y: 1890919

X: 7478636
Y: 1889451



 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--|---|
|  Ordinary High Water Mark |  MESA Transect |
|  Top of Bank |  MESA Component: Upland |
|  Watercourse/Floodplain |  MESA Component: Watercourse |
| |  Ordinary High Water Mark Sample Point |

¹**USACE Resources:** All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



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Feet
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Notes
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California IV FIPS 0404 Feet
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mapping service

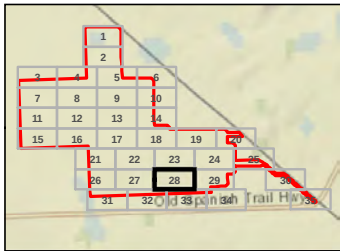


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



- Study Area (2,709.2 acres)

Control Point
- Potential CDFW/LRWQCB Resources¹

Ordinary High Water Mark

Top of Bank

Watercourse/Floodplain

MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point

¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.
- N

0

100

200

Feet

1:2,400 1 inch = 200 feet

(At original document size of 11x17)

Notes

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2. Base Imagery: ESRI World Imagery Map web mapping service
- Project Location

Inyo County, California

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Client/Project

Bonanza Peak Solar, LLC

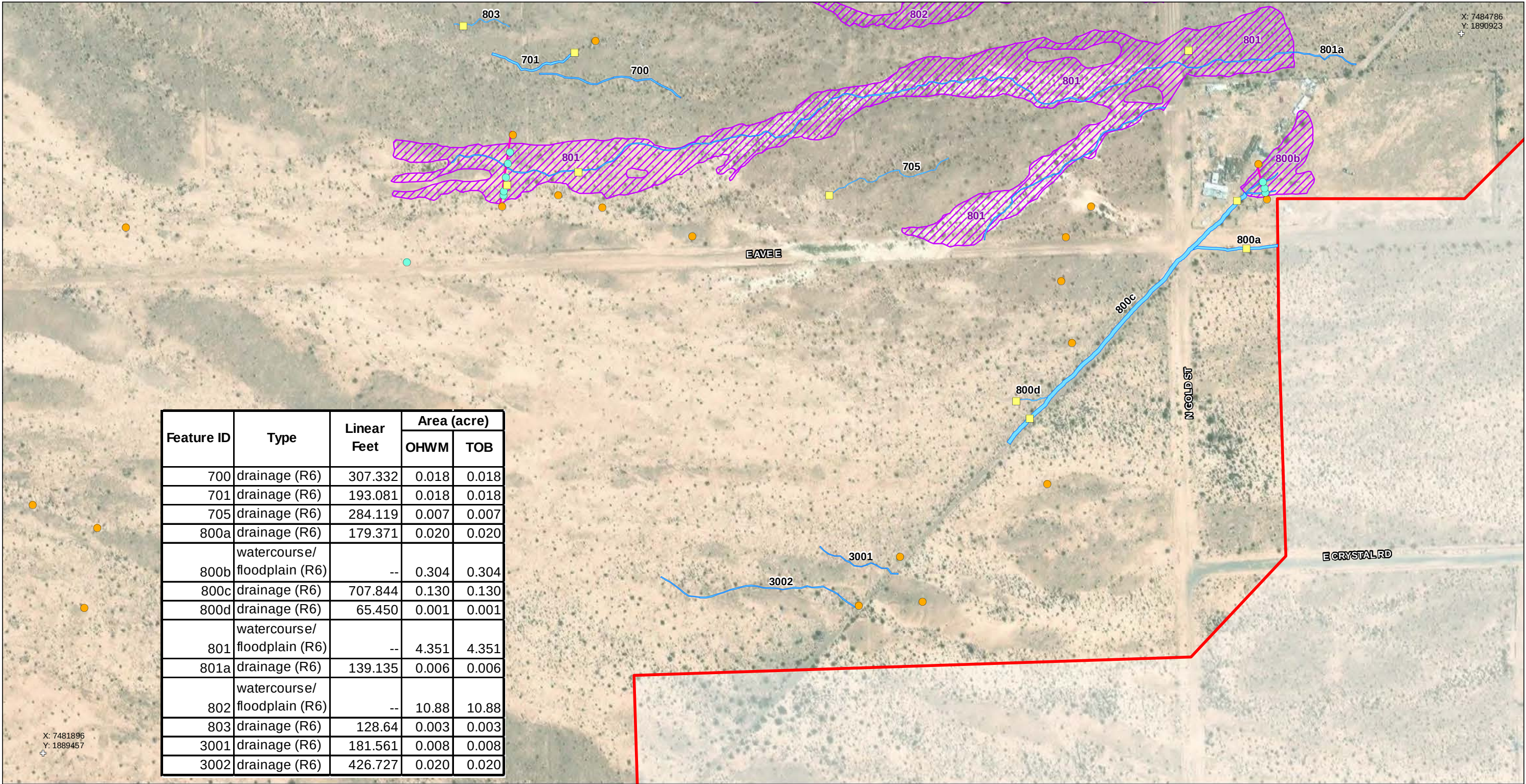
Bonanza Peak Solar

Figure No.

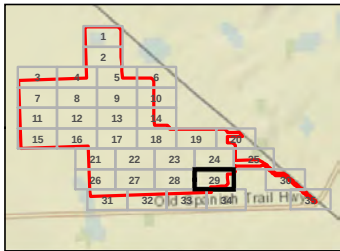
3

Title

Aquatic Resources in the Study Area
- Page 28 of 35



Feature ID	Type	Linear Feet	Area (acre)	
			OHWM	TOB
700	drainage (R6)	307.332	0.018	0.018
701	drainage (R6)	193.081	0.018	0.018
705	drainage (R6)	284.119	0.007	0.007
800a	drainage (R6)	179.371	0.020	0.020
800b	watercourse/ floodplain (R6)	--	0.304	0.304
800c	drainage (R6)	707.844	0.130	0.130
800d	drainage (R6)	65.450	0.001	0.001
801	watercourse/ floodplain (R6)	--	4.351	4.351
801a	drainage (R6)	139.135	0.006	0.006
802	watercourse/ floodplain (R6)	--	10.88	10.88
803	drainage (R6)	128.64	0.003	0.003
3001	drainage (R6)	181.561	0.008	0.008
3002	drainage (R6)	426.727	0.020	0.020

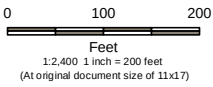


 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

-  Ordinary High Water Mark
-  Top of Bank
-  Watercourse/Floodplain
-  MESA Transect
-  MESA Component: Upland
-  MESA Component: Watercourse
-  Ordinary High Water Mark Sample Point

¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



Notes
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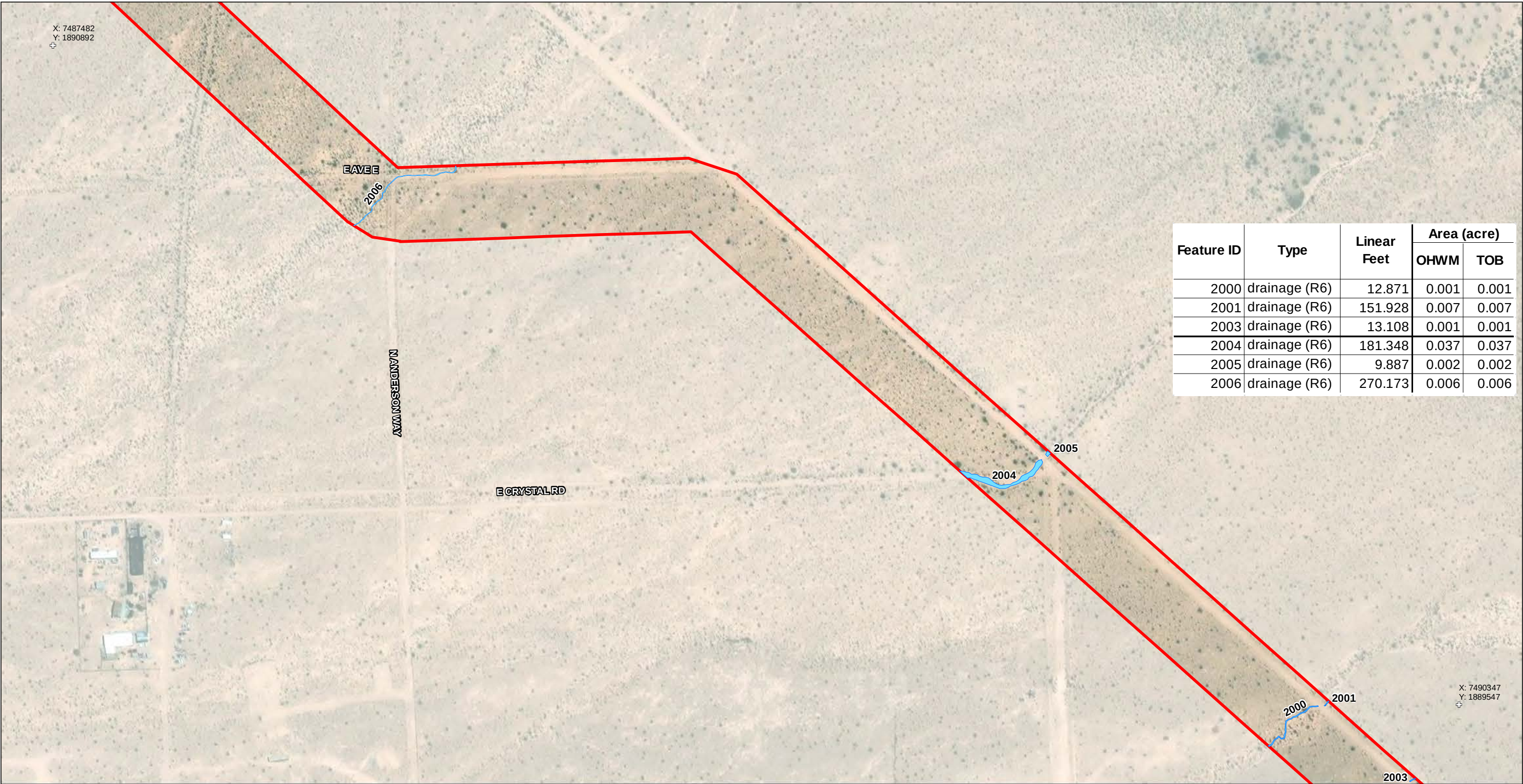


Project Location
Inyo County, California

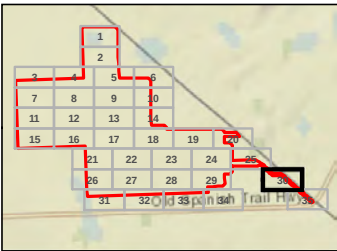
Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



Feature ID	Type	Linear Feet	Area (acre)	
			OHWM	TOB
2000	drainage (R6)	12.871	0.001	0.001
2001	drainage (R6)	151.928	0.007	0.007
2003	drainage (R6)	13.108	0.001	0.001
2004	drainage (R6)	181.348	0.037	0.037
2005	drainage (R6)	9.887	0.002	0.002
2006	drainage (R6)	270.173	0.006	0.006

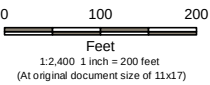


Study Area (2709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- Ordinary High Water Mark
- Top of Bank
- Watercourse/Floodplain
- MESA Transect
- MESA Component: Upland
- MESA Component: Watercourse
- Ordinary High Water Mark Sample Point

¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



Notes
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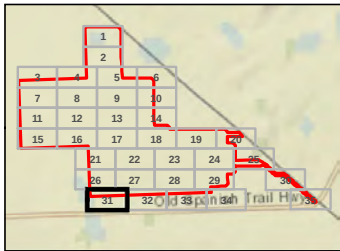


Project Location
Inyo County, California

Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--|---|
|  Ordinary High Water Mark |  MESA Transect |
|  Top of Bank |  MESA Component: Upland |
|  Watercourse/Floodplain |  MESA Component: Watercourse |
| |  Ordinary High Water Mark Sample Point |

¹**USACE Resources:** All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.



0 100 200
Feet
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(At original document size of 11x17)

Notes
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2. Base Imagery: ESRI World Imagery Map web mapping service



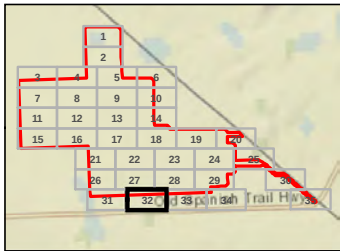
Project Location
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Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3

Title
Aquatic Resources in the Study Area



- Study Area (2,709.2 acres)

Control Point
- Potential CDFW/LRWQCB Resources¹

Ordinary High Water Mark

Top of Bank

Watercourse/Floodplain

MESA Transect

MESA Component: Upland

MESA Component: Watercourse

Ordinary High Water Mark Sample Point

¹USACE Resources: All aquatic resources shown include all delineated within the study area. None are expected to be USACE jurisdictional due to the ephemeral regime and isolation from a Traditional Navigable Water. A final jurisdictional determination can only be made by the USACE.
- N

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200

Feet

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Notes

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Bonanza Peak Solar, LLC

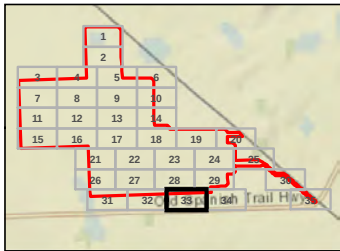
Bonanza Peak Solar

Figure No.

3

Title

Aquatic Resources in the Study Area
-
- Page 32 of 35
- Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--|---|
|  Ordinary High Water Mark |  MESA Transect |
|  Top of Bank |  MESA Component: Upland |
|  Watercourse/Floodplain |  MESA Component: Watercourse |
| |  Ordinary High Water Mark Sample Point |

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mapping service

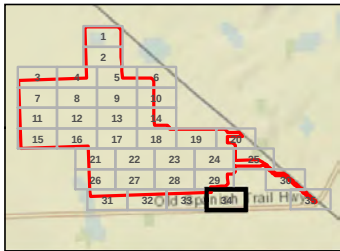


Project Location
Inyo County, California

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Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

- | | |
|--|---|
|  Ordinary High Water Mark |  MESA Transect |
|  Top of Bank |  MESA Component: Upland |
|  Watercourse/Floodplain |  MESA Component: Watercourse |
| |  Ordinary High Water Mark Sample Point |

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California IV FIPS 0404 Feet
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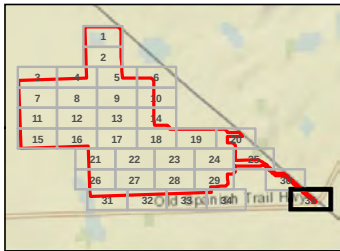
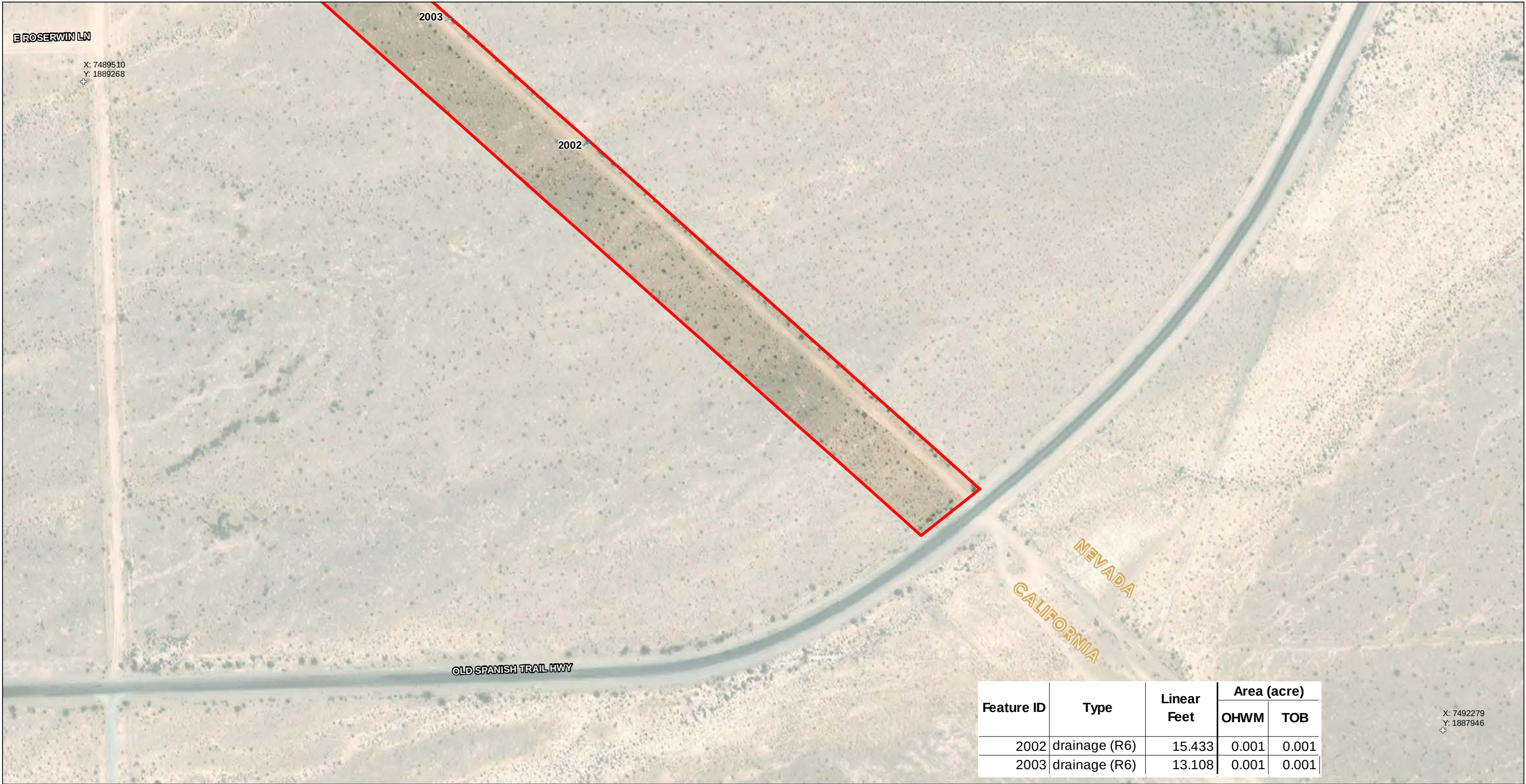


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Technical Review by S. Creer on 2025-07-17

Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area



 Study Area (2,709.2 acres)
 Control Point

Potential CDFW/LRWQCB Resources¹

-  Ordinary High Water Mark
-  Top of Bank
-  Watercourse/Floodplain
-  MESA Transect
-  MESA Component: Upland
-  MESA Component: Watercourse
-  Ordinary High Water Mark Sample Point

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Notes
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Prepared by P. Glendening on 2025-07-16
Technical Review by S. Creer on 2025-07-17

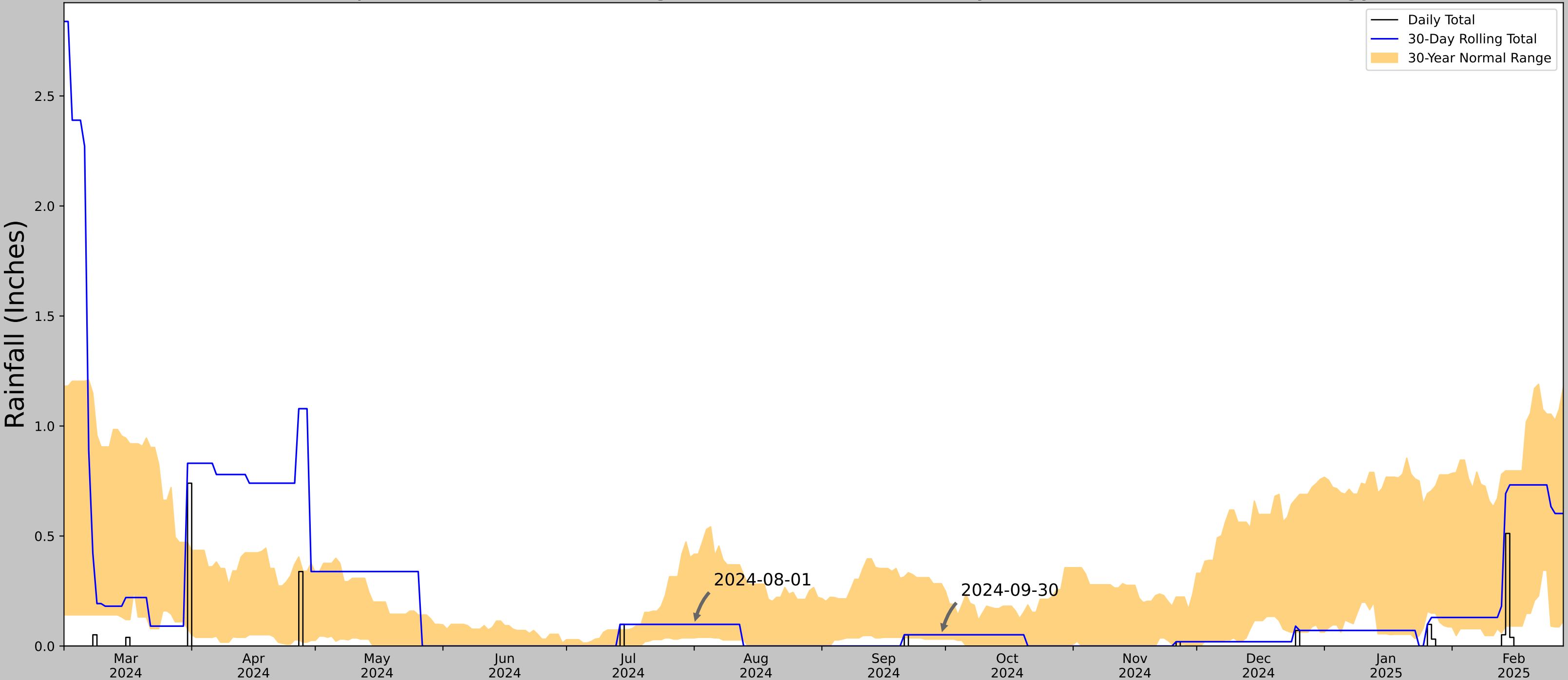
Client/Project
Bonanza Peak Solar, LLC
Bonanza Peak Solar

Figure No.
3
Title
Aquatic Resources in the Study Area

Appendix B Antecedent Precipitation Tool Results



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



Coordinates	35.9833075, -115.9046388
Observation Date	2024-09-30
Elevation (ft)	2597.361
Drought Index (PDSI)	Mild drought
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
2024-09-30	0.031496	0.283465	0.051181	Normal	2	3	6
2024-08-31	0.0	0.221654	0.0	Normal	2	2	4
2024-08-01	0.037008	0.417717	0.098425	Normal	2	1	2
Result							Normal Conditions - 12



**US Army Corps
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Figures and tables made by the
Antecedent Precipitation Tool
Version 2.0

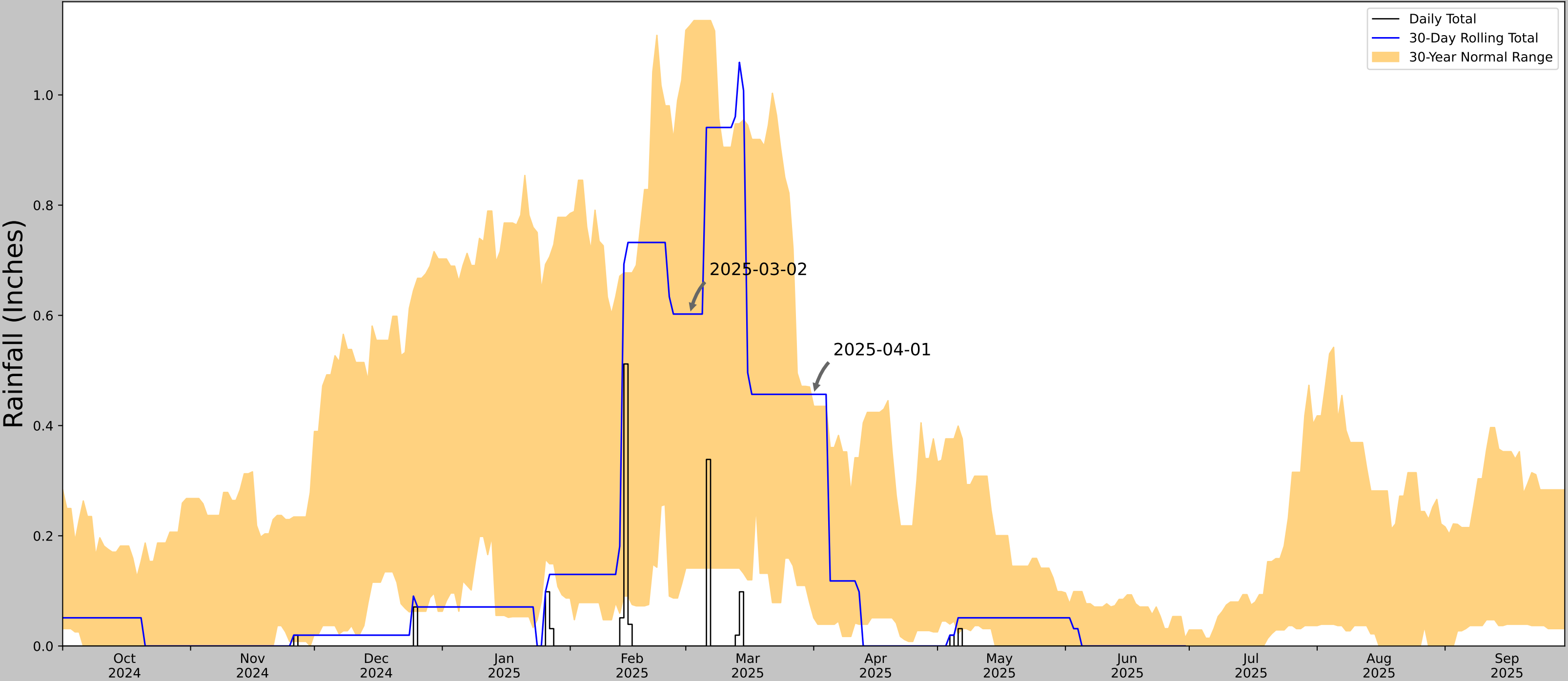
Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and
Development Center



ERDC
U.S. Army Corps of Engineers Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
PAHRUMP 4 NW	36.2614, -116.0564	2573.163	20.998	24.198	9.957	11172	90
PAHRUMP 6.3 SSE	36.1656, -115.9844	2641.076	7.741	67.913	4.009	118	0
PAHRUMP 10.5 SSE	36.122, -115.9215	2732.94	12.221	159.777	7.452	2	0
SHOSHONE	35.9717, -116.2708	1545.932	23.321	1027.231	34.451	56	0
RED ROCK CANYON - SPG MT RCH S	36.0686, -115.4603	3779.856	35.82	1206.693	59.343	4	0

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



Coordinates	35.9833075, -115.9046388
Observation Date	2025-05-01
Elevation (ft)	2597.361
Drought Index (PDSI)	Extreme drought
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
2025-05-01	0.025591	0.334252	0.0	Dry	1	3	3
2025-04-01	0.051181	0.435039	0.456693	Wet	3	2	6
2025-03-02	0.141339	1.125591	0.602362	Normal	2	1	2
Result							Normal Conditions - 11



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Figures and tables made by the
Antecedent Precipitation Tool
Version 2.0

Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and
Development Center



ERDC
Engineering Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
PAHRUMP 4 NW	36.2614, -116.0564	2573.163	20.998	24.198	9.957	11173	90
PAHRUMP 6.3 SSE	36.1656, -115.9844	2641.076	7.741	67.913	4.009	118	0
PAHRUMP 10.5 SSE	36.122, -115.9215	2732.94	12.221	159.777	7.452	2	0
SHOSHONE	35.9717, -116.2708	1545.932	23.321	1027.231	34.451	56	0
RED ROCK CANYON - SPG MT RCH S	36.0686, -115.4603	3779.856	35.82	1206.693	59.343	4	0

Appendix C Aquatic Resources Results Table



Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment

Table C.1 Other Waters and Watercourses/Floodplains

Note: Resources are ordered from the north corner of the study area to the southeast paralleling the California-Nevada border. To decrease redundancy, descriptions and assessments are grouped for resources that are connected or occur close to each other and have similar characteristics.

Resource ID	Regime/ Cowardin Code	Type	Description	Jurisdictional Assessment	Linear Feet	OHWM (feet)		TOB (feet)		Potentially Jurisdictional Area (acres[s]) ¹	
						width	depth	width	depth	LRWQCB	CDFW
809	riverine, ephemeral (R6)	drainage	Resource begins where several swales converge on the western edge of the study area (SA) and flows to the west, across Opal Street, and out of the SA. Appears to terminate prior to reaching a dry lakebed.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	278.400	3.0	1.0	3.0	1.0	0.019	0.019
901	R6	drainage	Both resources begin just inside the eastern boundary of the SA and are concentrated by Silver Street. Resource 901 connects to 902 which loses indicators and terminates into uplands.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	120.609	5.0	1.5	5.0	1.5	0.013	0.013
902					244.294	2.0	0.5	2.0	0.5	0.034	0.034
243	R6	drainage	Resource begins outside the SA with flows concentrated by Zircon Street. It flows to the southwest, where it loses indicators and terminates into uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	989.215	2.0	0.5	2.0	0.5	0.046	0.045
1000	R6	drainage	Resource begins in uplands the SA and flows to the southwest, where it loses indicators and terminates into uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	246.042	1.5	0.5	1.5	0.5	0.008	0.008
247	R6	drainage	Resource begins outside the SA with flows concentrated by Zircon Street. It flows to the southwest, where it loses indicators and terminates into uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	527.353	2.0	0.5	2.0	0.5	0.024	0.024
3006	R6	drainage	Resource begins in uplands outside of the SA and flows to the southwest, where it loses indicators and dissipates into uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	494.855	2.0	0.5	2.0	0.5	0.023	0.023
3005	R6	drainage	Resource begins in uplands outside of the SA and flows to the southwest, where it loses indicators and dissipates into uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	637.638	2.0	0.5	2.0	0.5	0.029	0.029
226	R6	drainage	Resource begins outside the SA with flows concentrated by road cut along the California-Nevada Border (Stateline Road). It flows to the southwest, where it loses indicators at Avenue D and terminates into uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	1460.985	1.5	1.0	1.5	1.0	0.050	0.050



Aquatic Resources Delineation Report and Preliminary Jurisdictional Assessment

Resource ID	Regime/ Cowardin Code	Type	Description	Jurisdictional Assessment	Linear Feet	OHWM (feet)		TOB (feet)		Potentially Jurisdictional Area (acres[s]) ¹	
						width	depth	width	depth	LRWQCB	CDFW
218	R6	drainage	These resources are a braided system within uplands and no associated floodplain. 218 and 221 are the upstream reaches that begin outside the SA from flows concentrated by Stateline Road. Flows travel southwest and 217 branches off on the north. Flows terminate at Avenue D and terminate into uplands.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	1141.728	1.5	1.0	1.5	1.0	0.039	0.039
221					280.188	1.5	1.0	1.5	1.0	0.008	0.008
217					644.787	1.5	0.5	1.5	0.5	0.022	0.022
1001	R6	drainage	1001 begins outside the SA with flows concentrated by Stateline Road. Flows move southwest where it encounters North Gold Street which causes a fork (216). Both branches lose indicators and terminate in uplands.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	479.361	1.5	0.5	1.5	0.5	0.017	0.017
216					348.823	4.0	1.0	4.0	1.0	0.032	0.032
900	R6	drainage	Resource begins in uplands in the SA, flows southwest, then loses indicators and terminates in uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	188.835	5	1	5	1	0.022	0.022
209	R6	drainage	Resource begins outside the SA with flows concentrated by Stateline Road. It flows to the southwest, into the SA (209), then outside of the SA, then back in (209a) where it loses indicators and terminates in uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	132.004	1.5	0.5	1.5	0.5	0.005	0.005
209a					588.725	1.5	0.5	1.5	0.5	0.020	0.020
210	R6	drainage	Resource begins outside the SA with flows concentrated by Stateline Road. It flows to the southwest, where it loses indicators and terminates in uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	458.344	1.0	0.5	1.0	0.5	0.011	0.011
211	R6	watercourse/ floodplain	This watercourse/floodplain begins just inside the SA where it is fed by single drainages in uplands from flows concentrated by Stateline Road. Upstream of the watercourse, 211b and 211c are segments of the same drainage that are mapped separately because it crosses in and out of the SA. 211c, the upstream segment, begins outside the SA with flows concentrated by Stateline Road. The downstream segment, 211b, eventually connects to watercourse/floodplain 211. Drainage segments 211d and 211e are also segments of the same drainage and feed into watercourse/floodplain 211. 211 supports at least one low flow channel and flows to the southwest to North Gold Street and Avenue D. When it encounters the roads, the floodplain indicators are lost, and the resource becomes a single channel (211a) which terminates in uplands in Avenue D.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	--	--	--	--	--	0.348	0.348
211a		drainage			107.264	2.0	0.5	2.0	0.5	0.005	0.005
211b					78.295	2.0	0.5	2.0	0.5	0.004	0.004
211c					181.777	2.0	0.5	2.0	0.5	0.008	0.008
211d					29.857	2.0	0.5	2.0	0.5	0.001	0.001
211e					502.22	2.0	0.5	2.0	0.5	0.023	0.023



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Resource ID	Regime/ Cowardin Code	Type	Description	Jurisdictional Assessment	Linear Feet	OHWM (feet)		TOB (feet)		Potentially Jurisdictional Area (acres[s]) ¹	
						width	depth	width	depth	LRWQCB	CDFW
806	R6	watercourse/ floodplain	This watercourse/floodplain begins immediately to the west of Gold Street, which concentrates flows coming from the east. The watercourse/floodplain is bounded by upland terraces and supports discontinuous channels (2 sample segments are mapped). It flows to the west where it eventually loses floodplain/watercourse indicators and terminates in sheet flow in uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	--	--	--	--	--	4.143	4.143
3004	R6	drainage	This resource is discontinuous and begins in uplands where it flows from east to west and then dissipates into sheet flow once it encounters Gold Street.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	928.318	2.0	0.25	2.0	0.25	0.043	0.043
807	R6	drainage	This resource is discontinuous and begins in uplands outside the SA where it flows from east to west across Gold Street and then dissipates into sheet flow. One side channel, 3007, begins on Gold Street, flows to the west, and drains to 807.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	1436.022	1.5	0.25	1.5	0.25	0.049	0.049
3007					341.356	1.5	0.25	1.5	0.25	0.012	0.012
710	R6	drainage	These resources are discontinuous and begin in uplands where they flow from east to west and then dissipate into sheet flow.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	167.823	2.0	0.25	2.0	0.25	0.008	0.008
715					167.070	2.0	0.25	2.0	0.25	0.008	0.008
713					130.082	2.0	0.25	2.0	0.25	0.006	0.006
714					208.054	5.0	0.5	5.0	0.5	0.024	0.024
708					180.150	2.0	0.25	2.0	0.25	0.008	0.008
709	R6	drainage	Resource 709 begins in uplands where it flows from east to west into 712 which then dissipates into sheet flow.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	241.548	2.0	0.25	2.0	0.25	0.011	0.011
712					204.665	2.0	0.25	2.0	0.25	0.009	0.009



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Resource ID	Regime/ Cowardin Code	Type	Description	Jurisdictional Assessment	Linear Feet	OHWM (feet)		TOB (feet)		Potentially Jurisdictional Area (acres[s]) ¹	
						width	depth	width	depth	LRWQCB	CDFW
808	R6	drainage	These resources are discontinuous and begin in uplands where they flow from east to west and then dissipate into sheet flow.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	179.266	1.5	0.1	1.5	0.1	0.006	0.006
711					269.533	1.5	0.25	1.5	0.25	0.009	0.009
309					162.380	1.0	0.25	1.0	0.25	0.004	0.004
249					528.648	2.0	0.5	2.0	0.5	0.024	0.024
707					880.094	1.5	0.25	1.5	0.25	0.030	0.030
802	R6	watercourse/ floodplain	This watercourse/floodplain begins immediately to the west of Gold Street, which concentrates flows coming from the east outside the SA. The watercourse/floodplain has two main branches, two smaller branches, and is bounded laterally by upland terraces. It supports many swales and discontinuous channels (2 sample segments are mapped). Flows move from east to west where it eventually loses floodplain/watercourse indicators and terminates in sheet flow in uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	--	--	--	--	--	10.878	10.878
706	R6	drainage	Resource 706 begins in uplands where it flows from east to west and eventually dissipates into sheet flow.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	633.907	1.5	0.25	1.5	0.25	0.029	0.029
3003	R6	drainage	Resource 706 begins in uplands immediately east of Gold Street; once it reaches the street, it dissipates into sheet flow.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	73.799	4	0.2	4	0.3	0.007	0.007
804	R6	drainage	Resource 804 begins with a headcut eroded into a terrace and flows southwest into 802.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	191.405	1.00	0.1	1	0.1	0.004	0.004



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Resource ID	Regime/ Cowardin Code	Type	Description	Jurisdictional Assessment	Linear Feet	OHWM (feet)		TOB (feet)		Potentially Jurisdictional Area (acres[s]) ¹	
						width	depth	width	depth	LRWQCB	CDFW
803	R6	drainage	These resources are discontinuous and begin in uplands where they flow from east to west and then dissipate into sheet flow.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	128.640	1	0.2	1	0.2	0.003	0.003
701					193.081	4	0.25	4	0.25	0.018	0.018
700					307.332	2.5	0.25	2.5	0.25	0.018	0.018
801	R6	watercourse/ floodplain	This watercourse/floodplain begins within the SA, east of Gold Street. Sheet flow has been interrupted and directed by a junkyard and its fence, Gold Street, and an unnamed street that runs from northeast to southwest. These barriers have redirected and concentrated flows across Gold Street and into the SA. The watercourse/floodplain is fed by drainage 801a and has two main branches and is bounded laterally by upland terraces. It supports many swales and discontinuous channels (2 sample segments are mapped). Flows move from east to west where the resource eventually loses floodplain/watercourse indicators and terminates in sheet flow in uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	--	--	--	--	--	4.351	4.351
801a	R6	drainage			139.135	2.5	0.25	2.5	0.25	0.006	0.006
705	R6	drainage	Resource 705 begins in uplands where it flows from east to west and eventually dissipates into sheet flow.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	284.119	1	0.25	1	0.25	0.007	0.007



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Resource ID	Regime/ Cowardin Code	Type	Description	Jurisdictional Assessment	Linear Feet	OHWM (feet)		TOB (feet)		Potentially Jurisdictional Area (acres[s]) ¹	
						width	depth	width	depth	LRWQCB	CDFW
800b	R6	watercourse/ floodplain	This watercourse/floodplain begins within the SA, east of an unnamed road that runs along the southeast perimeter of the junkyard and intersects with Gold Street and Avenue E. Sheet flow outside the SA has been interrupted and directed by a junkyard and its fence, Gold Street, and an unnamed street that runs from northeast to southwest. These barriers have redirected and concentrated flows into and across a corner of the SA. The watercourse/floodplain is a result of sheet flow blockage by garbage and debris within the diagonally oriented road. This caused flows in the road to back up and flow out into an artificial floodplain. Downstream of the watercourse/floodplain, flows are then re-consolidated into a channel (800c) within the unnamed road that crosses Avenue E and Gold Street. Flows continuing moving southwest in the unnamed road and out of the SA. One channel (800a) in Avenue E, flows west until it intersects with 800c. Across Gold Street, there is a mattress blocking 800c, which directs some of the flows into a small branch (800d) that directs water to the west before dissipating into uplands.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	--	--	--	--	--	0.304	0.304
800c		drainage			707.844	8	1	8	1	0.130	0.130
800a					179.371	5	.5	5	.5	0.020	0.020
800d					65.450	1	.25	1	.25	0.001	0.001
3001	R6	drainage	Resource 3001 and 3002 both begin at the edge of a road and flow west before dissipating into uplands.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	181.561	2	0.5	2	0.5	0.008	0.008
3002					426.727	2	0.25	2	0.25	0.02	0.02
2012	R6	drainage	All three of these drainages begin in uplands and flow to the southwest where they dissipate into uplands.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	672.828	1	0.5	1	0.5	0.015	0.015
2011					385.397	1	0.5	1	0.5	0.009	0.009
2010					1076.89	1.5	0.5	1.5	0.5	0.037	0.037
2009	R6	drainage	All three of these drainages begin in uplands from flows concentrated by the road that runs along the CA-NV border. All three flow to the southwest where they are interrupted by an unnamed dirt road that dissipates flows.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	101.562	1	0.5	1	0.5	0.002	0.002
2008					164.276	2	0.5	2	0.5	0.008	0.008
2007					454.173	1.5	0.5	1.5	0.5	0.016	0.016



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Resource ID	Regime/ Cowardin Code	Type	Description	Jurisdictional Assessment	Linear Feet	OHWM (feet)		TOB (feet)		Potentially Jurisdictional Area (acres[s]) ¹	
						width	depth	width	depth	LRWQCB	CDFW
2006	R6	drainage	This drainage begins in uplands from flows concentrated by Stateline Road and East Avenue E. Flows move west within East Avenue E, cross North Anderson Way, and then continue outside the SA where it eventually ends in uplands.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	270.173	1	0.5	1	0.5	0.006	0.006
2005	R6	drainage	This drainage (2005) begins outside the study area where it is fed by flows coming from the east. It is then interrupted by Stateline Road where flows dissipate and then reconcentrate across the road (2004) and are directed into East Crystal Road. Flows then move to the west, outside the SA.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	--	7	1	12	4	0.002	0.002
2004					--	7	1	12	4	0.037	0.037
2001	R6	drainage	This drainage (2000) begins outside the study area where it is fed by flows coming from the east. It is then interrupted by Stateline Road where flows dissipate and then reconcentrate across the road (2001) and to the west, outside the SA.	USACE: No. Resources are ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	151.928	2	0.5	2	0.5	0.007	0.007
2000					12.871	2	0.5	2	0.5	0.001	0.001
2003	R6	drainage	Drainage 2003 begins outside the study area where it is fed by flows coming from the east that are concentrated by Stateline Road. Flows are interrupted by Stateline Road where they flows dissipate.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	13.108	1.5	0.5	1.5	0.5	0.001	0.001
2002	R6	drainage	Drainage 2002 begins outside the study area where it is fed by flows coming from the east that are concentrated by Stateline Road. Flows are interrupted by Stateline Road where they flows dissipate.	USACE: No. Resource is ephemeral and isolated. RWQCB: Yes. Presence of OHWM and bed and bank. CDFW: Yes. Presence of OHWM and bed and bank.	15.433	2	0.5	2	0.5	0.001	0.001
Totals					23,208.853	--	--	--	--	21.193	21.193

Notes:

¹All resources were assessed for jurisdiction for all applicable agencies and are likely not under the jurisdiction of USACE. To save space, a column for USACE was not included; acreages under the LRWQCB column equal area within the OHWM.

Key: CDFW = California Department of Fish and Wildlife; OHWM = ordinary high water mark; LRWQCB = Lahontan Regional Water Quality Control Board; USACE = U.S. Army Corps of Engineers



Appendix D Representative Photographs



D.1 Other Waters and Watercourses

Note: Resources are ordered from the north corner of the study area to the southeast paralleling the California-Nevada border (as in Appendix C).

Photo 1. Drainage
809, facing
downstream.



Photo 2. Drainage
901, facing upstream.



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Photo 3. Drainage
902, facing upstream.



Photo 4. Drainage
243, facing upstream.



Photo 5. Drainage
1000, facing
upstream.



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Photo 6. Drainage
247, facing upstream.



Photo 7. Drainage
3006, facing
downstream.



Photo 8. Drainage
3005, facing
upstream.



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Photo 9. Drainage 226, facing upstream.



Photo 10. Drainage 218, facing downstream.



Photo 11. Drainage 221, facing downstream.



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Photo 12. Drainage 217, facing upstream.



Photo 13. Drainage 216, facing downstream.



Photo 14. Drainage 900, facing downstream.



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Photo 15. Drainage
209, facing
downstream.



Photo 16. Drainage
209a, facing
downstream.



Photo 17. Drainage
210, facing upstream.



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Photo 18. Low flow channel within watercourse/floodplain 211, facing downstream. This channel is mapped as 211a once it exits the watercourse/floodplain downstream; upstream it is mapped in segments broken by the study area: 211b and 211c.



Photo 19. Swales within watercourse/floodplain 211, facing upstream.



Photo 20. Upland at the northern edge of the watercourse/floodplain 211. Note windblown sand, and convex surface.



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Photo 21. View within the southern branch of watercourse/floodplain 806, facing downstream.



Photo 22. View within the southern branch of watercourse/floodplain 806, facing upstream. Note upland terrace/resource boundary in the background.



Photo 23. Drainage 3004, facing downstream (west).



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Photo 24. Drainage 807, facing downstream.



Photo 25. Drainage 3007, facing upstream (east).



Photo 26. Drainage 710, facing upstream, (east).



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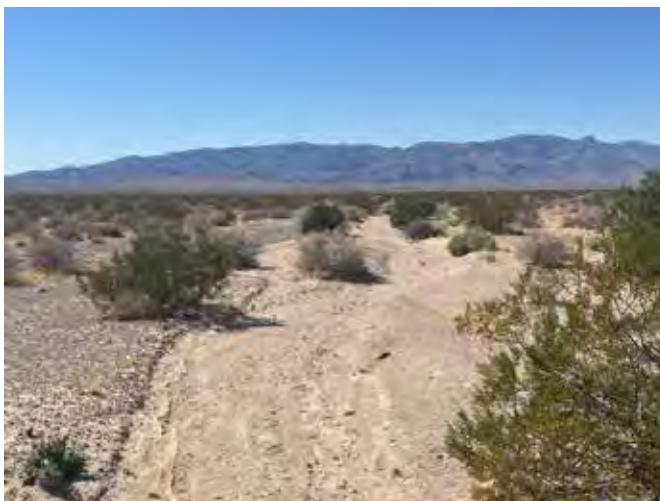
Photo 27. Drainage 715, facing upstream (northeast).



Photo 28. Drainage 713, facing downstream.



Photo 29. Drainage 714, facing downstream (west).



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Photo 30. Drainage 708, facing downstream.



Photo 31. Drainage 709, facing upstream. Note the headcut in uplands where the resource begins.



Photo 32. Drainage 808, facing upstream.



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Photo 33. Drainage 711, facing southwest (downstream).



Photo 34. Drainage 309, facing downstream. Note scour (foreground, left) and wrack (midground, center).



Photo 35. Drainage 249, facing upstream.



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Photo 36. View in the northern branch of watercourse/floodplain 802, facing downstream. Note the terrace (upland) in the background the left side and floodplain in the foreground.



Photo 37. View of the southern branch of watercourse/floodplain 802, facing downstream. Note the terrace (upland) on the left side and floodplain on the right side.



Photo 38. View of a low flow channel in the southern branch of watercourse/floodplain 802, facing downstream.



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Photo 39. Drainage 3003, facing downstream (west).



Photo 40. Drainage 804, facing downstream.



Photo 41. Drainage, 803, facing upstream.



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Photo 42. Drainage 701, facing downstream.



Photo 43. View of the floodplain at the MESA transect in watercourse/floodplain 801, facing downstream.

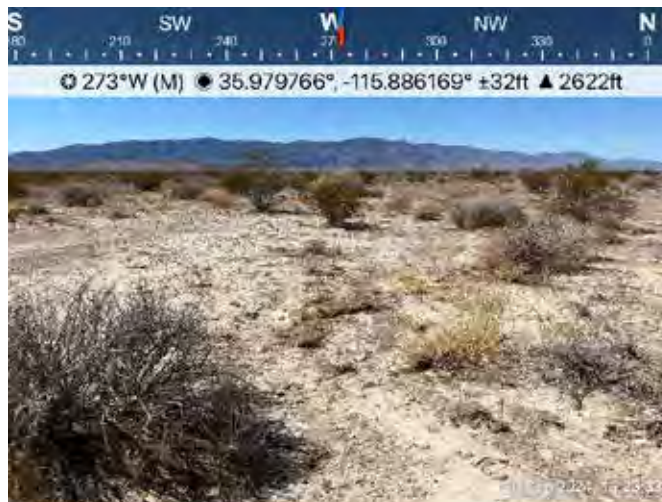


Photo 44. View of a high flow channel at the MESA transect in watercourse/floodplain 801, facing upstream.



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Photo 45. View of a discontinuous low flow channel in watercourse/floodplain 801, facing downstream.



Photo 46. View at the northern upland edge along the MESA transect of watercourse/floodplain 801, facing downstream. Note the floodplain on the far left compared to the uplands on the right.



Photo 47. View of 801a, facing upstream. 801a is upstream of watercourse/floodplain 801 and feeds into 801.



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Photo 48. Drainage 705, facing upstream.



Photo 49. View of a low flow channel at the MESA transect in watercourse/floodplain 800b, facing upstream.



Photo 50. View at the MESA transect in watercourse/floodplain 800b, facing upstream.



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Photo 51. View of the floodplain at the MESA transect in watercourse/floodplain 800b, facing upstream.



Photo 52. View of the northern upland edge of floodplain at the MESA transect in watercourse/floodplain 800b, facing upstream.



Photo 53. Drainage 800c, which is located in an unnamed road, facing downstream.



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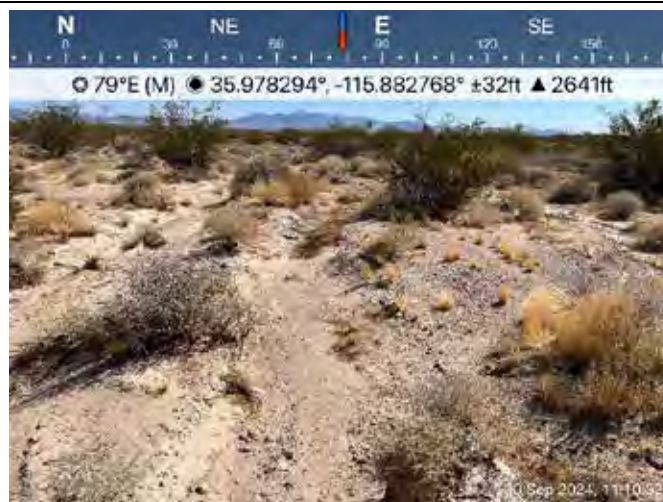
Photo 54. The upstream portion of Drainage 800c, where it exits watercourse/floodplain 800b, facing upstream.



Photo 55. Drainage 800a, which runs along Avenue E before connecting to drainage 800c, facing downstream.



Photo 56. Drainage 800d, facing upstream, where it branched off of 800c.



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Photo 57. Drainage 3001, facing downstream (west).



Photo 58. Drainage 3002, facing upstream (east).



Photo 59. Drainage 2012, facing downstream.



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Photo 60. Drainage
2011, facing
upstream.



Photo 61. Drainage
2010, facing
downstream.



Photo 62. Drainage
2009, facing
upstream.



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Photo 63. Drainage
2008, facing
upstream.



Photo 64. Drainage
2007, facing
upstream.



Photo 65. Drainage
2006, facing
upstream.



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Photo 66. Drainage
2005, facing
upstream.



Photo 67. Drainage
2004, facing
downstream.



Photo 68. Drainage
2001, facing
downstream.



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Photo 69. Drainage 2000, facing upstream.



Photo 70. Drainage 2003, facing downstream.

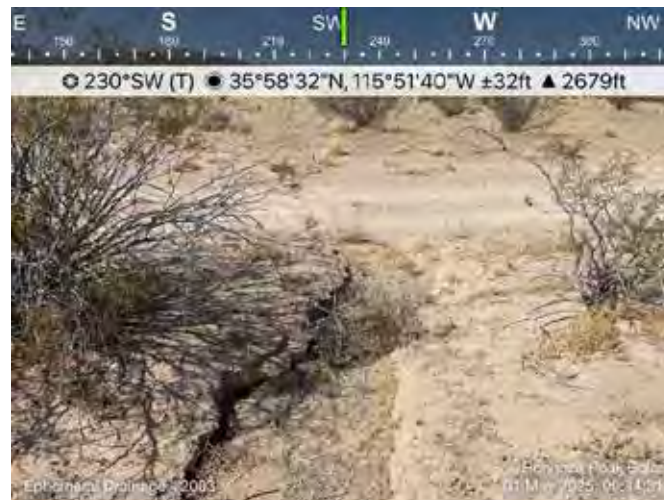


Photo 71. Drainage 2002, facing downstream.





D.2 MESA Upland Indicators

Photo 72. An upland area with rock fractured in place, deflated surface; near Zircon Street.



Photo 73. An upland area with litter in place, convex surface; near Avenue E.



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Photo 74. An upland area with deflated surface, rubified rock surfaces; near Avenue E and Topaz Street.



Photo 75. An upland area with cryptobiotic crust; near Avenue C and Opal Street.



Photo 76. An upland area with a convex deflated surface with bioturbation; near Avenue C and Garnet Street.



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Photo 77. An upland area with hummocky topography with no OHWM, watercourse, or wetland indicators; near Avenue B and Quartz Street.



Photo 78. An upland area with rubified rock surface carbonate etching, and biotic crust; near Avenue E and Gold Street.



Photo 79. An upland area with weak sheet flow indicators with upland indicators including bioturbation, litter in place, rounding of landforms; near Avenue E and Silver Street.



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Photo 80. An upland area with cryptobiotic crust and weak sheetflow indicators; near Avenue D and Zircon Street.



Photo 81. An upland litter in place, bioturbation, and weak sheetflow indicators; near Avenue D and Zircon Street.



Photo 82. An upland area with bioturbation and weak sheetflow indicators; near Avenue D and Zircon Street.



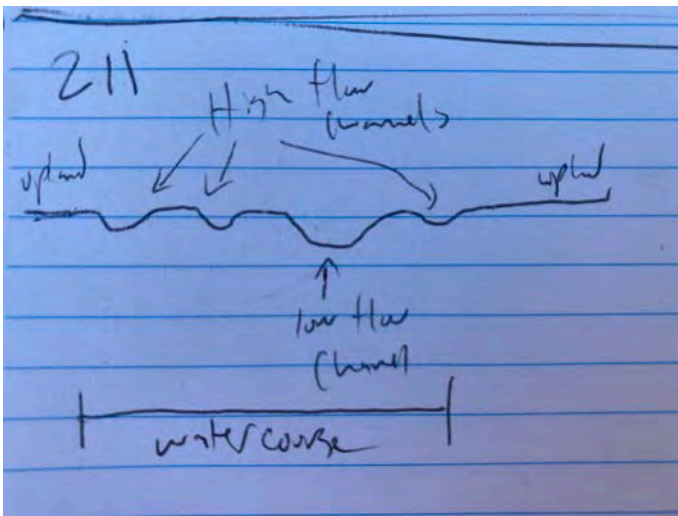
Appendix E Datasheets



E.1 MESA Datasheets



01 MESA Form 1.0		Date: 09/30/2024
Transect ID	211	
Project/Site	Bonanza Peak Solar	
Nearest Town	Charleston View	
County	Inyo	
Investigators	M. Oats, H. Raizen	
Base Map		
Aerial Photo Number	Google Earth Imagery	
Date	2024 back to 1984	
Topographic Map Name	Calvada Springs USGS 7.5-minute topographic quadrangle	
Date	2024	
GPS Data		
GPS Name	Arrow	
Datum	WGS84	
Transect Elevation (feet)	2637	
Zone	11	
GPS error +/- (feet)		
GPS Coordinates Transect Start		
Latitude	35.986782	
Longitude	-115.8811806666667	
Datum	NAD83/2011	
GPS Coordinates Transect End		
Latitude	35.9867805	
Longitude	-115.88118233333333	
Datum	NAD83/2011	
General Geomorphology		
Geomorphic Province	Mojave	
Landform (check all that apply)	04 Lower Fan	
Channel form (select one)	03 Compound	
Transect Details		
Transect was selected to	01 Document fluvial activity & boundaries	
Date of most recent runoff event	September 21, 2024 (0.05 in)	
Physical Setting	Relatively undisturbed system with road crossing. Silty gravelly surface.	
Summary Site Descr/Cross-section		



Upland Observations

Upland Substrate Particle Size (Terrestrial)	03 - pebble $\geq 4 - 64\text{mm}$, 06 - silt/clay - fines
% pebble	30
% silt/clay	70
Upland Indicator(s) - Terrestrial:	05 - Carbonate etching, 06 - Coppice dunes, 07 - Deflated surface, 09 - Relict bars & swales, 12 - Rock weathering, 15 - Surface rounding of landform, 16 - Woody debris in place
Coppice dune type	02 - relict
Upland Indicator(s) - Fluvial	
UPLAND VEGETATION	
Est. Total Veg Cover (%)	20

Species 1

Taxon	
% total cover	
Avg. Height (feet)	
Avg. Width (feet)	
Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):	Channels do not contain shrubs, just grasses (Schismus sp.). Uplands have shrubs and grasses.
Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):	See previous note.
Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences):	See previous note.

Watercourse Observations

Watercourse Substrate Particle size	03 - pebble $\geq 4 - 64\text{mm}$, 05 - sand $\leq 2\text{mm}$, 06 - silt/clay - fines
% pebble	10

% sand	20
% silt/clay (fines)	70
Watercourse Indicators - Transportation, Deposition & Flow Transition	01 - Bar forms, 02 - Bifurcated flow, 04 - Flow lineations, 08 - Organic Drift, 10 - Out-of-channel flow, 11 - Ripples, 12 - Secondary channels, 14 - Sediment ramps, 16 - Sediment sorting
Bar form(s)	01 - sand
Out-of-channel flow	01 - lateral floodplain
Sediment ramps	01 - sand
Watercourse Indicator(s) - Erosion	01 - Cut banks, 05 - Scour, 06- Secondary Channels
WATERCOURSE VEGETATION	
Est. Total Veg Cover (%)	5

Species 1

Taxon

% total cover

Avg. Height (feet)

Avg. Width (feet)

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Small bunch grasses in channel. Small shrubs in floodplain.

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

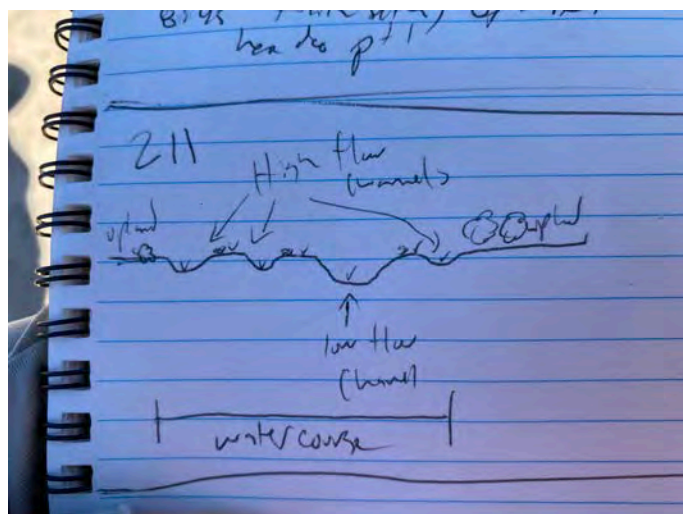
See previous comment

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences):

See previous comment

Vegetation Cross-Section

Vegetation cross-section diagram



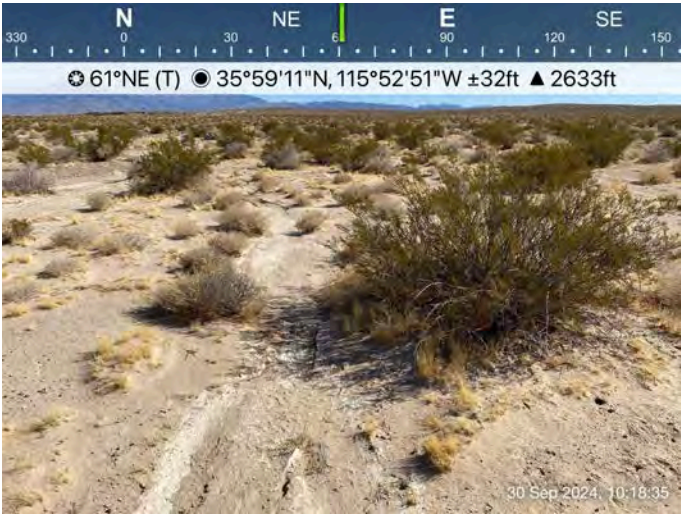
Ponding & Eolian Indicators

Indicators of Ponding & Evaporation, Eolian

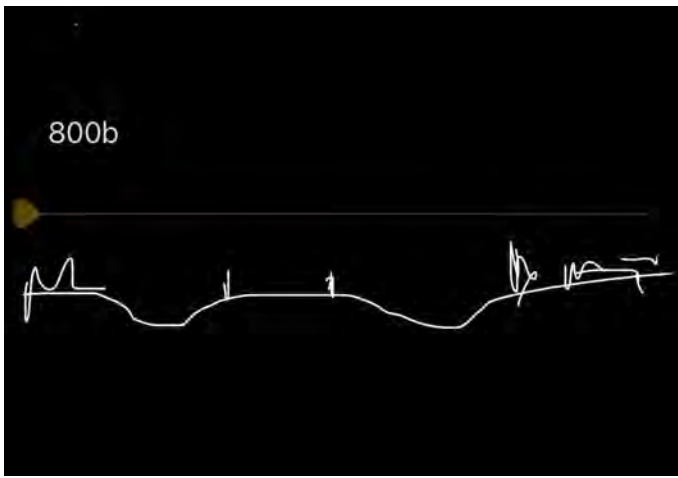
03 -Coppice dunes

Photos

Photo



01 MESA Form 1.0		Date: 09/30/2024
Transect ID	800b	
Project/Site	Bonanza Peak Solar	
Nearest Town	Charleston View	
County	Inyo	
Investigators	S. Creer	
Base Map		
Aerial Photo Number	Google Earth Imagery	
Date	2024 back to 1984	
Topographic Map Name	Calvada Springs USGS 7.5-minute topographic quadrangle	
Date	2024	
GPS Data		
GPS Name	Bad Elf GNSS	
Datum	WGS84	
Transect Elevation (feet)	2638	
Zone	11	
GPS error +/- (feet)		
GPS Coordinates Transect Start		
Latitude	35.9795605	
Longitude	-115.8810586666667	
Datum	WGS84	
GPS Coordinates Transect End		
Latitude	35.9793608	
Longitude	-115.8809986	
General Geomorphology		
Geomorphic Province	Mojave	
Landform (check all that apply)	04 Lower Fan	
Channel form (select one)	05 Discontinuous	
Transect Details		
Transect was selected to	01 Document fluvial activity & boundaries	
Date of most recent runoff event	September 21, 2024 (0.05 in)	
Physical Setting	Disturbed due to fence and junk. Flows diverted around junk.	
Summary Site Descr/Cross-section		



Upland Observations

Upland Substrate Particle Size (Terrestrial)	02 - cobble $\geq 64 - 256\text{mm}$, 03 - pebble $\geq 4 - 64\text{mm}$, 05 - sand $\leq 2\text{mm}$
% cobble	30
% pebble	40
% sand	30
Upland Indicator(s) - Terrestrial:	03 - Bioturbation, 10 - Rock fractured in place, 16 - Woody debris in place

Upland Indicator(s) - Fluvial

UPLAND VEGETATION

Est. Total Veg Cover (%)	30
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Species 1

Taxon	<i>Salsola tragus</i> / Russian thistle, Russian thistle, Tumbleweed
% total cover	30
Avg. Height (feet)	
Avg. Width (feet)	

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

Lower density in floodplain and channels.

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences):

Watercourse Observations

Watercourse Substrate Particle size	04 - granule $\geq 2 - 4\text{mm}$, 05 - sand $\leq 2\text{mm}$, 06 - silt/clay - fines
% granule	10
% sand	50
% silt/clay (fines)	40

Watercourse Indicators - Transportation, Deposition & Flow Transition	01 - Bar forms, 08 - Organic Drift, 11 - Ripples, 12 - Secondary channels, 19 - Wrack
Bar form(s)	02 - gravel
Watercourse Indicator(s) - Erosion	03 - Headcuts, 05 - Scour
WATERCOURSE VEGETATION	
Est. Total Veg Cover (%)	10

Species 1

Taxon	<i>Salsola tragus</i> / Russian thistle, Russian thistle, Tumbleweed
% total cover	10
Avg. Height (feet)	
Avg. Width (feet)	

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences):

Vegetation Cross-Section

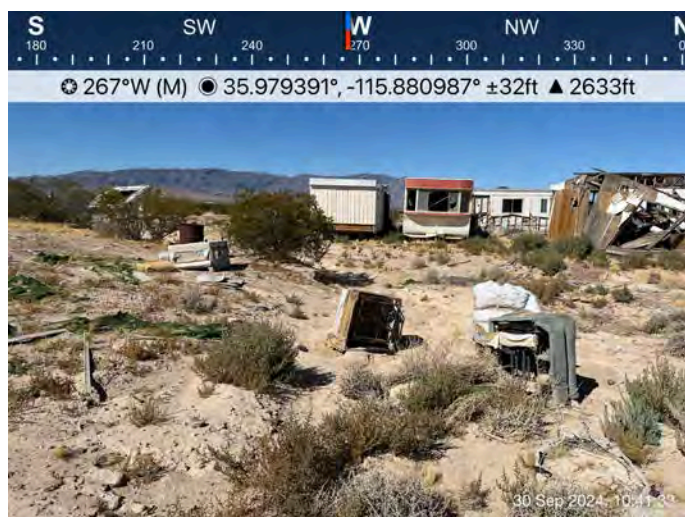
Vegetation cross-section diagram	None
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Ponding & Eolian Indicators

Indicators of Ponding & Evaporation, Eolian Transport & Deposition

Photos

Photo



Transect ID	801
Project/Site	Bonanza Peak Solar
Nearest Town	Charleston View
County	Inyo
Investigators	B. Cohen, S. Creer

Base Map

Aerial Photo Number	Google Earth Imagery
Date	2024 back to 1984
Topographic Map Name	Calvada Springs USGS 7.5-minute topographic quadrangle
Date	2024

GPS Data

GPS Name	Bad Elf GNSS
Datum	WGS84
Transect Elevation (feet)	2624
Zone	11
GPS error +/- (feet)	
GPS Coordinates Transect Start	
Latitude	35.9794622
Longitude	-115.8862655
GPS Coordinates Transect End	
Latitude	35.9798582
Longitude	-115.8861776

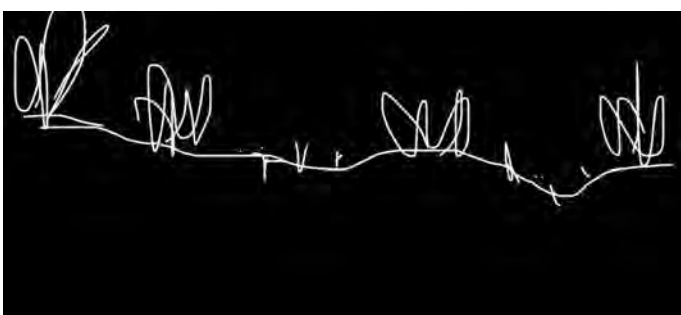
General Geomorphology

Geomorphic Province	Mojave
Landform (check all that apply)	04 Lower Fan
Channel form (select one)	05 Discontinuous

Transect Details

Transect was selected to	01 Document fluvial activity & boundaries
Date of most recent runoff event	September 21, 2024 (0.05 in)
Physical Setting	Hydrology weak, interrupted, and diffuse due to road cuts. Difficult to interpret. Geomorphic units very subtle.

Summary Site Descr/Cross-section



Upland Observations

Upland Substrate Particle Size (Terrestrial)	02 - cobble $\geq$ 64 - 256mm, 03 - pebble $\geq$ 4 - 64mm, 05 - sand $\leq$ 2mm
% cobble	30
% pebble	40
% sand	30
Upland Indicator(s) - Terrestrial:	03 - Bioturbation, 05 - Carbonate etching, 06 - Coppice dunes, 07 - Deflated surface, 10 - Rock fractured in place, 16 - Woody debris in place
Coppice dune type	01 - active
Upland Indicator(s) - Fluvial	
UPLAND VEGETATION	
Est. Total Veg Cover (%)	25
Species 1	
Taxon	<i>Salsola tragus</i> / Russian thistle, Russian thistle, Tumbleweed
% total cover	10
Avg. Height (feet)	
Avg. Width (feet)	
Species 2	
Taxon	<i>Larrea tridentata</i> / Creosote bush
% total cover	15
Avg. Height (feet)	
Avg. Width (feet)	
Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):	Lower density of plants and smaller growth form in floodplain and channels vs. uplands. Grasses in floodplains and channel.
Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):	
Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences):	
Watercourse Observations	
Watercourse Substrate Particle size	04 - granule $\geq$ 2 - 4mm, 05 - sand $\leq$ 2mm, 06 - silt/clay - fines
% granule	10
% sand	50
% silt/clay (fines)	40
Watercourse Indicators - Transportation, Deposition & Flow Transition	01 - Bar forms, 02 - Bifurcated flow, 03 - Drainage swales, 08 - Organic Drift, 10 - Out-of-channel flow, 11 - Ripples, 12 - Secondary channels, 19 - Wrack
Bar form(s)	01 - sand, 02 - gravel
Out-of-channel flow	01 - lateral floodplain, 02 - terminal floodplain

WATERCOURSE VEGETATION

Est. Total Veg Cover (%)	15
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Species 1

Taxon	<i>Salsola tragus</i> / Russian thistle, Russian thistle, Tumbleweed
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% total cover	10
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Avg. Height (feet)	
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Avg. Width (feet)	
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Species 2

Taxon	<i>Schismus arabicus</i> / Arabian schismus
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% total cover	5
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Avg. Height (feet)	
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Avg. Width (feet)	
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Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):	See notes above.
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Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):	
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Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences):	
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Vegetation Cross-Section

Vegetation cross-section diagram	None
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Ponding & Eolian Indicators

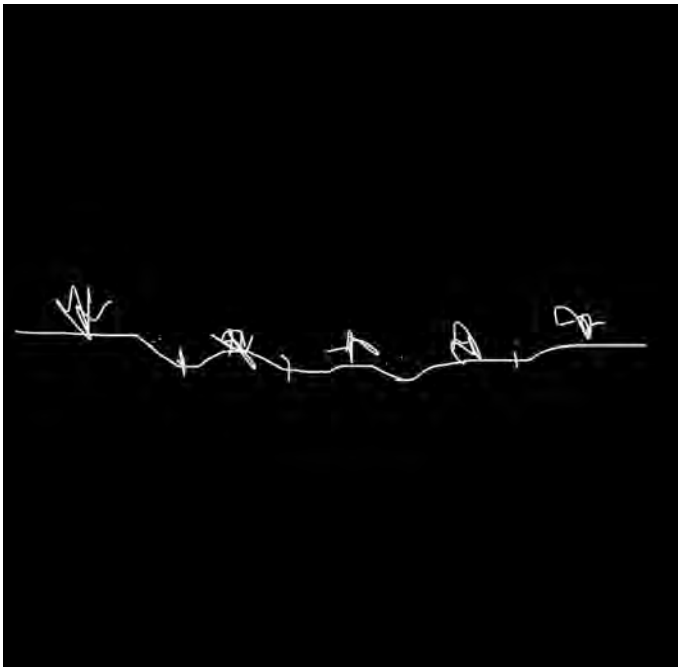
Indicators of Ponding & Evaporation, Eolian Transport & Deposition	
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Photos

Photo	
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01 MESA Form 1.0		Date: 10/01/2024
Transect ID	802	
Project/Site	Bonanza Peak Solar	
Nearest Town	Charleston View	
County	Inyo	
Investigators	B. Cohen, S. Creer	
Base Map		
Aerial Photo Number	Google Earth Imagery	
Date	2024 back to 1984	
Topographic Map Name	Calvada Springs USGS 7.5-minute topographic quadrangle	
Date	2024	
GPS Data		
GPS Name	Bad Elf GNSS	
Datum	WGS84	
Transect Elevation (feet)	2625	
Zone	11	
GPS error +/- (feet)		
GPS Coordinates Transect Start		
Latitude	35.9806679	
Longitude	-115.8856515	
GPS Coordinates Transect End		
Latitude	35.9810906	
Longitude	-115.8855742	
General Geomorphology		
Geomorphic Province	Mojave	
Landform (check all that apply)	04 Lower Fan	
Channel form (select one)	05 Discontinuous	
Transect Details		
Transect was selected to	01 Document fluvial activity & boundaries	
Date of most recent runoff event	September 21, 2024 (0.05 in)	
Physical Setting	Hydrology weak, interrupted, and diffuse due to road cuts. Difficult to interpret. Geomorphic units very subtle.	
Summary Site Descr/Cross-section		



Upland Observations

Upland Substrate Particle Size (Terrestrial)	02 - cobble $\geq 64 - 256\text{mm}$, 03 - pebble $\geq 4 - 64\text{mm}$, 04 - granule $\geq 2 - 4\text{mm}$
% cobble	25
% granule	45
% pebble	30
Upland Indicator(s) - Terrestrial:	03 - Bioturbation, 05 - Carbonate etching, 07 - Deflated surface, 08 - Pavement, 10 - Rock fractured in place, 16 - Woody debris in place

Upland Indicator(s) - Fluvial

UPLAND VEGETATION

Est. Total Veg Cover (%)	25
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Species 1

Taxon	<i>Salsola tragus</i> / Russian thistle, Russian thistle, Tumbleweed
% total cover	10
Avg. Height (feet)	
Avg. Width (feet)	

Species 2

Taxon	<i>Larrea tridentata</i> / Creosote bush
% total cover	15
Avg. Height (feet)	
Avg. Width (feet)	

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

Lower density of plants and smaller growth form in floodplain and channels vs. uplands. Grasses in floodplains and channel.

Are there plant species that are present in (or absent from) the uplands when compared to

fluvially active units or the watercourse complex? (describe differences):

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences):

Watercourse Observations

Watercourse Substrate Particle size	04 - granule $\geq 2 - 4\text{mm}$, 05 - sand $\leq 2\text{mm}$, 06 - silt/clay - fines
% granule	10
% sand	50
% silt/clay (fines)	40
Watercourse Indicators - Transportation, Deposition & Flow Transition	01 - Bar forms, 02 - Bifurcated flow, 03 - Drainage swales, 08 - Organic Drift, 10 - Out-of-channel flow, 11 - Ripples, 12 - Secondary channels, 15 - Sediment sheets, 19 - Wrack
Bar form(s)	01 - sand
Out-of-channel flow	01 - lateral floodplain, 02 - terminal floodplain
Sediment sheets	
Watercourse Indicator(s) - Erosion	04 - Rills
WATERCOURSE VEGETATION	
Est. Total Veg Cover (%)	10

Species 1

Taxon	<i>Salsola tragus</i> / Russian thistle, Russian thistle, Tumbleweed
% total cover	5
Avg. Height (feet)	
Avg. Width (feet)	

Species 2

Taxon	<i>Schismus arabicus</i> / Arabian schismus
% total cover	5
Avg. Height (feet)	
Avg. Width (feet)	

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

See notes above.

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences):

Vegetation Cross-Section

Vegetation cross-section diagram	None
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Ponding & Eolian Indicators

Indicators of Ponding & Evaporation, Eolian
Transport & Deposition

Photos

Photo



01 MESA Form 1.0		Date: 10/01/2024
Transect ID	806	
Project/Site	Bonanza Peak Solar	
Nearest Town	Charleston View	
County	Inyo	
Investigators	B. Cohen, S. Creer	
Base Map		
Aerial Photo Number	Google Earth Imagery	
Date	2024 back to 1984	
Topographic Map Name	Calvada Springs USGS 7.5-minute topographic quadrangle	
Date	2024	
GPS Data		
GPS Name		
Datum	WGS84	
Transect Elevation (feet)		
Zone	11	
GPS error +/- (feet)		
GPS Coordinates Transect Start		
Latitude	35.9856642	
Longitude	-115.8837609	
GPS Coordinates Transect End		
Latitude	35.9862145	
Longitude	-115.8837235	
General Geomorphology		
Geomorphic Province	Mojave	
Landform (check all that apply)	04 Lower Fan	
Channel form (select one)	05 Discontinuous	
Transect Details		
Transect was selected to	04 Document a change in watercourse morphology	
Date of most recent runoff event		
Physical Setting		
Summary Site Descr/Cross-section		
Upland Observations		
Upland Substrate Particle Size (Terrestrial)	03 - pebble $\geq 4 - 64\text{mm}$, 04 - granule $\geq 2 - 4\text{mm}$, 05 - sand $\leq 2\text{mm}$	

% granule	10
% pebble	40
% sand	50
Upland Indicator(s) - Terrestrial:	02 - Biotic crusts, 03 - Bioturbation, 06 - Coppice dunes, 07 - Deflated surface, 10 - Rock fractured in place, 11 - Rock varnish
Coppice dune type	01 - active, 02 - relict
Upland Indicator(s) - Fluvial	
UPLAND VEGETATION	
Est. Total Veg Cover (%)	20
Species 1	
Taxon	
% total cover	
Avg. Height (feet)	
Avg. Width (feet)	
Species 2	
Taxon	<i>Ambrosia dumosa</i> / Burro weed, White bur-sage
% total cover	10
Avg. Height (feet)	1
Avg. Width (feet)	2
Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):	Higher density of shrubs and herbs in watercourse and along streams and fluvial units than outside of watercourse in uplands. However less density of shrubs within actual low flow channels/side channels. 10-20% higher density of shrubs within floodplains/riparian in watercourse than on terraces and outside uplands.
Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):	Yes, some species present and/or more dense in floodplain/fluvially active units than outside in uplands such as mesquite.
Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences):	No?
Watercourse Observations	
Watercourse Substrate Particle size	03 - pebble $\geq 4 - 64\text{mm}$, 04 - granule $\geq 2 - 4\text{mm}$, 05 - sand $\leq 2\text{mm}$, 06 -silt/clay - fines
% granule	10
% pebble	5
% sand	80
% silt/clay (fines)	5
Watercourse Indicators - Transportation, Deposition & Flow Transition	03 - Drainage swales, 04 - Flow lineations, 08 - Organic Drift, 11 - Ripples, 12 - Secondary channels, 16 - Sediment sorting, 19 - Wrack, 20 -Wrinkle marks
Watercourse Indicator(s) - Erosion	01 - Cut banks, 02 - Exposed roots, 04 - Rills, 05 - Scour, 06- Secondary Channels

WATERCOURSE VEGETATION

Est. Total Veg Cover (%)	35
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Species 1

Taxon	
% total cover	
Avg. Height (feet)	
Avg. Width (feet)	

Species 2

Taxon	<i>Ambrosia dumosa</i> / Burro weed, White bur-sage
% total cover	20
Avg. Height (feet)	1
Avg. Width (feet)	2

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):	See above description in upland section on veg
--	--

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):	
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Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences):	
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Vegetation Cross-Section

Vegetation cross-section diagram

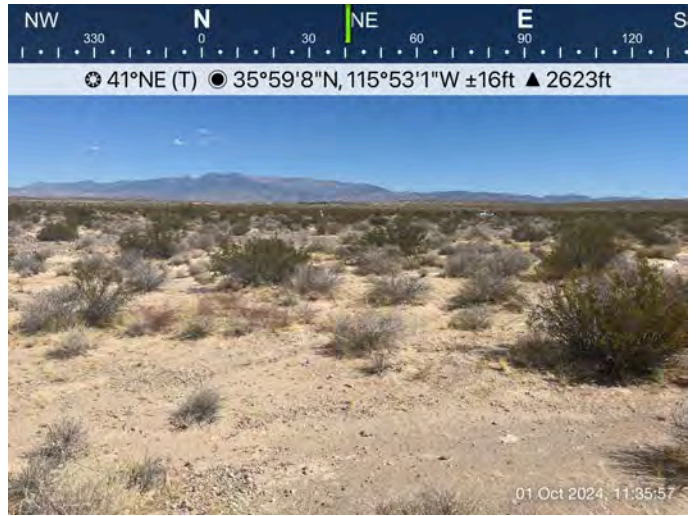
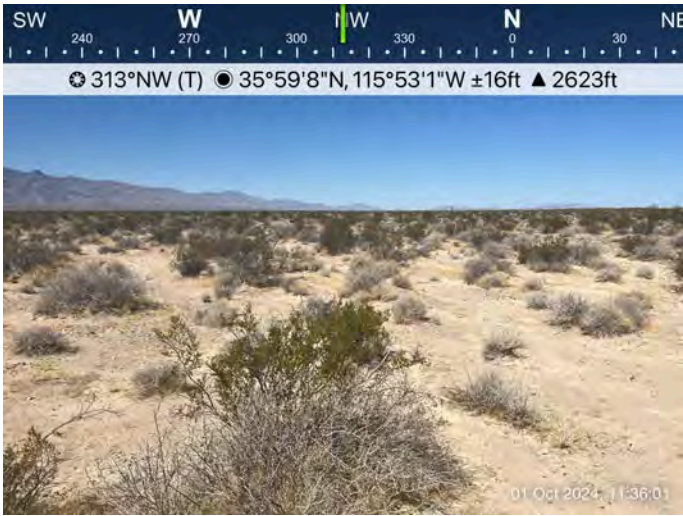


Ponding & Eolian Indicators

Indicators of Ponding & Evaporation, Eolian Transport & Deposition
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Photos

Photo



E.2 Arid West Ordinary High Watermark and Stream Duration Assessment Datasheets



02 OHWM & SDAM (AW) 1.0

Feature ID	209/209a
Survey Date	09/30/2024
General Information	
Project	Bonanza Peak Solar
Time	11:07 AM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	None
Geographic Information	
Datum	NAD83
Projection	
Coordinates	
Latitude	35.98730966666667
Longitude	-115.88098933333333
Datum	NAD83/2011
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low flow channel
Potential anthropogenic influences on the channel system	Roadways bisecting channel
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	
OHWM depth (feet)	
TOB width (feet)	
TOB depth (feet)	

Cross-Section Drawing	None
OHWI Indicators	
Below OHWI Average Sediment Texture (millimeters)	
Above OHWI Average Sediment Texture (millimeters)	
Below OHWI Total veg cover (%)	
Above OHWI Total veg cover (%)	
OHWI Comments	
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no
SDAM - Simplified	
1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	210
Survey Date	09/30/2024

General Information

Project	Bonanza Peak Solar
Time	10:21 AM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	NAD83
Coordinates	
Latitude	35.98698566666667
Longitude	-115.88097
Datum	NAD83/2011

Location Details

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low flow channel
Potential anthropogenic influences on the channel system	Roadways bisecting downstream and disrupting channel
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
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Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	35.986986
Longitude	-115.8809695
Datum	NAD83/2011
OHWM width (feet)	3.5
OHWM depth (feet)	.5
TOB width (feet)	3.5

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	20
OHWM Comments	

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	211
Survey Date	09/30/2024

General Information

Project	Bonanza Peak Solar
Time	10:21 AM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	None

Geographic Information

Datum	NAD83
Projection	
Coordinates	
Latitude	35.98678166666667
Longitude	-115.881201
Datum	NAD83/2011

Location Details

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low flow channel within a floodplain/watercourse
Potential anthropogenic influences on the channel system	Roadways bisecting watercourse
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

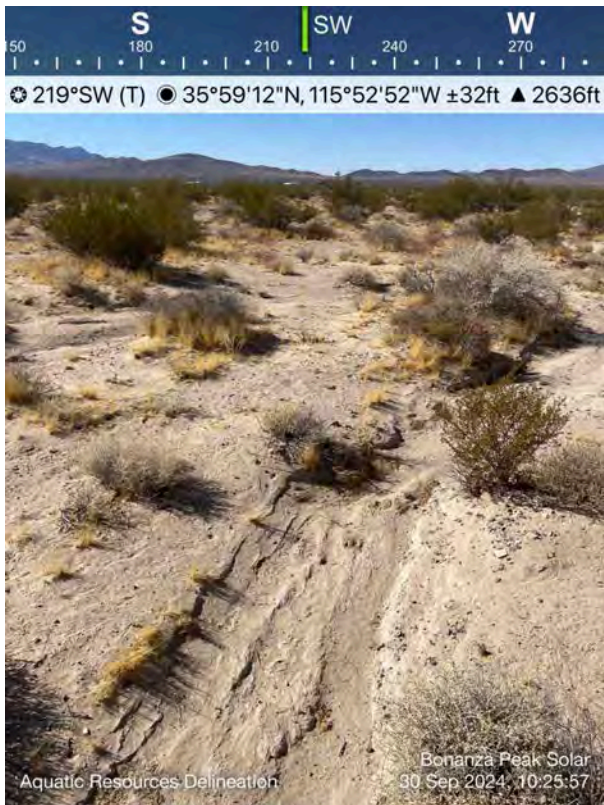
Is this a single drainage in uplands OR a floodplain?	floodplain (i.e. multiple channels in one system)
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Method to Identify & Characterize the Floodplain

Floodplain OHWM Characterization

Record the OHWM position via	Digitized on computer, GPS, Mapping on aerial photograph
OHWM Location	
Latitude	35.98670183333333
Longitude	-115.88116666666667
Datum	NAD83/2011

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
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OHWM Comments

Floodplain Unit 1

Unit GPS Point	
Latitude	35.98669933333333
Longitude	-115.88116683333333
Datum	NAD83/2011
Unit 1	low-flow channel
Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Total veg cover (%)	5
Herb absolute cover (%)	100
Shrub absolute cover (%)	0
Tree absolute cover (%)	0
Veg community successional stage	Early (herbaceous & seedlings)
Unit Indicators	Drift and/or debris, Presence of bed and bank
Unit Comments	

Floodplain Unit 2

Unit GPS Point	
Latitude	35.98669016666667
Longitude	-115.8811441666667
Datum	NAD83/2011
Unit 2	

Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Total veg cover (%)	5
Herb absolute cover (%)	100
Shrub absolute cover (%)	0
Tree absolute cover (%)	0
Veg community successional stage	Early (herbaceous & seedlings)
Unit Indicators	
Unit Comments	Flow debris and sediment sorting

Floodplain Unit 3

Unit GPS Point	
Latitude	
Longitude	
Unit 3	
Average Sediment Texture (millimeters)	
Total veg cover (%)	
Herb absolute cover (%)	
Shrub absolute cover (%)	
Tree absolute cover (%)	
Veg community successional stage	
Unit Indicators	
Unit Comments	

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
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SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	216
Survey Date	09/30/2024

General Information

Project	Bonanza Peak Solar
Time	10:21 AM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	None

Geographic Information

Datum	NAD83
Projection	
Coordinates	
Latitude	35.98760433333333
Longitude	-115.8818881666667
Datum	NAD83/2011

Location Details

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low flow channel
Potential anthropogenic influences on the channel system	Roadways within stream section
Checklist of resources (if available)	Aerial photography, Geologic maps, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
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Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	35.98760866666667
Longitude	-115.881888
Datum	NAD83/2011
OHWM width (feet)	3.5
OHWM depth (feet)	.5
TOB width (feet)	3.5

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	20
OHWM Comments	

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	217
Survey Date	09/30/2024
General Information	
Project	Bonanza Peak Solar
Time	10:21 AM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	None
Geographic Information	
Datum	NAD83/2011
Projection	
Coordinates	
Latitude	35.98707783333333
Longitude	-115.8853303333333
Datum	NAD83/2011
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low flow channel
Potential anthropogenic influences on the channel system	Roadways within stream section
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.98760866666667
Longitude	-115.881888
OHWM width (feet)	1.5
OHWM depth (feet)	.5
TOB width (feet)	1.5
TOB depth (feet)	.5

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	20
OHWM Comments	
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no
SDAM - Simplified	
1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

Feature ID	218
Survey Date	09/30/2024

General Information

Project	Bonanza Peak Solar
Time	01:04 PM
Town	Charleston View
State	CA
Investigator(s)	H. Raizen
Photo(s)	



Geographic Information

Datum	NAD83/2011
Projection	
Coordinates	
Latitude	35.986968
Longitude	-115.8851366666667
Datum	NAD83/2011
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Small ephemeral stream flows into road
Potential anthropogenic influences on the channel system	Gravel unimproved road
Checklist of resources (if available)	Aerial photography, Existing delineation(s) for site, Global positioning system (GPS), Topographic maps

Location Type

Is this a single drainage in uplands OR a floodplain?

single drainage

Single Drainage in Uplands

Record the OHWM position via

GPS

OHWM Location

Latitude

35.98696766666666

Longitude

-115.88513683333333

Datum

NAD83/2011

OHWM width (feet)

1.5

OHWM depth (feet)

1

TOB width (feet)

1.5

TOB depth (feet)

1

Cross-Section Drawing



OHWM Indicators

Break in bank slope, Change in average sediment texture, Change in vegetation cover

Below OHWM Average Sediment Texture (millimeters)

0.0625 - 2 (sand)

Above OHWM Average Sediment Texture (millimeters)

0.0039 - 0.0625 (silt)

Below OHWM Total veg cover (%)

0

Above OHWM Total veg cover (%)

30

OHWM Comments

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants

none

2. Aquatic Macroinvertebrates

none

3. Evidence of AQUATIC stages of EPT

absent

(Ephemeroptera, Plecoptera and Trichoptera)?

4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	221
Survey Date	09/30/2024

General Information

Project	Bonanza Peak Solar
Time	01:04 PM
Town	Charleston View
State	CA
Investigator(s)	H. Raizen
Photo(s)	



Geographic Information

Datum	NAD83/2011
Projection	
Coordinates	
Latitude	35.9883721
Longitude	-115.8840404
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Ephemeral stream flows into another (218)
Potential anthropogenic influences on the channel system	Gravel unimproved road
Checklist of resources (if available)	Aerial photography, Existing delineation(s) for site, Global positioning system (GPS), Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.9883721
Longitude	-115.8840404
OHWM width (feet)	1.5
OHWM depth (feet)	1
TOB width (feet)	1.5
TOB depth (feet)	1
Cross-Section Drawing	None
OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	30
OHWM Comments	
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no
SDAM - Simplified	
1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

Feature ID	226
Survey Date	09/30/2024

General Information

Project	Bonanza Peak Solar
Time	01:04 PM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	



Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.986968
Longitude	-115.8851366666667
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Small ephemeral stream dissipates into uplands
Potential anthropogenic influences on the channel system	
Checklist of resources (if available)	Aerial photography, Existing delineation(s) for site, Global positioning system (GPS), Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.98788116666667
Longitude	-115.885823
Datum	NAD83/2011
OHWM width (feet)	1.5
OHWM depth (feet)	1
TOB width (feet)	1.5
TOB depth (feet)	1
Cross-Section Drawing	None
OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	30
OHWM Comments	
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no
SDAM - Simplified	
1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	243
Survey Date	10/01/2024
General Information	
Project	Bonanza Peak Solar
Time	08:48 AM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	None
Geographic Information	
Datum	NAD83/2011
Projection	
Coordinates	
Latitude	35.98870983333333
Longitude	-115.8925071666667
Datum	NAD83/2011
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low flow channel
Potential anthropogenic influences on the channel system	Downstream roadways intersecting streams
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.98870966666667
Longitude	-115.8925075
Datum	NAD83/2011
OHWM width (feet)	2
OHWM depth (feet)	.5
TOB width (feet)	2

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	2
Above OHWM Total veg cover (%)	30
OHWM Comments	

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	247
Survey Date	10/01/2024
General Information	
Project	Bonanza Peak Solar
Time	08:45 AM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	None
Geographic Information	
Datum	NAD83
Projection	
Coordinates	
Latitude	35.988636
Longitude	-115.891109
Datum	NAD83/2011
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low flow channel
Potential anthropogenic influences on the channel system	Downstream roadways intersecting streams
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.988636
Longitude	-115.89110983333333
Datum	NAD83/2011
OHWM width (feet)	1.5
OHWM depth (feet)	.5
TOB width (feet)	1.5

TOB depth (feet)	.5
Cross-Section Drawing	None
OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWI Total veg cover (%)	0
Above OHWI Total veg cover (%)	25
OHWI Comments	

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	249
Survey Date	10/01/2024

General Information

Project	Bonanza Peak Solar
Time	10:09 AM
Town	Charleston View
State	CA
Investigator(s)	S. Creer
Photo(s)	



Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9831129
Longitude	-115.8853384
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single channel in uplands. Begins in uplands, dissipates to sheet flow. Not bounded in watercourse/floodplain.
Potential anthropogenic influences on the channel system	
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

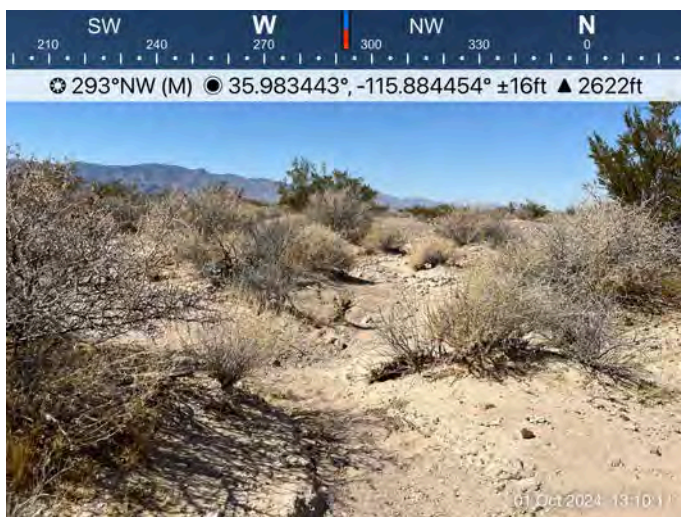
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.9831129
Longitude	-115.8853384
OHWM width (feet)	2
OHWM depth (feet)	.5
TOB width (feet)	2
TOB depth (feet)	.5
Cross-Section Drawing	None
OHWM Indicators	Break in bank slope, Change in average sediment texture, Other 1
OHWM Other 1	Scour
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	64 - 256 (gravel: cobble)
Below OHWM Total veg cover (%)	5
Above OHWM Total veg cover (%)	10
OHWM Comments	Sediment sorting. No associated floodplain.
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no
SDAM - Simplified	
1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	309
Survey Date	10/01/2024

General Information

Project	Bonanza Peak Solar
Time	01:10 PM
Town	Charleston View
State	CA
Investigator(s)	S. Creer
Photo(s)	



Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9834314
Longitude	-115.8844402
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single channel in uplands. Begins in uplands, dissipates to sheet flow. Not bounded in watercourse/floodplain.
Potential anthropogenic influences on the channel system	
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.9834314
Longitude	-115.8844402
OHWM width (feet)	1
OHWM depth (feet)	.25
TOB width (feet)	1
TOB depth (feet)	.25
Cross-Section Drawing	None
OHWM Indicators	Break in bank slope, Change in average sediment texture, Other 1
OHWM Other 1	Scour
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	64 - 256 (gravel: cobble)
Below OHWM Total veg cover (%)	5
Above OHWM Total veg cover (%)	10
OHWM Comments	Sediment sorting. No associated floodplain.
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no
SDAM - Simplified	
1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	700
Survey Date	10/02/2024

General Information

Project	Bonanza Peak Solar
Time	06:08 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9801606
Longitude	-115.88538

Location Details

Site Information

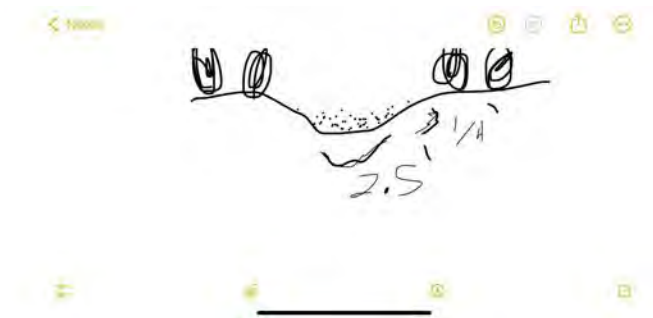
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in uplands
Potential anthropogenic influences on the channel system	Road cuts altering hydrology in study area
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	2.5
OHWM depth (feet)	0.25
TOB width (feet)	2.5
TOB depth (feet)	.25
Cross-Section Drawing	



OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWI Other 1	Sediment sorting/deposition
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	30
OHWI Comments	Scour, riffles, wrack/debris,

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
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SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	701
Survey Date	10/02/2024
General Information	
Project	Bonanza Peak Solar
Time	06:08 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.980307
Longitude	-115.885729
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in valley
Potential anthropogenic influences on the channel system	Road cuts altering hydrology in study area
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	4
OHWM depth (feet)	0.25
TOB width (feet)	4
TOB depth (feet)	.25
Cross-Section Drawing	



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWM Other 1	Sediment sorting/deposition
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWM Total veg cover (%)	5
Above OHWM Total veg cover (%)	30
OHWM Comments	Scour, riffles, wrack/debris,

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	705
Survey Date	10/02/2024

General Information

Project	Bonanza Peak Solar
Time	06:32 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.979461
Longitude	-115.884009
Location Details	

Site Information

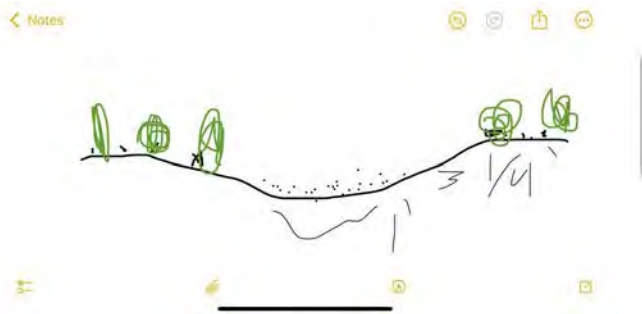
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in uplands in valley.
Potential anthropogenic influences on the channel system	Road cuts altering hydrology .
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
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Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	1
OHWM depth (feet)	0.25
TOB width (feet)	1
TOB depth (feet)	0.25
Cross-Section Drawing	



OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWI Other 1	Sediment sorting/deposition
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	30
OHWI Comments	Scour, wrack/debris.

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	706
Survey Date	10/02/2024
General Information	
Project	Bonanza Peak Solar
Time	06:08 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9811779
Longitude	-115.8831938
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in valley.
Potential anthropogenic influences on the channel system	Road cuts altering hydrology in study area.
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	2
OHWM depth (feet)	0.25
TOB width (feet)	2.0
TOB depth (feet)	0.25
Cross-Section Drawing	None

OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWI Other 1	Sediment sorting/deposition
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	30
OHWI Comments	Scour, riffles, wrack/debris.

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	707
Survey Date	10/01/2024
General Information	
Project	Bonanza Peak Solar
Time	04:07 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9826865
Longitude	-115.882036
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single channel in uplands. Extension of the single drainage mapped in 2020.
Potential anthropogenic influences on the channel system	
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.9834314
Longitude	-115.8844402
OHWM width (feet)	1
OHWM depth (feet)	.25
TOB width (feet)	1

TOB depth (feet)	.25
Cross-Section Drawing	None
OHWM Indicators	Break in bank slope, Change in average sediment texture
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	64 - 256 (gravel: cobble)
Below OHWM Total veg cover (%)	5
Above OHWM Total veg cover (%)	10
OHWM Comments	Sediment sorting. No associated floodplain.

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	708
Survey Date	10/01/2024

General Information

Project	Bonanza Peak Solar
Time	04:07 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	



Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9846497
Longitude	-115.8830209

Location Details

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single channel in uplands.
Potential anthropogenic influences on the channel system	
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	0.0
Longitude	0.0
OHWM width (feet)	2
OHWM depth (feet)	.25
TOB width (feet)	2
TOB depth (feet)	.25
Cross-Section Drawing	None
OHWM Indicators	Break in bank slope, Change in average sediment texture
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	64 - 256 (gravel: cobble)
Below OHWM Total veg cover (%)	5
Above OHWM Total veg cover (%)	10
OHWM Comments	No associated floodplain.

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
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SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	709
Survey Date	10/02/2024

General Information

Project	Bonanza Peak Solar
Time	06:08 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9846237
Longitude	-115.884268
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in valley floor.
Potential anthropogenic influences on the channel system	Road cuts altering hydrology in study area
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	2
OHWM depth (feet)	0.25
TOB width (feet)	2
TOB depth (feet)	.25
Cross-Section Drawing	None

OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWI Other 1	Sedimentation/deposition
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	30
OHWI Comments	Scour, riffles, wrack/debris

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
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SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	710
Survey Date	10/02/2024

General Information

Project	Bonanza Peak Solar
Time	06:08 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9850605
Longitude	-115.8858061
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in valley.
Potential anthropogenic influences on the channel system	Road cuts altering hydrology in study area.
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	2
OHWM depth (feet)	0.25
TOB width (feet)	2.0
TOB depth (feet)	0.25
Cross-Section Drawing	



OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWI Other 1	Sedimentation/deposition
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	30
OHWI Comments	Scour, riffles, wrack/debris.

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
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SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	711
Survey Date	10/02/2024
General Information	
Project	Bonanza Peak Solar
Time	06:08 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9836329
Longitude	-115.8892905
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in valley
Potential anthropogenic influences on the channel system	Road cuts altering hydrology in study area
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	1.5
OHWM depth (feet)	0.25
TOB width (feet)	1.5
TOB depth (feet)	0.25
Cross-Section Drawing	None

OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWI Other 1	Sediment sorting/deposition
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	30
OHWI Comments	Scour, riffles, wrack/debris

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
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SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	712
Survey Date	10/02/2024

General Information

Project	Bonanza Peak Solar
Time	06:08 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9847751
Longitude	-115.8852578
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in valley floor.
Potential anthropogenic influences on the channel system	Road cuts altering hydrology in study area.
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	2
OHWM depth (feet)	0.25
TOB width (feet)	2
TOB depth (feet)	0.25
Cross-Section Drawing	



OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWI Other 1	Sedimentation/deposition
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	30
OHWI Comments	Scour, riffles, wrack/debris

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
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SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	713
Survey Date	10/02/2024

General Information

Project	Bonanza Peak Solar
Time	06:08 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9847889
Longitude	-115.8844773

Location Details

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in valley floor
Potential anthropogenic influences on the channel system	Road cuts altering hydrology in study area
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	2
OHWM depth (feet)	0.25
TOB width (feet)	2
TOB depth (feet)	.25
Cross-Section Drawing	None

OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWI Other 1	Sedimentation/deposition
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	30
OHWI Comments	Scour, riffles, wrack/debris,

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	714
Survey Date	10/02/2024

General Information

Project	Bonanza Peak Solar
Time	06:08 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9848339
Longitude	-115.883596
Location Details	

Site Information

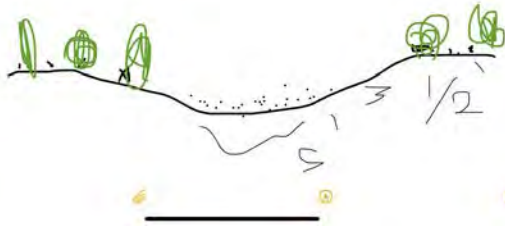
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in valley floor
Potential anthropogenic influences on the channel system	Road cuts altering hydrology in study area
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
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Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	5
OHWM depth (feet)	0.5
TOB width (feet)	5
TOB depth (feet)	0.5
Cross-Section Drawing	



OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWI Other 1	Sedimentation/deposition
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	30
OHWI Comments	Scour, riffles, wrack/debris

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	715
Survey Date	10/02/2024
General Information	
Project	Bonanza Peak Solar
Time	06:08 PM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9848497
Longitude	-115.8865535
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single ephemeral drainage in valley
Potential anthropogenic influences on the channel system	Road cuts altering hydrology in study area
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	2
OHWM depth (feet)	0.25
TOB width (feet)	2
TOB depth (feet)	0.25
Cross-Section Drawing	



OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1, Other 2
OHWI Other 1	Sediment sorting/deposition
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	30
OHWI Comments	Scour, riffles, wrack/debris,

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

Feature ID	800a
Survey Date	09/30/2024

General Information

Project	Bonanza Peak Solar
Time	10:09 AM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen, S. Creer
Photo(s)	



Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.97912216666667
Longitude	-115.881522
Datum	WGS84

Location Details

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single channel in uplands. Begins offsite with headcut. Joins 800c just east of the roadcut.
Potential anthropogenic influences on the channel system	Roadcut, junk yard
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps

Location Type

Is this a single drainage in uplands OR a floodplain?

single drainage

Single Drainage in Uplands

Record the OHWM position via

GPS

OHWM Location

Latitude

0.0

Longitude

0.0

OHWM width (feet)

5

OHWM depth (feet)

.5

TOB width (feet)

5

TOB depth (feet)

.5

Cross-Section Drawing



OHWM Indicators

Break in bank slope, Change in average sediment texture, Change in vegetation cover, Change in vegetation species, Other 1

OHWM Other 1

Scour, wrack

Below OHWM Average Sediment Texture (millimeters)

0.0625 - 2 (sand)

Above OHWM Average Sediment Texture (millimeters)

64 - 256 (gravel: cobble)

Below OHWM Total veg cover (%)

5

Above OHWM Total veg cover (%)

10

OHWM Comments

Sediment sorting. No associated floodplain.

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants

none

2. Aquatic Macroinvertebrates

none

3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

absent

4. Algae

absent

5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	800b
Survey Date	09/30/2024

General Information

Project	Bonanza Peak Solar
Time	10:09 AM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen, S. Creer
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.97912216666667
Longitude	-115.881522
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Floodplain with 2 discontinuous low flow channels. Abandoned main channel plugged with garbage. Has created a floodplain. See MESA form.
Potential anthropogenic influences on the channel system	Roadcut, junk yard
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	floodplain (i.e. multiple channels in one system)
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Method to Identify & Characterize the Floodplain

Floodplain OHWM Characterization

Record the OHWM position via	Digitized on computer, GPS, Mapping on aerial photograph
OHWM Location	
Latitude	
Longitude	
Cross-Section Drawing	



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
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OHWM Comments	
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Floodplain Unit 1

Unit GPS Point	
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Latitude	
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Longitude	
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Unit 1	active floodplain
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Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
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Total veg cover (%)	
---------------------	--

Herb absolute cover (%)	
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Shrub absolute cover (%)	
--------------------------	--

Tree absolute cover (%)	
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Veg community successional stage	Early (herbaceous & seedlings)
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Unit Indicators	Drift and/or debris
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Unit Comments	See mesa form.
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Floodplain Unit 2

Unit GPS Point	
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Latitude	
----------	--

Longitude	
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Unit 2	low-flow channel
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Average Sediment Texture (millimeters)	
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Total veg cover (%)	
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Herb absolute cover (%)	
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Shrub absolute cover (%)	
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Tree absolute cover (%)	
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Veg community successional stage	
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Unit Indicators	Drift and/or debris, Presence of bed and bank, Ripples
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Unit Comments	
---------------	--

Floodplain Unit 3

Unit GPS Point
Latitude
Longitude
Unit 3
Average Sediment Texture (millimeters)
Total veg cover (%)
Herb absolute cover (%)
Shrub absolute cover (%)
Tree absolute cover (%)
Veg community successional stage
Unit Indicators
Unit Comments

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

Feature ID	800c
Survey Date	09/30/2024

General Information	
Project	Bonanza Peak Solar
Time	10:09 AM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen, S. Creer
Photo(s)	



Geographic Information	
Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.97912216666667
Longitude	-115.881522
Location Details	Fed by one channel and altered floodplain/watercourse.
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single channel in uplands.
Potential anthropogenic influences on the channel system	Roadcut, junk yard.
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain? single drainage

Single Drainage in Uplands

Record the OHWM position via GPS

OHWM Location

Latitude 0.0

Longitude 0.0

OHWM width (feet) 8

OHWM depth (feet) 1

TOB width (feet) 8

TOB depth (feet) 1

Cross-Section Drawing



OHWM Indicators Break in bank slope, Change in average sediment texture, Change in vegetation cover

Below OHWM Average Sediment Texture (millimeters) 0.0625 - 2 (sand)

Above OHWM Average Sediment Texture (millimeters) 4 - 64 (gravel: pebble)

Below OHWM Total veg cover (%) 2

Above OHWM Total veg cover (%) 15

OHWM Comments

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants none

2. Aquatic Macroinvertebrates none

3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)? absent

4. Algae absent

5. Single Indicator(s) none

Classification (refer to 2023 SDAM chart) ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	800d
Survey Date	09/30/2024
General Information	
Project	Bonanza Peak Solar
Time	10:09 AM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen, S. Creer
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.97831533333333
Longitude	-115.8825151666667
Datum	WGS84
Location Details	Branch created due to mattress in 800c.
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single channel in uplands.
Potential anthropogenic influences on the channel system	Roadcut, junk yard
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	0.0
Longitude	0.0
OHWM width (feet)	1
OHWM depth (feet)	.25

TOB width (feet)	1
TOB depth (feet)	.25

Cross-Section Drawing



OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	4 - 64 (gravel: pebble)
Below OHWI Total veg cover (%)	2
Above OHWI Total veg cover (%)	15

OHWI Comments

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

Feature ID	801
Survey Date	10/01/2024

General Information

Project	Bonanza Peak Solar
Time	08:07 AM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen, S. Creer
Photo(s)	

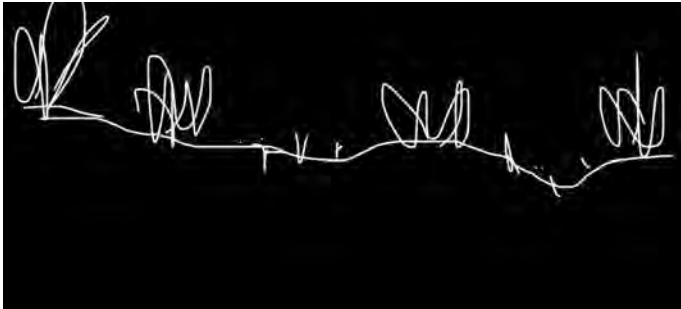


Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9796998
Longitude	-115.8862213
Location Details	Location within OHWM bounds.

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low gradient floodplain adjacent to roadcut and influence by 2 roads. Very subtle Geomorphic units.
Potential anthropogenic influences on the channel system	Roads
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type	
Is this a single drainage in uplands OR a floodplain?	floodplain (i.e. multiple channels in one system)
Method to Identify & Characterize the Floodplain	
Floodplain OHWM Characterization	
Record the OHWM position via	Digitized on computer, GPS, Mapping on aerial photograph
OHWM Location	
Latitude	
Longitude	
Cross-Section Drawing	
	
OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Change in vegetation species
OHWM Comments	Riffles, wrack
Floodplain Unit 1	
Unit GPS Point	
Latitude	
Longitude	
Unit 1	active floodplain
Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Total veg cover (%)	10
Herb absolute cover (%)	8
Shrub absolute cover (%)	2
Tree absolute cover (%)	0
Veg community successional stage	Mid (herbaceous, shrubs, saplings)
Unit Indicators	Drift and/or debris, Mudcracks, Ripples
Unit Comments	
Floodplain Unit 2	
Unit GPS Point	
Latitude	
Longitude	
Unit 2	low-flow channel
Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Total veg cover (%)	5

Herb absolute cover (%)	5
Shrub absolute cover (%)	
Tree absolute cover (%)	
Veg community successional stage	Early (herbaceous & seedlings)
Unit Indicators	Drift and/or debris, Presence of bed and bank
Unit Comments	

Floodplain Unit 3

Unit GPS Point	
Latitude	
Longitude	
Unit 3	low terrace (AKA upland!)
Average Sediment Texture (millimeters)	4 - 64 (gravel: pebble)
Total veg cover (%)	15
Herb absolute cover (%)	5
Shrub absolute cover (%)	10
Tree absolute cover (%)	
Veg community successional stage	Mid (herbaceous, shrubs, saplings)
Unit Indicators	
Unit Comments	Rubification, deflated surface

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
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SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

Feature ID	803
Survey Date	10/01/2024

General Information

Project	Bonanza Peak Solar
Time	08:31 AM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen, S. Creer
Photo(s)	



Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9804744
Longitude	115.8864918
Location Details	Discontinuous stream

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single channel in uplands. Begins with small headcut and diffuses into sheetflow and evaporates
Potential anthropogenic influences on the channel system	Roadcut
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps

Location Type

Is this a single drainage in uplands OR a floodplain?

single drainage

Single Drainage in Uplands

Record the OHWM position via

GPS

OHWM Location

Latitude

35.9804955

Longitude

-115.886485

Datum

WGS84

OHWM width (feet)

1

OHWM depth (feet)

.2

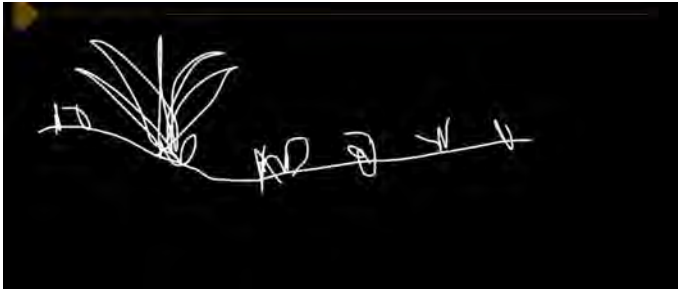
TOB width (feet)

1

TOB depth (feet)

.2

Cross-Section Drawing



OHWM Indicators

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

Below OHWM Average Sediment Texture (millimeters)

0.0625 - 2 (sand)

Above OHWM Average Sediment Texture (millimeters)

64 - 256 (gravel: cobble)

Below OHWM Total veg cover (%)

0

Above OHWM Total veg cover (%)

20

OHWM Comments

Sediment sorting. No associated floodplain.

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants

none

2. Aquatic Macroinvertebrates

none

3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

absent

4. Algae

absent

5. Single Indicator(s)

none

Classification (refer to 2023 SDAM chart)

ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID 804

Survey Date 10/01/2024

General Information

Project Bonanza Peak Solar

Time 09:52 AM

Town Charleston View

State CA

Investigator(s) B. Cohen, S. Creer

Photo(s)



Geographic Information

Datum WGS84

Projection WGS84

Coordinates

Latitude 35.9811439

Longitude 115.8849598

Location Details Location within OHWM bounds.

Site Information

Do normal circumstances exist on the site? Y

Is the site significantly disturbed? Y

Brief site description Single channel

Potential anthropogenic influences on the channel system Roads

Checklist of resources (if available) Aerial photography, Soils maps, Topographic maps, Vegetation maps

Aerial photography dates Google Earth Imagery back to 1985

Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	1
OHWM depth (feet)	.1
TOB width (feet)	1
TOB depth (feet)	.1
Cross-Section Drawing	
	
OHWM Indicators	Change in average sediment texture
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	4 - 64 (gravel: pebble)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	10
OHWM Comments	
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no
SDAM - Simplified	
1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	807
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Survey Date	10/01/2024
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General Information

Project	Bonanza Peak Solar
Time	10:09 AM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen, S. Creer
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9849092
Longitude	115.8820941
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single channel in uplands. Begins in uplands, dissipates to sheet flow. Not bounded in watercourse/floodplain.
Potential anthropogenic influences on the channel system	
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
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Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	0.0
Longitude	0.0
OHWM width (feet)	1.5
OHWM depth (feet)	.25
TOB width (feet)	1.5

TOB depth (feet)

.25

Cross-Section Drawing



OHWI Indicators	Break in bank slope, Change in average sediment texture, Other 1
OHWI Other 1	Scour
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	64 - 256 (gravel: cobble)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	10
OHWI Comments	Sediment sorting. No associated floodplain.

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?

no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	808
Survey Date	10/01/2024
General Information	
Project	Bonanza Peak Solar
Time	10:09 AM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen, S. Creer
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.9841561
Longitude	-115.8841313
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Single channel in uplands. Begins in uplands, dissipates to sheet flow. Not bounded in watercourse/floodplain.
Potential anthropogenic influences on the channel system	
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	0.0
Longitude	0.0
OHWM width (feet)	1.5
OHWM depth (feet)	.1
TOB width (feet)	1.5

TOB depth (feet)

.1

Cross-Section Drawing



OHWI Indicators	Break in bank slope, Change in average sediment texture, Other 1
OHWI Other 1	Scour
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	64 - 256 (gravel: cobble)
Below OHWI Total veg cover (%)	5
Above OHWI Total veg cover (%)	10
OHWI Comments	Sediment sorting. No associated floodplain.

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

Feature ID	809
Survey Date	10/03/2024

General Information

Project	Bonanza Peak Solar
Time	11:48 AM
Town	Charleston View
State	CA
Investigator(s)	B. Cohen, S. Creer
Photo(s)	

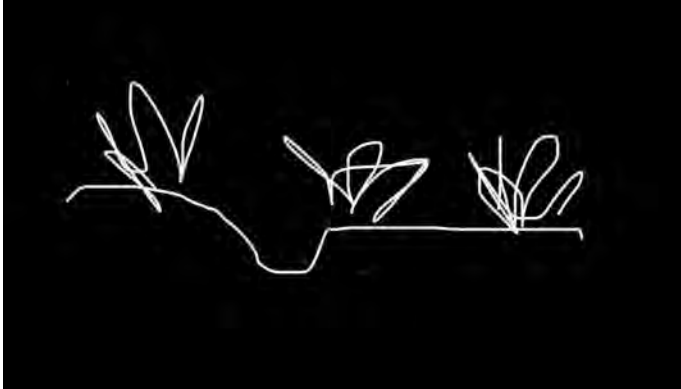


Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.99124066666667
Longitude	-115.935034
Datum	WGS84
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Begins where swales coalesce, flows over road and continues off site. Not bounded in watercourse/floodplain. Roadcut likely contributed to channelization.
Potential anthropogenic influences on the channel system	Road
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic

	maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.99124066666667
Longitude	-115.935034
Datum	WGS84
OHWM width (feet)	3
OHWM depth (feet)	1
TOB width (feet)	3
TOB depth (feet)	1
Cross-Section Drawing	
	
OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1
OHWM Other 1	Scour
Below OHWM Average Sediment Texture (millimeters)	4 - 64 (gravel: pebble)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	20
OHWM Comments	Sediment sorting. No associated floodplain.
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no
SDAM - Simplified	
1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT	absent

(Ephemeroptera, Plecoptera and Trichoptera)?

4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	900
Survey Date	09/30/2024
General Information	
Project	Bonanza Peak Solar
Time	10:21 AM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	None
Geographic Information	
Datum	NAD83
Projection	
Coordinates	
Latitude	35.9874035
Longitude	-115.8825171666667
Datum	NAD83/2011
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low flow channel
Potential anthropogenic influences on the channel system	Roadways within stream section and channels lose OHWM indicators intermittently above stream section
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.9874055
Longitude	-115.882514
Datum	NAD83/2011
OHWM width (feet)	4
OHWM depth (feet)	.5

TOB width (feet)	4
TOB depth (feet)	.5

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	20
OHWM Comments	

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	901
Survey Date	10/02/2024
General Information	
Project	Bonanza Peak Solar
Time	07:56 AM
Town	Charleston View
State	CA
Investigator(s)	H. Raizen
Photo(s)	None
Geographic Information	
Datum	NAD83/2011
Projection	
Coordinates	
Latitude	35.99595716666666
Longitude	-115.9000426666667
Datum	NAD83/2011
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Deeply scoured channel with significant head cut. Highly erodible silty soil. Fades out pretty quickly into sheet flow area
Potential anthropogenic influences on the channel system	None
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.995957
Longitude	-115.9000435
Datum	NAD83/2011
OHWM width (feet)	5
OHWM depth (feet)	1.5

TOB width (feet)	5
TOB depth (feet)	1.5
Cross-Section Drawing	



OHWI Indicators	Break in bank slope, Change in vegetation cover
Below OHWI Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Above OHWI Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWI Total veg cover (%)	20
Above OHWI Total veg cover (%)	40
OHWI Comments	

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	902
Survey Date	10/02/2024

General Information

Project	Bonanza Peak Solar
Time	07:56 AM
Town	Charleston View
State	CA
Investigator(s)	H. Raizen
Photo(s)	None

Geographic Information

Datum	NAD83/2011
Projection	
Coordinates	
Latitude	35.99582283333334
Longitude	-115.9000826666667
Datum	NAD83/2011

Location Details

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Deeply scoured channel with significant head cut. Highly erodible silty soil. Fades out pretty quickly into sheet flow area
Potential anthropogenic influences on the channel system	None
Checklist of resources (if available)	Aerial photography, Global positioning system (GPS), Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
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Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	35.99582283333334
Longitude	-115.9000826666667
Datum	NAD83/2011
OHWM width (feet)	6
OHWM depth (feet)	1.5

TOB width (feet)	6
TOB depth (feet)	1.5
Cross-Section Drawing	None
OHWI Indicators	Break in bank slope, Change in vegetation cover, Change in vegetation species
Below OHWI Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Above OHWI Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWI Total veg cover (%)	20
Above OHWI Total veg cover (%)	40
OHWI Comments	

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	1000
Survey Date	10/01/2024

General Information

Project	Bonanza Peak Solar
Time	08:32 AM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	WGS84
Coordinates	
Latitude	35.98753567
Longitude	-115.89417033

Location Details

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low flow channel
Potential anthropogenic influences on the channel system	Downstream roadways intersecting
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	35.9874055
Longitude	-115.882514
OHWM width (feet)	1.5

OHWL depth (feet)	.5
TOB width (feet)	1.5
TOB depth (feet)	.5

Cross-Section Drawing



OHWL Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWL Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWL Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWL Total veg cover (%)	5
Above OHWL Total veg cover (%)	35

OHWL Comments

CDFW Riparian Canopy

Is there non-wetland riparian canopy present? no

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

02 OHWM & SDAM (AW) 1.0

Feature ID	1001
Survey Date	09/30/2024

General Information

Project	Bonanza Peak Solar
Time	02:07 PM
Town	Charleston View
State	CA
Investigator(s)	M. Oats, H. Raizen
Photo(s)	None

Geographic Information

Datum	NAD83
Projection	
Coordinates	
Latitude	35.9880566
Longitude	-115.8813845
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Low flow channel
Potential anthropogenic influences on the channel system	Roadway bisecting channel; forks after crossing road.
Checklist of resources (if available)	Aerial photography, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Record the OHWM position via	GPS
OHWM Location	
Latitude	
Longitude	
OHWM width (feet)	1.5
OHWM depth (feet)	.5
TOB width (feet)	1.5
TOB depth (feet)	.5
Cross-Section Drawing	None

OHWI Indicators	Change in average sediment texture
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Below OHWI Total veg cover (%)	0
Above OHWI Total veg cover (%)	10
OHWI Comments	

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
---	----

SDAM - Simplified

1. Number of OBL or FACW plants	none
2. Aquatic Macroinvertebrates	none
3. Evidence of AQUATIC stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?	absent
4. Algae	absent
5. Single Indicator(s)	none
Classification (refer to 2023 SDAM chart)	ephemeral

AW OHWM plus 1.0

Feature ID	2000
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Survey Date	05/01/2025
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General Information

Project	Bonanza Peak Solar
Time	08:45 AM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	
Coordinates	
Latitude	0.0
Longitude	0.0

Location Details	
------------------	--

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Study area adjacent to existing dirt road. Meets road and sheet flow over.
Potential anthropogenic influences on the channel system	Road
Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

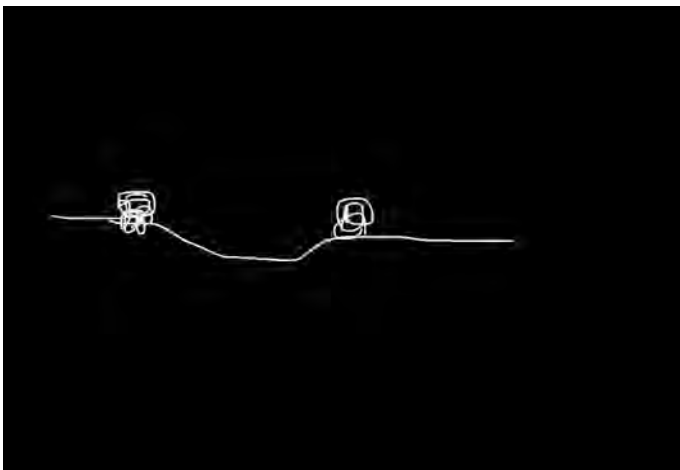
Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Regime	Ephemeral
Regime Comments	
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.976012
Longitude	-115.8618848
OHWM width (feet)	2
OHWM depth (feet)	.5
TOB width (feet)	2
TOB depth (feet)	.5

Cross-Section Drawing

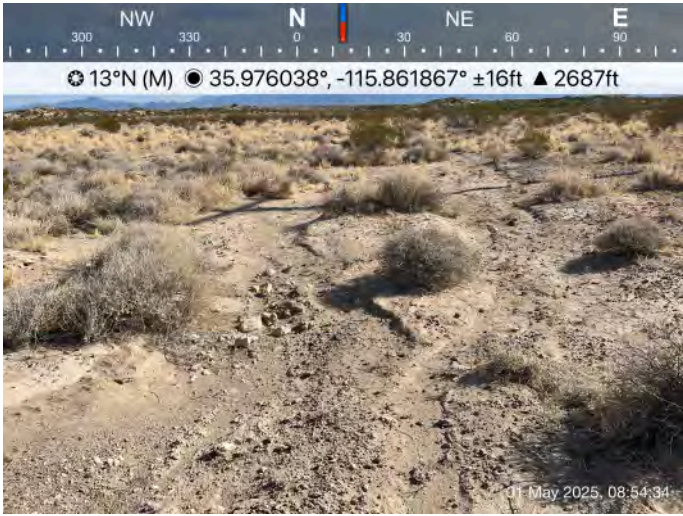


OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	4 - 64 (gravel: pebble)
Above OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	4
OHWM Comments	Sediment sorting

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
---	----

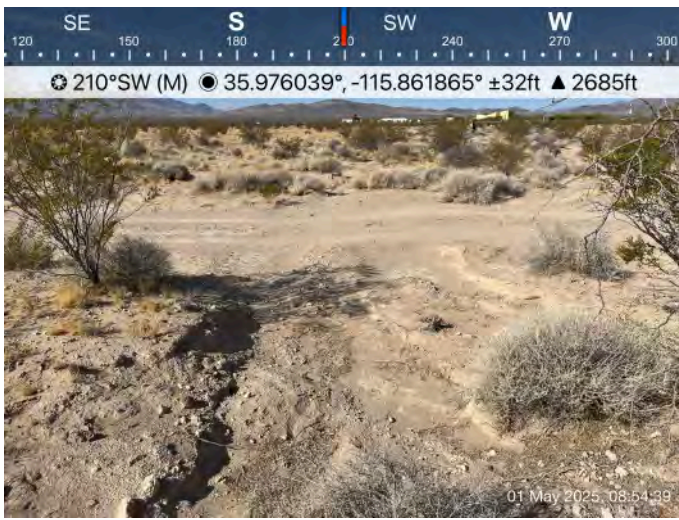
Side code or identifier:	2000
Survey Date	05/01/2025
General Site Information	
Project Name or Number:	Bonanza Peak Solar
Assessor(s):	S. Creer, M. Oats
Waterway Name (if named):	
Visit Date:	05/01/2025
Current weather conditions (check one):	Cloudy
Cloud cover (%):	2
Notes on current weather conditions:	Dry.
Coordinates at downstream end:	
Latitude	35.97603466666666
Longitude	-115.86187333333333
Datum	ITRF2000
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Access road, utility, cattle
Describe reach boundaries:	Short reach bounded by road
Mean bankfull channel width (m):	.609
Reach length (m):	
Site Photographs	photos attached here
Top of reach looking downstream	None
Bottom of reach looking upstream	



Mid reach looking downstream



Mid reach looking upstream	None
Disturbed or difficult conditions (check all that apply):	Diversions, Other
Other disturbed/difficult condition:	Access road
Notes on disturbances or difficult site conditions:	
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0
Comments on observed hydrology:	
Site sketch:	



1. Mean bankfull channel width

mean width (m): .609

Notes about mean bankfull channel width 2 ft

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant species without odd distribution

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation: No hydrophytic veg.

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 2

Upland Plant Species 1 Other /

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: Schismus- NL

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.

Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

1

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment.

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment: Model was run.

Model Classification

Model classification ephemeral

Side code or identifier: 2001

Survey Date 05/01/2025

General Site Information

Project Name or Number: Bonanza Peak Solar

Assessor(s): S. Creer, M. Oats

Waterway Name (if named):

Visit Date: 05/01/2025

Current weather conditions (check one): Cloudy

Cloud cover (%): 2

Notes on current weather conditions: Dry.

Coordinates at downstream end:

Latitude 0.0

Longitude 0.0

Surrounding land-use within 100 m (328 ft) (check one or two): Other

Other land-use: Access road, utility, cattle

Describe reach boundaries: Short reach bounded by road

Mean bankfull channel width (m): .609

Reach length (m): see mapped drainage

Site Photographs photos attached here

Top of reach looking downstream



Bottom of reach looking upstream



Mid reach looking downstream	None
Mid reach looking upstream	None
Disturbed or difficult conditions (check all that apply):	Diversions, Other
Other disturbed/difficult condition:	Access road

Notes on disturbances or difficult site conditions:

OBSERVED HYDROLOGY

% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0

Comments on observed hydrology:

Site sketch:	None
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1. Mean bankfull channel width

mean width (m):	.609
Notes about mean bankfull channel width	2 ft

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area	true
--	------

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent:	1
Notes about slope:	

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant
species without odd distribution

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation: No hydrophytic veg.

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 2

Upland Plant Species 1 *Other /*

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: Schismus- NL

6. Algal cover

Mark the appropriate box for the
percent of the streambed covered
by live or dead algae on the
streambed. Not detected

Notes on algal cover on the
streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 1

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment.

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment:	Model was run.
Model Classification	
Model classification	ephemeral

AW OHWM plus 1.0

Feature ID	2001
Survey Date	05/01/2025
General Information	
Project	Bonanza Peak Solar
Time	08:45 AM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	
Coordinates	
Latitude	35.9759543
Longitude	-115.8620739
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Study area adjacent to existing dirt road. Source is sheetflow from east of adjacent road
Potential anthropogenic influences on the channel system	Road
Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Regime	Ephemeral
Regime Comments	Per SDAM model
Record the OHWM position via	GPS

OHWM Location	
Latitude	35.97591033333333
Longitude	-115.862016
Datum	WGS84
OHWM width (feet)	2
OHWM depth (feet)	.5
TOB width (feet)	2
TOB depth (feet)	.5
Cross-Section Drawing	None
OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	4 - 64 (gravel: pebble)
Above OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	4
OHWM Comments	Sediment sorting

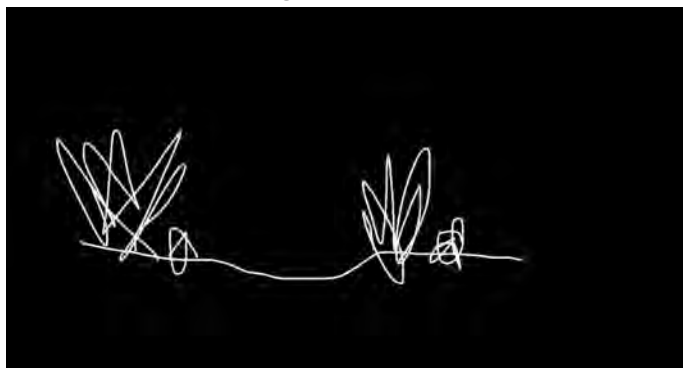
CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
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Feature ID	2002
Survey Date	05/01/2025
General Information	
Project	Bonanza Peak Solar
Time	08:45 AM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	
Coordinates	
Latitude	35.97487233333333
Longitude	-115.86036766666667
Datum	WGS84
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Study area adjacent to existing dirt road. Source is erosional in uplands. Likely formed due to road
Potential anthropogenic influences on the channel system	Road
Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Regime	Ephemeral
Regime Comments	Per SDAM model

Record the OHWM position via	GPS
OHWM Location	
Latitude	35.97487366666667
Longitude	-115.8603675
Datum	WGS84
OHWM width (feet)	2
OHWM depth (feet)	.5
TOB width (feet)	2
TOB depth (feet)	.5

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Above OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	4
OHWM Comments	Scour. Bed and bank

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
---	----

Side code or identifier:	2002
Survey Date	05/01/2025
Project Name or Number:	Bonanza Peak Solar
Assessor(s):	S. Creer, M. Oats
Waterway Name (if named):	
Visit Date:	05/01/2025
Current weather conditions (check one):	Cloudy
Cloud cover (%):	2
Notes on current weather conditions:	Dry.
Coordinates at downstream end:	
Latitude	0.0
Longitude	0.0
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Access road, utility, cattle
Describe reach boundaries:	Begins with small headcut in uplands. Due to berm adjacent to road. Dissipates at road.
Mean bankfull channel width (m):	.609
Reach length (m):	
Site Photographs	photos attached here
Top of reach looking downstream	



Bottom of reach looking upstream None

Mid reach looking downstream None

Mid reach looking upstream



Disturbed or difficult conditions Diversions, Other
(check all that apply):

Other disturbed/difficult condition: Access road

Notes on disturbances or difficult
site conditions:

OBSERVED HYDROLOGY

% reach with surface flow: 0

% reach with sub-surface or
surface flow: 0

of isolated pools: 0

Comments on observed hydrology:

Site sketch: None

1. Mean bankfull channel width

mean width (m): .609

Notes about mean bankfull channel width	2 ft
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2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area	true
---	------

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent:	1
--------------------------------	---

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area	false
----------------------------------	-------

Number of hydrophytic plant
species without odd distribution

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed)	None
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Notes:

Notes on hydrophytic vegetation:	No hydrophytic veg.
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5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)	2
--	---

Upland Plant Species 1	<i>Other /</i>
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Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants:	Schismus- NL
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6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.	Not detected
--	--------------

Notes on algal cover on the
streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)	1
--	---

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment.

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment: Model was run.

Model Classification

Model classification ephemeral

Side code or identifier:	2003
Survey Date	05/01/2025
General Site Information	
Project Name or Number:	Bonanza Peak Solar
Assessor(s):	S. Creer, M. Oats
Waterway Name (if named):	
Visit Date:	05/01/2025
Current weather conditions (check one):	Cloudy
Cloud cover (%):	2
Notes on current weather conditions:	Dry.
Coordinates at downstream end:	
Latitude	0.0
Longitude	0.0
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Access road, utility, cattle
Describe reach boundaries:	Begins with small headcut in uplands. Due to berm adjacent to road. Dissipates at road.
Mean bankfull channel width (m):	.4572
Reach length (m):	
Site Photographs	photos attached here
Top of reach looking downstream	



Bottom of reach looking upstream



Mid reach looking downstream	None
Mid reach looking upstream	None
Disturbed or difficult conditions (check all that apply):	Diversions, Other
Other disturbed/difficult condition:	Access road
Notes on disturbances or difficult site conditions:	
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0
Comments on observed hydrology:	
Site sketch:	None
1. Mean bankfull channel width	
mean width (m):	.609

Notes about mean bankfull channel width	2 ft
--	------

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area	true
---	------

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent:	1
--------------------------------	---

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area	false
----------------------------------	-------

Number of hydrophytic plant
species without odd distribution

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed)	None
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Notes:

Notes on hydrophytic vegetation:	No hydrophytic veg.
----------------------------------	---------------------

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)	2
--	---

Upland Plant Species 1	<i>Other /</i>
------------------------	----------------

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants:	Schismus- NL
--------------------------------	--------------

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.	Not detected
--	--------------

Notes on algal cover on the
streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)	1
--	---

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment.

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment: Model was run.

Model Classification

Model classification ephemeral

Feature ID

2004

Survey Date

05/01/2025

General Information

Project

Bonanza Peak Solar

Time

08:45 AM

Town

Charleston View

State

CA

Investigator(s)

S. Creer, M. Oats

Photo(s)



Geographic Information

Datum

WGS84

Projection

Coordinates

Latitude

35.97732083333333

Longitude

-115.86394133333333

Location Details

Site Information

Do normal circumstances exist on the site? Y

Is the site significantly disturbed? N

Brief site description

Study area adjacent to existing dirt road. Small wash in uplands. Sourced from east of the road. Sheet flow across road.

Potential anthropogenic influences Road

on the channel system

Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

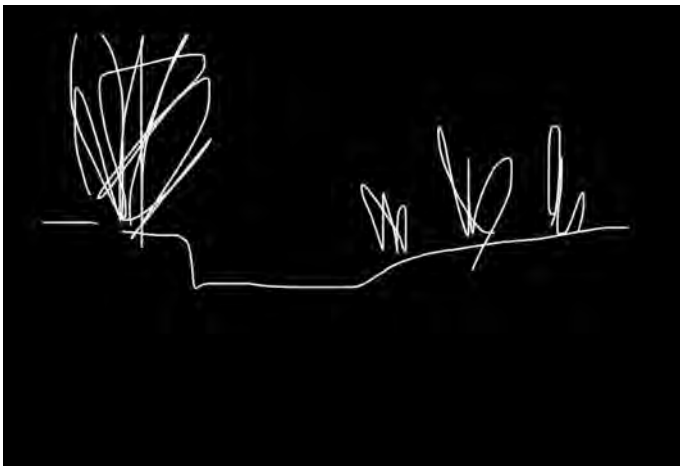
Location Type

Is this a single drainage in uplands
OR a floodplain? single drainage

Single Drainage in Uplands

Regime	Ephemeral
Regime Comments	Per SDAM model
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.97487366666667
Longitude	-115.8603675
OHWM width (feet)	7
OHWM depth (feet)	1
TOB width (feet)	7
TOB depth (feet)	4

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1
OHWM Other 1	Wrack
Below OHWM Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Above OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	5

OHWB Comments	Scour. Bed and bank
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no

Side code or identifier: 2004

Survey Date 05/01/2025

General Site Information

Project Name or Number: Bonanza Peak Solar

Assessor(s): S. Creer, M. Oats

Waterway Name (if named):

Visit Date: 05/01/2025

Current weather conditions (check one): Cloudy

Cloud cover (%): 2

Notes on current weather conditions: Dry.

Coordinates at downstream end:

Latitude 35.97733433333333

Longitude -115.86393666666667

Surrounding land-use within 100 m (328 ft) (check one or two): Other

Other land-use: Access road, utility, cattle

Describe reach boundaries: Source is across (east) of road.

Mean bankfull channel width (m): 2.13

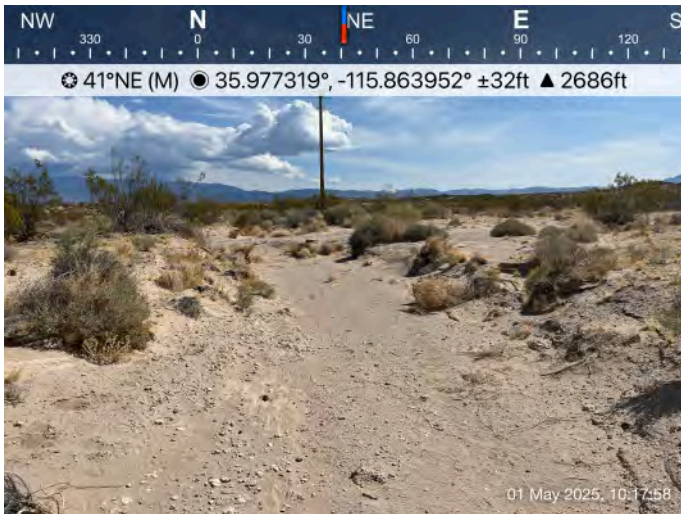
Reach length (m):

Site Photographs photos attached here

Top of reach looking downstream



Bottom of reach looking upstream



Mid reach looking downstream	None
Mid reach looking upstream	None
Disturbed or difficult conditions (check all that apply):	Diversions, Other
Other disturbed/difficult condition:	Access road

Notes on disturbances or difficult site conditions:

OBSERVED HYDROLOGY

% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0

Comments on observed hydrology:

Site sketch:	None
--------------	------

1. Mean bankfull channel width

mean width (m):	2.13
Notes about mean bankfull channel width	7 ft

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area	true
--	------

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent:	1
Notes about slope:	

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant
species without odd distribution

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation: No hydrophytic veg.

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 2

Upland Plant Species 1 *Salsola tragus* / Russian thistle, Russian thistle, Tumbleweed

Upland Plant Species 2 *Other* /

Upland Plant Species 3

Notes on rooted upland plants: Gutierrezia sp. - NL

6. Algal cover

Mark the appropriate box for the
percent of the streambed covered
by live or dead algae on the
streambed. Not detected

Notes on algal cover on the
streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 1

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment.

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

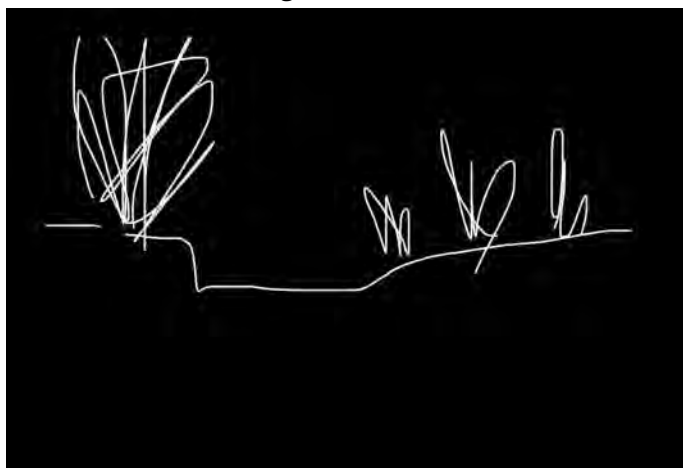
Additional notes about the assessment:	Model was run.
Model Classification	
Model classification	ephemeral

AW OHWM plus 1.0

Feature ID	2005
Survey Date	05/01/2025
General Information	
Project	Bonanza Peak Solar
Time	08:45 AM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	
Coordinates	
Latitude	35.97732083333333
Longitude	-115.86394133333333
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Study area adjacent to existing dirt road. Small wash in uplands. Sourced from east stabilized dunes.
Potential anthropogenic influences on the channel system	Road
Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Regime	Ephemeral
Regime Comments	Per SDAM model
Record the OHWM position via	GPS

OHWM Location	
Latitude	0.0
Longitude	0.0
OHWM width (feet)	7
OHWM depth (feet)	1
TOB width (feet)	7
TOB depth (feet)	4

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1
OHWM Other 1	Wrack
Below OHWM Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
Above OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	5
OHWM Comments	Scour. Bed and bank

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
---	----

Side code or identifier: 2005

Survey Date 05/01/2025

General Site Information

Project Name or Number: Bonanza Peak Solar

Assessor(s): S. Creer, M. Oats

Waterway Name (if named):

Visit Date: 05/01/2025

Current weather conditions (check one): Cloudy

Cloud cover (%): 2

Notes on current weather conditions: Dry.

Coordinates at downstream end:

Latitude 0.0

Longitude 0.0

Surrounding land-use within 100 m (328 ft) (check one or two): Other

Other land-use: Access road, utility, cattle

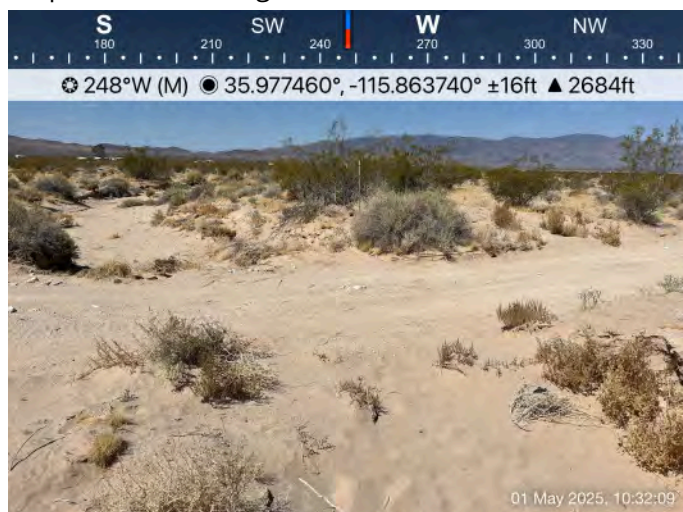
Describe reach boundaries: Source is from the east. Sheet flow over road and continues.

Mean bankfull channel width (m): 2.13

Reach length (m):

Site Photographs photos attached here

Top of reach looking downstream



Bottom of reach looking upstream



Mid reach looking downstream	None
Mid reach looking upstream	None
Disturbed or difficult conditions (check all that apply):	Diversions, Other
Other disturbed/difficult condition:	Access road

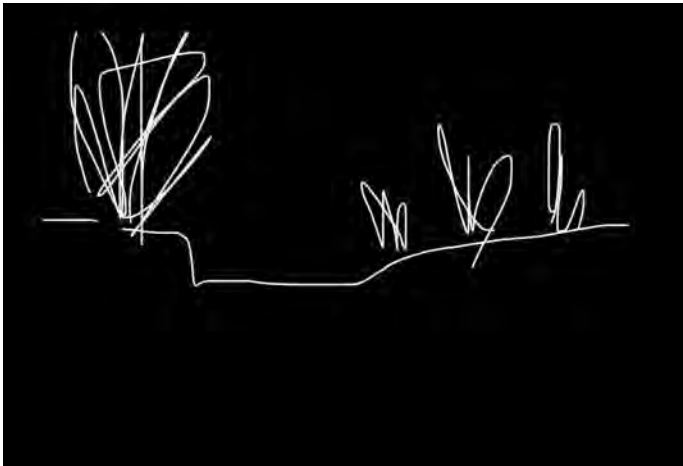
Notes on disturbances or difficult site conditions:

OBSERVED HYDROLOGY

% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0

Comments on observed hydrology:

Site sketch:



1. Mean bankfull channel width

mean width (m):	2.13
-----------------	------

Notes about mean bankfull channel width	7 ft
--	------

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area	true
---	------

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent:	1
--------------------------------	---

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area	false
----------------------------------	-------

Number of hydrophytic plant species without odd distribution	0
---	---

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed)	None
-------------------	------

Notes:

Notes on hydrophytic vegetation:	No hydrophytic veg.
----------------------------------	---------------------

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)	2
--	---

Upland Plant Species 1	<i>Salsola tragus</i> / Russian thistle, Russian thistle, Tumbleweed
------------------------	--

Upland Plant Species 2	<i>Other</i> /
------------------------	----------------

Upland Plant Species 3

Notes on rooted upland plants:	Gutierrezia sp. - NL
--------------------------------	----------------------

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.	Not detected
--	--------------

Notes on algal cover on the
streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)	1
--	---

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment.

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment: Model was run.

Model Classification

Model classification ephemeral

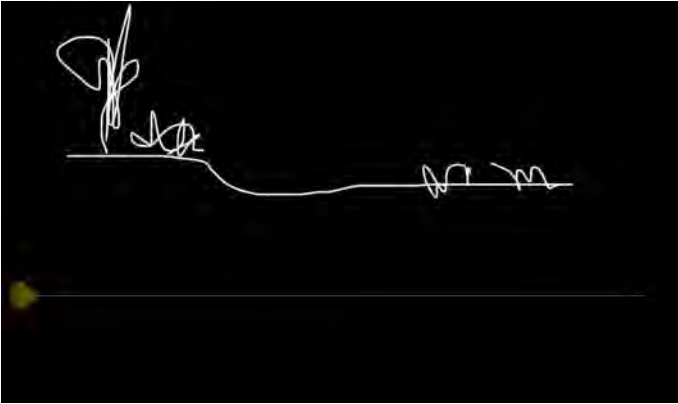
Project	Bonanza Peak Solar Delin Additional Areas 2025
ID	543579
Survey Date	05/01/2025
User	Sheryl Creer
General Site Information	
Project Name or Number:	Bonanza Peak Solar
Side code or identifier:	2006
Assessor(s):	S. Creer, M. Oats
Waterway Name (if named):	
Visit Date:	05/01/2025
Current weather conditions (check one):	Cloudy
Cloud cover (%):	2
Notes on current weather conditions:	Dry.
Coordinates at downstream end:	
Latitude	0.0
Longitude	0.0
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Access road, utility, cattle
Describe reach boundaries:	Source is from the north east. Road concentrates it.
Mean bankfull channel width (m):	.305
Reach length (m):	
Site Photographs	photos attached here
Top of reach looking downstream	None
Bottom of reach looking upstream	None
Mid reach looking downstream	None
Mid reach looking upstream	None
Disturbed or difficult conditions (check all that apply):	Diversions, Other
Other disturbed/difficult condition:	Access road
Notes on disturbances or difficult site conditions:	
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or	0

surface flow:

of isolated pools: 0

Comments on observed hydrology:

Site sketch:



1. Mean bankfull channel width

mean width (m): .305

Notes about mean bankfull
channel width 1 ft

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in
assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant
species without odd distribution 0

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation: No hydrophytic veg.

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 2

Upland Plant Species 1	<i>Salsola tragus</i> / Russian thistle, Russian thistle, Tumbleweed
Upland Plant Species 2	<i>Other</i> /
Upland Plant Species 3	
Notes on rooted upland plants:	Gutierrezia sp. - NL

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.

Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

1

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment. Likely due to road

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo



Photo caption:

Additional Notes

Additional notes about the assessment:

Model was run.

Model Classification

Model classification

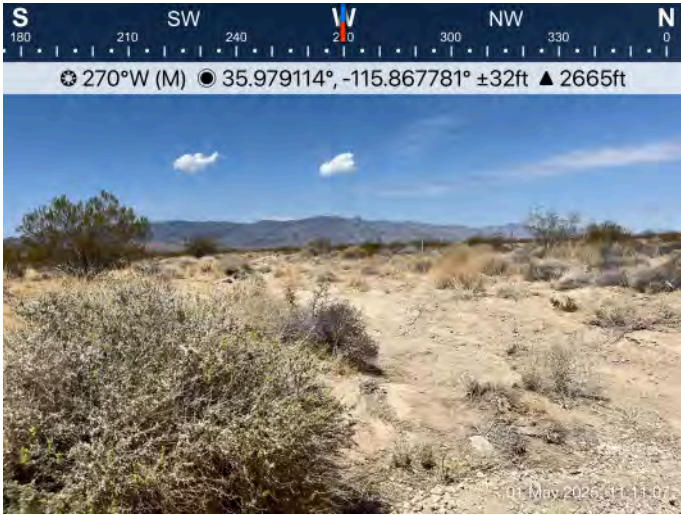
ephemeral

Feature ID	2006
Survey Date	05/01/2025

General Information

Project	Bonanza Peak Solar
Time	08:45 AM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats

Photo(s)



Geographic Information

Datum	WGS84
Projection	
Coordinates	
Latitude	35.97911167
Longitude	-115.86778
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	Y
Brief site description	Flow from NE are concentrated into a road cut.
Potential anthropogenic influences on the channel system	Road

Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
---------------------------------------	--

Aerial photography dates	Google Earth Imagery back to 1985
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Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Regime	Ephemeral
--------	-----------

Regime Comments	Per SDAM model
-----------------	----------------

Record the OHWM position via	GPS
------------------------------	-----

OHWM Location	
---------------	--

Latitude	35.97911167
----------	-------------

Longitude	-115.86778
-----------	------------

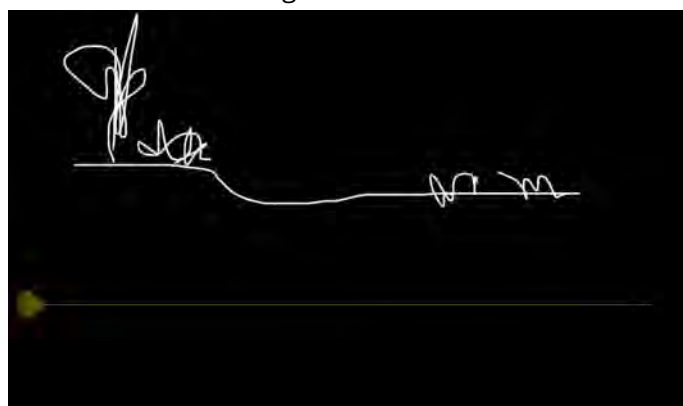
OHWM width (feet)	1
-------------------	---

OHWM depth (feet)	.5
-------------------	----

TOB width (feet)	1
------------------	---

TOB depth (feet)	.5
------------------	----

Cross-Section Drawing	
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OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1
-----------------	--

OHWM Other 1	Wrack
--------------	-------

Below OHWM Average Sediment Texture (millimeters)	2 - 4 (gravel: granule)
---	-------------------------

Above OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
---	-------------------

Below OHWM Total veg cover (%)	0
--------------------------------	---

Above OHWM Total veg cover (%)	5
--------------------------------	---

OHWM Comments	Scour. Bed and bank
---------------	---------------------

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
---	----

Feature ID	2007
Survey Date	05/01/2025

General Information

Project	Bonanza Peak Solar
Time	08:45 AM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats

Photo(s)



Geographic Information

Datum	WGS84
Projection	
Coordinates	
Latitude	35.981605
Longitude	-115.872105
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	Y
Brief site description	Flows from NE concentrated by state line road
Potential anthropogenic influences on the channel system	Road

Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
---------------------------------------	--

Aerial photography dates	Google Earth Imagery back to 1985
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Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Regime	Ephemeral
--------	-----------

Regime Comments	Per SDAM model
-----------------	----------------

Record the OHWM position via	GPS
------------------------------	-----

OHWM Location

Latitude	35.9814243
----------	------------

Longitude	-115.872347
-----------	-------------

OHWM width (feet)	1.5
-------------------	-----

OHWM depth (feet)	.5
-------------------	----

TOB width (feet)	1.5
------------------	-----

TOB depth (feet)	.5
------------------	----

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1
-----------------	--

OHWM Other 1	Wrack
--------------	-------

Below OHWM Average Sediment Texture (millimeters)	4 - 64 (gravel: pebble)
---	-------------------------

Above OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
---	-------------------

Below OHWM Total veg cover (%)	1
--------------------------------	---

Above OHWM Total veg cover (%)	7
--------------------------------	---

OHWM Comments	Scour. Bed and bank
---------------	---------------------

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
---	----

Side code or identifier: 2007

Survey Date 05/01/2025

User Sheryl Creer

General Site Information

Project Name or Number: Bonanza Peak Solar

Assessor(s): S. Creer, M. Oats

Waterway Name (if named):

Visit Date: 05/01/2025

Current weather conditions (check one): Cloudy

Cloud cover (%): 2

Notes on current weather conditions: Dry.

Coordinates at downstream end:

Latitude 35.981822

Longitude -115.871934

Surrounding land-use within 100 m (328 ft) (check one or two): Other

Other land-use: Access road, utility, cattle

Describe reach boundaries: Source is from the north east. Road concentrates it.

Mean bankfull channel width (m): .457

Reach length (m):

Site Photographs photos attached here

Top of reach looking downstream



Bottom of reach looking upstream



Mid reach looking downstream	None
Mid reach looking upstream	None
Disturbed or difficult conditions (check all that apply):	Diversions, Other
Other disturbed/difficult condition:	Access road

Notes on disturbances or difficult site conditions:

OBSERVED HYDROLOGY

% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0

Comments on observed hydrology:

Site sketch:



1. Mean bankfull channel width

mean width (m):	.457
Notes about mean bankfull channel width	1.5 ft

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in	true
----------------------------	------

assessment area

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant species without odd distribution 0

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation: No hydrophytic veg.

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 1.5

Upland Plant Species 1 *Other /*

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: Schismus

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.

Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) .5

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment. Likely due to road

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment: Model was run.

Model Classification

Model classification ephemeral

AW OHWM plus 1.0

Feature ID	2008
------------	------

Survey Date	05/01/2025
-------------	------------

General Information

Project	Bonanza Peak Solar
Time	08:45 AM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats
Photo(s)	None

Geographic Information

Datum	WGS84
Projection	
Coordinates	
Latitude	0.0
Longitude	0.0

Location Details	
------------------	--

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	Y
Brief site description	Begins with headcut. Due to road. Dissipates at west end at road.
Potential anthropogenic influences on the channel system	Road
Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Regime	Ephemeral
Regime Comments	Per SDAM model
Record the OHWM position via	GPS

OHWM Location	
Latitude	35.9816814
Longitude	-115.8723883
OHWM width (feet)	2
OHWM depth (feet)	.5
TOB width (feet)	2
TOB depth (feet)	.5

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1
OHWM Other 1	Wrack
Below OHWM Average Sediment Texture (millimeters)	4 - 64 (gravel: pebble)
Above OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Below OHWM Total veg cover (%)	1
Above OHWM Total veg cover (%)	7
OHWM Comments	Scour. Bed and bank

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
---	----

Side code or identifier:	2008
Survey Date	05/01/2025
General Site Information	
Project Name or Number:	Bonanza Peak Solar
Assessor(s):	S. Creer, M. Oats
Waterway Name (if named):	
Visit Date:	05/01/2025
Current weather conditions (check one):	Cloudy
Cloud cover (%):	2
Notes on current weather conditions:	Dry.
Coordinates at downstream end:	
Latitude	35.98169316666667
Longitude	-115.8725635
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Access road, utility, cattle
Describe reach boundaries:	Source is from the north east. Road concentrates it.
Mean bankfull channel width (m):	.304
Reach length (m):	
Site Photographs	photos in Field Maps
Disturbed or difficult conditions (check all that apply):	Diversions, Other
Other disturbed/difficult condition:	Access road
Notes on disturbances or difficult site conditions:	
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0
Comments on observed hydrology:	
Site sketch:	



1. Mean bankfull channel width

mean width (m): .304

Notes about mean bankfull channel width 1 ft

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant species without odd distribution 0

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation: No hydrophytic veg.

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 1.5

Upland Plant Species 1 Other /

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: Schismus

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.

Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

.5

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment. Likely due to road

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo

None

Photo caption:

Additional Notes

Additional notes about the assessment:

Model was run.

Model Classification

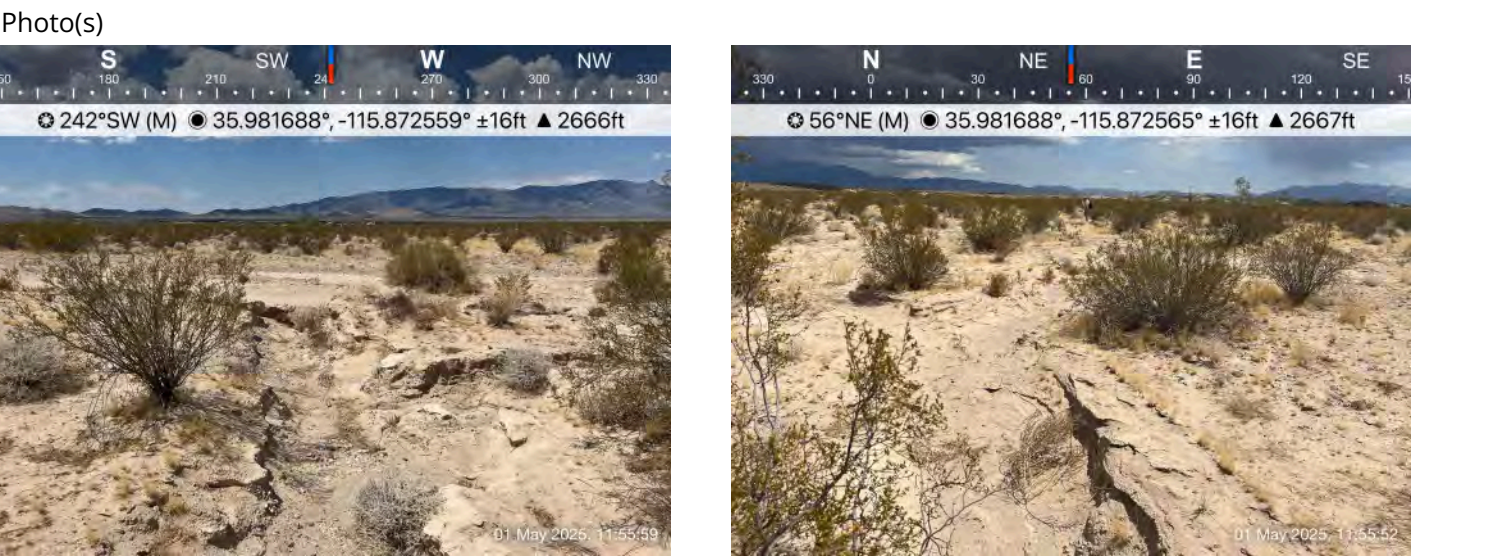
Model classification

ephemeral

Feature ID	2009
Survey Date	05/01/2025

General Information

Project	Bonanza Peak Solar
Time	08:45 AM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats



Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
---------------------------------------	--

Aerial photography dates	Google Earth Imagery back to 1985
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Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
--	-----------------

Single Drainage in Uplands

Regime	Ephemeral
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Regime Comments	Per SDAM model
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Record the OHWM position via	GPS
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OHWM Location

Latitude	0.0
----------	-----

Longitude	0.0
-----------	-----

OHWM width (feet)	1
-------------------	---

OHWM depth (feet)	.5
-------------------	----

TOB width (feet)	1
------------------	---

TOB depth (feet)	.5
------------------	----

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Other 1
-----------------	--

OHWM Other 1	Wrack
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Below OHWM Average Sediment Texture (millimeters)	4 - 64 (gravel: pebble)
--	-------------------------

Above OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
--	-------------------

Below OHWM Total veg cover (%)	1
--------------------------------	---

Above OHWM Total veg cover (%)	7
--------------------------------	---

OHWM Comments	Scour. Bed and bank
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CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
--	----

Side code or identifier: 2009

Survey Date 05/01/2025

General Site Information

Project Name or Number: Bonanza Peak Solar

Assessor(s): S. Creer, M. Oats

Waterway Name (if named):

Visit Date: 05/01/2025

Current weather conditions (check one): Cloudy

Cloud cover (%): 2

Notes on current weather conditions: Dry.

Coordinates at downstream end:

Latitude 35.9816535

Longitude -115.8726716

Surrounding land-use within 100 m (328 ft) (check one or two): Other

Other land-use: Access road, utility, cattle

Describe reach boundaries: Source is from the north east. Road concentrates it.

Mean bankfull channel width (m): .3048

Reach length (m): see map. Entire reach was used.

Site Photographs photos in Field Maps

Disturbed or difficult conditions (check all that apply): Diversions, Other

Other disturbed/difficult condition: Access road

Notes on disturbances or difficult site conditions:

OBSERVED HYDROLOGY

% reach with surface flow: 0

% reach with sub-surface or surface flow: 0

of isolated pools: 0

Comments on observed hydrology:

Site sketch: None

1. Mean bankfull channel width	
mean width (m):	.3048
Notes about mean bankfull channel width	1 ft
2. Aquatic macroinverts- Perennial Indicator Taxa	
No aquatic macroinverts in assessment area	true
Abundance of Perennial Taxa:	
Notes on perennial indicator taxa:	
3. Slope	
Slope to nearest half-percent:	1
Notes about slope:	
4. Number of hydrophytic plant species	
No vegetation in assessment area	false
Number of hydrophytic plant species without odd distribution	0
Hydrophytic plant species 1	
Plant Species	
Odd distribution?	
Photo (if needed)	None
Notes:	
Notes on hydrophytic vegetation:	No hydrophytic veg.
5. Prevalence of rooted upland plants in streambed	
0-3 (half-scores [0.5, 1.5, 2.5] are allowed)	1.5
Upland Plant Species 1	<i>Other /</i>
Upland Plant Species 2	
Upland Plant Species 3	
Notes on rooted upland plants:	Schismus
6. Algal cover	
Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.	Not detected
Notes on algal cover on the streambed:	
7. Differences in vegetation	
0-3 (half-scores [0.5, 1.5, 2.5] are	.5

allowed)

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment. Likely due to road

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment: Model was run.

Model Classification

Model classification ephemeral

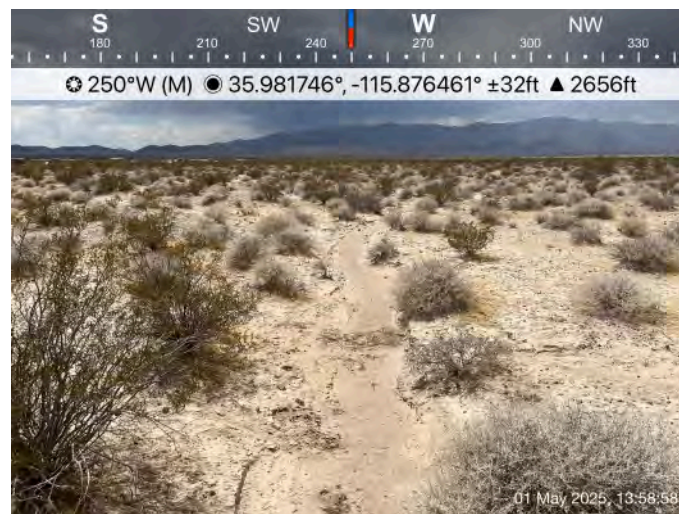
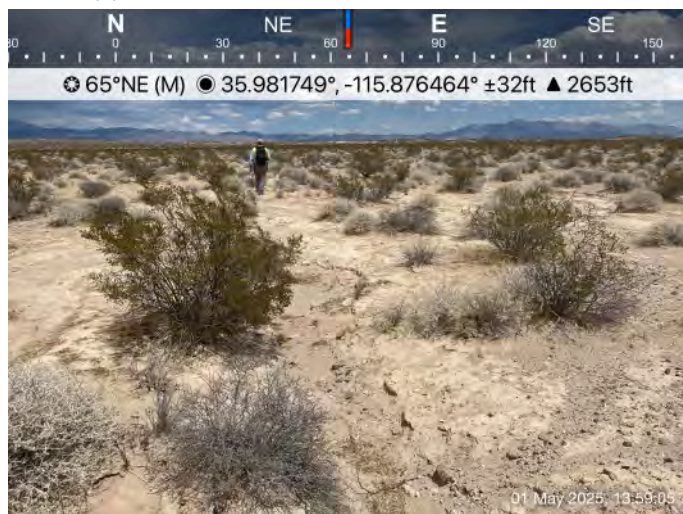
AW OHWM plus 1.0

Feature ID	2010
Survey Date	05/01/2025

General Information

Project	Bonanza Peak Solar
Time	02:00 PM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats

Photo(s)



Geographic Information

Datum	WGS84
Projection	
Coordinates	
Latitude	0.0
Longitude	0.0
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	Y
Brief site description	Begins with headcut. Single drainage in uplands.
Potential anthropogenic influences on the channel system	Road

Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
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Aerial photography dates	Google Earth Imagery back to 1985
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Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Regime	Ephemeral
--------	-----------

Regime Comments	Per SDAM model
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Record the OHWM position via	GPS
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OHWM Location	
---------------	--

Latitude	0.0
----------	-----

Longitude	0.0
-----------	-----

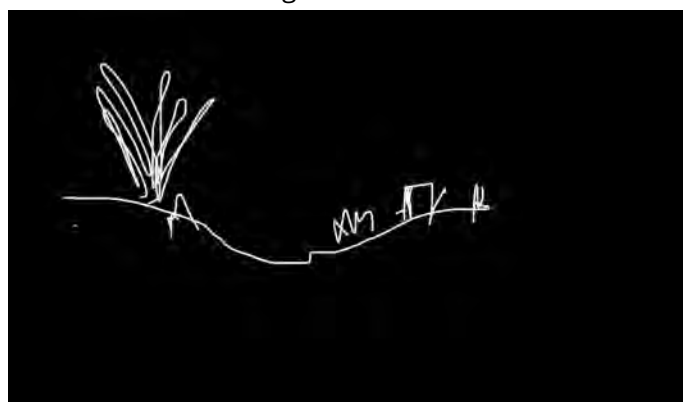
OHWM width (feet)	1.5
-------------------	-----

OHWM depth (feet)	.5
-------------------	----

TOB width (feet)	1.5
------------------	-----

TOB depth (feet)	.5
------------------	----

Cross-Section Drawing	
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OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
-----------------	---

Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
---	-------------------

Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
---	------------------------

Below OHWM Total veg cover (%)	0
--------------------------------	---

Above OHWM Total veg cover (%)	5
--------------------------------	---

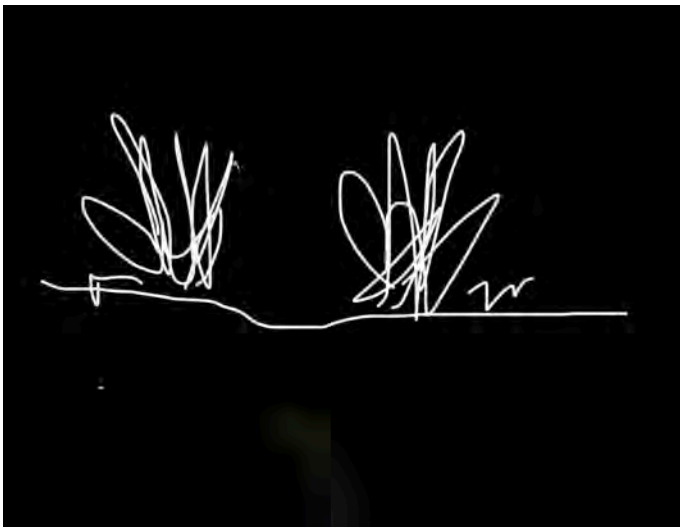
OHWM Comments	Scour. Bed and bank
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CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
---	----

Side code or identifier:	2011
Survey Date	05/01/2025
General Site Information	
Project Name or Number:	Bonanza Peak Solar
Assessor(s):	S. Creer, M. Oats
Waterway Name (if named):	
Visit Date:	05/01/2025
Current weather conditions (check one):	Cloudy
Cloud cover (%):	2
Notes on current weather conditions:	Dry.
Coordinates at downstream end:	
Latitude	35.98178266666667
Longitude	-115.87727566666667
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Access road, utility, cattle, residence
Describe reach boundaries:	Starts with headcut
Mean bankfull channel width (m):	.3048
Reach length (m):	
Site Photographs	photos in Field Maps
Disturbed or difficult conditions (check all that apply):	Diversions, Other
Other disturbed/difficult condition:	Access road; residence
Notes on disturbances or difficult site conditions:	
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0
Comments on observed hydrology:	
Site sketch:	



1. Mean bankfull channel width

mean width (m): .3048

Notes about mean bankfull
channel width 1 ft

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in
assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant
species without odd distribution 0

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation: No hydrophytic veg.

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 2.5

Upland Plant Species 1 Other /

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: Schismus

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.

Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

.5

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment.

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment: Model was run. Dissipates into sheet flow.

Model Classification

Model classification ephemeral

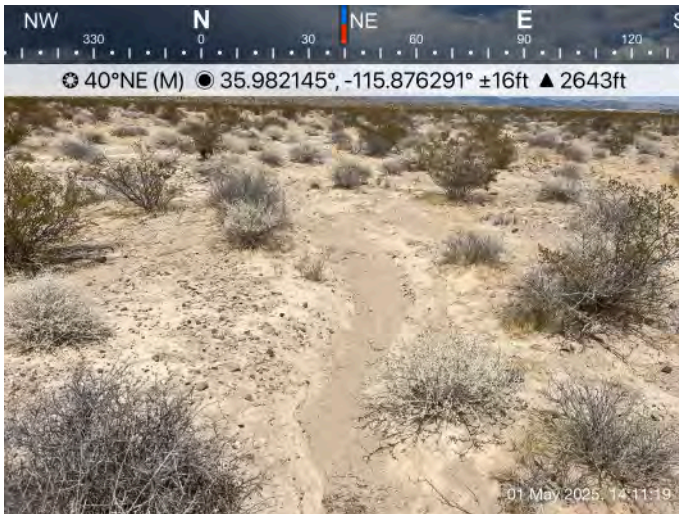
AW OHWM plus 1.0

Feature ID	2011
Survey Date	05/01/2025

General Information

Project	Bonanza Peak Solar
Time	02:00 PM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats

Photo(s)



Geographic Information

Datum	WGS84
Projection	
Coordinates	
Latitude	35.98178016666667
Longitude	-115.87726166666667
Location Details	

Site Information

Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	Y
Brief site description	Begins with headcut. Single drainage in uplands. Ends in sheet flow.
Potential anthropogenic influences on the channel system	Road

Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
---------------------------------------	--

Aerial photography dates	Google Earth Imagery back to 1985
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Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
--	-----------------

Single Drainage in Uplands

Regime	Ephemeral
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Regime Comments	Per SDAM model
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Record the OHWM position via	GPS
------------------------------	-----

OHWM Location

Latitude	35.98178016666667
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Longitude	-115.87726166666667
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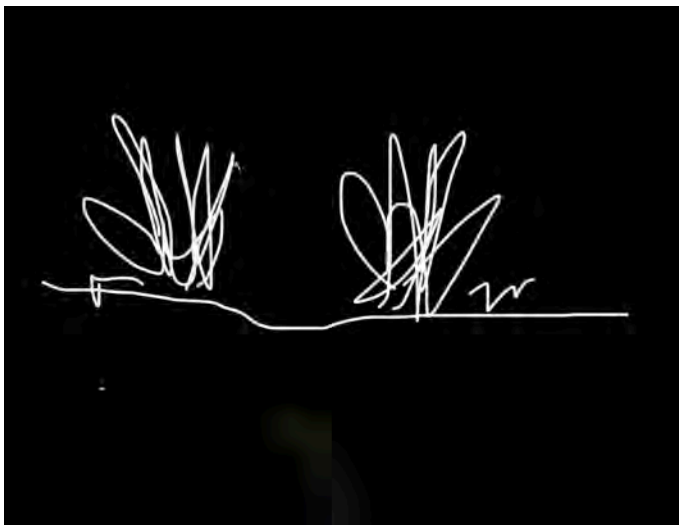
OHWM width (feet)	1
-------------------	---

OHWM depth (feet)	.5
-------------------	----

TOB width (feet)	1
------------------	---

TOB depth (feet)	.5
------------------	----

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
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Below OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
---	------------------------

Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
---	------------------------

Below OHWM Total veg cover (%)	0
--------------------------------	---

Above OHWM Total veg cover (%)	5
--------------------------------	---

OHWM Comments	Scour. Bed and bank
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CDFW Riparian Canopy

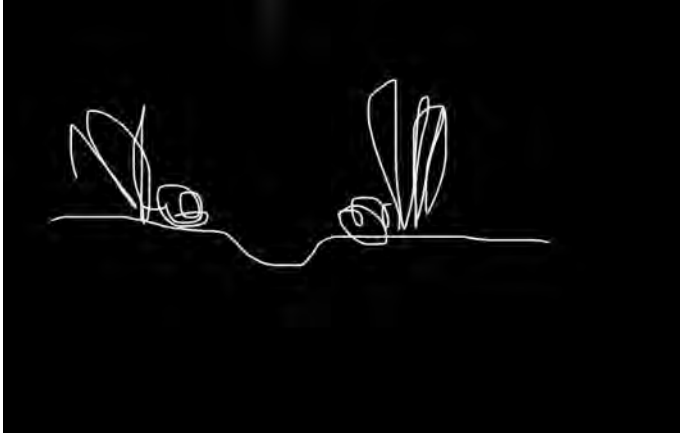
Is there non-wetland riparian canopy present?	no
---	----

AW OHWM plus 1.0

Feature ID	2012
Survey Date	05/01/2025
General Information	
Project	Bonanza Peak Solar
Time	02:00 PM
Town	Charleston View
State	CA
Investigator(s)	S. Creer, M. Oats
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	
Coordinates	
Latitude	35.98211166666667
Longitude	-115.876925
Location Details	
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	Y
Brief site description	Begins with headcut. Single drainage in uplands. Ends in sheet flow.
Potential anthropogenic influences on the channel system	Road
Checklist of resources (if available)	Aerial photography, History of recent effective discharges, Soils maps, Topographic maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Regime	Ephemeral
Regime Comments	Per SDAM model
Record the OHWM position via	GPS

OHWM Location

Latitude	35.98211166666667
Longitude	-115.876925
OHWM width (feet)	1
OHWM depth (feet)	.5
TOB width (feet)	1
TOB depth (feet)	.5

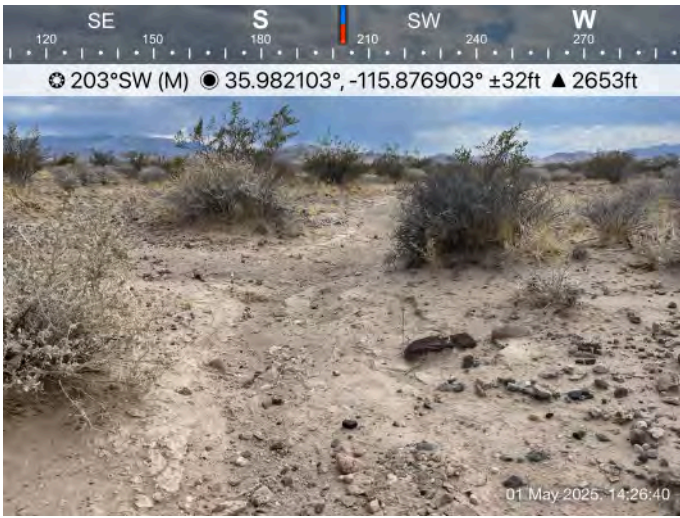
Cross-Section Drawing

OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	4 - 64 (gravel: pebble)
Above OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	5
OHWM Comments	Scour. Bed and bank

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
---	----

Side code or identifier:	2012
Survey Date	05/01/2025
General Site Information	
Project Name or Number:	Bonanza Peak Solar
Assessor(s):	S. Creer, M. Oats
Waterway Name (if named):	
Visit Date:	05/01/2025
Current weather conditions (check one):	Cloudy
Cloud cover (%):	2
Notes on current weather conditions:	Dry.
Coordinates at downstream end:	
Latitude	0.0
Longitude	0.0
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Access road, utility, cattle, residence
Describe reach boundaries:	Starts with headcut
Mean bankfull channel width (m):	.3048
Reach length (m):	
Site Photographs	photos in Field Maps
Disturbed or difficult conditions (check all that apply):	Diversions, Other
Other disturbed/difficult condition:	Access road; residence
Notes on disturbances or difficult site conditions:	
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0
Comments on observed hydrology:	
Site sketch:	



1. Mean bankfull channel width

mean width (m): .3048

Notes about mean bankfull
channel width 1 ft

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in
assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant
species without odd distribution 0

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation: No hydrophytic veg.

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 2.5

Upland Plant Species 1 Other /

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: Schismus

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.

Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

.5

Notes on differences in vegetation: No hydrophytic veg. Weak vegetation-channel alignment.

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo



Photo caption:

Additional Notes

Additional notes about the assessment: Model was run. Ends at road in sheet flows

Model Classification

Model classification ephemeral

AW OHWM plus 1.0

Feature ID	3001
Survey Date	06/18/2025

General Information

Project	Bonanza Peak Solar Project
Time	07:45 AM
Town	Charleston View
State	CA
Investigator(s)	R. Blaich

Photo(s)

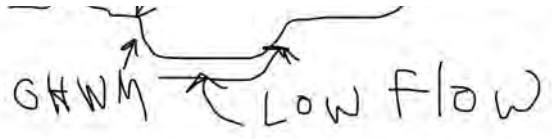


Geographic Information	
Datum	WGS84
Projection	
Coordinates	
Latitude	35.97737442844004
Longitude	-115.8838703632185
Datum	WGS84
Location Details	Forms due to flows concentrated on Golds Street. Ends in uplands.

Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	near Gold Street off of Old Spanish trail Highway.
Potential anthropogenic influences on the channel system	A road forms the head cut of the drainage begins
Checklist of resources (if available)	Aerial photography, Geologic maps, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

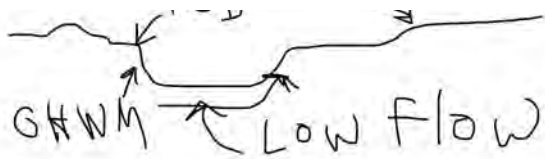
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage

Single Drainage in Uplands	
Regime	Ephemeral
Regime Comments	Soil deposition, vegetation changes and shelving is observed within the top of bank limits of the drainage.
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.97737607615051
Longitude	-115.8838541774435
Datum	WGS84
OHWM width (feet)	2
OHWM depth (feet)	.5
TOB width (feet)	2
TOB depth (feet)	.5

Cross-Section Drawing	
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OHWI Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Change in vegetation species
Below OHWI Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWI Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWI Total veg cover (%)	2
Above OHWI Total veg cover (%)	10
OHWI Comments	Evidence of soil deposition, gravel sheets, and break in slope observed.
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no

Side code or identifier:	3001
Survey Date	06/18/2025
General Site Information	
Project Name or Number:	Bonanza Peak Solar
Assessor(s):	Ryan Blaich
Waterway Name (if named):	
Visit Date:	06/18/2025
Current weather conditions (check one):	Clear/sunny
Notes on current weather conditions:	Hot and sunny.
Coordinates at downstream end:	
Latitude	35.97739221404174
Longitude	-115.883967830881
Datum	WGS84
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Open space with limited residence surrounding and roadcuts.
Describe reach boundaries:	
Mean bankfull channel width (m):	.6096
Reach length (m):	see mapped drainage
Site Photographs	
Disturbed or difficult conditions (check all that apply):	Drought, Other
Other disturbed/difficult condition:	Drainage forms from a relict road.
Notes on disturbances or difficult site conditions:	
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0
Comments on observed hydrology:	Soil deposition, gravel sheets, and ripples observed.
Site sketch:	



1. Mean bankfull channel width

mean width (m): .6096

Notes about mean bankfull channel width

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant species without odd distribution 0

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation:

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 2

Upland Plant Species 1 *Salsola tragus* / Russian thistle, Russian thistle, Tumbleweed

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants:

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the Not detected

streambed.

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 1

Notes on differences in vegetation: Creosote not detected within channel.

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo



Photo caption:

Photo 2

Photo



Photo caption:

Photo 3

Photo



Photo caption:

Photo 4

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment:

Model Classification

Model classification ephemeral

Feature ID	3002
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Survey Date	06/18/2025
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General Information

Project	Bonanza peak solar Project
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Time	07:45 AM
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Town	Charleston view
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State	CA
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Investigator(s)	D. Aalbu
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Photo(s)	
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Geographic Information

Datum	WGS84
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Projection	
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Coordinates	
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Latitude	35.97728255510927
----------	-------------------

Longitude	-115.8840358821929
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Datum	WGS84
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Location Details	Cross section location
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Site Information

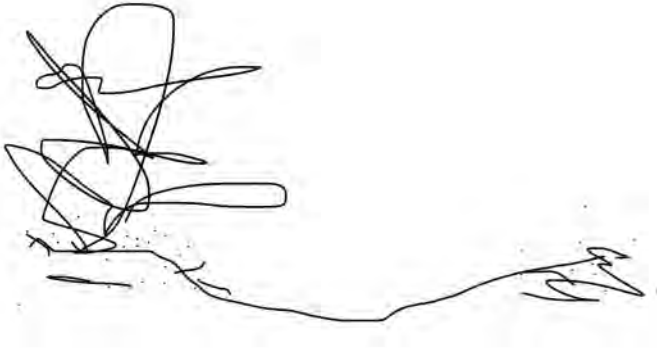
Do normal circumstances exist on the site?	Y
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Is the site significantly disturbed?	Y
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Brief site description	
------------------------	--

Above OHWM Total veg cover (%)	10
OHWM Comments	
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no

Side code or identifier:	3002
Survey Date	06/18/2025
General Site Information	
Project Name or Number:	Bonanza peak solar project
Assessor(s):	Dannique aalbu
Waterway Name (if named):	
Visit Date:	06/18/2025
Current weather conditions (check one):	Clear/sunny
Notes on current weather conditions:	
Coordinates at downstream end:	
Latitude	35.97722748000565
Longitude	-115.8838677874394
Datum	WGS84
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Open desert
Describe reach boundaries:	
Mean bankfull channel width (m):	.6096
Reach length (m):	see mapped drainage. Entire length was assessed,
Site Photographs	photos in Field Maps
Disturbed or difficult conditions (check all that apply):	
Notes on disturbances or difficult site conditions:	
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0
Comments on observed hydrology:	
Site sketch:	



1. Mean bankfull channel width

mean width (m): .6096

Notes about mean bankfull
channel width

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in
assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant
species without odd distribution 0

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation:

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

Upland Plant Species 1

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: No rooted plants in drainage.

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.

Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

0

Notes on differences in vegetation:

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment:

Model Classification

Model classification ephemeral

Feature ID	3003
Survey Date	06/18/2025
General Information	
Project	Bonanza Peak Solar Project
Time	07:45 AM
Town	Charleston View
State	CA
Investigator(s)	R. Blaich
Photo(s)	None
Geographic Information	
Datum	WGS84
Projection	
Coordinates	
Latitude	35.981246
Longitude	-115.8814657
Location Details	Begins just east of Gold Street and ends in the street.
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Begins just east of Gold Street and ends in the street.
Potential anthropogenic influences on the channel system	Road
Checklist of resources (if available)	Aerial photography, Geologic maps, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Regime	Ephemeral
Regime Comments	Soil deposition, vegetation changes and shelving is observed within the top of bank limits of the drainage.

Record the OHWM position via	GPS
OHWM Location	
Latitude	35.9812508
Longitude	-115.8814686
OHWM width (feet)	4
OHWM depth (feet)	0.3
TOB width (feet)	4
TOB depth (feet)	0.3
Cross-Section Drawing	None
OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover, Change in vegetation species
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	2
Above OHWM Total veg cover (%)	10
OHWM Comments	Evidence of soil deposition, gravel sheets, and break in slope observed.
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no

Side code or identifier:	3003
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Survey Date	06/18/2025
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General Site Information

Project Name or Number:	Bonanza peak solar project
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Assessor(s):	Ryan Blaich
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Waterway Name (if named):	none
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Visit Date:	06/18/2025
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Current weather conditions (check one):	Clear/sunny
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Notes on current weather conditions:	
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Coordinates at downstream end:	
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Latitude	35.9812649
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Longitude	-115.881527
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Surrounding land-use within 100 m (328 ft) (check one or two):	Other
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Other land-use:	Open desert; rural residential
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Describe reach boundaries:	Entire segment was used as the reach due to discontinuous nature.
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Mean bankfull channel width (m):	1.219
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Reach length (m):	see mapped drainage
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Site Photographs	photos in Field Maps
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Disturbed or difficult conditions (check all that apply):	Diversions
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Notes on disturbances or difficult site conditions:	Likely formed due to roadcut.
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OBSERVED HYDROLOGY

% reach with surface flow:	0
----------------------------	---

% reach with sub-surface or surface flow:	0
---	---

# of isolated pools:	0
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Comments on observed hydrology:	none
---------------------------------	------

Site sketch:	None
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1. Mean bankfull channel width

mean width (m):	1.219
-----------------	-------

Notes about mean bankfull
channel width

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area false

Number of hydrophytic plant species without odd distribution No hydrophytic veg.

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation:

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are allowed)

Upland Plant Species 1

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: No rooted plants below OHWM.

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed. Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes on differences in vegetation:

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo



Photo caption:

Additional Notes

Additional notes about the assessment:

Model Classification

Model classification ephemeral

Feature ID3004

Survey Date06/18/2025

General Information

ProjectBonanza Peak Solar

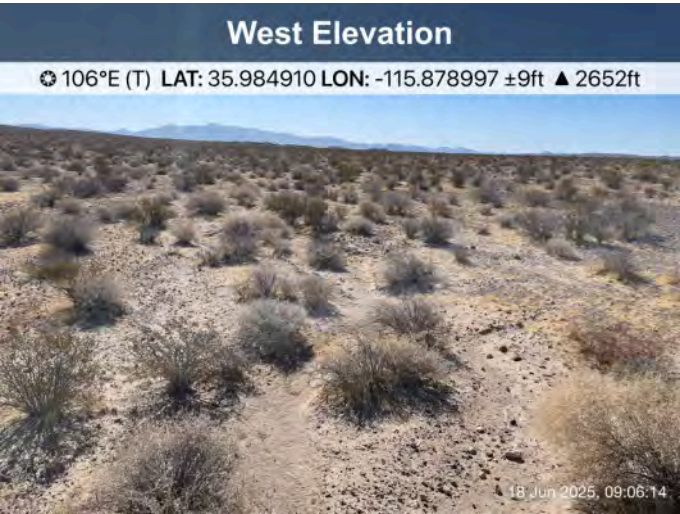
Time09:05 AM

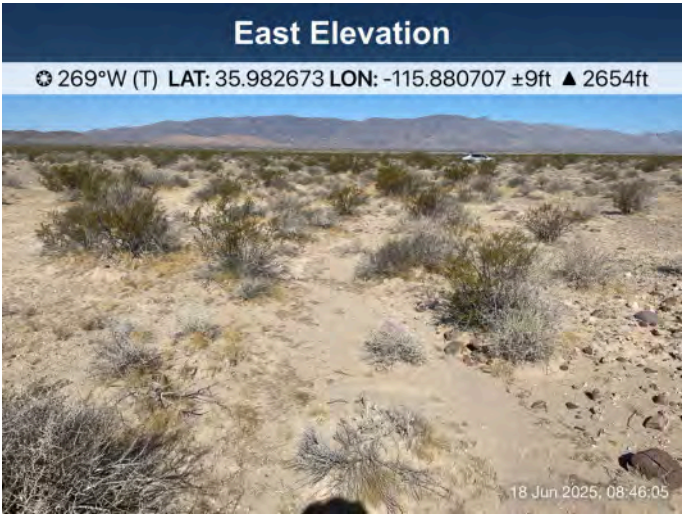
TownCharleston View

StateCA

Investigator(s)R. Blaich

Photo(s)





Geographic Information	
Datum	WGS84
Projection	
Coordinates	
Latitude	35.98493885870981
Longitude	-115.8792591872893
Datum	WGS84
Location Details	Within uplands and Creosote bush scrub.
Site Information	
Do normal circumstances exist on the site?	Y
Is the site significantly disturbed?	N
Brief site description	Erosion and soil deposition evident within channel.
Potential anthropogenic influences on the channel system	The drainage ends at a road where it dissipates.
Checklist of resources (if available)	Aerial photography, Geologic maps, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985
Location Type	
Is this a single drainage in uplands OR a floodplain?	single drainage
Single Drainage in Uplands	
Regime	Ephemeral
Regime Comments	Low flow channel.
Record the OHWM position via	GPS

OHWM Location	
Latitude	35.98493544518324
Longitude	-115.8792623647824
Datum	WGS84
OHWM width (feet)	2
OHWM depth (feet)	.25
TOB width (feet)	6
TOB depth (feet)	.5

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture, Change in vegetation cover
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	5
Above OHWM Total veg cover (%)	15
OHWM Comments	Break in slope, vegetation cover change, and gravel sheets present within OHWM.

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
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Side code or identifier:	3004
Survey Date	06/18/2025
General Site Information	
Project Name or Number:	Bonanza peak solar project
Assessor(s):	Ryan Blaich
Waterway Name (if named):	none
Visit Date:	06/18/2025
Current weather conditions (check one):	Clear/sunny
Notes on current weather conditions:	
Coordinates at downstream end:	
Latitude	35.9852491
Longitude	-115.881523
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Open desert; rural residential
Describe reach boundaries:	Entire segment was used as the reach due to discontinuous nature.
Mean bankfull channel width (m):	.6096
Reach length (m):	see mapped drainage
Site Photographs	photos in Field Maps
Disturbed or difficult conditions (check all that apply):	Diversions
Notes on disturbances or difficult site conditions:	Downstream interruption in flow due to road cuts.
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0
Comments on observed hydrology:	none.
Site sketch:	None
1. Mean bankfull channel width	
mean width (m):	.6096

Notes about mean bankfull
channel width

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area true

Number of hydrophytic plant
species without odd distribution

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation:

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed)

Upland Plant Species 1

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: ZERO rooted plants.

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed. Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 0

Notes on differences in vegetation:

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment:

Model Classification

Model classification ephemeral

Feature ID 3005

Survey Date 06/18/2025

General Information

Project Bonanza Peak Solar

Time 10:40 AM

Town Charleston View

State CA

Investigator(s) R. Blaich

Photo(s)



Geographic Information

Datum WGS84

Projection

Coordinates

Latitude 35.98861435792428

Longitude -115.8864684457752

Datum WGS84

Location Details Low flow channel in uplands. Surrounding uplands have mixed upland and wetland indicators due to one large flood event (Hurricane Hillary).

Site Information

Do normal circumstances exist on the site? Y

Is the site significantly disturbed? N

Brief site description Creosote bush scrub with a slight downslope gradient. Low flow channel.

Potential anthropogenic influences on the channel system	Roads.
Checklist of resources (if available)	Aerial photography, Existing delineation(s) for site, Global positioning system (GPS), Topographic maps, Vegetation maps
Aerial photography dates	Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Regime	Ephemeral
Regime Comments	Determined from SDAM form after running model.
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.988753
Longitude	-115.8864679
OHWM width (feet)	2
OHWM depth (feet)	.5
TOB width (feet)	2
TOB depth (feet)	.5

Cross-Section Drawing



OHWM Indicators	Break in bank slope, Change in average sediment texture
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	2
OHWM Comments	

CDFW Riparian Canopy

Is there non-wetland riparian canopy present?	no
---	----

Side code or identifier:	3005
--------------------------	------

Survey Date	06/18/2025
-------------	------------

General Site Information

Project Name or Number:	Bonanza peak solar project
-------------------------	----------------------------

Assessor(s):	Ryan Blaich
--------------	-------------

Waterway Name (if named):	none
---------------------------	------

Visit Date:	06/18/2025
-------------	------------

Current weather conditions (check one):	Clear/sunny
---	-------------

Notes on current weather conditions:	
--------------------------------------	--

Coordinates at downstream end:	
--------------------------------	--

Latitude	35.98861435792428
----------	-------------------

Longitude	-115.8864684457752
-----------	--------------------

Surrounding land-use within 100 m (328 ft) (check one or two):	Other
--	-------

Other land-use:	Open desert; rural residential
-----------------	--------------------------------

Describe reach boundaries:	Entire segment was used as the reach due to discontinuous nature.
----------------------------	---

Mean bankfull channel width (m):	1
----------------------------------	---

Reach length (m):	see mapped drainage
-------------------	---------------------

Site Photographs	photos in Field Maps
------------------	----------------------

Disturbed or difficult conditions (check all that apply):	Diversions
---	------------

Notes on disturbances or difficult site conditions:	Upstream interruptions in flows due to road cuts.
---	---

OBSERVED HYDROLOGY

% reach with surface flow:	0
----------------------------	---

% reach with sub-surface or surface flow:	0
---	---

# of isolated pools:	0
----------------------	---

Comments on observed hydrology:	none.
---------------------------------	-------

Site sketch:	None
--------------	------

1. Mean bankfull channel width

mean width (m):	1
-----------------	---

Notes about mean bankfull
channel width

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area true

Number of hydrophytic plant
species without odd distribution

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation:

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed)

Upland Plant Species 1

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: ZERO rooted plants.

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed. Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 0

Notes on differences in vegetation:

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment:

Model Classification

Model classification ephemeral

AW OHWM plus 1.0

Feature ID	3006
------------	------

Survey Date	06/18/2025
-------------	------------

General Information

Project	Bonanza Peak Solar
---------	--------------------

Time	10:40 AM
------	----------

Town	Charleston View
------	-----------------

State	CA
-------	----

Investigator(s)	D. Aalbu
-----------------	----------

Photo(s)	None
----------	------

Geographic Information

Datum	WGS84
-------	-------

Projection	
------------	--

Coordinates	
-------------	--

Latitude	35.9887973
----------	------------

Longitude	-115.8876999
-----------	--------------

Location Details	Low flow channel in uplands; source is runoff from rain events. Surrounding uplands have mixed upland and wetland indicators due to one large flood event (Hurricane Hillary).
------------------	--

Site Information

Do normal circumstances exist on the site?	Y
--	---

Is the site significantly disturbed?	N
--------------------------------------	---

Brief site description	Creosote bush scrub with a slight downslope gradient. Low flow channel.
------------------------	---

Potential anthropogenic influences on the channel system	Roads.
--	--------

Checklist of resources (if available)	Aerial photography, Existing delineation(s) for site, Global positioning system (GPS), Topographic maps, Vegetation maps
---------------------------------------	--

Aerial photography dates	Google Earth Imagery back to 1985
--------------------------	-----------------------------------

Location Type

Is this a single drainage in uplands OR a floodplain?	single drainage
---	-----------------

Single Drainage in Uplands

Regime	Ephemeral
--------	-----------

Regime Comments	Determined from SDAM form after running model.
Record the OHWM position via	GPS
OHWM Location	
Latitude	35.9887973
Longitude	-115.8876999
OHWM width (feet)	2
OHWM depth (feet)	.5
TOB width (feet)	2
TOB depth (feet)	.5
Cross-Section Drawing	None
OHWM Indicators	Break in bank slope, Change in average sediment texture
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	1
OHWM Comments	
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no

Side code or identifier:	3006
Survey Date	06/18/2025
General Site Information	
Project Name or Number:	Bonanza peak solar project
Assessor(s):	Dannique Aalbu
Waterway Name (if named):	none
Visit Date:	06/18/2025
Current weather conditions (check one):	Clear/sunny
Notes on current weather conditions:	
Coordinates at downstream end:	
Latitude	35.9882878
Longitude	-115.8883136
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Open desert; rural residential
Describe reach boundaries:	Entire segment was used as the reach due to discontinuous nature.
Mean bankfull channel width (m):	1
Reach length (m):	see mapped drainage
Site Photographs	photos in Field Maps
Disturbed or difficult conditions (check all that apply):	Diversions
Notes on disturbances or difficult site conditions:	Upstream interruptions in flows due to road cuts.
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0
Comments on observed hydrology:	none.
Site sketch:	None
1. Mean bankfull channel width	
mean width (m):	1

Notes about mean bankfull
channel width

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area true

Number of hydrophytic plant
species without odd distribution

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation:

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed)

Upland Plant Species 1

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: No rooted plants within OHWM.

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed. Not detected

Notes on algal cover on the streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 0

Notes on differences in vegetation:

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment:

Model Classification

Model classification ephemeral

Side code or identifier:	3007
Survey Date	06/18/2025
General Site Information	
Project Name or Number:	Bonanza peak solar project
Assessor(s):	D. Aalbu
Waterway Name (if named):	none
Visit Date:	06/18/2025
Current weather conditions (check one):	Clear/sunny
Notes on current weather conditions:	
Coordinates at downstream end:	
Latitude	-35.9849529
Longitude	115.8825642
Surrounding land-use within 100 m (328 ft) (check one or two):	Other
Other land-use:	Open desert; rural residential
Describe reach boundaries:	Single channel in uplands. Begins due to road, flows into 807. Not bounded in watercourse/floodplain.
Mean bankfull channel width (m):	.4572
Reach length (m):	see mapped drainage
Site Photographs	photos in Field Maps
Disturbed or difficult conditions (check all that apply):	Diversions
Notes on disturbances or difficult site conditions:	Road cuts.
OBSERVED HYDROLOGY	
% reach with surface flow:	0
% reach with sub-surface or surface flow:	0
# of isolated pools:	0
Comments on observed hydrology:	none.
Site sketch:	None

1. Mean bankfull channel width

mean width (m): .4572

Notes about mean bankfull
channel width

2. Aquatic macroinverts- Perennial Indicator Taxa

No aquatic macroinverts in
assessment area true

Abundance of Perennial Taxa:

Notes on perennial indicator taxa:

3. Slope

Slope to nearest half-percent: 1

Notes about slope:

4. Number of hydrophytic plant species

No vegetation in assessment area true

Number of hydrophytic plant
species without odd distribution

Hydrophytic plant species 1

Plant Species

Odd distribution?

Photo (if needed) None

Notes:

Notes on hydrophytic vegetation: None present.

5. Prevalence of rooted upland plants in streambed

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed)

Upland Plant Species 1

Upland Plant Species 2

Upland Plant Species 3

Notes on rooted upland plants: ZERO rooted plants.

6. Algal cover

Mark the appropriate box for the
percent of the streambed covered
by live or dead algae on the
streambed. Not detected

Notes on algal cover on the
streambed:

7. Differences in vegetation

0-3 (half-scores [0.5, 1.5, 2.5] are
allowed) 0

Notes on differences in vegetation:

8. Riffle-pool sequence

0-3 (half-scores [0.5, 1.5, 2.5] are allowed) 0

Notes about riffle-pool sequence:

Photo Log

Photo 1

Photo



Photo caption:

Photo 2

Photo None

Photo caption:

Additional Notes

Additional notes about the assessment:

Model Classification

Model classification ephemeral

AW OHWM plus 1.0

Feature ID 3007

Survey Date 06/18/2025

General Information

Project Bonanza Peak Solar

Time 10:40 AM

Town Charleston View

State CA

Investigator(s) D. Aalbu

Photo(s) None

Geographic Information

Datum WGS84

Projection

Coordinates

Latitude 35.9845853

Longitude -115.8819521

Location Details Low flow channel in uplands; source is runoff from road. Flows into 807.

Site Information

Do normal circumstances exist on the site? Y

Is the site significantly disturbed? N

Brief site description Low flow channel.

Potential anthropogenic influences on the channel system Roads.

Checklist of resources (if available) Aerial photography, Existing delineation(s) for site, Global positioning system (GPS), Topographic maps, Vegetation maps

Aerial photography dates Google Earth Imagery back to 1985

Location Type

Is this a single drainage in uplands OR a floodplain? single drainage

Single Drainage in Uplands

Regime Ephemeral

Regime Comments Determined from SDAM form after running model.

Record the OHWM position via GPS

OHWM Location	
Latitude	35.9845853
Longitude	-115.8819521
OHWM width (feet)	1.5
OHWM depth (feet)	.25
TOB width (feet)	1.5
TOB depth (feet)	.25
Cross-Section Drawing	None
OHWM Indicators	Break in bank slope, Change in average sediment texture
Below OHWM Average Sediment Texture (millimeters)	0.0625 - 2 (sand)
Above OHWM Average Sediment Texture (millimeters)	0.0039 - 0.0625 (silt)
Below OHWM Total veg cover (%)	0
Above OHWM Total veg cover (%)	2
OHWM Comments	
CDFW Riparian Canopy	
Is there non-wetland riparian canopy present?	no

Appendix F Incidental Plant Species Observations

Table F.1 Incidental Plant Species Observations

Scientific Name	Common Name	Wetland Indicator Status ¹	Origin
Asteraceae (Sunflower Family)			
<i>Ambrosia dumosa</i>	burro weed	-	native
<i>Ambrosia salsola</i>	burrobrush	-	native
<i>Bebbia juncea</i> var. <i>aspera</i>	rough sweetbush	-	Native
Brassicaceae (Mustard Family)			
<i>Lepidium fremontii</i>	desert pepper grass	-	native
<i>Stanleya pinnata</i> var. <i>pinnata</i>	prince's plume	-	native
Cactaceae (Cactus Family)			
<i>Cylindropuntia echinocarpa</i>	silver cholla	-	native
Chenopodiaceae (Goosefoot Family)			
<i>Atriplex canescens</i>	hoary saltbush	-	native
<i>Atriplex confertifolia</i>	spiny saltbush	-	native
<i>Grayia spinosa</i>	hop sage	-	native
<i>Halogeton glomeratus</i>	halogeton	-	non-native (invasive)
<i>Salsola tragus</i>	Russian thistle	FACU	non-native (invasive)
Ephedraceae (Ephedra Family)			
<i>Ephedra nevadensis</i>	Nevada ephedra	-	native
Fabaceae (Legume Family)			
<i>Astragalus</i> sp.	-	-	-
<i>Hoffmannseggia glauca</i>	hog potato	FACU	native
Geraniaceae (Geranium Family)			
<i>Erodium cicutarium</i>	coastal heron's bill	-	non-native (invasive)
Malvaceae (Mallow Family)			
<i>Sphaeralcea ambigua</i>	desert mallow	-	native
Poaceae (Grass Family)			
<i>Bromus tectorum</i>	downy chess	-	non-native (invasive)
<i>Hilaria rigida</i>	big galleta	FAC	native
<i>Schismus barbatus</i>	old man schismus	-	native
<i>Stipa hymenoides</i>	rice grass	-	non-native (invasive)



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Polygonaceae (Buckwheat Family)			
<i>Chorizanthe rigida</i>	rigid spiny herb	-	native
<i>Eriogonum deflexum</i>	flat topped buckwheat	-	native
<i>Eriogonum inflatum</i>	desert trumpet	-	native
Zygophyllaceae (Caltrop Family)			
<i>Larrea tridentata</i>	creosote bush	-	Native

¹FACU= facultative upland, FAC= facultative



Appendix C Burrowing Owl Survey Results





BONANZA PEAK SOLAR PROJECT

Burrowing Owl Habitat Assessment and
Protocol Surveys Report

July 28, 2025

Prepared For:

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Project Number:

185706575

The conclusions in the Report titled **Bonanza Peak Solar Project Burrowing Owl Habitat Assessment and Protocol Surveys Report** are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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Prepared by:

Signature

Elan Carnahan, Biologist

Reviewed by:

Signature

Dannique Aalbu, Senior Environmental Scientist

Approved by:

Signature

Caitlin Barns, Senior Environmental Scientist



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Species Observations



Acronyms and Abbreviations

CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
project	Bonanza Peak Solar Project
Stantec	Stantec Consulting Services Inc.



Executive Summary

Stantec Consulting Services Inc. (Stantec) completed a habitat assessment and breeding season protocol surveys for western burrowing owl (*Athene cunicularia hypugaea*) for the Bonanza Peak Solar Project (project) in accordance with the 2012 California Department of Fish and Wildlife (CDFW) guidelines. The objective of the surveys was to determine the presence or absence of the species and, if present, to record breeding activity within the survey area.

Following a desktop review, a habitat assessment was conducted concurrently with the first breeding season survey in March 2025. This survey verified the presence of potential habitat within the survey area. The breeding season surveys were conducted in four site visits between March 10 and June 19, 2025. The surveys detected four burrowing owls within the survey area, but no pairs or breeding activity were observed.

Based on these findings, construction of the project has the potential to cause adverse impacts on burrowing owls. This species is currently listed as a candidate for the California Endangered Species Act and is further protected under the Migratory Bird Treaty Act. Thus, consultation with the CDFW is recommended regarding the report findings, additional survey needs, avoidance and minimization measures to reduce impacts, and the potential need for incidental take coverage for burrowing owls.



1 Introduction

The western burrowing owl (*Athene cunicularia hypugaea*; hereafter referred to as burrowing owl) occurs in Western North America in the United States, Canada, and Mexico. Habitat for the burrowing owl includes dry, open, short-grass areas with level to gentle topography and well-drained, friable soils (CDFW 2012). These areas are also often associated with burrowing mammals, including ground squirrels (Haug et al. 1993). Nesting occurs from February through August. Burrowing owls exhibit high site fidelity, reusing the same nesting burrow year after year (Haug et al. 1993). Burrowing owls are also known to use non-nesting “satellite” burrows to seek protection from predators and for roosting during the non-breeding season (CDFW 2012). Burrowing owls are crepuscular—most active at dawn and dusk—and typically perch during daylight at the entrance to their burrow or on adjacent structures, such as low posts. Burrowing owls are opportunistic feeders, consuming arthropods, small mammals, birds, and occasionally amphibians and reptiles (Haug et al. 1993).

The burrowing owl advanced to candidacy for state endangered or threatened status under the California Endangered Species Act (CESA) in October 2024 (CDFW 2024); as a candidate species, the burrowing owl receives temporary protections equivalent to listed species, and any project activities that could result in take may require an Incidental Take Permit.

The Bonanza Peak Solar Project (project) is a proposed 500-megawatt solar photovoltaic power plant that would be located on private lands in eastern Inyo County, California, approximately 16 miles south of Pahrump, Nevada (Figure 1, Appendix A). The project is bordered by the Pahrump Valley to the northeast, the town of Charleston View, California, one mile to the south, the Nopah Mountain Range to the west and southwest, and Pahrump, Nevada, 25 miles to the north. The project would be located within the United States Geological Survey Calvada Springs and Mound Spring 7.5-minute topographic quadrangles. The project area, or area where the project would be constructed, would be situated within a 3,382-acre area, with no more than 2,400 acres developed within that area (hereafter referred to as the area of development). The legal description of the project area is as follows: Calvada Springs and Mount Spring Meridian, California, Township 22 North, Range 10 East, Sections 8, 9, 15, 16, 17, 20, 21, 22, 23, 26, 27, 28.

Project activities would include improvement of access roads and construction of perimeter fencing, a substation, a battery energy storage system, operation and maintenance buildings, and installation of photovoltaic arrays. Minimal grading would occur within the area of development, approximately 36 acres of the total 2,400-acre Developed Area [two percent]), and would be accomplished using a standard bulldozer, grader, or other similar earthmoving equipment. Support poles for the photovoltaic arrays would be galvanized steel piles driven directly into native soil. Site preparation of vegetated areas would involve minimal cutting leaving part of the shrub and the root structure intact to minimize soil disturbance. Temporary disturbance areas would be revegetated using seed mixtures and techniques developed in consultation with Inyo County and CDFW. For further details on planned construction activities, please see the Draft Plan of Development for Inyo County, CA (Stantec 2025a).

The project's environmental documentation, required by the California Environmental Quality Act, is anticipated to be completed by the end of 2025, and construction would begin as early as September



2026. The project may be built in one or more phases within an approximately 18-month construction period.

2 Methods

Stantec biologists completed a habitat assessment and breeding season surveys in accordance with the guidelines (hereafter referred to as protocol) developed by the CDFW (CDFW 2012). The survey area included the project's proposed area of development, a 500-foot buffer of that area, and the proposed access road (Figure 2, Appendix A).

Stantec reviewed public domain information of known burrowing owl habitat and observations in and near the survey area, including the following resources:

- CDFW California Natural Diversity Database (CNDDDB) records search of known occurrences of burrowing owls within a five-mile buffer of the survey area, within California (CDFW 2025). Equivalent records were not available for a five-mile buffer of the survey area, within Nevada.
- eBird online database occurrences of burrowing owls within five miles of the survey area (Cornell 2025).
- Hidden Hills Solar Electric Generating System Application for Certification¹ (BrightSource Energy 2011).

In the field, Stantec biologists conducted the breeding season surveys in four site visits between March 10 and June 19, 2025 (Table 1, Appendix A), with the initial habitat assessment conducted concurrently with the first breeding season survey. The surveys were conducted by walking parallel transects roughly 10 meters apart, accounting for topography and sighting distance, through all potential habitat identified by desktop analysis and previous reports (Figure 2, Appendix A). Historic burrow observations were visited and verified. Potential burrows were identified, which are defined as burrows or burrow surrogates greater than 11 centimeters in diameter (height and width) and greater than 150 centimeters in depth (Johnson et al. 2010). The vicinity of each potential burrow was searched for burrowing owl activity or sign at each survey event. If determined potentially active, burrows were revisited by Stantec biologists and observed for a longer duration to determine occupation and breeding status (Table 2). Some areas within the 500-foot buffer were not surveyed due to access restrictions, and instead, were viewed from a distance using binoculars and spotting scopes. All wildlife species observed during the surveys were recorded (Appendix D).

¹ Though it was eventually cancelled, this proposed solar project's footprint overlapped with much of what is now the proposed Bonanza Peak Solar Project area.



3 Results

3.1 DESKTOP REVIEW

A year-round resident in Inyo County, burrowing owls have been documented in and near the survey area. Results of the desktop review included the following information:

- No CNDDDB occurrences were found within a five-mile buffer of the survey area, within California (CDFW 2025).
- Three eBird online database occurrences were found within five miles of the survey area, close to the survey area and from 2020 (Cornell 2025).
- Two live burrowing owls were observed during a 2020 desert tortoise survey conducted for the project by Stantec's subconsultant biologists (Ironwood 2021). During the survey, the biologists also observed burrowing owl sign, including potential burrows, pellets, whitewash, and tracks. Locations of potential burrowing owl burrows recorded during this survey are included as historic burrow observations and were checked for activity during the 2025 surveys (Figure 2, Appendix A).
- One burrowing owl and ten active burrows with burrowing owl sign were observed during burrowing owl surveys conducted for the Hidden Hills Solar Electric Generating System Application for Certification in 2010 (BrightSource Energy 2011).

3.2 HABITAT ASSESSMENT

The habitat assessment verified the results of the desktop analysis and previous assessments that have included the survey area, confirming that potential burrowing owl habitat is present.

Within the project area, elevations range from 2,500 feet to 2,600 feet above mean sea level. The topography is gentle to level. The eastern side is at a marginally higher elevation than the western side overall, but both areas lack any drastic topographical change. Field observations of soils range from packed clay/silt to unconsolidated silt and gravel, with some consolidated, friable soils on the eastern side of the project area (Ironwood 2021). The latter were observed to accommodate more ground squirrels and burrows of appropriate size than other soil compositions.

The project area is located within the Basin and Range Geomorphic Province, characterized by interior drainage to lakes and playas, with horst and graben structures (i.e., basins and ranges). Hydrology is mainly driven by precipitation and seasonal flows that originate in the Spring Mountains to the northeast. The project area drains diagonally from the northeast boundary to the middle of the site, where the direction of flow shifts to a northwest direction toward the nearest dry lakebed. These waters flow southwest out of Trout Canyon and from a complex system of washes that fan out and dissipate as they move southwest and into the valley floor (Stantec 2025b).

The vegetation in the project area is typical of alkali desert scrub and desert scrub vegetation native to southeastern California: creosote bush–white bursage scrub (*Larrea tridentata*–*Ambrosia Dumosa* shrubland alliance) on the eastern third and a mixture of shadscale scrub (*Atriplex confertifolia*) shrubland



alliance and allscale scrub (*Atriplex polycarpa*) shrubland alliance on the western two-thirds. The western two-thirds of the project area is also interspersed with areas of low vegetative cover dominated by noxious weeds such as cheatgrass (*Bromus tectorum*) and saltlover (*Halogeton glomeratus*) (Sawyer et al. 2009, Stantec 2025b). These vegetation communities range from marginal habitat to suitable nesting habitat for burrowing owl.

Evidence of anthropogenic disturbance was observed during burrowing owl and other field surveys, including off-highway vehicle tracks, trails, trash, residences and outbuildings, and evidence of historic cattle grazing (Ironwood 2021, Stantec 2025a). Portions of the survey area also include previously disturbed desert habitat, several developed yards with residences and outbuildings, and a grid of unimproved dirt roads.

3.3 BREEDING SEASON SURVEY

Four burrowing owls, two living burrowing owls and two carcasses, were detected during the breeding season surveys, but no pairs or breeding activity were observed. Details on dates and times of observations and photo documentation are further described and depicted in Table 2 (Appendix A) and Appendix C.

The first burrowing owl was observed on the west side of the survey area, just west of Garnet Street and south of Avenue B, following a rain event on March 13, 2025. The owl was first observed by the biologist flying east from a burrow complex. When attempting to relocate the owl, the biologist observed a prairie falcon (*Falco mexicanus*) nearby, a known predator of small birds including burrowing owls. A carcass, suspected to be that of the burrowing owl, was observed approximately five minutes later approximately 275 feet east of the burrow complex.

A second burrowing owl carcass was observed in the central portion of the survey area, just west of Quartz Street between Avenue B and Avenue C, on May 20, 2025. A burrow complex was located approximately 100 feet northeast of the carcass.

Two other live burrowing owls were repeatedly observed at separate burrow complexes during the May and June surveys (Figure 2, Appendix A). The burrow complexes were located approximately 0.8 miles apart near the southern boundary of the survey area. These owls were generally perched or resting at the main burrow entrance and seen flying only occasionally (Table 2). Territorial and alarm calls were heard from these individuals, but begging calls or other evidence of brooding females or young were not observed. Domestic dogs were observed roaming the survey area, which may account for the burrowing owls' reticent behavior.

In addition, numerous potential burrowing owl burrows, and burrowing owl sign in the form of whitewash, feathers, pellets, or bones were also observed within the survey area (Figure 2, Appendix A). Potential burrows were distributed throughout the project area, though more potential burrows and burrow complexes were found in the northern half of the survey area. Historic burrow sites were determined to be unoccupied and/or no longer suitable for burrowing owl use, but new, potential burrows were often found nearby. Burrowing owl sign was observed at the two active burrow complexes and near a third burrow



with no owl observations, located approximately half a mile away from the nearest occupied burrow and close to the southern edge of the survey area.

Evidence and ground squirrels, mice, insects (especially dragonflies), and reptiles were observed within the survey area, which constitute the prey base for a local burrowing owl population. Burrowing owl predators and sign observed during the survey included short-eared owl (*Asio flammeus*), red-tailed hawk (*Buteo jamaicensis*), prairie falcon, common raven (*Corvus corax*), desert kit fox (*Vulpes macrotis*), and domestic dogs (Appendix D). As described above, one of the four burrowing owls observed was killed by a prairie falcon during the survey, and one had been recently killed by an unknown predator. For additional wildlife species observed during the habitat assessment and breeding season surveys, see Appendix D.

4 Discussion

The surveys were conducted during the burrowing owl breeding season, with multiple visits and split survey sessions at dawn and dusk to provide for local variation in breeding initiation and peak breeding activities as well as to maximize detection timing (Conway et al. 2008).

Two live burrowing owls, two burrowing owl carcasses, and burrowing owl sign at burrows were observed during the surveys. Aside from the two individuals consistently observed at the two distinct burrow complexes during longer duration observations, no other burrowing owls were detected. The observed lack of frequent foraging and overall movement indicates no brooding females or young to feed in the territory; however, the presence of territorial burrowing owls, potential burrows, and prey base indicate that breeding could occur during subsequent seasons. Based on these data and our current knowledge of proposed construction activities, the project does have the potential to cause adverse impacts on burrowing owls (Stantec 2025a).

Because the species is considered a candidate for listing under CESA, Stantec recommends that the project proponent consult the CDFW regarding the report findings, potential additional surveys, potential design measures and other avoidance measures to reduce impacts, and the potential need for incidental take coverage for burrowing owl.



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APPENDIX A

Figures and Tables



Figure 1: Regional Location Map

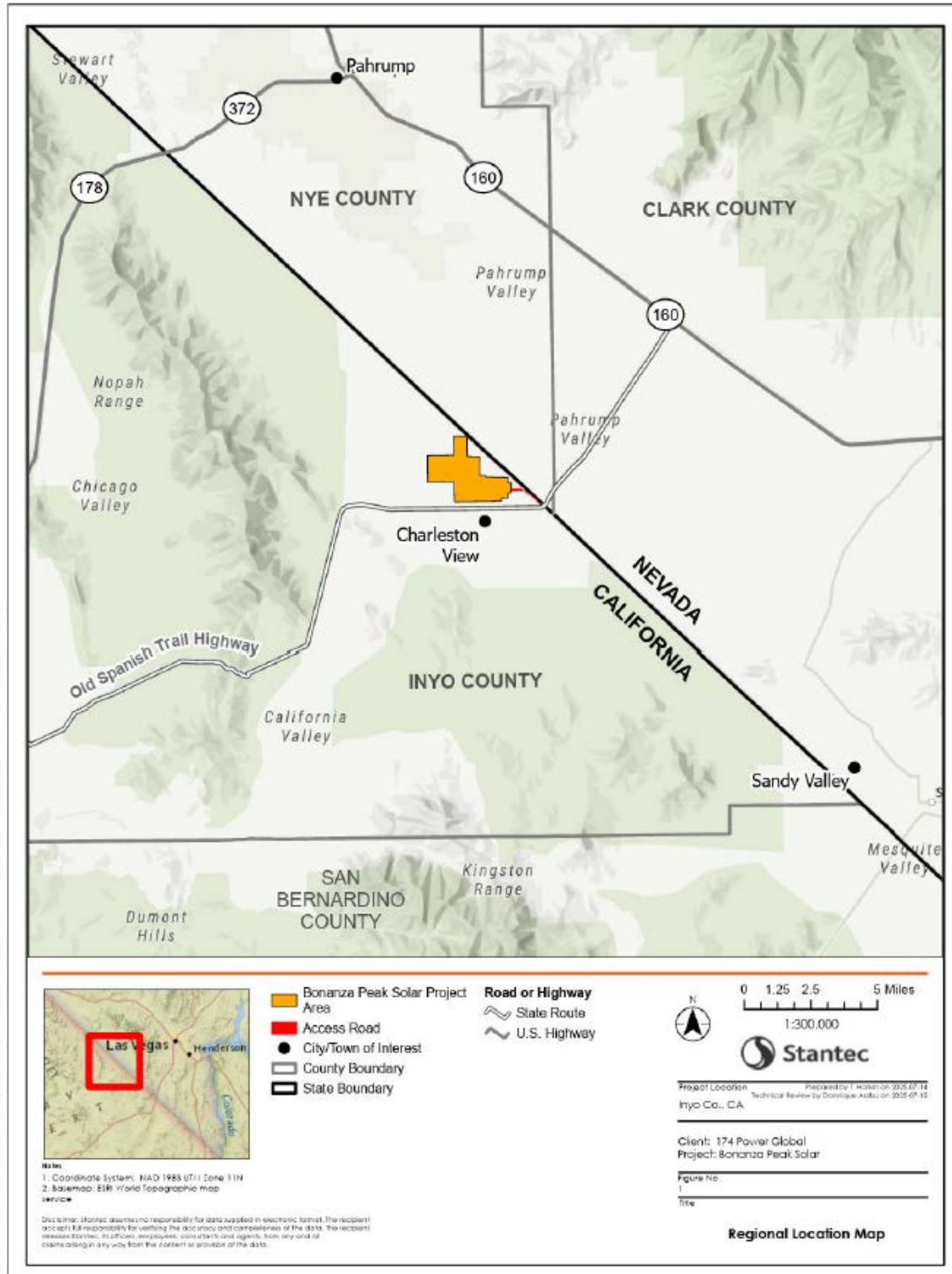


Figure 2: Burrowing Owl Survey Area and Results Map

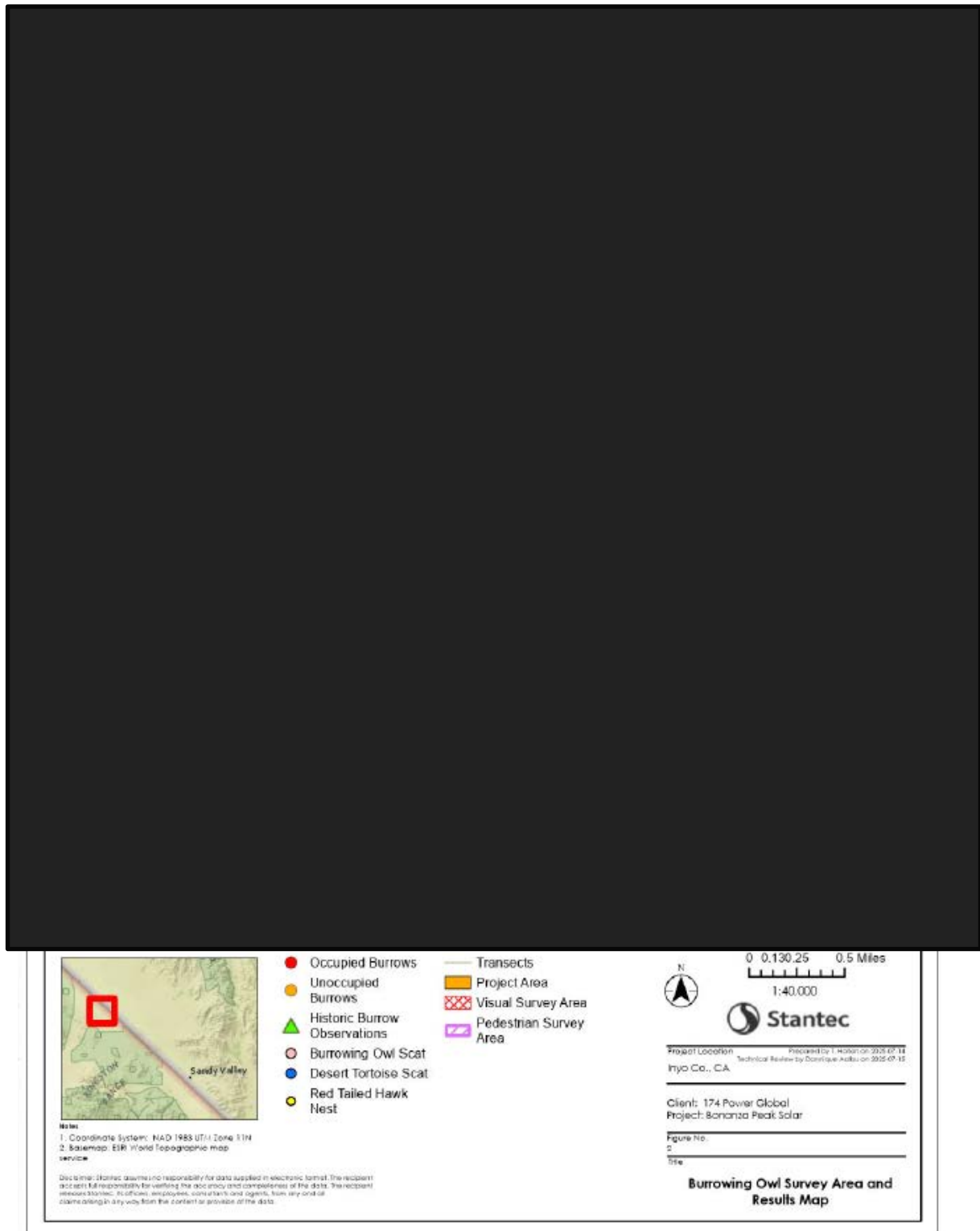


Table 1. Survey Details

Date	Surveyors*	Time	Beginning Conditions	Ending Conditions
3/10/2025	Dannique Aalbu Rick Evans Neil Kauffman Matt Tomaszewski	1115-1745	62°F, wind <5 mph	69°F, wind 5-10 mph
3/11/2025		0645-1515	48°F, wind <5 mph	59°F, wind 5-10 mph
3/12/2025		0645-1515	38°F, wind <5 mph	64°F, wind 5-10 mph
3/13/2025		1115-1645**	46°F, wind 5-10 mph	52°F, wind 15-20 mph, precip 0.08 in (day total)
4/21/2025	Dannique Aalbu Erin Chon Rick Evans Neil Kauffman	0830-1600	64°F, wind <5 mph	80°F, wind <5 mph
4/22/2025		0630-1530	54°F, wind <5 mph	83°F, wind 10-15 mph
4/23/2025		0630-1530	57°F, wind <5 mph	81°F, wind 5-10 mph
4/24/2025		0930-1200	67°F, wind <5 mph	72°F, wind <5 mph
5/19/2025	Dannique Aalbu Allison (Ally) Brady Elan (Kit) Carnahan Neil Kauffman	0630-1130	61°F, wind 5-10 mph	63°F, wind 5-10 mph
		1700-2000	74°F, wind 10-15 mph	78°F, wind 15-20 mph
5/20/2025		0630-1130	58°F, wind <5 mph	83°F, wind <5 mph
		1800-2100	83°F, wind 5-10 mph	86°F, wind 10-15 mph
5/21/2025		0615-1015	59°F, wind <5 mph	64°F, wind <5 mph
		1800-2100	87°F, wind <5 mph	90°F, wind 5-10 mph
5/22/2025		0615-0845	65°F, wind <5 mph	66°F, wind <5 mph
6/16/2025	Dannique Aalbu Erin Chon Rick Evans Neil Kauffman Ryan Blaich	0600-1100	68°F, wind <5 mph	80°F, wind <5 mph
		1700-2000	98°F, wind 5-10 mph	100°F, wind 5-10 mph
6/17/2025		0600-1100	67°F, wind <5 mph	76°F, wind <5 mph
		1700-2000	89°F, wind 5-10 mph	96°F, wind 5-10 mph
6/18/2025		0600-1100	68°F, wind <5 mph	77°F, wind 0 mph
		1700-2000	96°F, wind <5 mph	104°F, wind <5 mph
6/19/2025		0600-1100	69°F, wind 0 mph	85°F, wind <5 mph

°F = degrees Fahrenheit; mph = miles per hour; precip = precipitation; in = inches;

* See Appendix B: Surveyor Qualifications

**Survey time was adjusted due to the weather forecast and conditions within the survey area



Table 2. Active Burrow Monitoring Details

Date	Location	Surveyors*	Time	Notes
5/19/2025		Ally Brady	0630 – 0830	Single burrow; owl flushed after documenting burrow. Appears to be an adult. Whitewash visible on burrow.
	hereafter “Silver street”)	Neil Kauffman, Ally Brady	1700 – 1900	Owl flushed while approaching burrow. Set up scope adjacent to burrow complex.
	(near Rosie avenue, hereafter “Rosie avenue”)	Kit Carnahan, Dannique Aalbu	1700 – 1900	Set up scope adjacent to burrow complex. Whitewash visible on burrow. Pellet observed adjacent to burrow. No activity observed during monitoring.
5/20/2025	Rosie avenue	Neil Kauffman	0630 – 0830	Set up scope adjacent to burrow complex. Adult owl observed perching outside of burrow complex.
		Neil Kauffman	1800 – 2000	Watched from a distance with binoculars. Owl observed perching outside of burrow complex.
	Silver street	Ally Brady	0630 – 0830	Set up scope adjacent to burrow complex. No activity observed during monitoring.
		Ally Brady	1800 – 2000	Set up scope adjacent to burrow complex. No activity observed during monitoring.
5/21/2025	Rosie avenue	Neil Kauffman	0615 – 0815	Watched from a distance with binoculars. Owl observed perching outside of burrow complex.
		Ally Brady	1800 – 2000	Watched from a distance with binoculars. No activity observed during monitoring.
	Silver street	Dannique Aalbu	0615 – 0815	Watched from a distance with binoculars. Owl observed perching outside of burrow complex.
		Kit Carnahan	1800 – 2000	Watched from a distance with binoculars. Owl observed leaving the burrow complex, likely foraging.
5/22/25	Silver street	Ally Brady, Neil Kauffman	0620 – 0820	Set up scope adjacent to burrow complex. Owl flushed upon arrival. Small animal carcass observed adjacent to burrow.



	Rosie avenue	Elan Carnahan, Dannique Aalbu	0620 – 0820	Set up scope adjacent to burrow complex. Owl flushed upon arrival. Whitewash visual on burrow. Two stray dogs encountered while surveying.
6/16/2025	Rosie avenue	Neil Kauffman	0600 - 0830	No activity observed during monitoring.
		Neil Kauffman, Erin Chon	1700 – 1900	No activity observed during monitoring.
	Silver street	Rick Evans, Erin Chon	0600 - 0830	No activity observed during monitoring.
		Rick Evans	1700 – 1900	Watched from a distance with binoculars. Owl observed leaving the burrow complex, likely foraging.
6/17/25	Rosie avenue	Rick Evans, Neil Kauffman	0600 – 0830	No activity observed during monitoring.
		Rick Evans	1700 – 1900	No activity observed during monitoring.
	Silver street	Erin Chon	0600 – 0830	No activity observed during monitoring.
		Erin Chon, Neil Kauffman	1700 – 1900	Watched from a distance with binoculars. Owl observed at burrow entrance.
6/18/25	Rosie avenue	Neil Kauffman, Erin Chon	0600 – 0830	No individuals observed during monitoring.
		Erin Chon	1700 – 1900	No individuals observed during monitoring.
	Silver street	Rick Evans	0600 – 0830	No individuals observed during monitoring.
		Rick Evans, Neil Kauffman	1700 – 1900	Watched from a distance with binoculars. Owl observed at burrow entrance.
6/19/2025	Rosie avenue	Neil Kauffman, Erin Chon, Dannique Aalbu	0600 – 1000	No individuals observed during monitoring.
	Silver street	Rick Evans, Ryan Blaich	0600 – 1000	No individuals observed during monitoring.

* See Appendix B: Surveyor Qualifications



APPENDIX B

Surveyor Qualifications



Dannique Aalbu

Dannique Aalbu is a senior environmental scientist with over 15 years of experience in the field. She has spent over 300 hours surveying and monitoring for burrowing owl including performing a combination of habitat assessments, protocol-level surveys, active burrow monitoring, and culvert exclusion monitoring. She also has extensive experience (1000+ hours) performing desert tortoise surveys and monitoring, rare plant and general vegetation surveys, baseline biological surveys, nesting bird surveys and monitoring, and aquatic resource delineations in the Mojave desert. She has a B.S. in Hydrology with a minor in Ecology from UC Merced and a M.S. in Environmental Science and Management with a concentration in conservation planning from UC Santa Barbara.

Alison Brady

Allison Brady has spent over 40 hours surveying and monitoring for burrowing owls in desert environments and is proficient in identifying their habitat. She has spent over 100 hours conducting nesting bird surveys and baseline habitat assessments in desert environments. Allison has a B.S. in Conservation Biology from the State University of New York college of Environmental Science and Forestry.

Elan Carnahan

Elan (Kit) has over a decade of professional experience working as a field biologist. With Stantec, they perform terrestrial and aquatic biological surveys and environmental compliance monitoring for sensitive species. They have spent multiple field seasons (1000+ hours) working in desert habitats, and specialize in owl, raptor, and nesting bird surveys. Kit has a B.S. in Environmental Science and Policy with a minor in Biology from Long Beach State University.

Erin Chon

Erin has spent 120 hours surveying and monitoring for burrowing owls and is proficient in identifying their habitat. She has spent over 1000 hours conducting rare plant surveys, desert tortoise protocol surveys, baseline biological surveys, nesting bird surveys, and aquatic resource delineations in desert environments. Erin has a B.S. in Wildlife Conservation and Management from Humboldt State University.

Rick Evans

Rick Evans is a terrestrial and aquatic biologist with over 15 years of experience in the field. He has spent 250+ hours surveying and monitoring for burrowing owl including implementing protocol-level surveys, habitat assessments, active burrow monitoring, and burrow exclusion activities and is proficient in identifying their habitat in various ecosystems across California and Nevada. He has spent over 200 hours conducting vegetative surveys (NV sage-grouse conservation credit), baseline biological surveys, nesting bird surveys, and aquatic resource delineations in desert environments. He has a B.S. in Environmental Science with a concentration in Conservation Biology from California State University Sacramento.



Neil Kauffman

Neil has spent 200 hours surveying and monitoring burrowing owls and is proficient in identifying their habitat. He has spent over 500 hours conducting line-transect plant surveys, desert tortoise surveys and monitoring, baseline biological surveys, and nesting bird surveys in desert environments. Neil has a B.S. in Ecology from Montana State University.

Matt Tomaszewski

Matt Tomaszewski is a botanist with 6 years of experience in the field. He has spent 40 hours surveying and monitoring burrowing owls including implementing protocol level surveys and habitat assessments and is proficient in identifying their habitat in various ecosystems. He has extensive experience conducting rare plant and general vegetative surveys, baseline biological surveys, nesting bird surveys, and aquatic resource delineations in desert environments. Matt has a B.S. in Plant Sciences from Cornell and a M.S. in Natural Resource Sciences from Washington State University.

Ryan Blaich

Ryan has spent 120 hours surveying and monitoring for burrowing owls and is proficient in identifying their habitat. He has spent over 280 hours conducting rare plant surveys, desert tortoise protocol surveys, baseline biological surveys, nesting bird surveys, and aquatic resource delineations in desert environments. Ryan has a B.S. in Environmental Systems: Ecology, Behavior, and Evolution from UC San Diego.



APPENDIX C

Photographs



Photograph 1. Representative survey area view looking west.



Photograph 2. Trash dump area observed within survey area near the intersection of Gold Street and Avenue E.



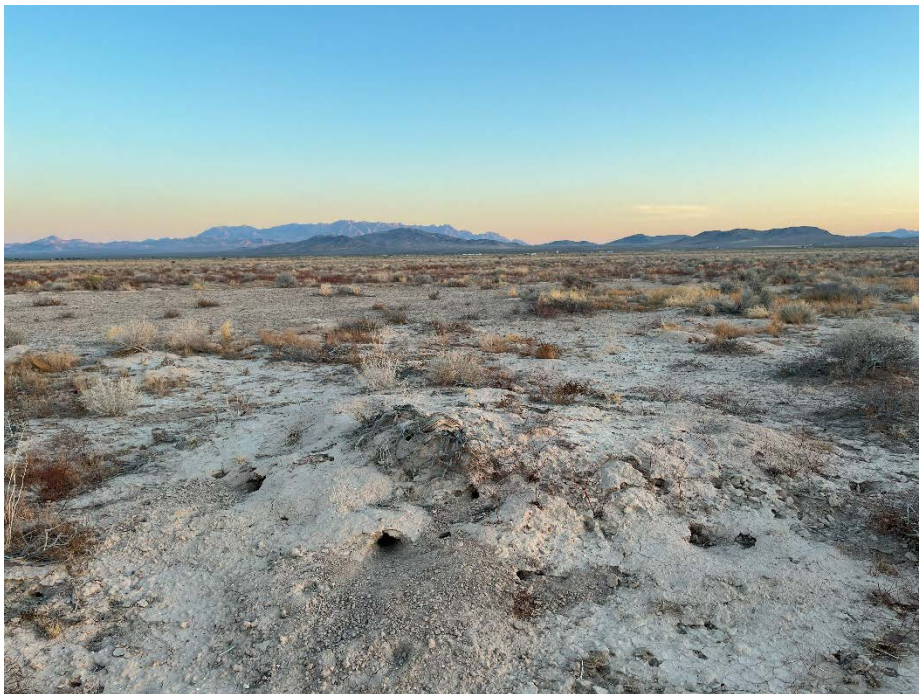
Photograph 3. Typical access road within the survey area.



Photograph 4. Evidence of off-roading within the survey area.



Photograph 5. Potential burrow complex adjacent to trash dump area with whitewash present at top of mount. No activity observed during surveys.



Photograph 6. Location of historic burrow observation with no recent burrowing owl sign or activity.



Photograph 7. Example of potential burrow located within the survey area adjacent to several historic burrow observations. No recent burrowing owl sign or activity.



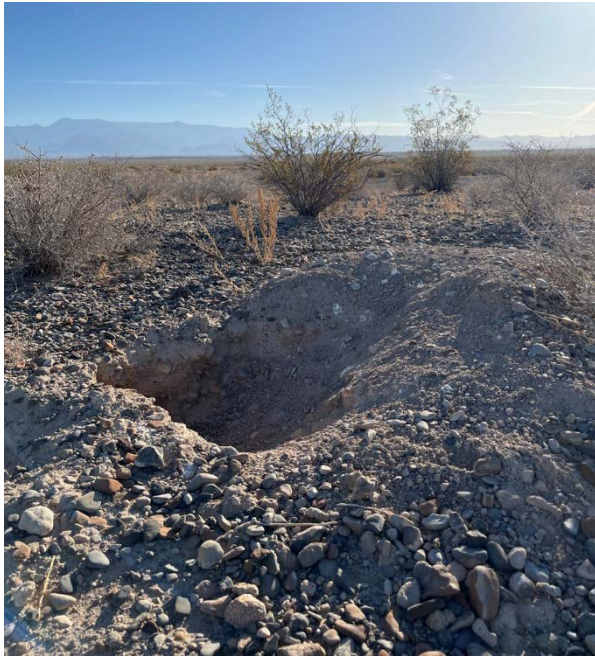
Photograph 8. Evidence of canine digging activity (potential desert kit fox burrow).



Photograph 9. Cluster of burrowing owl feathers (carcass) observed on May 20 during surveys.



Photograph 10. Silver Street burrow where burrowing owl was repeatedly observed.



Photograph 11. Close up of Silver Street burrow where burrowing owl was repeatedly observed. Whitewash present at the burrow entrance.



Photograph 12. Burrowing owl observed at Silver Street burrow entrance.



Photograph 13. Scat observed near entrance to Silver Street burrow entrance.



Photograph 14. Rosie Avenue burrow complex.



Photograph 15. Burrowing owl observed at Rosie Avenue burrow complex.

APPENDIX D

Species Observations

Table 1. Wildlife Species Observed in the Survey Area

Common Name	Genus	Species
Birds		
Bank swallow	Riparia	riparia
Bell's sparrow	Artemisiospiza	belli
Black-throated sparrow	Amphispiza	bilineata
Brewer's sparrow	Spizella	breweri
Burrowing owl	Athene	cunicularia
California quail	Callipepla	californica
Cliff swallow	Petrochelidon	pyrrhonota
Common raven	Corvus	corax
Eurasian collared dove	Streptopelia	decaocto
Horned lark	Eremophila	alpestris
Hummingbird (species unknown)	Trochilidae sp.	
Lesser nighthawk	Chordeiles	acutipennis
Loggerhead Shrike	Lanius	ludovicianus
Mourning dove	Zenaida	macroura
Northern harrier	Circus	hudsonius
Prairie falcon	Falco	mexicanus
Red-tailed hawk	Buteo	jamaicensis
Short-eared owl	Asio	flammeus
Song Sparrow	Melospiza	melodia
Swainson's hawk	Buteo	swainsoni
Turkey vulture	Cathartes	aura
White-crowned sparrow	Zonotrichia	leucophrys
Mammals		
Antelope ground squirrel	Ammospermophilus	leucurus
Bat (species unknown)	Chiropter asp.	
Black-tailed jackrabbit	Lepus	californicus
Desert Kit Fox*	Vulpes	macrotis
Domestic dog	Canis	Lupus familiaris
Reptiles		
Alligator Lizard	Elgaria sp.	
Desert tortoise*	Gopherus	agassizii
Desert Horned lizard	Phrynosoma	platyrhinos
Side-blotched lizard	Uta	stansburiana
Common Sagebrush lizard	Sceloporus	graciosus
Western whiptail lizard	Aspidoscelis	tigris
Zebra-tailed lizard	Callisaurus	draconoides

*sign only



Appendix D Botanical Resources Survey Report



Botanical Resources Survey Report

Bonanza Peak Solar Project

October 1, 2025

Prepared for:

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Irvine, California 92618

Prepared by:

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Revision Record

Revision	Description	Author	Date	Quality Check	Date	Independent Review	Date

Disclaimer

The conclusions in the Report titled **Botanical Resources Survey Report** are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Bonanza Peak, LLC (the "Client"), and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

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Prepared by:



Signature

Sheryl Creer

Printed Name

Reviewed by:

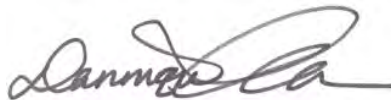


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Sarah Tona

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Approved by:



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Dannique Aalbu

Printed Name

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Botanical Resources Survey Report

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Executive Summary

Stantec Consulting Services Inc. (Stantec) prepared this Botanical Resources Survey Report (report) to document the results of protocol-level botanical surveys and vegetation mapping within the survey area for the Bonanza Peak Solar Project (project). Bonanza Peak Solar, LLC, proposes to construct a utility-scale solar photovoltaic energy-generating facility in southeastern Inyo County, California. The project is in the Mojave Desert Region, approximately 16 miles south of Pahrump, Nevada. This report addresses the survey area that encompasses the portion of the project in California, which totals 2,708.4 acres.

Stantec conducted floristic surveys and vegetation mapping in late April/early May and in August 2025, in accordance with California Native Plant Society (CNPS) and California Department of Fish and Wildlife (CDFW) protocols (CNPS 2001; CDFW 2018). Eight special-status plant species were detected within the survey area, totaling more than 1,400 individual plants. These include three species listed by the CNPS with California Rare Plant Rank 2B.1 or 2B.2 and five species protected under the California Desert Native Plants Act. No federally or state-listed threatened or endangered species were observed. The species with a California Rare Plant Rank should be analyzed under the California Environmental Quality Act (CEQA), as they meet the definition of Rare or Endangered under CEQA Guidelines § 15125(c) and/or § 15380. California Desert Native Plants Act species require a county-issued permit for any removal.

Eight additional special-status annual species known to occur within the survey area were not detected during the 2025 surveys, likely due to extreme drought conditions. These species should still be considered present for CEQA analysis, as they persist in the seed bank or are dormant and may germinate or resume growth under more favorable conditions.

Stantec mapped 18 *Manual of California Vegetation* associations, plus one non-native alliance, and two developed land cover types within the survey area. Five associations are classified as sensitive natural communities by the CDFW and may require a 1:1 or greater mitigation ratio if impacted. These communities typically consist of native plant assemblages and are not necessarily defined by the presence of special-status plant species.

Due to the presence of noxious weeds throughout the survey area, a noxious weed management plan should be developed prior to ground disturbance. For the purposes of this report, noxious weeds are defined as species rated as High by the California Invasive Plant Council and/or listed by the California Department of Food and Agriculture as noxious weeds under California Code of Regulations Section 4500.

Surveys were timed to coincide with the blooming periods of all potentially occurring special-status plants and met CNPS and CDFW requirements for a complete floristic survey. However, the persistence of extreme drought conditions in the Mojave Desert Region should be noted as a survey limitation that likely suppressed germination of seeds for both annual and perennial species, and in mature perennial species, likely suppressed growth of dormant individuals.



Acronyms / Abbreviations

Acronym / Abbreviation	Full Name
Cal-IPC	California Invasive Plant Council
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDNPA	California Desert Native Plants Act
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
FNANM	<i>Flora of North America North of Mexico</i>
MCV	<i>Manual of California Vegetation</i> , Online Edition
NDNH	Nevada Division of Natural Heritage
project	Bonanza Peak Solar Project
report	Botanical Resources Survey Report
Stantec	Stantec Consulting Services Inc.
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey



1 Introduction

This Botanical Resources Survey Report (report) was prepared to document the results of protocol-level botanical surveys and vegetation mapping within the survey area for the Bonanza Peak Solar Project (project). Bonanza Peak Solar, LLC, is proposing the project, a utility-scale solar photovoltaic energy-generating facility, including solar arrays, a substation, and an operation and maintenance building. A generation tie-in line would extend northeast from the facility to a point-of-interconnection in Nevada. The project is in southeastern Inyo County, California, 16 miles south of Pahrump, Nevada (Figure 1.). This report addresses the California portion of the project only.

Stantec Consulting Services Inc. (Stantec) conducted a protocol-level floristic survey in accordance with California Native Plant Society (CNPS) and California Department of Fish and Wildlife (CDFW) protocols (CNPS 2001; CDFW 2018) and mapped vegetation within the survey area, which is defined as 2,708.4 acres of contiguous parcels.

This report is intended to inform project design and to support environmental compliance documentation and potential permit applications. For this evaluation, special-status plant species are defined as those that:

- Are listed as threatened or endangered under the California Endangered Species Act or the federal Endangered Species Act;
- Are proposed for federal listing as threatened or endangered;
- Are state or federal candidate species;
- Are species included on the CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2025);
- Meet the criteria for listing, even if not currently included on any list as described in California Environmental Quality Act (CEQA) Guidelines Section 15380(b), (c), and (d); plants that may meet this definition include the following:
 - o Plants ranked as “rare, threatened, or endangered in California” (California Rare Plant Rank [CRPR] 1B and 2B)
 - o Plants that may warrant consideration on the basis of local significance or recent biological information (CEQA Guidelines Section 15380[d]), which may include CRPR 3 (plants about which more information is needed to determine their status) and CRPR 4 (plants of limited distribution)
- Are covered under the California Desert Native Plants Act (CDNPA) listed in Chapter 3, Division 23, of the California Food and Agriculture Code.

The CDFW designates some natural communities as “sensitive,” which includes natural communities that are rare in the state or throughout its entire range. “Sensitive natural communities,” as defined by the CDFW, are vegetation alliances or associations with a state rarity ranking of S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable). Communities with a state ranking of S4 (apparently secure) or S5 (secure)



are not considered sensitive. Sensitive natural communities are not defined by the presence of special-status plant species; they typically contain several native species that together form an assemblage that is considered rare. The CDFW has not yet provided state rarity rankings for all associations. Sensitive natural communities, including associations not yet ranked but considered sensitive, are included in the current CDFW Natural Community List (CDFW 2025a).

2 Environmental Setting

2.1 Project Location

The survey area is bordered by the Pahrump Valley to the northeast; the town of Charleston View, California, 1 mile to the south; the Nopah Range to the west and southwest; and the town of Pahrump, Nevada, 25 miles to the north. The survey area is in the U.S. Geological Survey (USGS) *Calvada Springs, Mound Spring, and Stump Spring* 7.5-minute topographic quadrangles on predominantly flat, arid, sparsely vegetated, open land in the southern portion of the Pahrump Valley (Figure 1). The northeastern edge of the survey area ranges from abutting to nearly 1 mile west of the California–Nevada Border (Stateline Road); the far western edge of the survey area is along Opal Street from Avenue B to Avenue D. The far southern edge of the survey area is about 0.25 mile north of the Old Spanish Trail Highway.

2.2 Project Setting

The survey area is in the southern portion of the Pahrump Valley, a depression bordered by the Spring Mountains to the northeast and the Nopah Range to the west. The survey area is located within the Mojave Desert Subregion of the Mojave Desert Region within the Desert Province floristic region (Jepson eFlora 2025). The Mojave Desert Subregion includes the northern two-thirds of the Desert Province and has extreme temperature ranges and relief compared to the Sonoran Desert to the south.

Within the survey area, overall topography is extremely low-gradient, with a gentle west-oriented slope. East-to-west elevations range from about 2,690 to 2,560 feet above mean sea level. The northeastern third of the survey area has a slightly higher elevation gradient than the southwestern two-thirds; from east to west, the eastern portion decreases around 50 feet in elevation over roughly 1 mile compared to the western portion that decreases less than 50 feet in elevation over roughly 2 miles.

The survey area is undeveloped except for a grid of unimproved dirt roads that divide it into quarter-sections; while some of the roads are passable, many are partially vegetated and in poor driving condition. An abandoned 40-foot by 40-foot fenced solar array was observed on Avenue D between Topaz Street and Silver Street. In addition, a fenced-in junkyard with boats, trailers, and abandoned vehicles is located at the northeast corner of Avenue E and Gold Street. Off-road tire tracks were present across the survey area. Other signs of disturbance were also present, including windblown trash and cattle dung.

According to the 3D National Hydrography Program (USGS 2024), the survey area is predominantly in the Trout Canyon–Frontal Pahrump Valley subwatershed. The southwestern corner (approximately 10 percent of the survey area) is in the Stump Spring–Calvada Springs subwatershed. Within the survey area, hydrology is primarily driven by precipitation as well as some surface flow that originates northeast of the



survey area, moves to the southwest, and is concentrated into small drainages at the southeast survey area boundary that dissipate before reaching the center of the survey area. Soils within the survey area have not been mapped by the U.S. Department of Agriculture Natural Resources Conservation Service. However, Quaternary surficial geology within a portion of the survey area has been mapped by the California Geological Survey (CGS 2012). Surficial deposits are well-drained and are split into alluvial, mixed alluvial/eolian, and eolian deposits.

The regional climate is characterized as Mediterranean with cool, wet winters and hot, dry summers. Precipitation in the region primarily occurs as rain between December and March, with a monsoon season typically occurring in September. The survey area climate typically exhibits a 10.5-month growing season from January 29 to December 11 (Western Regional Climate Center 2025).

3 Methodology

The botanical resources survey included a desktop review and field component as described in the sections below. Stantec conducted botanical surveys for the project in accordance with CNPS and CDFW protocols (CNPS 2001; CDFW 2018).

3.1 Desktop Review

Several resources were used to identify and classify potential vegetation communities within the survey area to create a preliminary vegetation map for use during the field surveys. These resources included the following:

- *Manual of California Vegetation* (MCV), Online Edition (CNPS 2025a)
- The CDFW's *Vegetation – Central Mojave Desert* (ds166) dataset (CDFW 2022)
- Google Earth aerial imagery dating back to 1989

A list of special-status plant species that could occur in the survey area was developed using the following databases, documents, and lists:

- California Natural Diversity Database (CNDDB) (CDFW 2025b)
- CNPS Inventory of Rare and Endangered Plants (CNPS 2025b)



- United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (USFWS 2024)¹
- USFWS database of federally protected species (USFWS 2025)
- CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2025c)
- CDFW State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2025d)
- Nevada Division of Natural Heritage (NDNH) database (Nevada Department of Conservation and Natural Resources 2025)
- Regulated Native Plants listed under the CDNPA in Chapter 3, Division 23, of the California Food and Agriculture Code

The CNDDDB was queried for reported occurrences of special-status plants. The query included USGS quadrangles that overlapped with the survey area (Calvada Springs, Mound Spring, and Stump Spring) plus those immediately adjacent in California, including Blackwater Mine, Horse Thief Springs, Nopah Peak, North of Tecopa Pass, Sixmile Spring, Tecopa Pass, Green Monster Mine, and West of Shenandoah Peak.

The CNPS online Inventory of Rare and Endangered Plants of California was also queried for all CRPR 1, 2, 3, and 4 species occurring in the same quadrangles included in the CNDDDB query. Trust Resources Reports generated from the USFWS Information for Planning and Consultation database were also reviewed. Due to the survey area's adjacency to the Nevada state border, specifically Nye County, data for special-status species (as defined in Section 1, Introduction) from the NDNH for Nye County were also reviewed. Database results within 5 miles of the survey area are included on Figure 2. The full database query results are included in Appendix B.

Fifty special-status species were returned from the database queries listed above; based on the review of existing information, species habitat requirements, and habitat characteristics present in the survey area, 30 of the 50 special-status plants were determined to have some potential to occur in the survey area. Eleven of the 30 species were documented by the CNDDDB or NDNH within the survey area and were observed between 2011 and 2013. The 30 species with potential to occur are further discussed in Appendix C.

¹ Per the July 15, 2025 Department of Interior memo titled *Departmental Review Procedures for Decisions, Actions, Consultations, and other Undertakings Related to Wind and Solar Energy Facilities* this project is not eligible to use the USFWS Information for Planning and Consultation website. For the purposes of this survey, the site was used for informational purposes only, not as formal consultation with the USFWS.



3.2 Field Surveys

Stantec conducted the botanical resources survey over two survey periods to correlate with the blooming periods of the species identified in the desktop review. The first round of surveys for the field assessment was conducted April 27 to May 2 and May 5 to May 9, 2025; the second round was conducted August 4 to 8 and August 11 to 14, 2025. Both rounds were led and conducted by Stantec Senior Botanist Sheryl Creer. Ms. Creer has over 15 years of experience in California as a botanist and holds an M.S. in Biology from San Francisco State University. A complete listing of all survey personnel and their qualifications is included in Appendix D.

The survey area was divided into 0.5- by 0.5-mile sections, and each section was divided into transects approximately 300 feet wide. The survey area associated with the gen-tie and access route was divided into transects as appropriate. Per CDFW/CNPS guidelines, all areas were meandered on foot, ensuring as close to 100 percent visual coverage as possible; intuitive control was used to adjust meander widths as appropriate.

Each plant species encountered was identified to the taxonomic level necessary to determine whether the plant was listed as a special-status species. Apart from *Ephedra* spp. (ephedras), species identification and nomenclature follows the Jepson eFlora (2025). The treatment for the genus *Ephedra* in the Jepson eFlora does not currently include *E. torreyana* (Torrey's ephedra), which was only discovered in California in 2011 during floristic surveys for the Hidden Hills Solar Electric Generating System project. Because the Jepson eFlora *Ephedra* treatment has not been updated since the 2011 discovery, the *Ephedra* treatment from the *Flora of North America North of Mexico* (FNANM) was used to key out all ephedras within the survey area (Stevensen 2021). Timing of the field surveys coincided with the blooming period(s) for potentially occurring special-status plants in the survey area. Collectively, the April/May and August field visits covered the period when all 50 of the potential special-status plants would be identifiable in the region and meet the CNPS and CDFW requirements of a complete floristic survey for the survey area. Survey limitations are discussed in Section 4.5, along with recommendations in Section 4.6. Locations of rare plants detected in the survey area were mapped using Esri® Field Maps for ArcGIS applications.

To the extent practicable, nearby reference populations of special-status plant species were visited to determine whether the species was identifiable at the time of the survey. The site visits also helped Stantec botanists become familiar with diagnostic traits and attain a search image. Reference site visits were made for plant occurrences near the survey area that were documented by the CNDDDB (CDFW 2025b); the results are included below in Section 4.1. Reference sites were visited on April 27, May 8, and August 4, 2025.

Stantec botanists sampled vegetation cover and mapped vegetation communities and land cover types in Field Maps within the survey area during both survey visits. After completion of field work, vegetation was classified using the MCV (CNPS 2025a). Vegetation was sampled by walking transects through the survey area and assessing vegetative cover within stands approximately every 500 feet or when there was a shift in vegetation composition. Vegetation communities were classified to the level necessary to determine sensitivity (i.e., association level). Plant species composition, stand structure, regional occurrence, and other notable characteristics were documented, where applicable. After completing the surveys, the botanist refined the preliminary desktop vegetation community map with field observations to produce a



final vegetation map. Each vegetation association was checked for sensitivity against the CDFW Natural Community List (CDFW 2025a).

Noxious weed locations were also mapped, including general counts and phenology. For the purposes of this survey, noxious weeds are defined as those rated by the California Invasive Plant Council (Cal-IPC) as High on the current list (Cal-IPC 2025) and/or species included on the California Department of Food and Agriculture's (CDFA's) Weed Pest Rating list (CDFA 2021) or listed as a noxious weed in the California Code of Regulations (CCR) Section 4500.

4 Results

4.1 Reference Sites

Reference locations for 10 special-status plant species were visited; 3 perennial species were detected and positively identified; 7 were not detected. Visit dates and findings are detailed in Table 1 below; representative photographs are included in Appendix E.1.



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Table 1 Reference Site Visits

Scientific Name (common name)	Habit	Status: FESA/ CESA/ CRPR ¹	Source and Record #	Visit Date	General Location	Species Located?
Apiaceae (Carrot Family)						
<i>Cymopterus multinervatus</i> (purple-nerve cymopterus)	perennial herb	—/ —/ 2B.2	CNDDDB Element Code: PDAPI0U0Q0	04/27/2025	Within the survey area adjacent to Avenue D, between Zircon Street and Gold Street.	Not located. No annual plant species were observed growing during the reference check. Few live perennials were present, such as <i>Stanleya pinnata</i> (prince's plume). Mature individuals of this species, if present likely remained dormant and any seed in the seedbank likely did not germinate due to drought conditions.
Ephedraceae (Ephedra Family)						
<i>Ephedra torreyana</i> (Torrey's ephedra)	perennial evergreen shrub	—/ —/ 2B.1	CNDDDB Element Code: PGE0H01080	04/27/2025	Within the survey area adjacent to Topaz Street, south of Avenue E.	Located. An individual plant with mature female cones was located and keyed out using the <i>Flora of North America North of Mexico</i> .
Fabaceae (Legume Family)						
<i>Astragalus nyensis</i> (Nye milk-vetch)	annual herb	—/ —/ 1B.1	CNDDDB Element Code: PGE0H01080	04/27/2025	Within the survey area adjacent and west of Gold Street, south of Avenue E.	Not located. No other annual plant species were observed growing during the reference site visit. Few live perennials were present, such as prince's plume.
<i>Astragalus preussii</i> var. <i>preussii</i> (Preuss' milk-vetch)	perennial herb	—/ —/ 2B.1	CNDDDB Element Code: PDFAB0F660	04/27/2025, 05/08/2025	Within the survey area on Avenue D, between Gold Street and Zircon Street.	Located. This species was not located during the initial 04/27/2025 reference site visit but was subsequently located approximately 350 feet west of the reference location on 05/08/2025 during floristic surveys. The plant was positively identified based upon the presence of last year's fruits and fresh leaf growth.



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Scientific Name (common name)	Habit	Status: FESA/ CESA/ CRPR ¹	Source and Record #	Visit Date	General Location	Species Located?
			CNDDDB Element Code: PDFAB0F722	08/04/2025	Within the survey area on Opal Street, south of Avenue B.	Located. This occurrence was located on 05/06/2025 during floristic surveys with new leaves and was revisited as a reference for the second survey pass on 08/04/2025 to check phenology ahead of the second pass of surveys. The plant was observed in fruit.
<i>Astragalus sabulorum</i> (gravel milk-vetch)	annual/ perennial herb	—/ —/ 2B.2	CNDDDB Element Code: PDFAB0F7R0	04/27/2025	Within the survey area on Avenue D, west of Zircon Street.	Not located. One individual of the annual species, <i>Baileya pleniradiata</i> (wooly marigold), was blooming at the edge of the unpaved roadbed at the time of the visit, but no other annual plant species were observed growing during the reference check. Perennials such as <i>Hoffmannseggia glauca</i> (pig-nut) were blooming.
				04/27/2025	Within the survey area on Gold Street, just south of East Crystal Road.	Not located. Perennials such as pig-nut and prince's plume were blooming as well.
<i>Astragalus tidestromii</i> (Tidestrom's milk-vetch)	perennial herb	—/ —/ 2B.2	CNDDDB Element Code: PDFAB0F8X0	08/04/2025	Within the survey area just south of Avenue B and east of Opal Street.	Located. This species was located approximately 150 feet west of a reference location on 05/06/2025 during floristic surveys and was revisited as a reference for the second survey pass to check phenology on 08/04/2025. The plant was positively identified based upon the presence of fresh leaf growth and by process of elimination using vegetative characters of other potential <i>Astragalus</i> spp. that could be present.
Hydrophyllaceae (Waterleaf Family)						



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Scientific Name (common name)	Habit	Status: FESA/ CESA/ CRPR ¹	Source and Record #	Visit Date	General Location	Species Located?
<i>Phacelia pulchella</i> var. <i>gooddingii</i> (Goodding's phacelia)	annual herb	—/ —/ 2B.2	CNDDDB Element Code: PDHYD0C3V1	04/27/2025	Within the survey area just west of Topaz Street and south of Avenue E.	Not located. No live annuals were observed at this location, but there was an infestation of the noxious weed <i>Halogeton glomeratus</i> (saltlover).
Nyctaginaceae (Four O'Clock Family)						
<i>Acleisanthes nevadensis</i> (desert wing-fruit)	perennial herb	—/ —/ 2B.1	CNDDDB Element Code: PDNYC0F040	04/27/2025, 08/04/2025	Just south of the survey area on Avenue E, just east of Topaz Street.	Not located. This species is a perennial and due to drought conditions likely remained dormant and/or seed did not germinate in the 2025 growing season.
Polygonaceae (Buckwheat Family)						
<i>Eriogonum bifurcatum</i> (forked buckwheat)	annual herb	—/ —/ 1B.2	CNDDDB Element Code: PDNYC0F040	04/27/2025	South of the survey area just west of Topaz Street and north of Old Spanish Trail Highway.	Not located. No live annuals were observed at this location, but there was an infestation of the noxious weed saltlover.
Themidaceae (Brodiaea Family)						
<i>Androstephium breviflorum</i> (small-flowered androstephium)	perennial bulbiferous herb	—/ —/ 2B.2	CNDDDB Element Code: PMLIL06010	04/27/2025	Within the survey area just east of Gold Street and south of Avenue D.	Not located. This species is a perennial bulbiferous herb and due to drought conditions likely remained dormant and/or seed did not germinate in the 2025 growing season.

Sources: CNPS 2025b; CDFW 2025b; Jepson eFlora 2025

¹. Status Codes:

Federal Endangered Species Act (FESA)

California Endangered Species Act (CESA)

California Rare Plant Rank (CRPR) Codes and Extensions:

1B Rare or endangered: plants rare, threatened, or endangered in California and elsewhere, with the majority also being endemic to California

2B Rare or endangered in California: plants rare, threatened, or endangered in California but more common elsewhere

xx.1 Seriously threatened in California

xx.2 Moderately threatened in California



4.2 Special-Status Plants

Eight special-status plant species were detected within the survey area during the April/May and August surveys (Figure 3). Five of the species are protected under the CDNPA, and three are listed by the CNPS with a CRPR; no federally or state-listed species were detected within the survey area. The three species listed by the CNPS were previously documented in the CNDDb as occurring within the survey area. A summary of special-status species detections is included in Table 2; additional details are provided below. Photographs are included in E.1, Appendix E. A complete plant list of all species observed is included in Appendix F.

Table 2 Summary of Special-Status Plant Species Observed within the Survey Area

Scientific Name (common name)	Status: FESA/CESA/ CRPR/CDNPA ¹	Number of Plants Observed		
		April/May	August	Total
Agavaceae (Cactus Family)				
<i>Yucca schidigera</i> (Mojave yucca)	—/—/ —/80073	1	—	1
Cactaceae (Cactus Family)				
<i>Cylindropuntia echinocarpa</i> (silver cholla)	—/—/ —/80073	27	27	54
<i>Cylindropuntia ramosissima</i> (pencil cholla)	—/—/ —/80073	2	—	2
<i>Opuntia basilaris</i> var. <i>basilaris</i> (beavertail cactus)	—/—/ —/80073	8	6	14
Ephedraceae (Ephedra Family)				
<i>Ephedra torreyana</i> (Torrey's ephedra)	—/—/ 2B.1/—	805	69	874
Fabaceae (Legume Family)				
<i>Astragalus preussii</i> var. <i>preussii</i> (Preuss' milk-vetch)	—/—/ 2B.1/—	208	129	337
<i>Astragalus tidestromii</i> (Tidestrom's milk-vetch)	—/—/ 2B.2/—	9	—	9
<i>Neltuma odorata</i> (honey mesquite)	—/—/ —/80073	114	38	152

Sources: CNPS 2025b; CDFW 2025b; Jepson eFlora 2025

¹ Status Codes:

Federal Endangered Species Act (FESA)

California Endangered Species Act (CESA)

California Rare Plant Rank (CRPR) Codes and Extensions:



1B Rare or endangered: plants rare, threatened, or endangered in California and elsewhere, with the majority also being endemic to California

2B Rare or endangered in California: plants rare, threatened, or endangered in California but more common elsewhere

xx.1 Seriously threatened in California

xx.2 Moderately threatened in California

California Desert Native Plants Act (CDNPA): Section 80073 (80073) plants, or any part thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plants are growing.

4.2.1 *Ephedra torreyana* (Torrey's Ephedra)

A total of 874 individual *Ephedra torreyana* (Torrey's ephedra) were observed within the survey area. This species is a perennial evergreen subshrub with a CRPR of 2B.1: seriously threatened in California but common elsewhere. This species can be difficult to distinguish from another common ephedra species within the survey area, *Ephedra funerea* (Death Valley ephedra), as they both have leaves and bracts in whorls of three and other vegetative characters that overlap or are not diagnostic. The final key break between the two species in the FNANM is based upon cone attachment (sessile or not), which Stantec botanists observed to be mixed when taken in context of each complete species description. For example, Torrey's ephedra in the FNANM key has "cones always sessile," yet Stantec observed individuals with a short, scaly peduncle (a character for Death Valley ephedra) with seed bract wing measurements and/or seed surfaces that were consistent with Torrey's ephedra. Voucher herbaria specimens for Torrey's ephedra from this location also show a short, scaly peduncle (California Academy of Sciences Catalog #248275). Accordingly, we relied upon measurements to make determinations, which is a discrete metric between the two species rather than a vague sessile versus short peduncle or subjective vegetative characters. Additional support for this approach can be found in Hollander and Wall's 2009 paper on dispersal syndromes of ephedra (Hollander and Wall 2009). Torrey's ephedra is a wind-dispersed seed, while Death Valley ephedra is an intermediate between animal and wind dispersal. This is expressed in seed bract wing width: Torrey's ephedra is 6–10 millimeters wide compared to Death Valley ephedra's 3–5 millimeters. Therefore, positive identification of Torrey's ephedra relied upon the presence of mature reproductive structures (male or female cones). Depending upon the individual plant phenology, in male cones, sporangia exsertion; in female cones, seed bract wing width and seed ornamentation, when mature seeds were present. Vegetative plants that co-occurred with reproductive plants identified as Torrey's ephedra were also counted.

Torrey's ephedra was predominantly found in the southern and western sections of the survey area (Figure 3), commonly in the *Atriplex confertifolia* Shrubland Alliance (shadscale scrub) and the *Ephedra nevadensis* – *Lycium andersonii* – *Grayia spinosa* Shrubland Alliance (Nevada joint fir – Anderson's boxthorn – spiny hop sage scrub) (Figure 4). It was less frequently found in the *Larrea tridentata* Shrubland Alliance (creosote bush scrub) and *Larrea tridentata* – *Ambrosia dumosa* Shrubland Alliance (creosote bush – white bursage scrub). When first observed in 2011, the occurrences within the survey area represented the first known occurrences of Torrey's ephedra outside Nevada and are 2 of the known 11 occurrences in California (CDFW 2025b).



4.2.2 *Astragalus preussii* var. *preussii* (Preuss' Milk-Vetch)

A total of 337 individual *Astragalus preussii* var. *preussii* (Preuss' milk-vetch) were observed within the survey area. This species is a perennial herb with a CRPR of 2B.1: seriously threatened in California but common elsewhere. One plant was observed in flower, surrounded by nine other plants in early fruit. Approximately 50 percent were vegetative with this year's leaves and last year's dehiscent fruits; 40 percent were in early fruit, and 10 percent had last year's fruit and no new growth. Preuss' milk-vetch was predominantly found concentrated along Avenue D and in the western sections of the survey area in shadscale scrub (Figure 3, Figure 4). A few occurrences were found in creosote bush scrub and creosote bush – white bursage scrub. The occurrences within and surrounding the survey area represent 4 of the known 22 occurrences in California (CDFW 2025b).

4.2.3 *Astragalus tidesstromii* (Tidestrom's Milk-Vetch)

Nine individual *Astragalus tidesstromii* (Tidestrom's milk-vetch) were observed within the survey area. This species is a perennial herb with a CRPR of 2B.2: moderately threatened in California but common elsewhere. All plants were detected in vegetative form in May 2025 within 150 feet of a known reference location for this species. Based upon vegetative match, proximity to a reference site, and what other milk-vetch species were known to be in the area, this was identified as Tidestrom's milk-vetch. Only four individuals were located again during late-season surveys and were dying back with no evidence of blooming. Tidestrom's milk-vetch was found concentrated in the northwestern corner of the survey area in shadscale scrub (Figure 3, Figure 4). The occurrences within and surrounding the survey area represent 3 of the known 72 occurrences in California (CDFW 2025b).

4.2.4 California Desert Native Plants Act Species

Five species covered under Section 80073 of the CDNPA were observed within the survey area: *Yucca schidigera* (Mojave yucca) (1), *Cylindropuntia echinocarpa* (silver cholla) (54), *Cylindropuntia ramosissima* (pencil cholla) (2), *Opuntia basilaris* var. *basilaris* (beavertail cactus) (14), and *Neltuma odorata* (honey mesquite) (154). These species are not listed as special-status by the state or CDFW. Their locations are provided on Figure 3.

4.3 Vegetation Communities and Land Cover

Eleven MCV vegetation alliances and land cover types were mapped within the survey area, 9 of which were further broken down into 18 associations. One alliance characterized by invasive species was not broken down past the alliance level and the Developed land cover type was broken down into two sub-types. One alliance, *Halogeton glomeratus* Sparsely Vegetated Clay Flat (saltlover flat) is not in the MCV, was not assigned an association, and was described for the purposes of this project. The most abundant MCV vegetation alliance within the survey area is shadscale scrub (912.2 acres), followed by *Larrea tridentata* – *Ambrosia dumosa* Shrubland Alliance (creosote bush – white bursage scrub) (617.5 acres); together, these two alliances account for more than half of the survey area. Of the 18 MCV vegetation associations, 5 (407.4 acres) are considered sensitive natural communities by the CDFW. Table 3 lists all MCV/land cover types, acreages, and sensitivity status. Additional details on vegetation types are included



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below; representative photographs of vegetation are included in E.3 of Appendix E. The locations of vegetation communities and land cover types are provided on Figure 4.

The survey area is located in or adjacent to energy infrastructure and developments, Bureau of Land Management lands that have been used for recreational vehicles, and highway corridors. Some of the vegetation within the survey area is highly disturbed by human activity and has been impacted by grading, grazing, and alteration of hydrology. Because of the historical, varying, and ongoing disturbance within and surrounding the survey area, the vegetation communities support a high number of non-native and invasive species such as *Halogeton glomeratus* (saltlover), *Salsola tragus* (Russian thistle), and other non-native grasses and forbs. Noxious weeds are discussed in Section 4.4.

Table 3 Manual of California Vegetation and Land Cover Types Mapped within the Survey Area

Code	Alliance Association(s)	Sensitive?	Acres
Herbaceous			
22.310.00	<i>Chorizanthe rigida</i> – <i>Geraea canescens</i> Desert Pavement Sparsely Vegetated Alliance (Rigid Spineflower – Hairy Desert Sunflower)	–	65.0
33.380.01	<i>Chorizanthe rigida</i> – <i>Geraea canescens</i> Desert Pavement	Y	65.0
N/A	<i>Halogeton glomeratus</i> Sparsely Vegetated Clay Flat (Saltlover Flat)¹	N	17.4
41.100.00	<i>Sphaeralcea ambigua</i> Herbaceous Alliance (Desert Globemallow Herbaceous Scrub)	–	195.7
41.100.01	<i>Sphaeralcea ambigua</i>	N	195.7
<i>Herbaceous Subtotal</i>			278.1
Shrub			
33.200.00	<i>Ambrosia salsola</i> – <i>Bebbia juncea</i> Shrubland Alliance (Cheesebush – Sweetbush Scrub)	–	27.9
33.200.04	<i>Ambrosia salsola</i> – <i>Atriplex confertifolia</i>	N	26.3
33.200.08	<i>Senna armata</i> – <i>Ambrosia salsola</i>	N	1.6
33.060.00	<i>Atriplex canescens</i> Shrubland Alliance (Fourwing Saltbush Scrub)	–	23.7
33.060.02	<i>Atriplex canescens</i>	N	23.7
36.320.00	<i>Atriplex confertifolia</i> Shrubland Alliance (Shadscale Scrub)	–	912.2
36.320.03	<i>Atriplex confertifolia</i> – <i>Ambrosia dumosa</i>	N	727.7
36.320.06	<i>Atriplex confertifolia</i> – <i>Atriplex canescens</i>	N	61.3
36.320.07	<i>Atriplex confertifolia</i> – <i>Lycium andersonii</i>	Y	123.2
36.310.00	<i>Ambrosia dumosa</i> Shrubland Alliance (White Bursage Scrub)	–	24.5
36.310.01	<i>Ambrosia dumosa</i> Association	Y	24.5
33.185.00	<i>Ephedra nevadensis</i> – <i>Lycium andersonii</i> – <i>Grayia spinosa</i> Shrubland Alliance (Nevada Joint Fir – Anderson's Boxthorn – Spiny Hop Sage Scrub)	–	328.0



Botanical Resources Survey Report
4 Results

Code	Alliance Association(s)	Sensitive?	Acres
33.360.02	<i>Lycium andersonii</i> (provisional)	Y	194.7
33.185.01	<i>Lycium cooperi</i> (provisional)	N	124.6
33.280.04	<i>Ephedra nevadensis</i> – <i>Lycium andersonii</i>	N	8.7
33.010.00	<i>Larrea tridentata</i> Shrubland Alliance (Creosote Bush Scrub)	–	419.9
33.140.04	<i>Larrea tridentata</i>	N	223.4
33.010.17	<i>Larrea tridentata</i> – <i>Atriplex confertifolia</i>	N	182.4
33.010.19	<i>Larrea tridentata</i> / Cryptogamic crust	N	14.1
33.140.00	<i>Larrea tridentata</i> – <i>Ambrosia dumosa</i> Shrubland Alliance (Creosote Bush – White Bursage Scrub)	–	617.5
33.140.42	<i>Larrea tridentata</i> – <i>Ambrosia dumosa</i>	N	543.4
33.140.39	<i>Larrea tridentata</i> – <i>Ambrosia dumosa</i> - <i>Atriplex confertifolia</i>	N	35.2
33.140.35	<i>Larrea tridentata</i> – <i>Ambrosia dumosa</i> / Cryptogamic crust	Y	38.9
<i>Shrub Subtotal</i>			2,353.7
Other			
N/A	Developed	–	76.6
	Unpaved Road	N	72.4
	Rural	N	4.2
Total			2,708.4

^{1.} Vegetation community is not currently described in the MCV and therefore not included in the CDFW's Natural Community List.

4.3.1 Herbaceous

4.3.1.1 *Chorizanthe rigida* – *Geraea canescens* Desert Pavement Sparsely Vegetated Alliance (Rigid Spineflower – Hairy Desert Sunflower)

The *Chorizanthe rigida* – *Geraea canescens* Desert Pavement Sparsely Vegetated Alliance (rigid spineflower – hairy desert sunflower) covers a total of 65.0 acres and is concentrated in the southern portion the survey area in scattered patches of desert pavement. Desert pavement observed in the survey area ranged from tightly packed rock fragments and cobble to more loosely aggregated fragments and cobble in a silty-sand matrix. The rock fragments and cobble are characteristically covered in a darker coating of desert varnish.

There is a noticeable decrease in vegetative ground cover within the desert pavement locations, with cover as low as 1 percent. Within the survey area, much of the cover included saltlover, a noxious weed. Characteristic species found within this alliance include *Chorizanthe rigida* (rigid spineflower), Russian thistle, and *Eriogonum* ssp. (buckwheats) as well as scant shrub species including *Ambrosia dumosa*, (white bursage), *Lycium cooperi* (Cooper's box thorn), and *Larrea tridentata* (creosote bush). No living rigid



spineflower were observed during the surveys, but many senesced individuals from the previous year were observed within the area. The following MCV association within this vegetation alliance was observed and mapped onsite; the association is considered a sensitive natural community by the CDFW, designated by an asterisk (*) below and in the alliance descriptions that follow in this section:

Chorizanthe rigida – *Geraea canescens* Desert Pavement*

4.3.1.2 *Halogeton glomeratus* Sparsely Vegetated Clay Flat (Saltlover Flat)

The *Halogeton glomeratus* Sparsely Vegetated Clay Flat (saltlover flat) covers 17.4 acres and is generally located in the western portion of the survey area in patchy clay flats. This alliance is dominated by saltlover along with large areas of bare, hard-packed clay. This alliance is not described in the MCV but was repeatedly observed within the survey area. Due to the lack of native species observed, this alliance is likely not considered a sensitive natural community by the CDFW.

4.3.1.3 *Sphaeralcea ambigua* Herbaceous Alliance (Desert Globemallow Herbaceous Scrub)

The *Sphaeralcea ambigua* Herbaceous Alliance (desert globemallow herbaceous scrub) covers a total of 195.7 acres and is generally concentrated in the northeast-central portion of the survey area. It occurs in areas that are visibly disturbed from a past sheet flood event, most likely caused by Hurricane Hilary in 2023. This vegetation community is dominated by native forbs including *Sphaeralcea ambigua* (desert globemallow), *Sphaeralcea angustifolia* (narrow-leaved globemallow), *Hoffmannseggia glauca* (pig-nut), *Astragalus lentiginosus* var. *fremontii* (Fremont's milk-vetch), and non-native annuals such as Russian thistle and saltlover. The following MCV association within this vegetation alliance was observed and mapped onsite; the CDFW does not consider it a sensitive natural community:

Sphaeralcea ambigua spp.

4.3.2 Shrub

4.3.2.1 *Ambrosia salsola* – *Bebbia juncea* Shrubland Alliance (Cheesebush – Sweetbush Scrub)

The *Ambrosia salsola* – *Bebbia juncea* Shrubland Alliance (cheesebush – sweetbush scrub) covers a total of 27.9 acres and occurs at the western edge of the survey area. This alliance is dominated by *Ambrosia salsola* (cheesebush), *Atriplex confertifolia* (shadscale), *Senna armata* (desert senna), and white bursage. Herbaceous species such as prince's plume (*Stanleya pinnata*), desert globemallow, pig-nut, saltlover, and Russian thistle were also observed. The following MCV associations within this vegetation alliance were observed and mapped onsite; neither is considered a sensitive natural community by the CDFW:

Ambrosia salsola – *Atriplex confertifolia*
Senna armata – *Ambrosia salsola*



4.3.2.2 *Atriplex canescens* Shrubland Alliance (Fourwing Saltbush Scrub)

The *Atriplex canescens* Shrubland Alliance (fourwing saltbush scrub) covers a total of 23.7 acres and is located in two stands on the east-central edge of the survey area. Fourwing saltbush is dominant in this alliance, with white bursage present in a lesser amount. Observed herbaceous species include saltlover, desert globemallow, and senesced non-native annual grasses from the 2024 season that were not identifiable. The following MCV association within this vegetation alliance was observed and mapped onsite; the CDFW does not consider it a sensitive natural community:

Atriplex canescens

4.3.2.3 *Atriplex confertifolia* Shrubland Alliance (Shadscale Scrub)

The *Atriplex confertifolia* Shrubland Alliance (shadscale scrub) covers 912.2 acres and is the most abundant vegetation alliance within the survey area. Shadscale scrub dominates the central to western portion of the survey area. Within the alliance, shadscale is co-dominant in this alliance with *Lycium andersonii* (Anderson thornbush), white bursage, and creosote bush. Additional shrub species that were consistently present include Cooper's box thorn and cheesebush. Observed herbaceous species include saltlover, desert globemallow, and prince's plume. The following MCV associations within this vegetation alliance were observed and mapped onsite; one association is considered a sensitive natural community by the CDFW:

Atriplex confertifolia – *Ambrosia dumosa*
Atriplex confertifolia – *Atriplex canescens*
Atriplex confertifolia – *Lycium andersonii**

4.3.2.4 *Ambrosia dumosa* Shrubland Alliance (White Bursage Scrub)

The *Ambrosia dumosa* Shrubland Alliance (white bursage scrub) covers a total of 24.5 acres and is in six scattered patches along the central section of the survey area. Three stands of this alliance were growing on desert pavement, and all stands are dominated by white bursage. Non-native forbs such as Russian thistle and saltlover were also present. One MCV association within this vegetation alliance was observed and mapped onsite and is considered a sensitive natural community by the CDFW:

Ambrosia dumosa Association*

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

The *Ephedra nevadensis* – *Lycium andersonii* – *Grayia spinosa* Shrubland Alliance (Nevada joint fir – Anderson's boxthorn – spiny hop sage scrub) covers a total of 328.0 acres and is concentrated in the southwest corner plus a large stand in the center of the survey area that extends to the west and one in the north. This alliance is co-dominated by *Ephedra nevadensis* (Nevada ephedra), Anderson thornbush, and Cooper's box thorn. Other shrub species such as creosote, Death Valley ephedra, cheesebush, and white bursage were also observed. Observed herbaceous species include *Lepidium fremontii* (desert pepper



grass), saltlover, prince's plume, rigid spineflower, and desert globemallow. The following MCV associations within this vegetation alliance were observed and mapped onsite; one association is considered a sensitive natural community by the CDFW:

Lycium andersonii (provisional)*
Lycium cooperi (provisional)
Ephedra nevadensis – *Lycium andersonii*

4.3.2.6 *Larrea tridentata* Shrubland Alliance (Creosote Bush Scrub)

The *Larrea tridentata* Shrubland Alliance (creosote bush scrub) covers 419.9 acres and is located along the eastern side of the survey area, where it is interspersed with creosote bush – white bursage scrub. Creosote bush dominates this alliance along with burro weed and Cooper's box thorn. Herbaceous species observed include saltlover, Russian thistle, and desert globemallow. The following MCV associations within this vegetation alliance were observed and mapped onsite; they are not considered sensitive natural communities by the CDFW:

Larrea tridentata
Larrea tridentata – *Atriplex confertifolia*
Larrea tridentata / Cryptogamic crust

4.3.2.7 *Larrea tridentata* – *Ambrosia dumosa* Shrubland Alliance (Creosote Bush – White Bursage Scrub)

Creosote bush – white bursage scrub covers 617.5 acres and is the second-most abundant vegetation alliance within the survey area. It is located on the eastern side of the survey area. Creosote bush and white bursage are characteristically co-dominant along with shadscale and *Atriplex polycarpa* (allscale saltbush). Herbaceous species found within mapped occurrences of this alliance include saltlover, pig-nut, and desert globemallow. The following MCV associations within this vegetation alliance were observed and mapped onsite; one association is considered a sensitive natural community by the CDFW:

Larrea tridentata – *Ambrosia dumosa*
Larrea tridentata – *Ambrosia dumosa* – *Atriplex confertifolia*
Larrea tridentata – *Ambrosia dumosa* / Cryptogamic crust*

4.3.3 Other

4.3.3.1 Developed

Developed areas total 76.6 acres within the survey area and include a gridded dirt road system as well as an area on the east side that is used as a junkyard.

4.4 Noxious Weeds

Four annual noxious weed species were detected in the survey area. These species are listed by Cal-IPC as High, included on the CDFA Weed Pest Rating list, and/or listed as a noxious weed in CCR Section 4500. Noxious weeds are present in most of the survey area, facilitated by historical and ongoing



disturbance. All but a few observations were of plants from the 2024 growing season; very few appeared to have germinated in the 2025 growing season. In areas where noxious weeds were not observed, it is likely that they lie dormant in the seed bank and would be detectable in years outside current drought conditions. In addition, there are likely significantly more *Bromus rubens* (red brome) and *Bromus tectorum* (cheat grass) because all those detected were from 2024 and only detectable because they were under larger plants shielded from being blown away. A summary of species is included in Table 4 and shown on Figure 5.

Table 4 Summary of Noxious Weeds Observed within the Survey Area

Scientific Name (common name)	Status ¹	Population Estimate
Chenopodiaceae (Goosefoot Family)		
<i>Halogeton glomeratus</i> (saltlover)	Cal-IPC M, CDFA B*	More than 1 million
<i>Salsola tragus</i> (Russian thistle)	Cal-IPC L, CDFA C	200,000
Poaceae (Grass Family)		
<i>Bromus rubens</i> (red brome)	Cal-IPC H, –	5,000
<i>Bromus tectorum</i> (cheat grass)	Cal-IPC H, CDFA C	3,000

¹. Status Codes:

California Invasive Plant Council (Cal-IPC):

Low (L)
Moderate (M)
High (H)

California Department of Food and Agriculture (CDFA):

B: A pest of known economic or environmental detriment, and if present in California, it is of limited distribution
C: A pest of known economic or environmental detriment, and if present in California, it is usually widespread
*: Included on the California Code of Regulations Section 4500 list of California state noxious weeds

4.5 Survey Limitations

According to the U.S. Drought Monitor (National Drought Mitigation Center et al. 2025), the survey area was in extreme drought during both survey passes. This was apparent in the limited number of live annual plant species observed, including noxious weeds. Nearly all annual species observed were senesced and left over from the 2024 season and include rigid spineflower, cheat grass, buckwheats, and saltlover. Living annuals observed include *Cuscuta denticulata* (desert dodder), a native species, and *Erodium cicutarium* (coastal heron's bill), a non-native species. The special-status plants detected within the survey area were two perennial milk-vetches and Torrey's ephedra, an evergreen subshrub. Perennials not blooming at the time of the surveys were identifiable based upon presence of last year's fruits, inflorescences, and/or new vegetative growth. None of the other eight special-status species known to be present in the survey area were observed, and none are federally or state-listed.



4.6 Conclusion and Recommendations

Three special-status species listed by the CNPS with a CRPR were detected, with more than 1,200 individual special-status plants mapped within the survey area. None of the species is federally or state-listed as threatened or endangered; two are CRPR 2B.1; one is CRPR 2B.2. An additional five species covered under the CDNPA were also mapped within the survey area. The CDNPA species will require a permit issued by the county for any harvesting. Eight special-status species (four annual, four perennial) that are documented in the CNDDDB as occurring and extant within the survey area were not detected during these surveys. These species likely did not germinate and/or remained dormant during the 2025 season due to the extreme drought conditions. However, these species should be considered present for the purposes of a CEQA analysis, as the annual species persist in the seed bank and would likely germinate when favorable conditions return. Similarly, perennial species persist in the seedbank and mature plants that may have died back and lay dormant during drought conditions may germinate and/or resume active growth when favorable conditions return. Protocol-level floristic surveys conducted once drought conditions subside could provide additional presence/absence data for these species as well as other species not detected but with high to moderate potential to occur in the survey area.

Stantec mapped 18 MCV vegetation associations; 5 (407.4 acres) are considered sensitive natural communities by the CDFW. CDFW typically requires a 1:1 or greater mitigation ratio for sensitive natural communities, depending on community type. Final mitigation ratios are usually determined in consultation with CDFW. In addition, because noxious weeds are present in varying densities throughout the survey area, a noxious weed management plan should be developed prior to ground disturbance.



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Appendix A Figures



Botanical Resources Survey Report
Appendix A Figures

Figure 1 Project Location

Figure 2 Project CNDDDB and NDNH Results within 5 miles of the Survey Area

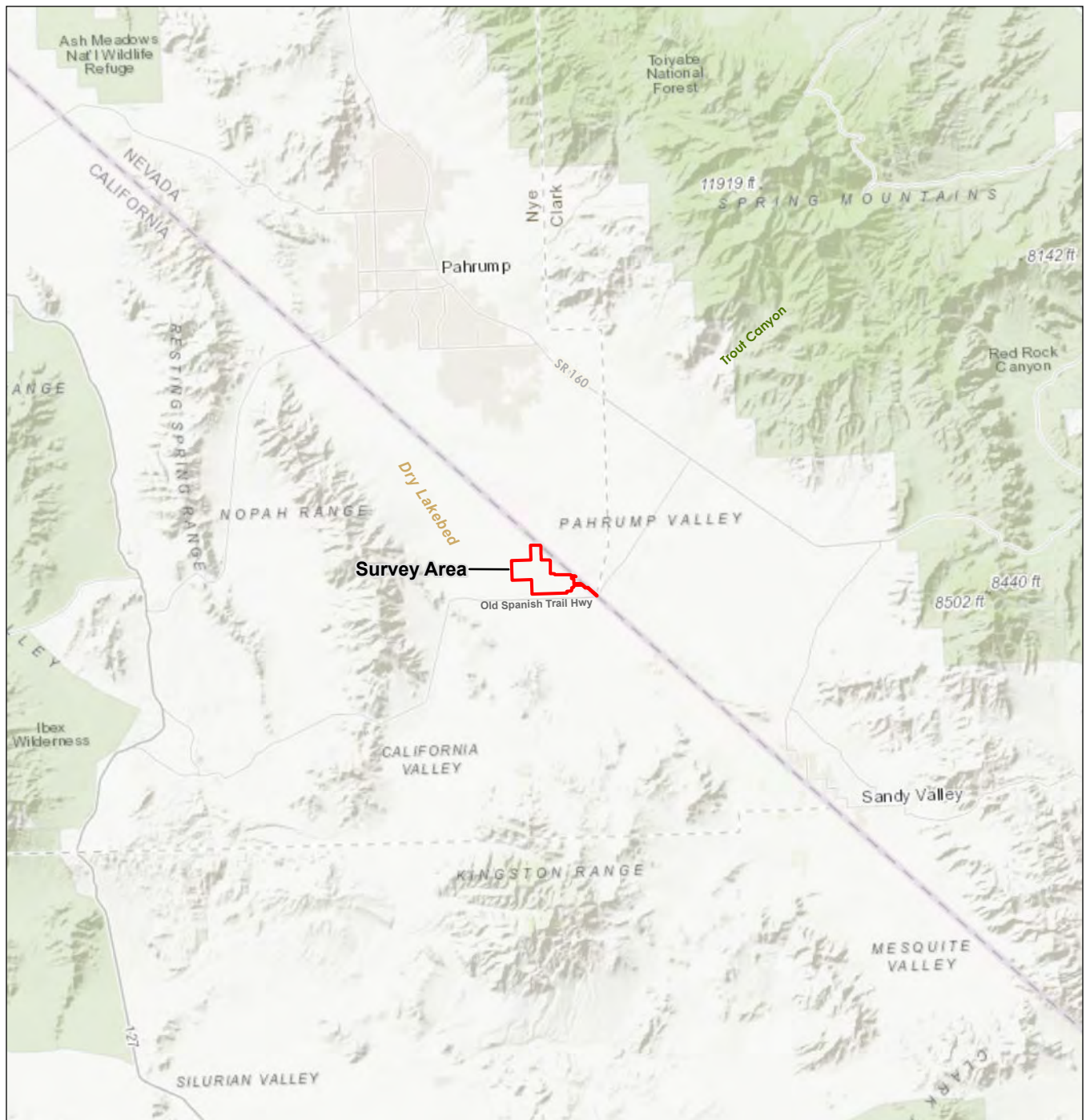
Figure 3 Special-Status Plants Detected in the Survey Area

Figure 4 Manual of California Vegetation Types and Land Cover within the Survey Area

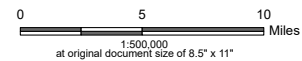
Figure 5 Noxious Weeds within the Survey Area



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 Survey Area (2,708.4 acres)



Project Location
Inyo County, CA

Prepared by PG on 2025-09-16
Technical Review by SC on 2025-09-16

Client/Project

174 Power Global Corp.
Bonanza Peak Solar Project

Figure No.
1

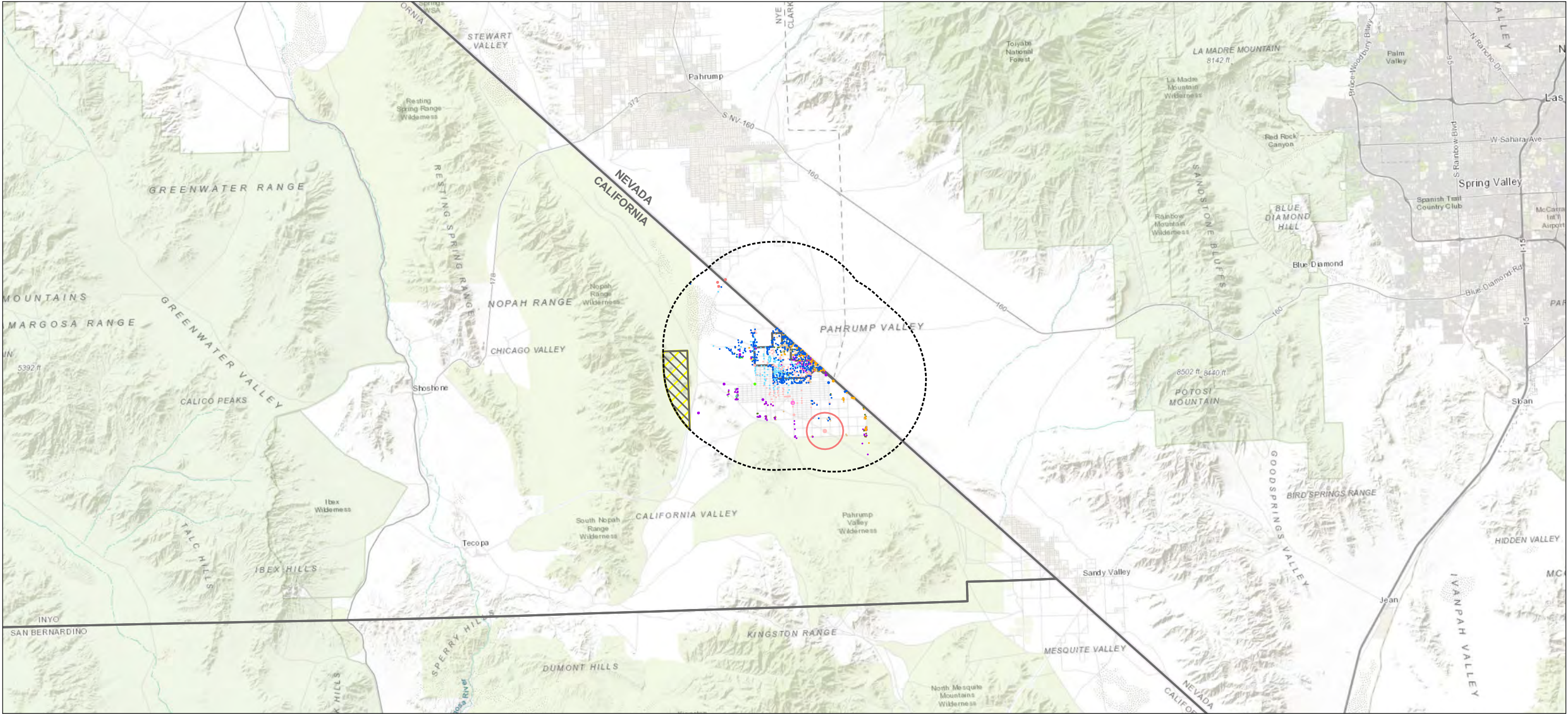
Title

Project Location

Notes
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
2. Background: World Topographic Map: Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS, EPA

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

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- Survey Area
- 5-Mile Project Area Buffer

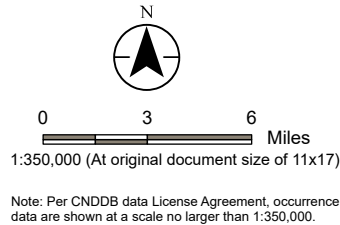
CNDDB Species Occurrences

- Acleisanthes nevadensis* (desert wing-fruit)
- Agave utahensis* var. *eborispin*a (ivory-spined agave)
- Allium nevadense* (Nevada onion)
- Androstephium breviflorum* (small-flowered androstephium)
- Astragalus nyensis* (Nye milk-vetch)
- Astragalus preussii* var. *preussii* (Preuss' milk-vetch)
- Astragalus sabulorum* (gravel milk-vetch)
- Astragalus tidestromii* (Tidestrom's milk-vetch)

- Chaetadelpha wheeleri* (Wheeler's dune-broom)
- Cymopterus multinervatus* (purple-nerve cymopterus)
- Ephedra torreyana* (Torrey's Mormon-tea)
- Eriogonum bifurcatum* (forked buckwheat)
- Eriogonum contiguum* (Reveal's buckwheat)
- Mentzelia pterosperma* (wing-seed blazing star)
- Peteria thompsoniae* (spine-noded milk vetch)
- Phacelia pulchella* var. *gooddingii* (Goodding's phacelia)
- Sclerocactus johnsonii* (Johnson's bee-hive cactus)

NDNH Species Occurrences

- Eriogonum bifurcatum* (forked buckwheat)



Note: Per CNDDB data License Agreement, occurrence data are shown at a scale no larger than 1:350,000.



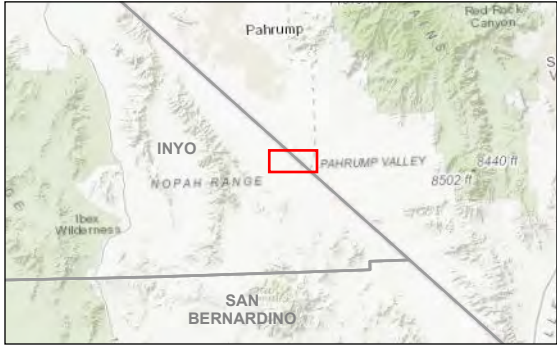
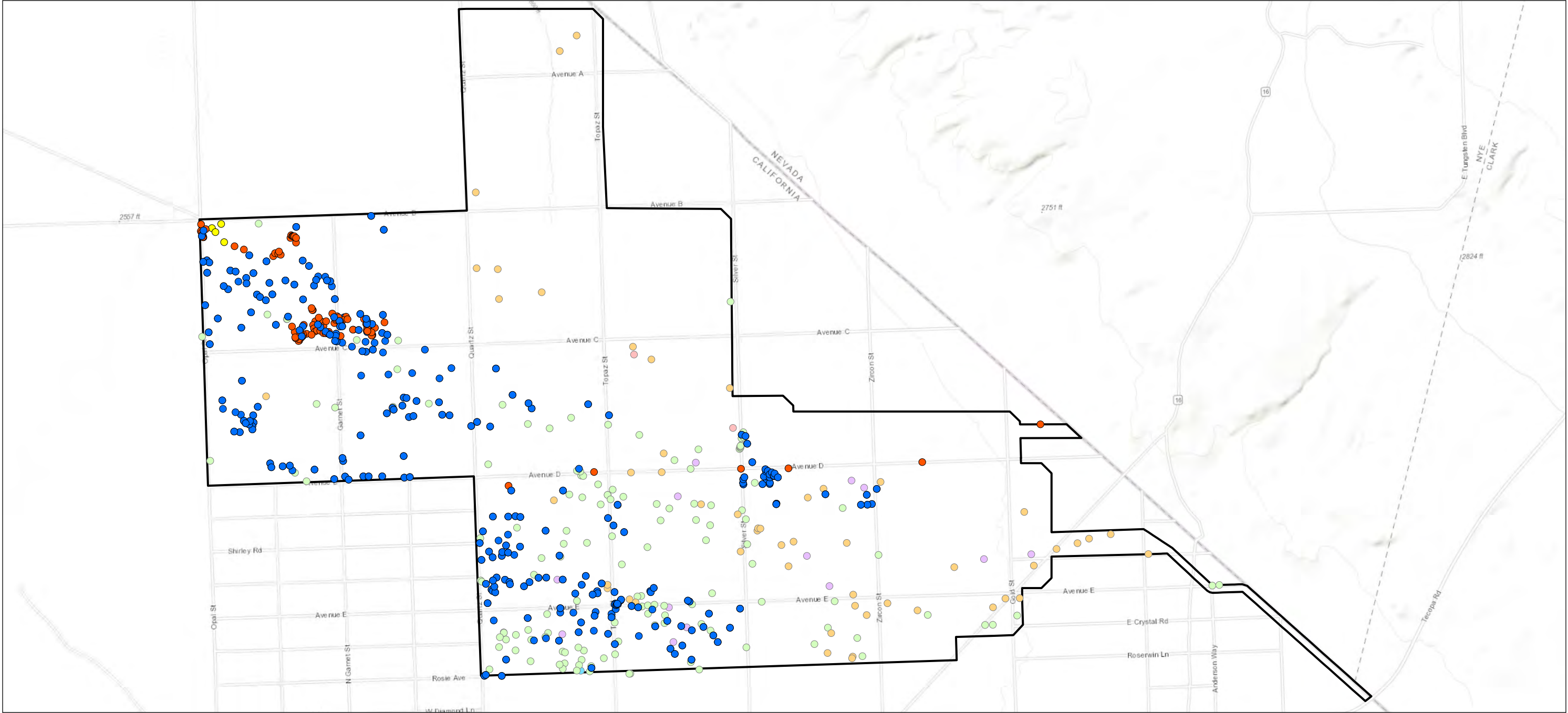
Project Location 185706575
Inyo County, CA Prepared by PG on 2025-09-11
Technical Review by SC on 2025-09-16

Client/Project
174 Power Global Corp.
Bonanza Peak Solar Project

Figure No.
2
Title

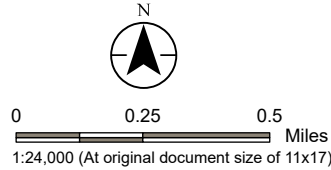
**CNDDB and NDNH Results within 5 Miles
of the Survey Area**

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 Survey Area

- California Desert Native Plants Act Species
-  *Astragalus preussii* var. *preussii* (Preuss' milk-vetch)
 -  *Astragalus tidestromii* (Tidestrom's milk-vetch)
 -  *Ephedra torreyana* (Torrey's ephedra)
- California Rare Plant Rank Species
-  *Cylindropuntia echinocarpa* (silver cholla)
 -  *Cylindropuntia ramosissima* (pencil cactus)
 -  *Neltuma odorata* (honey mesquite)
 -  *Opuntia basilaris* var. *basilaris* (beavertail cactus)
 -  *Yucca schidigera* (Mojave yucca)



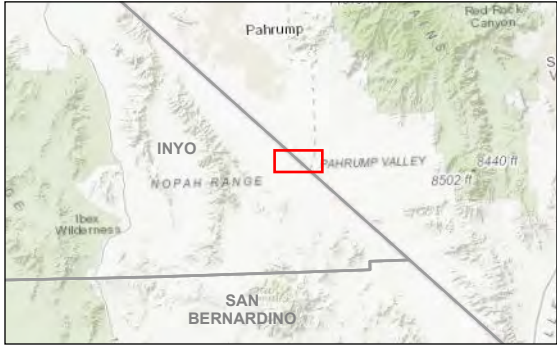
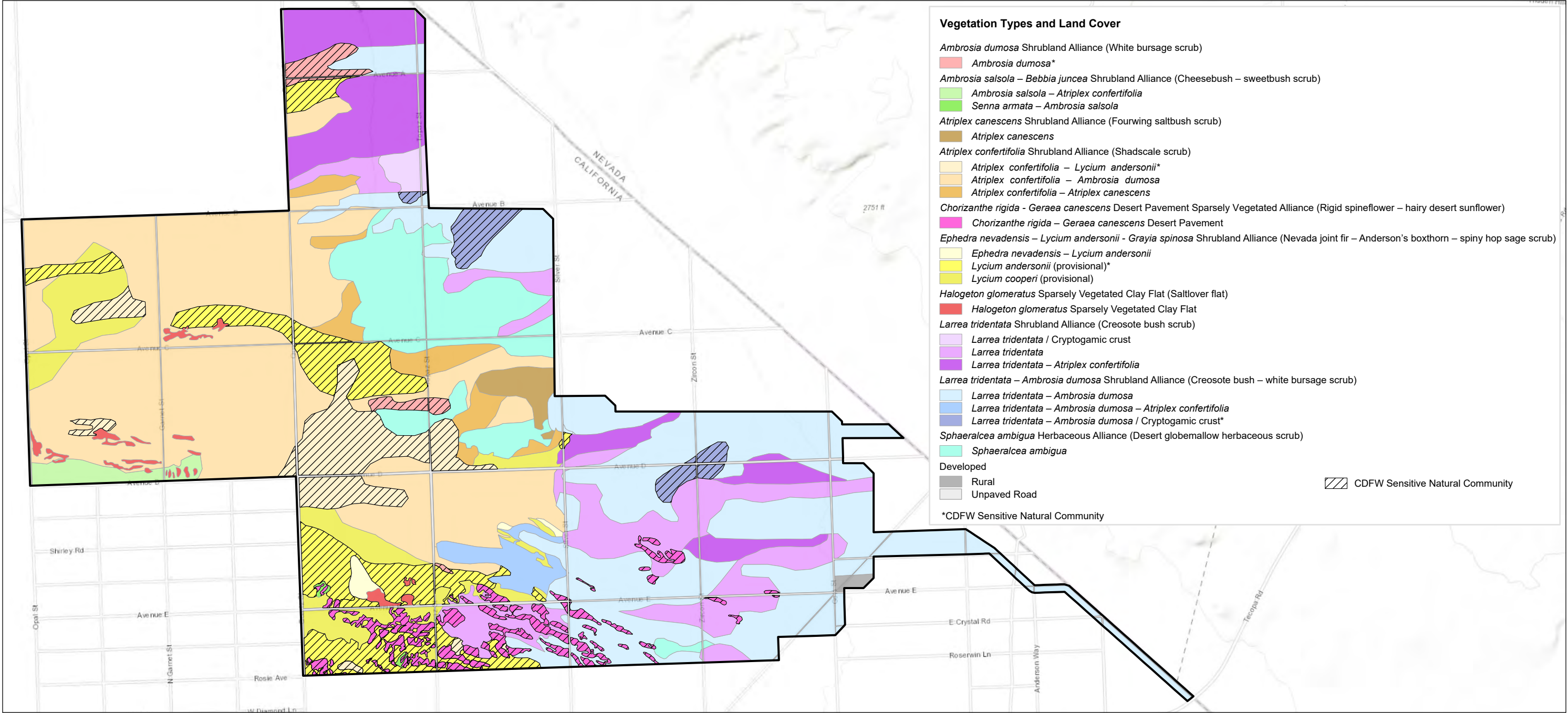
Project Location 185706575
Inyo County, CA Prepared by PG on 2025-09-11
Technical Review by SC on 2025-09-16

Client/Project
174 Power Global Corp.
Bonanza Peak Solar Project

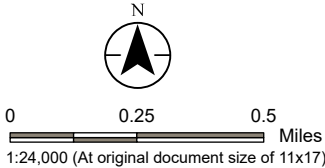
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**Special-Status Plants Detected in the
Survey Area**

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 Survey Area



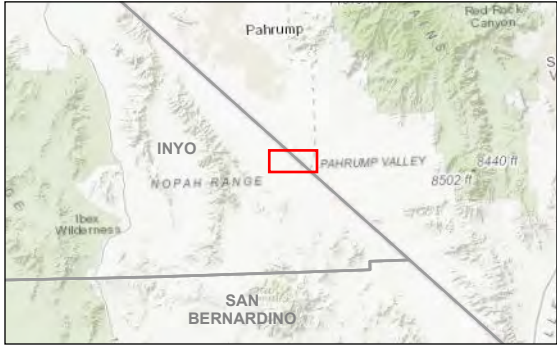
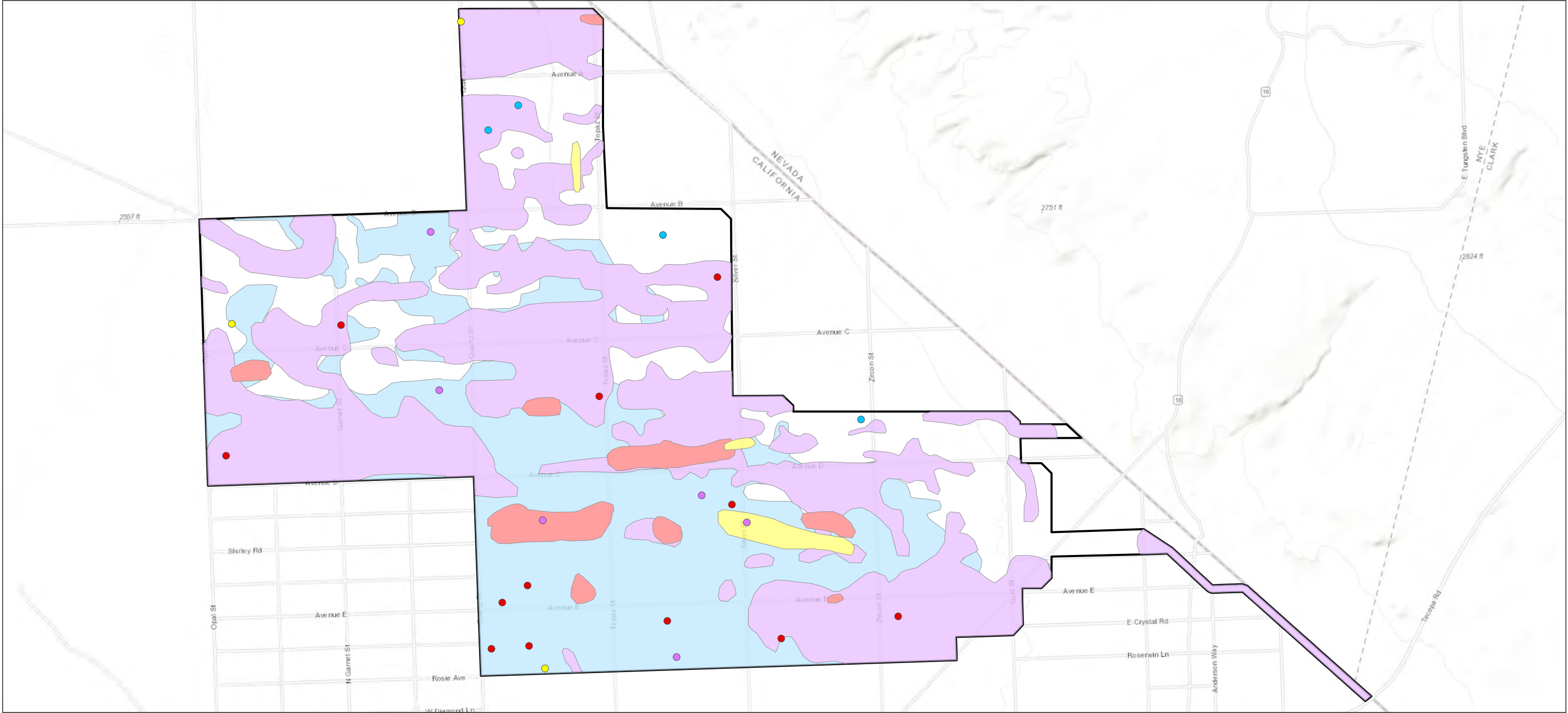
Project Location 185706575
Inyo County, CA Prepared by PG on 2025-09-15
Technical Review by SC on 2025-09-16

Client/Project
174 Power Global Corp.
Bonanza Peak Solar Project

Figure No.
4
Title

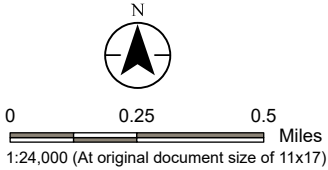
**Manual of California Vegetation Types and
Land Cover within the Survey Area**

V:\1857\Act\w\18570657503_data\gis_cad\gis\figures\185706575_BonanzaPeak_BotanicalResourcesSurvey\Report\185706575_BonanzaPeak_BotanicalResourcesSurvey\Report.aprx Reviewed: 2025-09-30 By: rglendening



- Survey Area**
- Noxious Weeds**
- | | |
|--|--|
| ■ <i>Bromus rubens</i> (red brome) | ● <i>Bromus rubens</i> (red brome) |
| ■ <i>Bromus tectorum</i> (cheat grass) | ● <i>Bromus tectorum</i> (cheat grass) |
| ■ <i>Halogeton glomeratus</i> (saltlover) | ● <i>Halogeton glomeratus</i> (saltlover) |
| ■ <i>Salsola tragus</i> (Russian thistle) | ● <i>Salsola tragus</i> (Russian thistle) |

Note: Points represent the general location of an isolated, concentrated occurrence; polygons represent larger, landscape-level infestations.



Project Location
Inyo County, CA

185706575
Prepared by PG on 2025-09-15
Technical Review by SC on 2025-09-16

Client/Project
174 Power Global Corp.
Bonanza Peak Solar Project

Figure No.
5
Title

Noxious Weeds within the Survey Area

Appendix B Database Query Results





Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS (North of Tecopa Pass (3511681) OR Calvada Springs (3511588) OR Mound Spring (3611518) OR Nopah Peak (3611611) OR Horse Thief Springs (3511578) OR Tecopa Pass (3511671) OR Blackwater Mine (3511577) OR Sixmile Spring (3611621) OR Stump Spring, Nev. (3511587) OR Green Monster Mine (3511586) OR West of Shenandoah Peak (3511576)) AND Taxonomic Group IS (Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Acleisanthes nevadensis</i> desert wing-fruit	G4? S1	None None	Rare Plant Rank - 2B.1	2,600 3,800	13 S:8	0	2	4	1	0	1	1	7	8	0	0
<i>Agave utahensis</i> var. <i>eborispina</i> ivory-spined agave	G4T3 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,600 4,300	5 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Aliciella ripleyi</i> Ripley's aliciella	G3 S2	None None	Rare Plant Rank - 2B.3	3,500 3,500	22 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Allium nevadense</i> Nevada onion	G4 S3	None None	Rare Plant Rank - 2B.3	2,660 4,573	25 S:2	0	0	1	0	0	1	0	2	2	0	0
<i>Androstephium breviflorum</i> small-flowered androstephium	G5 S2?	None None	Rare Plant Rank - 2B.2	2,280 2,815	123 S:12	0	2	2	8	0	0	0	12	12	0	0
<i>Arctomecon merriamii</i> white bear poppy	G3 S3	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,000 2,000	47 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Astragalus nyensis</i> Nye milk-vetch	G3? S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,605 2,820	19 S:19	0	8	9	2	0	0	0	19	19	0	0
<i>Astragalus preussii</i> var. <i>preussii</i> Preuss' milk-vetch	G4T4 S1	None None	Rare Plant Rank - 2B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,504 2,647	22 S:18	1	5	7	4	0	1	0	18	18	0	0
<i>Astragalus sabulonum</i> gravel milk-vetch	G4G5 S2	None None	Rare Plant Rank - 2B.2	2,608 2,760	19 S:6	1	1	3	0	0	1	0	6	6	0	0



Summary Table Report
California Department of Fish and Wildlife
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Astragalus tidestromii</i> Tidestrom's milk-vetch	G4 S2	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	2,520 3,875	72 S:25	0	11	6	3	0	5	0	25	25	0	0
<i>Atriplex argentea var. longitrichoma</i> Pahrump orache	G5T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,280 2,515	8 S:6	2	3	0	0	0	1	0	6	6	0	0
<i>Boechera lincolnensis</i> Lincoln rockcress	G4G5 S3	None None	Rare Plant Rank - 2B.3 BLM_S-Sensitive	3,300 3,300	14 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Bouteloua trifida</i> three-awned grama	G4G5 S3	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,400 4,250	21 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Chaetadelpha wheeleri</i> Wheeler's dune-broom	G4 S2	None None	Rare Plant Rank - 2B.2	2,550 2,836	25 S:16	0	9	6	0	0	1	0	16	16	0	0
<i>Cymopterus gilmanii</i> Gilman's cymopterus	G3 S2	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,200 3,200	41 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Cymopterus multinervatus</i> purple-nerve cymopterus	G4G5 S2	None None	Rare Plant Rank - 2B.2	2,515 2,640	49 S:3	0	1	2	0	0	0	0	3	3	0	0
<i>Ephedra torreyana</i> Torrey's Mormon-tea	G5 S1	None None	Rare Plant Rank - 2B.1	2,513 2,650	12 S:12	0	6	4	1	0	1	0	12	12	0	0
<i>Eremothera boothii ssp. intermedia</i> Booth's hairy evening-primrose	G5T3T4 S3	None None	Rare Plant Rank - 2B.3	5,000 5,000	14 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Eriogonum bifurcatum</i> forked buckwheat	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,360 2,950	40 S:28	13	9	2	1	0	3	1	27	28	0	0



Summary Table Report
California Department of Fish and Wildlife
California Natural Diversity Database



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Eriogonum contiguum</i> Reveal's buckwheat	G3 S2	None None	Rare Plant Rank - 2B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,280 2,615	35 S:9	8	0	1	0	0	0	0	9	9	0	0
<i>Eriogonum umbellatum var. juniporinum</i> juniper sulphur-flowered buckwheat	G5T4 S3	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	4,600 5,456	21 S:5	0	0	0	0	0	5	2	3	5	0	0
<i>Erioneuron pilosum</i> hairy erioneuron	G5 S2	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	4,236 6,150	22 S:2	0	0	0	0	0	2	1	1	2	0	0
<i>Escobaria chlorantha</i> desert pincushion	G3 S3	None None	Rare Plant Rank - 2B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,206 3,206	88 S:2	0	0	1	0	0	1	1	1	2	0	0
<i>Galium hilendiae ssp. kingstonense</i> Kingston Mountains bedstraw	G4T3 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	4,649 7,000	10 S:8	1	0	4	0	0	3	3	5	8	0	0
<i>Galium proliferum</i> desert bedstraw	G5 S2	None None	Rare Plant Rank - 2B.2	3,900 4,400	17 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Ivesia patellifera</i> Kingston Mountains ivesia	G2 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	4,800 5,600	6 S:4	0	0	0	0	0	4	3	1	4	0	0
<i>Mentzelia pterosperma</i> wing-seed blazing star	G4 S1S2	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	2,523 2,580	7 S:3	0	1	1	0	0	1	0	3	3	0	0



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Mentzelia tricuspidis</i> spiny-hair blazing star	G4 S2	None None	Rare Plant Rank - 2B.1	4,200 4,200	16 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Monardella eremicola</i> Clark Mountain monardella	G3Q S3	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	5,000 5,350	9 S:3	0	0	0	0	0	3	1	2	3	0	0
<i>Nama demissa</i> var. <i>covillei</i> Coville's purple mat	G5T3 S3	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive		25 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Pellaea truncata</i> spiny cliff-brake	G5 S3	None None	Rare Plant Rank - 2B.3	4,750 4,750	21 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Penstemon fruticiformis</i> var. <i>amargosae</i> Amargosa beardtongue	G4T3 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,100 4,200	18 S:8	1	1	1	0	0	5	6	2	8	0	0
<i>Penstemon stephensii</i> Stephens' beardtongue	G3? S3?	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,500 5,800	28 S:12	1	2	1	0	0	8	8	4	12	0	0
<i>Penstemon utahensis</i> Utah beardtongue	G4 S2	None None	Rare Plant Rank - 2B.3	3,500 5,200	27 S:6	0	0	1	0	0	5	5	1	6	0	0
<i>Peteria thompsoniae</i> spine-noded milk vetch	G4 S1	None None	Rare Plant Rank - 2B.1	2,635 2,700	2 S:2	1	0	0	0	0	1	1	1	2	0	0
<i>Phacelia parishii</i> Parish's phacelia	G2G3 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,280 2,515	13 S:4	1	3	0	0	0	0	0	4	4	0	0
<i>Phacelia pulchella</i> var. <i>gooddingii</i> Goodding's phacelia	G5T3 S2	None None	Rare Plant Rank - 2B.2	2,515 2,900	19 S:16	0	10	1	2	0	3	2	14	16	0	0



Summary Table Report
California Department of Fish and Wildlife
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Sclerocactus johnsonii</i> Johnson's bee-hive cactus	G3 S2	None None	Rare Plant Rank - 2B.2 IUCN_LC-Least Concern SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,178 2,940	16 S:7	1	3	1	0	0	2	1	6	7	0	0
<i>Sphaeralcea rusbyi var. eremicola</i> Rusby's desert-mallow	G4T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture		69 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Stipa arida</i> Mormon needle grass	G5 S3?	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	3,900 5,700	43 S:6	0	0	0	0	0	6	5	1	6	0	0



CNPS Rare Plant Inventory

Search Results

50 matches found. Click on scientific name for details

Search Criteria: , Quad is one of [3511681:3511588:3611518:3611611:3511578:3511671:3511577:3611621:3511587:3511586:3511576]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
<i>Acleisanthes nevadensis</i>	desert wing-fruit	Nyctaginaceae	perennial herb	Apr-Sep	None	None	G4?	S1	2B.1		1984-01-01	 © 2020 Neal Kramer
<i>Agave utahensis</i> var. <i>eborispina</i>	ivory-spined agave	Agavaceae	perennial leaf	May-Jun	None	None	G4T3	S2	1B.3		1980-01-01	 © 2011 Zoya Akulova
<i>Agave utahensis</i> var. <i>nevadensis</i>	Clark Mountain agave	Agavaceae	perennial leaf	May-Jul	None	None	G4T3	S3	4.2		1980-01-01	 © 2009 Zoya Akulova
<i>Aliciella ripleyi</i>	Ripley's aliciella	Polemoniaceae	perennial herb	May-Jul	None	None	G3	S2	2B.3		1974-01-01	 © 2020 Joey Malone
<i>Allium nevadense</i>	Nevada onion	Alliaceae	perennial bulbiferous herb	Apr-May	None	None	G4	S3	2B.3		1994-01-01	 © 2006 James M. Andre
<i>Androstephium breviflorum</i>	small-flowered androstephium	Themidaceae	perennial bulbiferous herb	Mar-Apr	None	None	G5	S2?	2B.2		1974-01-01	 © 2005 James M. Andre
<i>Arctomecon merriamii</i>	white bear poppy	Papaveraceae	perennial herb	(Mar)Apr-May	None	None	G3	S3	2B.2		1980-01-01	 © 2010 James M. Andre

<i>Astragalus nutans</i>	Providence Mountains milk-vetch	Fabaceae	annual herb	Mar-Jun(Oct)	None	None	G3	S3	4.3	Yes	1974-01-01	No Photo Available
<i>Astragalus nyensis</i>	Nye milk-vetch	Fabaceae	annual herb	Apr-May	None	None	G3?	S1	1B.1		2011-12-27	No Photo Available
<i>Astragalus preussii</i> var. <i>preussii</i>	Preuss' milk-vetch	Fabaceae	perennial herb	Apr-Jun	None	None	G4T4	S1	2B.1		1988-01-01	No Photo Available
<i>Astragalus sabulorum</i>	gravel milk-vetch	Fabaceae	annual/perennial herb	Feb-Jun	None	None	G4G5	S2	2B.2		2011-10-19	No Photo Available
<i>Astragalus tidestromii</i>	Tidestrom's milk-vetch	Fabaceae	perennial herb	(Jan)Apr-Jul	None	None	G4	S2	2B.2		2009-01-06	No Photo Available
<i>Atriplex argentea</i> var. <i>longitrichoma</i>	Pahrump orache	Chenopodiaceae	annual herb	Apr-May	None	None	G5T2	S2	1B.1		2010-07-29	No Photo Available
<i>Boechera lincolnensis</i>	Lincoln rockcress	Brassicaceae	perennial herb	Mar-May	None	None	G4G5	S3	2B.3		1984-01-01	No Photo Available
<i>Bouteloua trifida</i>	three-awned grama	Poaceae	perennial herb	(Apr)May-Sep	None	None	G4G5	S3	2B.3		1974-01-01	No Photo Available
<i>Chaetadelpa wheeleri</i>	Wheeler's dune-broom	Asteraceae	perennial rhizomatous herb	Apr-Sep	None	None	G4	S2	2B.2		2001-01-01	No Photo Available
<i>Cymopterus gilmanii</i>	Gilman's cymopterus	Apiaceae	perennial herb	Apr-May	None	None	G3	S2	2B.3		1974-01-01	No Photo Available
<i>Cymopterus multineratus</i>	purple-nerve cymopterus	Apiaceae	perennial herb	Mar-Apr	None	None	G4G5	S2	2B.2		2008-11-20	No Photo Available
<i>Ephedra torreyana</i>	Torrey's Mormon-tea	Ephedraceae	perennial evergreen shrub	May	None	None	G5	S1	2B.1		2012-02-08	No Photo Available
<i>Eremothera boothii</i> ssp. <i>intermedia</i>	Booth's hairy evening-primrose	Onagraceae	annual herb	(May)Jun	None	None	G5T3T4	S3	2B.3		2001-01-01	No Photo Available
<i>Eriogonum bifurcatum</i>	forked buckwheat	Polygonaceae	annual herb	Apr-Jun	None	None	G3	S3	1B.2		1974-01-01	No Photo Available
<i>Eriogonum contiguum</i>	Reveal's buckwheat	Polygonaceae	annual herb	(Feb)Mar-May(Jun)	None	None	G3	S2	2B.3		1974-01-01	No Photo Available
<i>Eriogonum heermannii</i> var. <i>floccosum</i>	Clark Mountain buckwheat	Polygonaceae	perennial deciduous shrub	Aug-Oct	None	None	G5T4	S4	4.3		1974-01-01	No Photo Available
<i>Eriogonum umbellatum</i> var. <i>juniporinum</i>	juniper sulphur-flowered buckwheat	Polygonaceae	perennial herb	Jul-Oct	None	None	G5T4	S3	2B.3		1988-01-01	No Photo Available

<i>Erioneuron pilosum</i>	hairy erioneuron	Poaceae	perennial herb	(Apr)May-Jun	None	None	G5	S2	2B.3		1974-01-01	No Photo Available
<i>Escobaria chlorantha</i>	desert pincushion	Cactaceae	perennial stem	Apr-Sep	None	None	G3	S3	2B.1		2006-11-08	No Photo Available
<i>Fendlerella utahensis</i>	yerba desierto	Hydrangeaceae	perennial deciduous shrub	Jun-Aug	None	None	G5	S4	4.3		1974-01-01	No Photo Available
<i>Funastrum utahense</i>	Utah vine milkweed	Apocynaceae	perennial herb	(Mar)Apr-Jun(Sep-Oct)	None	None	G4	S4	4.2		1980-01-01	 © 2004 James M. Andre
<i>Galium hilendiae</i> ssp. <i>kingstonense</i>	Kingston Mountains bedstraw	Rubiaceae	perennial herb	(May)Jun(Oct)	None	None	G4T3	S2	1B.3		1984-01-01	 © 2011 Duncan S. Bell
<i>Galium proliferum</i>	desert bedstraw	Rubiaceae	annual herb	Mar-Jun	None	None	G5	S2	2B.2		2009-01-06	 © 2011 Duncan S. Bell
<i>Hecastocleis shockleyi</i>	prickle-leaf	Asteraceae	perennial evergreen shrub	May-Jul	None	None	G4	S4	3		1974-01-01	 © 2013 Aaron Schusteff
<i>Hedeoma nana</i> ssp. <i>californica</i>	California mock pennyroyal	Lamiaceae	perennial herb	Apr-Jun	None	None	G5T4	S4	4.3		2001-01-01	 © 2008 Steve Matson
<i>Ivesia patellifera</i>	Kingston Mountains ivesia	Rosaceae	perennial herb	Jun-Oct	None	None	G2	S2	1B.3	Yes	1974-01-01	No Photo Available
<i>Johnstonella holoptera</i>	winged cryptantha	Boraginaceae	annual herb	Mar-Apr	None	None	G4G5	S4	4.3		1980-01-01	No Photo Available
<i>Mentzelia pterosperma</i>	wing-seed blazing star	Loasaceae	annual/perennial herb	Apr-Jun	None	None	G4	S1S2	2B.2		2006-12-21	No Photo Available
<i>Mentzelia tricuspis</i>	spiny-hair blazing star	Loasaceae	annual herb	Mar-May	None	None	G4	S2	2B.1		2010-10-28	No Photo Available
<i>Monardella eremicola</i>	Clark Mountain monardella	Lamiaceae	perennial shrub	Jun-Aug	None	None	G3Q	S3	1B.3	Yes	2011-12-06	No Photo Available

<i>Mortonia utahensis</i>	Utah mortonia	Celastraceae	perennial evergreen shrub	Mar-May	None	None	G4G5	S3?	4.3		2001-01-01	 © 2010 James M. Andre
<i>Nama demissa</i> var. <i>covillei</i>	Coville's purple mat	Namaceae	annual herb	Feb-May	None	None	G5T3	S3	1B.3	Yes	2018-05-30	No Photo Available
<i>Pellaea truncata</i>	spiny cliff-brake	Pteridaceae	perennial rhizomatous herb	Apr-Jun	None	None	G5	S3	2B.3		1980-01-01	No Photo Available
<i>Penstemon fruticiformis</i> var. <i>amargosae</i>	Amargosa beardtongue	Plantaginaceae	perennial herb	Apr-Jun	None	None	G4T3	S2	1B.3		1980-01-01	 Steve Matson 2017
<i>Penstemon stephensii</i>	Stephens' beardtongue	Plantaginaceae	perennial herb	Apr-Jun	None	None	G3?	S3?	1B.3	Yes	1974-01-01	No Photo Available
<i>Penstemon utahensis</i>	Utah beardtongue	Plantaginaceae	perennial herb	Apr-May	None	None	G4	S2	2B.3		2001-01-01	No Photo Available
<i>Peteria thompsoniae</i>	spine-noded milk vetch	Fabaceae	perennial herb	May-Jun	None	None	G4	S1	2B.1		1988-01-01	No Photo Available
<i>Phacelia parishii</i>	Parish's phacelia	Hydrophyllaceae	annual herb	Apr-May(Jun-Jul)	None	None	G2G3	S1	1B.1		1980-01-01	No Photo Available
<i>Phacelia pulchella</i> var. <i>gooddingii</i>	Goodding's phacelia	Hydrophyllaceae	annual herb	Apr-Jun	None	None	G5T3	S2	2B.2		1994-01-01	No Photo Available
<i>Sclerocactus johnsonii</i>	Johnson's bee-hive cactus	Cactaceae	perennial stem	Apr-May	None	None	G3	S2	2B.2		2001-01-01	No Photo Available
<i>Sphaeralcea rusbyi</i> var. <i>eremicola</i>	Rusby's desert- mallow	Malvaceae	perennial herb	Mar-Jun	None	None	G4T2	S2	1B.2	Yes	1974-01-01	No Photo Available
<i>Stipa arida</i>	Mormon needle grass	Poaceae	perennial herb	May-Jul	None	None	G5	S3?	2B.3		1974-01-01	No Photo Available
<i>Tetradymia argyraea</i>	striped horsebrush	Asteraceae	perennial deciduous shrub	(May)Jun-Sep	None	None	G4?	S4	4.3		1974-01-01	No Photo Available

Showing 1 to 50 of 50 entries

[Go to top](#)

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2025. Rare Plant Inventory (online edition, v9.5.1). Website <https://www.rareplants.cnps.org> [accessed 5 August 2025].

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Appendix C Special-Status Plant Species with Potential to Occur in the Survey Area and Survey Results



Botanical Resources Survey Report

Appendix C Special-Status Plant Species with Potential to Occur in the Survey Area and Survey Results

Table C.1 Special-Status Plant Species with Potential to Occur in the Survey Area and Survey Results

<i>Scientific Name</i> (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
Agavaceae (Agave Family)					
<i>Agave utahensis</i> var. <i>eborispina</i> (ivory-spined agave)	—/ —/ 1B.3	perennial leaf succulent	Habitat: Mojavean desert scrub (carbonate, rocky slopes) Elevation Range: 3,100–4,495 feet Bloom Window: May–June	Low. This species was observed within 5 miles of the survey area. However, the observation is from 1979 with low location accuracy. Suitable vegetation is present within the survey area, but rocky, carbonate slopes are not.	Not detected.
<i>Agave utahensis</i> var. <i>nevadensis</i> (Clark Mountain agave)	—/ —/ 4.2	perennial leaf succulent	Habitat: Joshua tree “woodland”, Mojavean desert scrub, pinyon and juniper woodland; carbonate (sometimes); volcanic (sometimes) Elevation Range: 2,955–5,200 feet Bloom Window: May–July	Low. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present, but the survey area is not within the known elevation range of this species.	Not detected.
Apiaceae (Carrot Family)					
<i>Cymopterus</i> <i>multinervatus</i> (purple-nerve cymopterus)	—/ —/ 2B.2	perennial herb	Habitat: Mojavean desert scrub, pinyon and juniper woodland; gravelly (sometimes), sandy (sometimes) Elevation Range: 2,590–5,905 feet Bloom Window: March–April	High. This species was observed within the survey area in 2011.	Not detected.
Apocynaceae (Dogbane Family)					
<i>Funastrum</i> <i>utahense</i> (Utah vine milkweed)	—/ —/ 4.2/	perennial herb	Habitat: Mojavean desert scrub, Sonoran desert scrub; gravelly (sometimes), sandy (sometimes) Elevation Range: 330–4,710 feet Bloom Window: (March) April–June (September–October)	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.



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Appendix C Special-Status Plant Species with Potential to Occur in the Survey Area and Survey Results

Scientific Name (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
Asteraceae (Sunflower Family)					
<i>Chaetadelpha wheeleri</i> (Wheeler's dune- broom)	—/ —/ 2B.2	perennial rhizomatous herb	Habitat: Desert dunes, Great Basin scrub, Mojavean desert scrub; sandy Elevation Range: 2,610–6,235 feet Bloom Window: April–September	High. This species was observed within the survey area in 2011.	Not detected.
Boraginaceae (Borage Family)					
<i>Johnstonella holoptera</i> (winged cryptantha)	—/ —/ 4.3	annual herb	Habitat: Mojavean desert scrub, Sonoran desert scrub Elevation Range: 330–5,545 feet Bloom Window: March–April	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.
Cactaceae (Cactus Family)					
<i>Escobaria chlorantha</i> (desert pincushion)	—/ —/ 2B.1	perennial stem succulent	Habitat: Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland; carbonate, gravelly, rocky Elevation Range: 150–5,595 feet Bloom Window: April–September	Low. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present within the survey area, but carbonate soils are not.	Not detected.
<i>Sclerocactus johnsonii</i> (Johnson's bee- hive cactus)	—/ —/ 2B.2	perennial stem succulent	Habitat: Mojavean desert scrub (granitic) Elevation Range: 1,640–3,935 feet Bloom Window: April–May	Low. This species was observed within 5 miles of the survey area. However, the observation is from 1979 with low location accuracy. Suitable vegetation is present within the survey area, but granitic soils are not.	Not detected.



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Appendix C Special-Status Plant Species with Potential to Occur in the Survey Area and Survey Results

Scientific Name (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
Celastraceae (Staff-Tree Family)					
<i>Mortonia utahensis</i> (Utah mortonia)	—/ —/ 4.3	perennial evergreen shrub	Habitat: Joshua tree “woodland”, Mojavean desert scrub, pinyon and juniper woodland; carbonate Elevation Range: 2,495–6,890 feet Bloom Window: March–May	Low. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present within the survey area, but carbonate soils are not.	Not detected.
Chenopodiaceae (Goosefoot Family)					
<i>Atriplex argentea</i> var. <i>longitrichoma</i> (Pahrump orache)	—/ —/ 1B.1	annual herb	Habitat: Mojavean desert scrub; alkaline, disturbed areas, roadsides Elevation Range: 2,100–2,790 feet Bloom Window: April–May	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.
Ephedraceae (Ephedra Family)					
<i>Ephedra torreyana</i> (Torrey’s Mormon- tea)	—/ —/ 2B.1	perennial evergreen shrub	Habitat: Great Basin scrub; valley bottoms, silt Elevation Range: 2,510–2,660 feet Bloom Window: May	High. This species was observed within the survey area in 2011 and 2020.	Present. Eight hundred seventy-four individuals were detected in the survey area.
Fabaceae (Legume Family)					
<i>Astragalus nutans</i> (Providence Mountains milk- vetch)	—/ —/ 4.3	annual herb	Habitat: Joshua tree “woodland”, Mojavean desert scrub, pinyon and juniper woodland, Sonoran desert scrub; gravelly (sometimes), sandy (sometimes) Elevation Range: 1,475–6,400 feet Bloom Window: March–June (October)	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.



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Appendix C Special-Status Plant Species with Potential to Occur in the Survey Area and Survey Results

Scientific Name (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
<i>Astragalus nyensis</i> (Nye milk-vetch)	—/ —/ 1B.1	annual herb	Habitat: Mojavean desert scrub; alkaline (sometimes), gravelly, sandy Elevation Range: 2,590–2,675 feet Bloom Window: April–May	High. This species was observed within the survey area in 2011.	Not detected.
<i>Astragalus preussii</i> var. <i>preussii</i> (Preuss' milk- vetch)	—/ —/ 2B.1	perennial herb	Habitat: Chenopod scrub, Mojavean desert scrub; clay Elevation Range: 2,460–2,640 feet Bloom Window: April–June	High. This species was observed within the survey area in 2011.	Present. Three hundred thirty-seven individuals were detected in the survey area.
<i>Astragalus sabulorum</i> (gravel milk-vetch)	—/ —/ 2B.2	annual/ perennial herb	Habitat: Desert dunes, Mojavean desert scrub, Sonoran desert scrub; flats, gravelly (sometimes), roadsides, sandy (usually), washes Elevation Range: –195 to 3,050 feet Bloom Window: February–June	High. This species was observed within the survey area in 2011.	Not detected.
<i>Astragalus tdestromii</i> (Tidestrom's milk- vetch)	—/ —/ 2B.2	perennial herb	Habitat: Mojavean desert scrub; carbonate, gravelly (sometimes), sandy (sometimes) Elevation Range: 1,970–5,855 feet Bloom Window: (January) April–July	High. This species was observed within the survey area in 2011.	Present. Nine individuals were detected in the survey area.
<i>Peteria thompsoniae</i> (spine-noded milk- vetch)	—/ —/ 2B.1	perennial herb	Habitat: Mojavean desert scrub (alluvial fans, sandy) Elevation Range: 2,625–2,705 feet Bloom Window: May–June	High. This species has been recently observed within 5 miles of the survey area, and suitable habitat is present.	Not detected.
Hydrophyllaceae (Waterleaf Family)					
<i>Phacelia parishii</i> (Parish's phacelia)	—/ —/ 1B.1	annual herb	Habitat: Mojavean desert scrub, playas; alkaline (sometimes), clay (sometimes) Elevation Range: 1,770–3,935 feet Bloom Window: April–May (June– July)	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.



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Appendix C Special-Status Plant Species with Potential to Occur in the Survey Area and Survey Results

Scientific Name (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
<i>Phacelia pulchella</i> var. <i>gooddingii</i> (Goodding's phacelia)	–/ –/ 2B.2	annual herb	Habitat: Mojavean desert scrub (clay, often alkaline) Elevation Range: 2,510–3,280 feet Bloom Window: April–June	High. This species was observed within the survey area in 2011.	Not detected.
Loasaceae (Loasa Family)					
<i>Mentzelia</i> <i>pterosperma</i> (wing-seed blazing star)	–/ –/ 2B.2	annual/ perennial herb	Habitat: Mojavean desert scrub; gypseous, clay Elevation Range: 3,740–3,740 feet Bloom Window: April–June	High. This species has been recently observed within 5 miles of the survey area and suitable habitat is present.	Not detected.
<i>Mentzelia tricuspid</i> (spiny-hair blazing star)	–/ –/ 2B.1	annual herb	Habitat: Mojavean desert scrub; gravelly, sandy, slopes, washes Elevation Range: 490–4,200 feet Bloom Window: March–May	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present within the survey area.	Not detected.
Namaceae (Nama Family)					
<i>Nama demissa</i> var. <i>covillei</i> (Coville's purple mat)	–/ –/ 1B.3	annual herb	Habitat: Mojavean desert scrub; dry, flats, roadsides (often), sandy, slopes Elevation Range: –280 to 5,905 feet Bloom Window: February–May	Moderate. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present within the survey area.	Not detected.
Nyctaginaceae (Four O'Clock Family)					
<i>Acleisanthes</i> <i>nevadensis</i> (desert wing-fruit)	–/ –/ 2B.1	perennial herb	Habitat: Joshua tree "woodland", Mojavean desert scrub; gravelly, rocky Elevation Range: 2,610–4,100 feet Bloom Window: April–September	High. This species was observed within the survey area in 2011.	Not detected.



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Appendix C Special-Status Plant Species with Potential to Occur in the Survey Area and Survey Results

Scientific Name (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
Papaveraceae (Poppy Family)					
<i>Arctomecon merriamii</i> (white bear poppy)	—/ —/ 2B.2	perennial herb	Habitat: Chenopod scrub, Mojavean desert scrub; rocky Elevation Range: 1,610–5,905 feet Bloom Window: (March) April–May	Low. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present within the survey area, but rocky soils are not.	Not detected.
Plantaginaceae (Plantain Family)					
<i>Penstemon fruticiformis</i> var. <i>amargosae</i> (Amargosa beardtongue)	—/ —/ 1B.3	perennial herb	Habitat: Mojavean desert scrub Elevation Range: 2,790–4,595 feet Bloom Window: April–June	Low. There are no observations of this species within 5 miles of the survey area. However, suitable habitat is present, but the survey area is not within the known elevation range of this species.	Not detected.
Poaceae (Grass Family)					
<i>Bouteloua trifida</i> (three-awned grama)	—/ —/ 2B.3	perennial herb	Habitat: Mojavean desert scrub (carbonate, rocky) Elevation Range: 2,295–6,560 feet Bloom Window: (April) May– September	Low. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present, but carbonate or rocky soils are not.	Not detected.
Polemoniaceae (Phlox Family)					
<i>Aliciella ripleyi</i> (Ripley's aliciella)	—/ —/ 2B.3	perennial herb	Habitat: Mojavean desert scrub (carbonate) Elevation Range: 1,000–6,400 feet Bloom Window: May–July	Low. There are no observations of this species within 5 miles of the survey area. However, suitable vegetation is present, but carbonate soils are not.	Not detected.
Polygonaceae (Buckwheat Family)					
<i>Eriogonum bifurcatum</i> (forked buckwheat)	—/ —/ 1B.2	annual herb	Habitat: Chenopod scrub (sandy) Elevation Range: 2,115–2660 feet Bloom Window: April–June	High. This species was observed within the survey area in 2011.	Not detected.



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Appendix C Special-Status Plant Species with Potential to Occur in the Survey Area and Survey Results

<i>Scientific Name</i> (common name)	Status: FESA/ CESA/ CRPR ¹	Habit	Habitat and Blooming Period	Potential to Occur within the Survey Area	2025 Survey Results
<i>Eriogonum contiguum</i> (Reveal's buckwheat)	–/ –/ 2B.3	annual herb	Habitat: Mojavean desert scrub (sandy) Elevation Range: 100–4,330 feet Bloom Window: (February) March– May (June)	High. This species has been recently observed within 5 miles of the survey area, and suitable habitat is present.	Not detected.
Themidaceae (Brodiaea Family)					
<i>Androstephium breviflorum</i> (small-flowered androstephium)	–/ –/ 2B.2	perennial bulbiferous herb	Habitat: Desert dunes, Mojavean desert scrub (bajadas) Elevation Range: 720–2,625 feet Bloom Window: March–April	High. This species was observed within the survey area in 2011.	Not detected.

Sources: CNPS 2025b; CDFW 2025b; Jepson eFlora 2025

¹ Status Codes:

Federal Endangered Species Act (FESA)

California Endangered Species Act (CESA)

CRPR (California Rare Plant Rank) Codes and Extensions:

1B Rare or endangered: plants rare, threatened, or endangered in California and elsewhere, with the majority also being endemic to California

2B Rare or endangered in California: plants rare, threatened, or endangered in California but more common elsewhere

4 Uncommon in California: plants of limited distribution; a watch list

xx.1 Seriously threatened in California

xx.2 Moderately threatened in California

xx.3 Not very threatened in California



Appendix D Survey Personnel and Qualifications



Botanical Resources Survey Report
Appendix D Survey Personnel and Qualifications

Table D.1 2025 Botanical Survey Personnel

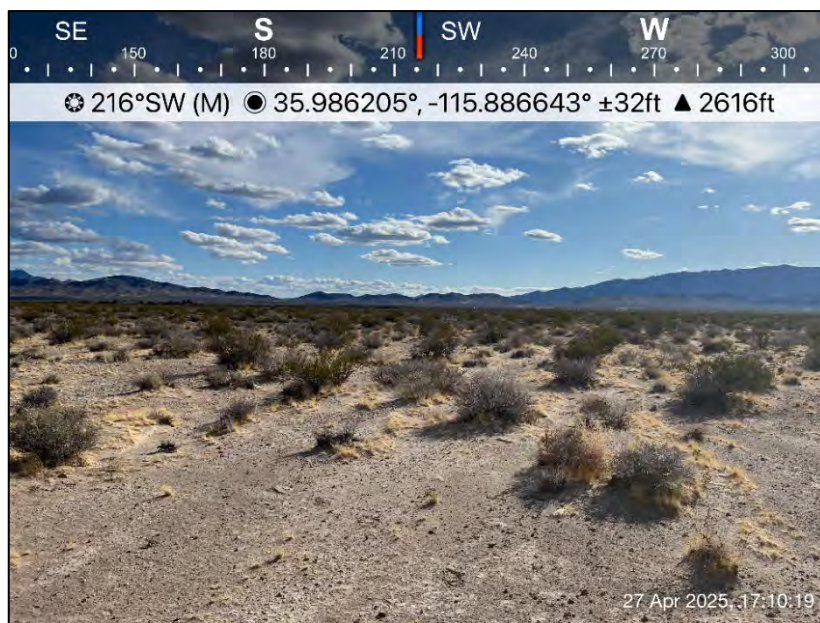
Surveyor Role	Dates	Experience and Education
Sheryl Creer Senior Botanist, Task Lead	April 27 to May 3 May 5 to May 9 August 4 to August 8 August 12 to August 14	Over 15 years B.S., Biology, concentration in Botany, San Francisco State University M.S., Biology, concentration in Ecology, Evolution, and Conservation, San Francisco State University
Lysa DuCharme Senior Botanist, Certified Arborist	April 28 to May 3 May 5 to May 9 August 5 to August 8 August 12 to August 14	Over 10 years B.S., Botany, and B.S., Archaeology, Colorado State University
Shay Hankla Junior Botanist	August 4 to August 8	3 years B.S., Ecology and Evolutionary Biology, University of California, Santa Cruz
Meghan Oats Senior Botanist	April 28 to May 3 August 12 to August 14	Over 10 years B.S., Environmental Science and Management, concentration in Ecology, Biodiversity, and Conservation Biology, University of California, Davis
Hank Raizen Senior Botanist	May 5 to May 9 August 12 to August 14	Over 15 years B.S., Integrative Biology, University of Illinois Urbana-Champaign M.S., Botany and Plant Pathology, Oregon State University
Leah Siska Junior Botanist	April 28 to May 3	5 years B.S., Botany, California State Polytechnic University, Humboldt
Matthew Tomaszewski Senior Botanist	April 27 to May 3 August 5 to August 8 August 12 to August 13	8 years B.S., Plant Sciences, Cornell University M.S., Natural Resource Sciences, Washington State University
Cathy Yoo Junior Botanist	May 5 to May 9	5 years B.S., Environmental Studies, University of California, Santa Barbara



Appendix E Representative Photographs



E.1 Reference Populations



Photograph 1. Conditions at the reference location for *Cymopterus multinervatus* (purple-nerve cymopterus) on April 27, 2025, at a reference site in the survey area (California Natural Diversity Database [CNDDDB] Element Code: PDAPI0U0Q0).

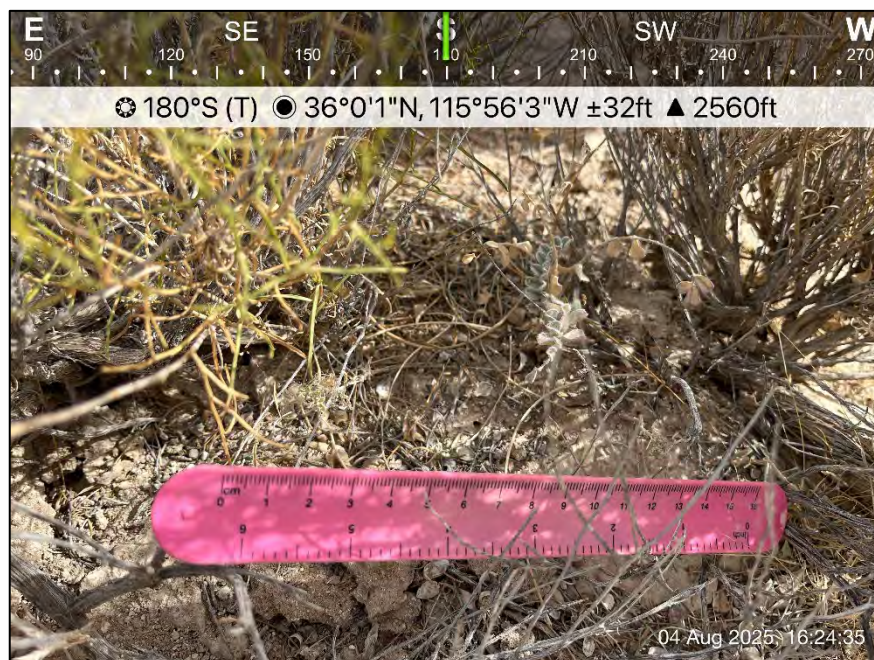


Photograph 2. *Ephedra torreyana* (Torrey's Mormon-tea) with mature female cones on April 27, 2025, at a reference location in the survey area (CNDDDB Element Code: PGEOH01080).

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Appendix E Representative Photographs

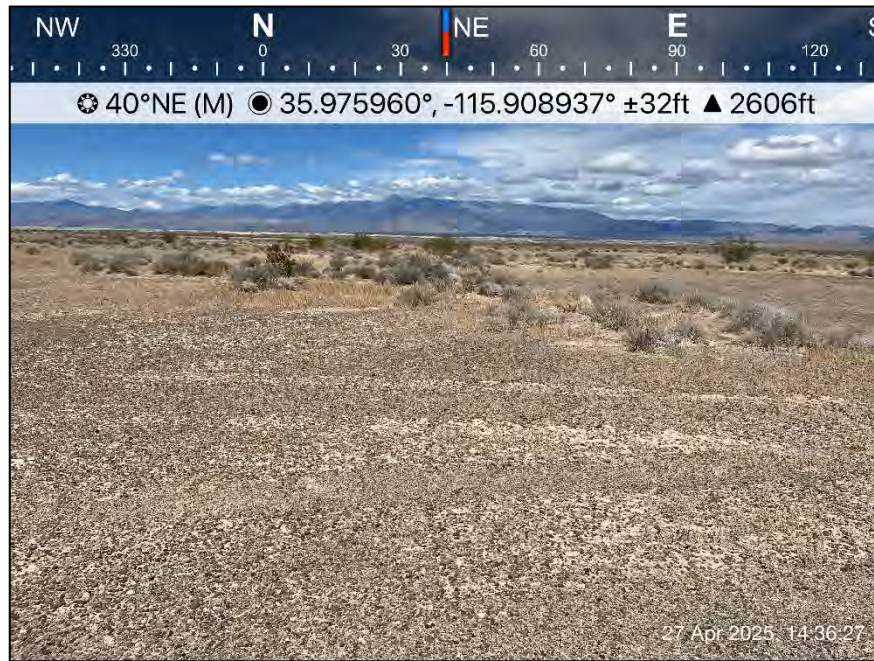


Photograph 3. *Astragalus preussii* var. *preussii* (Preuss' milk-vetch) with 2024's fruit on May 8, 2025, at a reference location on Avenue D within the survey area (CNDDDB Element Code: PDFAB0F660).



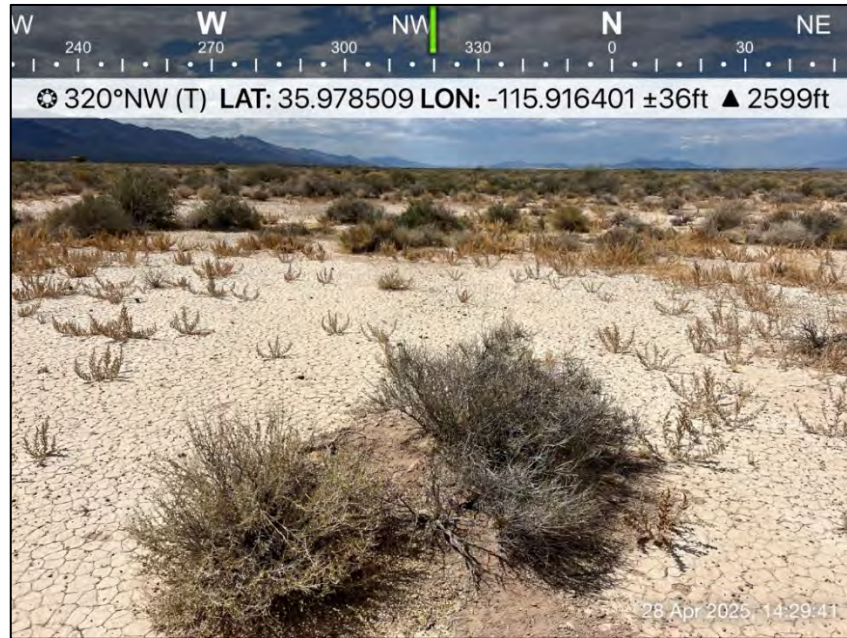
Photograph 4. *Astragalus tidiestromii* var. *tidiestromii* (Tidestrom's milk-vetch) vegetative on August 4, 2025, at a reference location within the survey area just south of Avenue B and east of Opal Street (CNDDDB Element Code: PDFAB0F8X0).





Photograph 5. Site conditions at a reference location for *Phacelia pulchella* var. *gooddingii* (Goodding's phacelia) on April 27, 2025, at a reference site within the survey areas near Topaz Street (CNDDB Element Code: PDHYD0C3V1).

E.2 Special-Status Plant Species Observed within the Survey Area



Photograph 6. California Rare Plant Rank (CRPR) 2B.1 *Ephedra torreyana* (Torrey's ephedra), female plant with cones observed within the survey area on April 28, 2025.



Photograph 7. Detail of female Torrey's ephedra (CRPR 2B.1) with cones observed within the survey area on April 28, 2025.

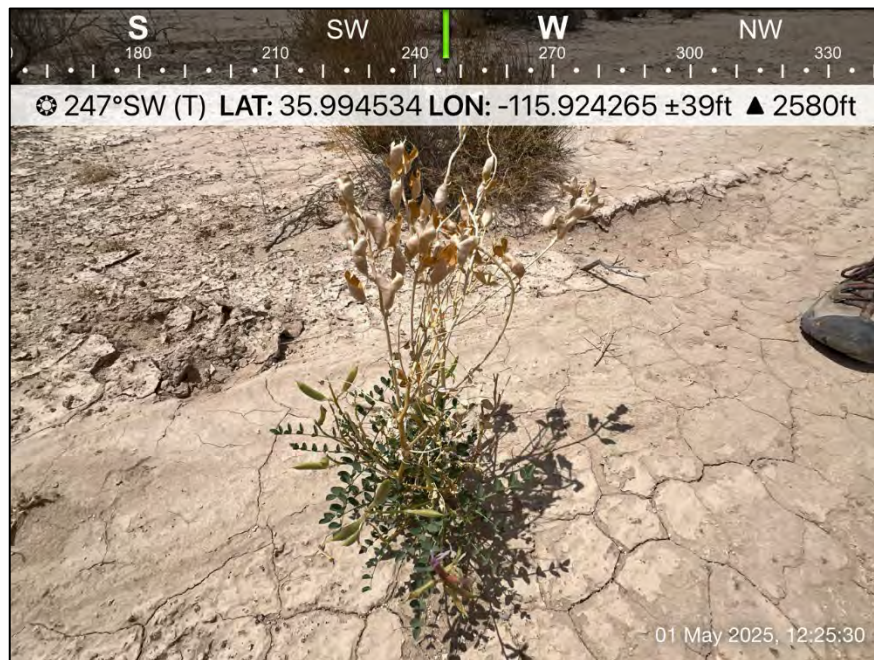




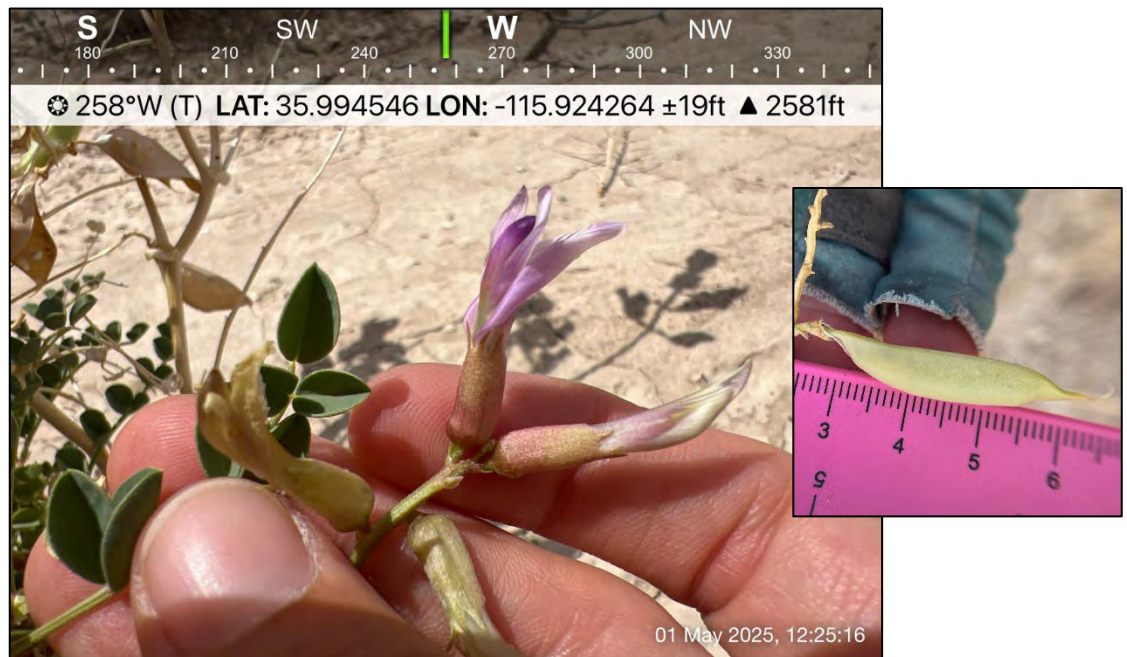
Photograph 8. Torrey's ephedra (CRPR 2B.1) female plant with mature seeds and seed bracts observed within the survey area on August 5, 2025.



Photograph 9. Torrey's ephedra (CRPR 2B.1), female plant detail of mature seeds and seed bracts observed within the survey area on August 5, 2025.



Photograph 10. An individual *Astragalus preussii* var. *preussii* (Preuss' milk-vetch), CRPR 2B.1, observed within the survey area in flower and early fruit, with dehiscent fruits from the previous season, on May 1, 2025.



Photograph 11. Detail on an individual Preuss' milk-vetch (CRPR 2B.1) observed within the survey area in flower and early fruit on May 1, 2025.



Photograph 12. An individual Preuss' milk-vetch (CRPR 2B.1) observed within the survey area with dehiscent fruits from the previous season (inset) and new leaves from the current season on August 6, 2025.

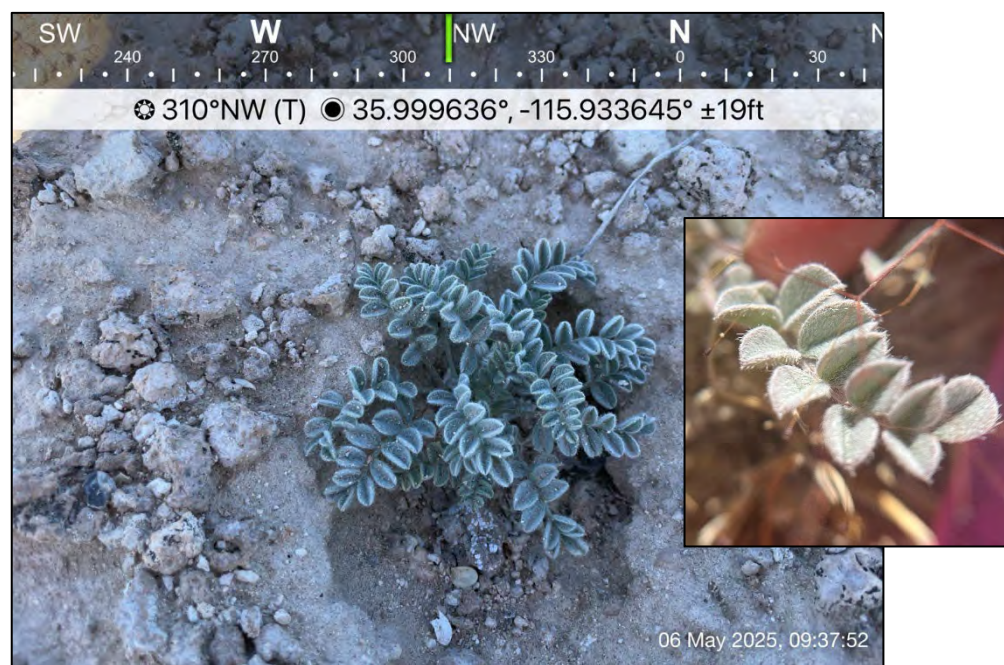


Photograph 13. Detail on an individual Preuss' milk-vetch (CRPR 2B.1) observed within the survey area with new leaves from the current season on August 6, 2025.





Photograph 14. *Astragalus tidestromii* (Tidestrom's milk-vetch), 2B.2, observed in vegetative form (inset is leaf detail) within the survey area on May 6, 2025.



Photograph 15. Tidestrom's milk-vetch (CRPR 2B.2) observed in vegetative form (inset is leaf detail) within the survey area on May 6, 2025.





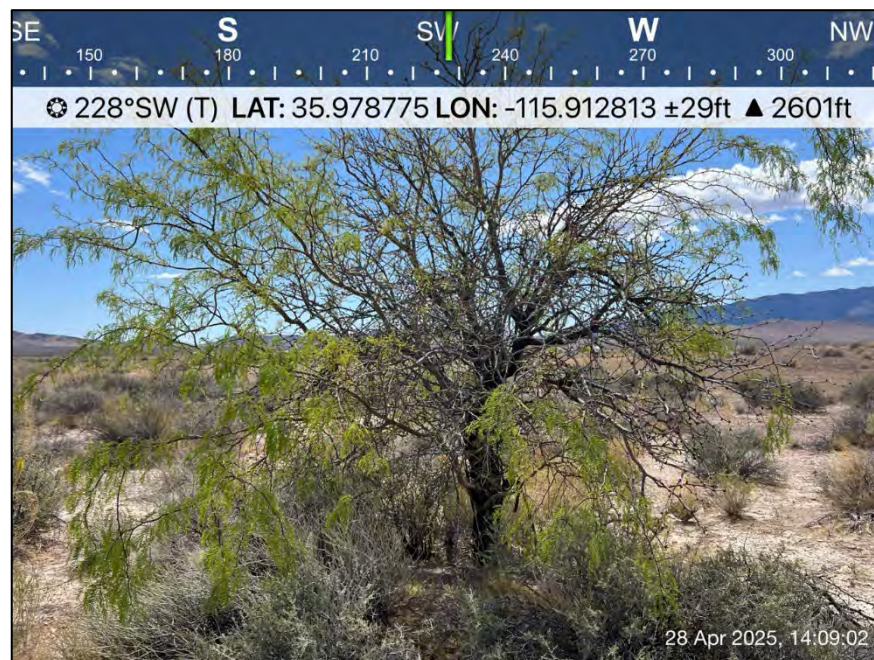
Photograph 16. *Cylindropuntia echinocarpa* (silver cholla), a California Desert Native Plants Act (CDNPA) protected species, observed within the survey area on April 30, 2025.



Photograph 17. *Cylindropuntia ramosissima* (pencil cholla) (CDNPA) observed within the survey area on April 29, 2025.

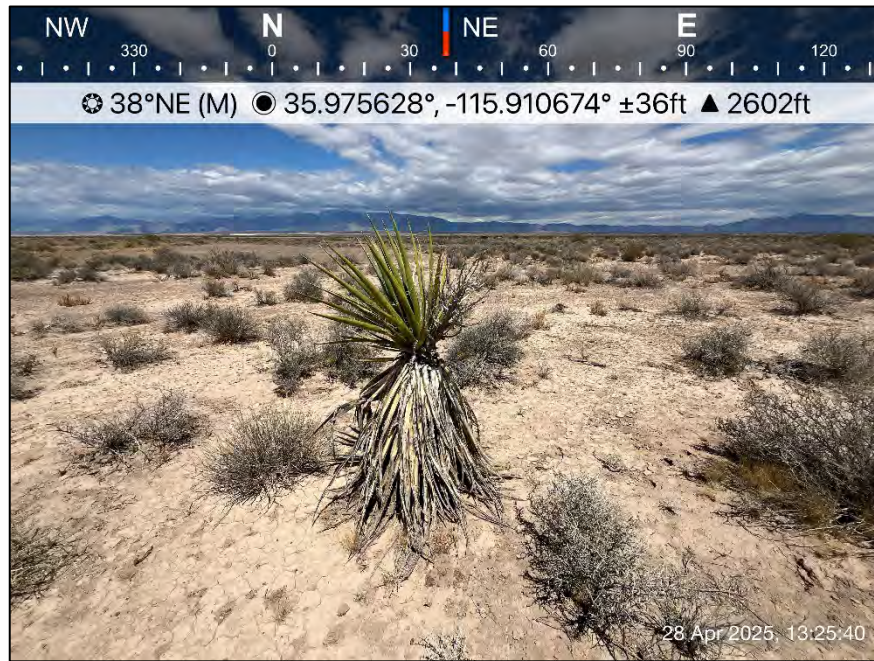


Photograph 18. *Opuntia basilaris* var. *basilaris* (beavertail cactus) (CDNPA) observed within the survey area on August 8, 2025.



Photograph 19. *Neltuma odorata* (honey mesquite) (CDNPA) observed within the survey area on April 28, 2025.

Botanical Resources Survey Report
Appendix E Representative Photographs



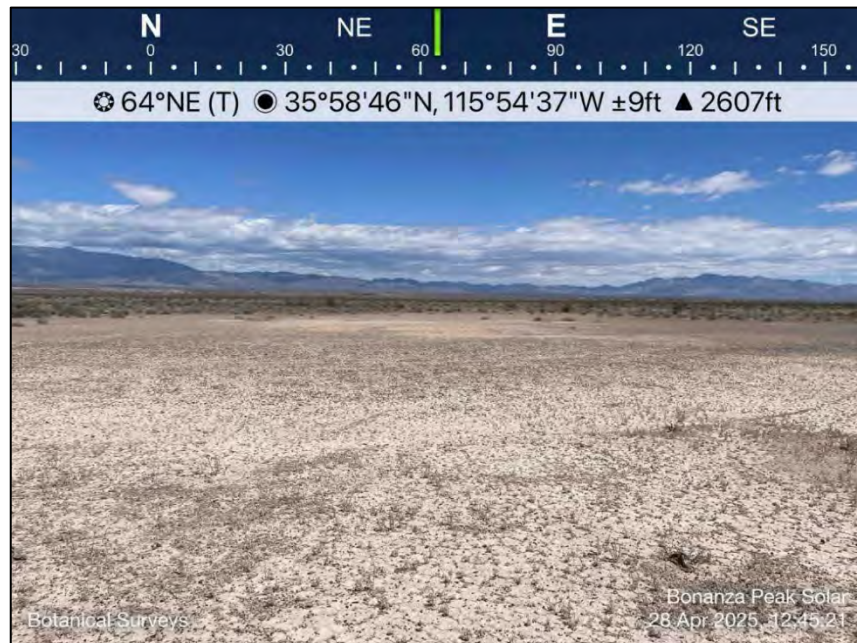
Photograph 20. *Yucca schidigera* (Mojave yucca) (CDNPA) observed within the survey area on April 28, 2025.



E.3 Manual of California Vegetation Alliances and Land Cover Types



Photograph 21. *Chorizanthe rigida* – *Geraea canescens* Desert Pavement Sparsely Vegetated Alliance (rigid spineflower – hairy desert sunflower).



Photograph 22. *Halogeton glomeratus* Sparsely Vegetated Clay Flat (saltlover flat).

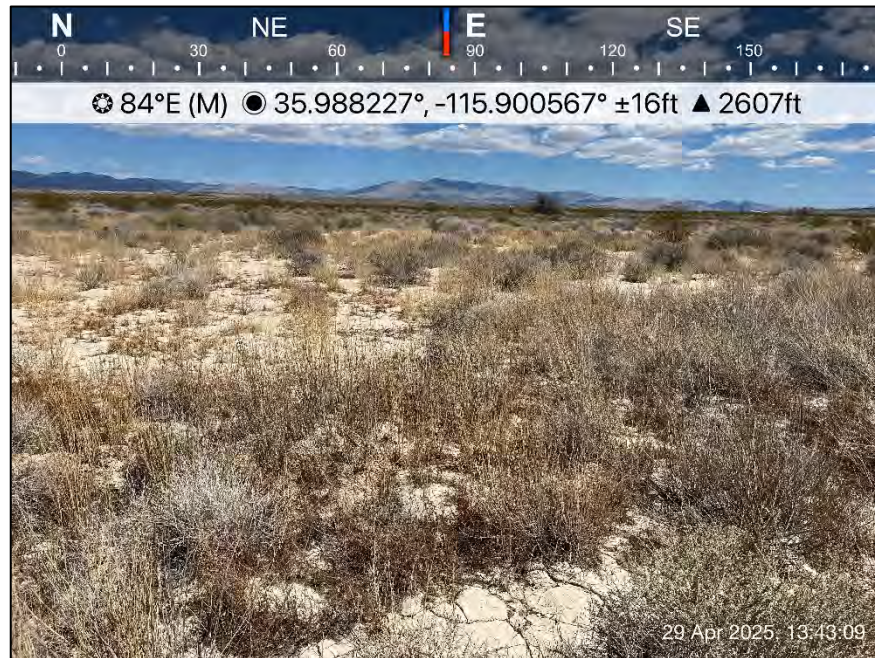




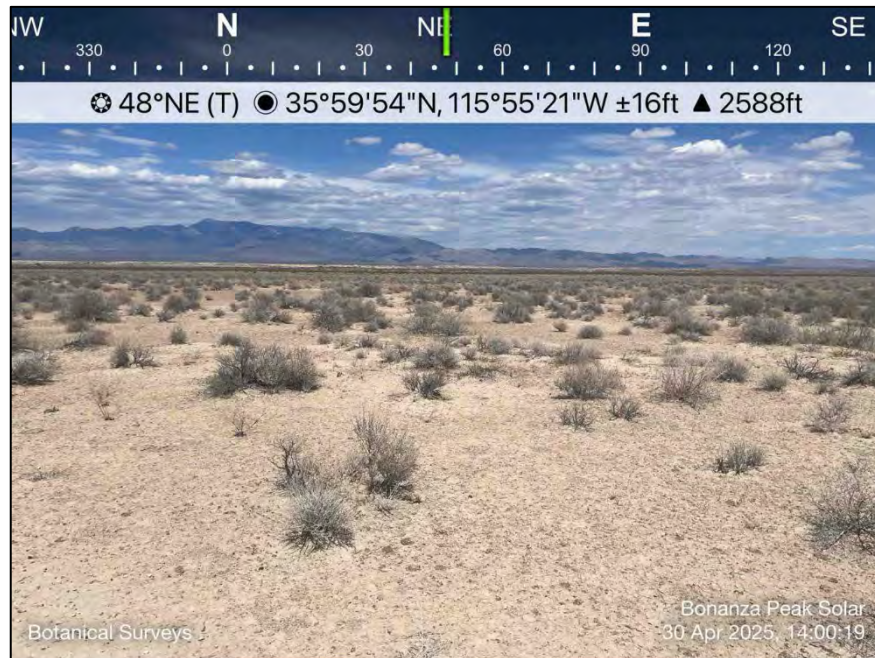
Photograph 23. *Sphaeralcea ambigua* Herbaceous Alliance (desert globemallow herbaceous scrub).



Photograph 24. *Ambrosia salsola* – *Bebbia juncea* Shrubland Alliance (cheesebush – sweetbush scrub).



Photograph 25. *Atriplex canescens* Shrubland Alliance (fourwing saltbush scrub).



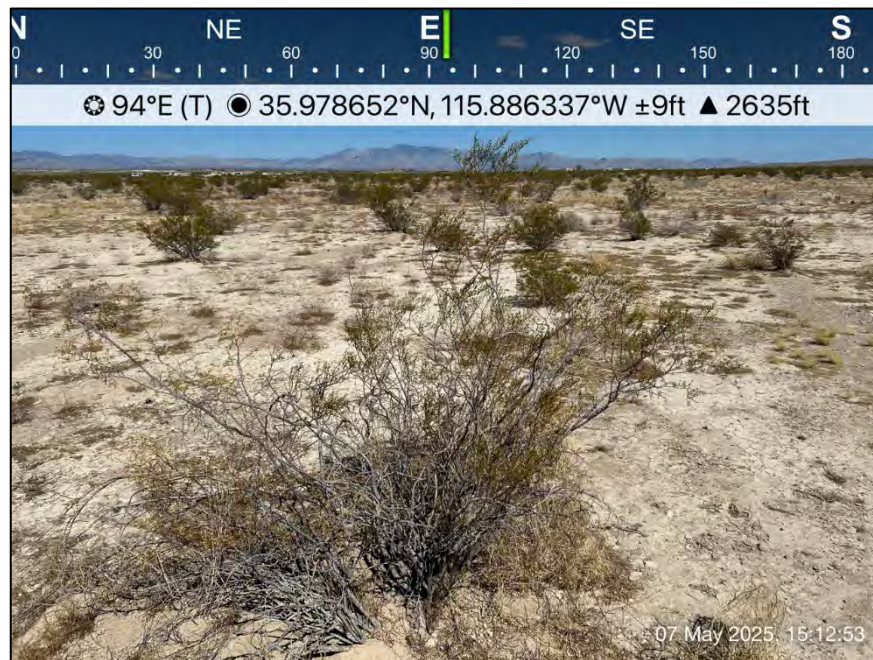
Photograph 26. *Atriplex confertifolia* Shrubland Alliance (shadscale scrub).



Photograph 27. *Ambrosia dumosa* Shrubland Alliance (white bursage scrub) in the foreground.



Photograph 28. *Ephedra nevadensis* – *Lycium andersonii* – *Grayia spinosa* Shrubland Alliance (Nevada joint fir – Anderson's boxthorn – spiny hop sage scrub).



Photograph 29. *Larrea tridentata* Shrubland Alliance (creosote bush scrub).



Photograph 30. *Larrea tridentata* – *Ambrosia dumosa* Shrubland Alliance (creosote bush – white bursage scrub).



Photograph 31. An area used as a junkyard (background) at Gold Street and Avenue E.



Photograph 32. View of one of the cut roads (Garnet Street).

Appendix F Plant Species Observed within the Survey Area



Botanical Resources Survey Report
Appendix F Plant Species Observed within the Survey Area

Table F.1 Plant Species Observed within the Survey Area

Scientific Name	Common Name	Habit	Status ¹
Agavaceae (Agave Family)			
<i>Yucca schidigera</i>	Mojave yucca	tree-like	native, CDNPA
Apocynaceae (Milkweed Family)			
<i>Asclepias erosa</i>	desert milkweed	perennial herb	native
Asteraceae (Sunflower Family)			
<i>Acamptopappus shockleyi</i>	Shockley's goldenhead	shrub	native
<i>Acamptopappus sphaerocephalus</i> var. <i>sphaerocephalus</i>	goldenhead	shrub	native
<i>Ambrosia dumosa</i>	white bursage	shrub	native
<i>Ambrosia salsola</i>	cheesebush	shrub	native
<i>Baileya multiradiata</i>	desert marigold	perennial herb	native
<i>Baileya pleniradiata</i>	wooly marigold	annual, perennial herb	native
<i>Encelia virginensis</i>	Virgin River encelia	shrub	native
<i>Gutierrezia microcephala</i>	sticky snakeweed	shrub (stem succulent)	native
<i>Gutierrezia sarothrae</i>	matchweed	shrub	native
<i>Psilostrophe cooperi</i>	paper flower	shrub	native
<i>Stephanomeria pauciflora</i>	wire lettuce	perennial herb	native
<i>Tetradymia axillaris</i>	catclaw horsebrush	shrub	native
<i>Xylorhiza tortifolia</i>	Mojave woodyaster	perennial herb	native
Brassicaceae (Mustard Family)			
<i>Lepidium fremontii</i>	desert pepper grass	perennial herb	native
<i>Stanleya pinnata</i> var. <i>pinnata</i>	prince's plume	perennial herb, shrub	native
Cactaceae (Cactus Family)			
<i>Cylindropuntia echinocarpa</i>	silver cholla	shrub (stem succulent)	native, CDNPA
<i>Cylindropuntia ramosissima</i>	pencil cactus	shrub (stem succulent)	native, CDNPA
<i>Opuntia basilaris</i> var. <i>basilaris</i>	beavertail cactus	shrub (stem succulent)	native, CDNPA



Botanical Resources Survey Report
Appendix F Plant Species Observed within the Survey Area

Scientific Name	Common Name	Habit	Status ¹
Chenopodiaceae (Goosefoot Family)			
<i>Atriplex canescens</i>	fourwing saltbush	shrub	native
<i>Atriplex confertifolia</i>	spiny saltbush	shrub	native
<i>Atriplex polycarpa</i>	allscale saltbush	shrub	native
<i>Halogeton glomeratus</i>	saltlover	annual herb	noxious, Cal-IPC M, CDFA B*
<i>Krascheninnikovia lanata</i>	winter fat	shrub	native
<i>Salsola tragus</i>	Russian thistle	annual herb	noxious, Cal-IPC L, CDFA C
Convolvulaceae (Morning Glory Family)			
<i>Cuscuta denticulata</i>	desert dodder	annual herb, vine (parasitic)	native
Ephedraceae (Ephedra Family)			
<i>Ephedra funerea</i>	Death Valley ephedra	shrub	native
<i>Ephedra nevadensis</i>	Nevada ephedra	shrub	native
<i>Ephedra torreyana</i>	Torrey's ephedra	shrub	rare, CRPR 2B.1
Euphorbiaceae (Spurge Family)			
<i>Euphorbia albomarginata</i>	rattlesnake sandmat	perennial herb	native
Fabaceae (Legume Family)			
<i>Astragalus lentiginosus</i> var. <i>fremontii</i>	Fremont's milk-vetch	annual, perennial herb	native
<i>Astragalus preussii</i> var. <i>preussii</i>	Preuss' milk-vetch	perennial herb	rare, CRPR 2B.1
<i>Astragalus tidiestromii</i>	Tidiestrom's milk-vetch	perennial herb	rare, CRPR 2B.2
<i>Hoffmannseggia glauca</i>	pig-nut	perennial herb	native
<i>Neltuma odorata</i>	honey mesquite	tree, shrub	native, CDNPA
<i>Psoralethamnus arborescens</i>	Mojave indigo bush	shrub	native
<i>Senna armata</i>	desert senna	shrub	native
Geraniaceae (Geranium Family)			
<i>Erodium cicutarium</i>	coastal heron's bill	annual herb	invasive
Krameriaceae (Rhatany Family)			
<i>Krameria erecta</i>	little-leaved ratany	shrub	native
Malvaceae (Mallow Family)			
<i>Sphaeralcea ambigua</i> var. <i>ambigua</i>	desert globemallow	perennial herb	native



Botanical Resources Survey Report
Appendix F Plant Species Observed within the Survey Area

Scientific Name	Common Name	Habit	Status ¹
<i>Sphaeralcea angustifolia</i>	narrow-leaved desert mallow	shrub (stem succulent)	native
Onagraceae (Evening Primrose Family)			
<i>Oenothera suffrutescens</i>	linda tarde	perennial herb	native
Plantaginaceae (Plantain Family)			
<i>Plantago ovata</i>	desert plantain	annual herb	native
Poaceae (Grass Family)			
<i>Bromus rubens</i>	red brome	annual grass	noxious, Cal-IPC H
<i>Bromus tectorum</i>	cheat grass	annual grass	noxious, Cal-IPC H, CDFA C
<i>Dasyochloa pulchella</i>	low woolly grass	perennial grass	native
<i>Elymus elymoides</i>	squirrel-tail grass	perennial grass	native
<i>Hilaria rigida</i>	big galleta	perennial grass	native
<i>Schismus arabicus</i>	schismus	annual grass	invasive
<i>Schismus barbatus</i>	old han schismus	annual grass	invasive
<i>Sporobolus airoides</i>	alkali sacaton	perennial grass	native
<i>Stipa hymenoides</i>	rice grass	perennial grass	native
<i>Stipa speciosa</i>	desert needle grass	perennial grass	native
Polygonaceae (Buckwheat Family)			
<i>Chorizanthe rigida</i>	rigid spineflower	annual herb	native
<i>Eriogonum inflatum</i>	desert trumpet	perennial herb	native
<i>Eriogonum</i> spp.	buckwheat	annual herb	native
<i>Eriogonum trichopes</i>	little desert buckwheat	annual herb	native
Solanaceae (Nightshade Family)			
<i>Lycium andersonii</i>	Anderson thornbush	shrub	native
<i>Lycium cooperi</i>	Cooper's box thorn	shrub	native
<i>Lycium pallidum</i> var. <i>oligospermum</i>	rabbit thorn	shrub	native
Viscaceae (Mistletoe Family)			
<i>Phoradendron californicum</i>	California mesquite mistletoe	shrub (parasitic)	native
Zygophyllaceae (Caltrop Family)			
<i>Larrea tridentata</i>	creosote bush	shrub	native



Botanical Resources Survey Report

Appendix F Plant Species Observed within the Survey Area

1. Status Codes:

California Invasive Plant Council (Cal-IPC):

H: high

M: moderate

L: low

California Department of Food and Agriculture (CDFA) Weed Pest:

B: pests, if present in California, are of limited distribution

C: pests that score low under CDFW analysis and/or are of common occurrence and generally distributed in California.

*: California Code of Regulations Section 4500 Noxious Weed Species

For the purposes of this report, Cal-IPC H and any species on a CDFA list were classified as noxious and mapped.

CRPR (California Rare Plant Rank) Codes and Extensions:

2B Plants rare, threatened, or endangered in California but more common elsewhere

.1 Plants rare, threatened, or endangered in California but more common elsewhere; seriously threatened in California

.2 Plants rare, threatened, or endangered in California but more common elsewhere; fairly threatened in California

California Desert Native Plants Act (CDNPA): Section 80073 plants, or any part thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plants are growing.



Appendix E CNDDDB Query Results





Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad< IS (Calvada Springs (3511588) OR Mound Spring (3611518) OR Stump Spring, Nev. (3511587) OR Blackwater Mine (3511577) OR Horse Thief Springs (3511578) OR Nopah Peak (3611611) OR North of Tecopa Pass (3511681) OR Sixmile Spring (3611621) OR Tecopa Pass (3511671) OR Green Monster Mine (3511586) OR West of Shenandoah Peak (3511576))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Acleisanthes nevadensis</i> desert wing-fruit	G4? S1	None None	Rare Plant Rank - 2B.1	2,600 3,800	13 S:8	0	2	4	1	0	1	1	7	8	0	0
<i>Agave utahensis</i> var. <i>eborispina</i> ivory-spined agave	G4T3 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,600 4,300	5 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Aliciella ripleyi</i> Ripley's aliciella	G3 S2	None None	Rare Plant Rank - 2B.3	3,500 3,500	22 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Allium nevadense</i> Nevada onion	G4 S3	None None	Rare Plant Rank - 2B.3	2,660 4,573	25 S:2	0	0	1	0	0	1	0	2	2	0	0
<i>Androstephium breviflorum</i> small-flowered androstephium	G5 S2?	None None	Rare Plant Rank - 2B.2	2,280 2,815	123 S:12	0	2	2	8	0	0	0	12	12	0	0
<i>Antrozous pallidus</i> pallid bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	4,446 4,446	425 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Aquila chrysaetos</i> golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern	4,090 4,700	332 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Arctomecon merriamii</i> white bear poppy	G3 S3	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,000 2,000	47 S:1	0	0	0	0	0	1	1	0	1	0	0



Summary Table Report
California Department of Fish and Wildlife
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Astragalus nyensis</i> Nye milk-vetch	G3? S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,605 2,820	19 S:19	0	8	9	2	0	0	0	19	19	0	0
<i>Astragalus preussii</i> var. <i>preussii</i> Preuss' milk-vetch	G4T4 S1	None None	Rare Plant Rank - 2B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,504 2,647	22 S:18	1	5	7	4	0	1	0	18	18	0	0
<i>Astragalus sabulorum</i> gravel milk-vetch	G4G5 S2	None None	Rare Plant Rank - 2B.2	2,608 2,760	19 S:6	1	1	3	0	0	1	0	6	6	0	0
<i>Astragalus tidesstromii</i> Tidesstrom's milk-vetch	G4 S2	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	2,520 3,875	72 S:25	0	11	6	3	0	5	0	25	25	0	0
<i>Atriplex argentea</i> var. <i>longitrichoma</i> Pahrump orache	G5T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,280 2,515	8 S:6	2	3	0	0	0	1	0	6	6	0	0
<i>Boechera lincolnensis</i> Lincoln rockcress	G4G5 S3	None None	Rare Plant Rank - 2B.3 BLM_S-Sensitive	3,300 3,300	14 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Bouteloua trifida</i> three-awned grama	G4G5 S3	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,400 4,250	21 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Chaetadelpa wheeleri</i> Wheeler's dune-broom	G4 S2	None None	Rare Plant Rank - 2B.2	2,550 2,836	25 S:16	0	9	6	0	0	1	0	16	16	0	0
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	4,450 4,960	635 S:3	0	0	0	0	0	3	3	0	3	0	0



Summary Table Report

California Department of Fish and Wildlife

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Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Cymopterus gilmanii</i> Gilman's cymopterus	G3 S2	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,200 3,200	41 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Cymopterus multinervatus</i> purple-nerve cymopterus	G4G5 S2	None None	Rare Plant Rank - 2B.2	2,515 2,640	49 S:3	0	1	2	0	0	0	0	3	3	0	0
<i>Ephedra torreyana</i> Torrey's Mormon-tea	G5 S1	None None	Rare Plant Rank - 2B.1	2,513 2,650	12 S:12	0	6	4	1	0	1	0	12	12	0	0
<i>Eremothera boothii ssp. intermedia</i> Booth's hairy evening-primrose	G5T3T4 S3	None None	Rare Plant Rank - 2B.3	5,000 5,000	14 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Erethizon dorsatum</i> North American porcupine	G5 S3	None None	IUCN_LC-Least Concern	5,853 5,853	523 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Eriogonum bifurcatum</i> forked buckwheat	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,360 2,950	40 S:28	13	9	2	1	0	3	1	27	28	0	0
<i>Eriogonum contiguum</i> Reveal's buckwheat	G3 S2	None None	Rare Plant Rank - 2B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,280 2,615	35 S:9	8	0	1	0	0	0	0	9	9	0	0
<i>Eriogonum umbellatum var. juniporinum</i> juniper sulphur-flowered buckwheat	G5T4 S3	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	4,600 5,456	21 S:5	0	0	0	0	0	5	2	3	5	0	0
<i>Erioneuron pilosum</i> hairy erioneuron	G5 S2	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	4,236 6,150	22 S:2	0	0	0	0	0	2	1	1	2	0	0
<i>Escobaria chlorantha</i> desert pincushion	G3 S3	None None	Rare Plant Rank - 2B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,206 3,206	88 S:2	0	0	1	0	0	1	1	1	2	0	0



Summary Table Report
California Department of Fish and Wildlife
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Falco mexicanus</i> prairie falcon	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	4,600 4,600	451 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Galium hilendiae ssp. kingstonense</i> Kingston Mountains bedstraw	G4T3 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	4,649 7,000	10 S:8	1	0	4	0	0	3	3	5	8	0	0
<i>Galium proliferum</i> desert bedstraw	G5 S2	None None	Rare Plant Rank - 2B.2	3,900 4,400	17 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Gopherus agassizii</i> desert tortoise	G2G3 S2S3	Threatened Endangered	IUCN_CR-Critically Endangered		988 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Heloderma suspectum cinctum</i> banded Gila monster	G4T3 S1	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern	3,000 4,565	21 S:4	0	1	0	0	0	3	3	1	4	0	0
<i>Ivesia patellifera</i> Kingston Mountains ivesia	G2 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	4,800 5,600	6 S:4	0	0	0	0	0	4	3	1	4	0	0
<i>Mentzelia pterosperma</i> wing-seed blazing star	G4 S1S2	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	2,523 2,580	7 S:3	0	1	1	0	0	1	0	3	3	0	0
<i>Mentzelia tricuspis</i> spiny-hair blazing star	G4 S2	None None	Rare Plant Rank - 2B.1	4,200 4,200	16 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Mesquite Bosque</i> Mesquite Bosque	G3 S2.1	None None		2,420 2,560	14 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Monardella eremicola</i> Clark Mountain monardella	G3Q S3	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	5,000 5,350	9 S:3	0	0	0	0	0	3	1	2	3	0	0



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Myotis volans</i> long-legged myotis	G4G5 S3	None None	IUCN_LC-Least Concern	3,380 3,776	117 S:2	0	0	2	0	0	0	2	0	2	0	0
<i>Nama demissa</i> var. <i>covillei</i> Coville's purple mat	G5T3 S3	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive		25 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Neotamias panamintinus acrus</i> Kingston Mountain chipmunk	G4T1T2 S1S2	None None		4,700 6,400	5 S:5	0	0	0	0	0	5	5	0	5	0	0
<i>Ovis canadensis nelsoni</i> desert bighorn sheep	G4T3 S3	None None	BLM_S-Sensitive CDFW_FP-Fully Protected USFS_S-Sensitive		46 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Pellaea truncata</i> spiny cliff-brake	G5 S3	None None	Rare Plant Rank - 2B.3	4,750 4,750	21 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Penstemon fruticiformis</i> var. <i>amargosae</i> Amargosa beardtongue	G4T3 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,100 4,200	18 S:8	1	1	1	0	0	5	6	2	8	0	0
<i>Penstemon stephensii</i> Stephens' beardtongue	G3? S3?	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,500 5,800	28 S:12	1	2	1	0	0	8	8	4	12	0	0
<i>Penstemon utahensis</i> Utah beardtongue	G4 S2	None None	Rare Plant Rank - 2B.3	3,500 5,200	27 S:6	0	0	1	0	0	5	5	1	6	0	0
<i>Peteria thompsoniae</i> spine-noded milk vetch	G4 S1	None None	Rare Plant Rank - 2B.1	2,635 2,700	2 S:2	1	0	0	0	0	1	1	1	2	0	0
<i>Phacelia parishii</i> Parish's phacelia	G2G3 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,280 2,515	13 S:4	1	3	0	0	0	0	0	4	4	0	0
<i>Phacelia pulchella</i> var. <i>gooddingii</i> Goodding's phacelia	G5T3 S2	None None	Rare Plant Rank - 2B.2	2,515 2,900	19 S:16	0	10	1	2	0	3	2	14	16	0	0



Summary Table Report
California Department of Fish and Wildlife
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Piranga flava</i> hepatic tanager	G5 S1	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	7,000 7,000	9 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Poliophtila melanura</i> black-tailed gnatcatcher	G5 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	4,600 4,600	34 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Sclerocactus johnsonii</i> Johnson's bee-hive cactus	G3 S2	None None	Rare Plant Rank - 2B.2 IUCN_LC-Least Concern SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,178 2,940	16 S:7	1	3	1	0	0	2	1	6	7	0	0
<i>Sphaeralcea rusbyi</i> var. <i>eremicola</i> Rusby's desert-mallow	G4T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture		69 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Stipa arida</i> Mormon needle grass	G5 S3?	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	3,900 5,700	43 S:6	0	0	0	0	0	6	5	1	6	0	0
<i>Vireo vicinior</i> gray vireo	G5 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	5,200 5,200	28 S:1	0	0	0	0	0	1	1	0	1	0	0

Appendix F USFWS Species List





United States Department of the Interior

FISH AND WILDLIFE SERVICE

Carlsbad Fish And Wildlife Office

2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

Phone: (760) 431-9440 Fax: (760) 431-5901



In Reply Refer To:

12/02/2024 21:17:22 UTC

Project Code: 2025-0026115

Project Name: Bonanza Peak Solar Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A biological assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a biological assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a biological assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found at the Fish and Wildlife Service's Endangered Species Consultation website at:

<https://www.fws.gov/service/esa-section-7-consultation>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office

2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

(760) 431-9440

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

Southern Nevada Fish And Wildlife Office

4701 N. Torrey Pines Drive

Las Vegas, NV 89130-2301

(702) 515-5230

PROJECT SUMMARY

Project Code: 2025-0026115

Project Name: Bonanza Peak Solar Project

Project Type: Power Gen - Solar

Project Description: 174 Power Global is proposing to construct, own, operate, maintain, then re-power with then-current technology or decommission a utility scale solar photovoltaic energy generating facility and battery energy storage system on private lands. The Bonanza Peak Solar Project would be located in the Charleston View Solar Energy Development Area in southeastern Inyo County, adjacent to the Nevada state line just north of California State Route 178. The solar generation facility, including the PV arrays, BESS, substation, and other electrical equipment, would be within a 3,382-acre project area with a developed area of no greater than 2,400 acres. An approximately 9-mile long 230 kilovolt generation tie-in line would be located on lands managed by the Bureau of Land Management in Nye and Clark Counties, Nevada. The Project would connect to an existing Gridliance 230 kV transmission line at the Trout Canyon switchyard. Construction is planned to begin in 2025.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@35.9980967,-115.91260451245563,14z>



Counties: California and Nevada

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

REPTILES

NAME	STATUS
Desert Tortoise <i>Gopherus agassizii</i> Population: Wherever found, except AZ south and east of Colorado R., and Mexico There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4481	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider

implementing appropriate conservation measures, as described in the links below. Specifically, please review the ["Supplemental Information on Migratory Birds and Eagles"](#).

1. The [Bald and Golden Eagle Protection Act](#) of 1940.
2. The [Migratory Birds Treaty Act](#) of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

THERE ARE NO BALD AND GOLDEN EAGLES WITHIN THE VICINITY OF YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the ["Supplemental Information on Migratory Birds and Eagles"](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Leconte's Thrasher <i>Toxostoma lecontei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8969	Breeds Feb 15 to Jun 20

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

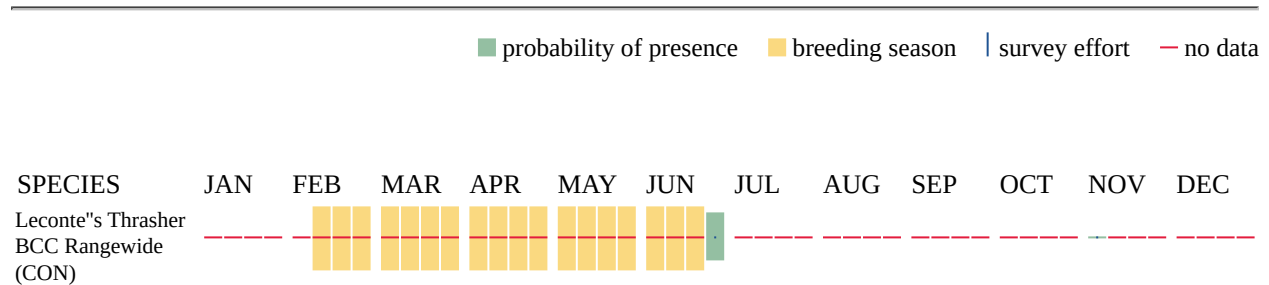
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R4SBJ

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Dannique Aalbu
Address: 621 West Line Street Suite 205
City: Bishop
State: CA
Zip: 93514
Email: dannique.aalbu@stantec.com
Phone: 7605827006

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Bureau of Land Management

Appendix G CNPS Rare Plant Inventory Query Results





CNPS Rare Plant Inventory

Search Results

50 matches found. Click on scientific name for details

Search Criteria: , Quad is one of [3511681:3511588:3611518:3611611:3511578:3511671:3511577:3611621:3511587:3511586:3511576]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
<i>Acleisanthes nevadensis</i>	desert wing-fruit	Nyctaginaceae	perennial herb	Apr-Sep	None	None	G4?	S1	2B.1		1984-01-01	 © 2020 Neal Kramer
<i>Agave utahensis</i> var. <i>eborispina</i>	ivory-spined agave	Agavaceae	perennial leaf	May-Jun	None	None	G4T3	S2	1B.3		1980-01-01	 © 2011 Zoya Akulova
<i>Agave utahensis</i> var. <i>nevadensis</i>	Clark Mountain agave	Agavaceae	perennial leaf	May-Jul	None	None	G4T3	S3	4.2		1980-01-01	 © 2009 Zoya Akulova
<i>Aliciella ripleyi</i>	Ripley's aliciella	Polemoniaceae	perennial herb	May-Jul	None	None	G3	S2	2B.3		1974-01-01	 © 2020 Joey Malone
<i>Allium nevadense</i>	Nevada onion	Alliaceae	perennial bulbiferous herb	Apr-May	None	None	G4	S3	2B.3		1994-01-01	 © 2006 James M. Andre
<i>Androstephium breviflorum</i>	small-flowered androstephium	Themidaceae	perennial bulbiferous herb	Mar-Apr	None	None	G5	S2?	2B.2		1974-01-01	 © 2005 James M. Andre
<i>Arctomecon merriamii</i>	white bear poppy	Papaveraceae	perennial herb	(Mar)Apr-May	None	None	G3	S3	2B.2		1980-01-01	 © 2010 James M. Andre

<i>Astragalus nutans</i>	Providence Mountains milk-vetch	Fabaceae	annual herb	Mar-Jun(Oct)	None	None	G3	S3	4.3	Yes	1974-01-01	No Photo Available
<i>Astragalus nyensis</i>	Nye milk-vetch	Fabaceae	annual herb	Apr-May	None	None	G3?	S1	1B.1		2011-12-27	No Photo Available
<i>Astragalus preussii</i> var. <i>preussii</i>	Preuss' milk-vetch	Fabaceae	perennial herb	Apr-Jun	None	None	G4T4	S1	2B.1		1988-01-01	No Photo Available
<i>Astragalus sabulorum</i>	gravel milk-vetch	Fabaceae	annual/perennial herb	Feb-Jun	None	None	G4G5	S2	2B.2		2011-10-19	No Photo Available
<i>Astragalus tidestromii</i>	Tidestrom's milk-vetch	Fabaceae	perennial herb	(Jan)Apr-Jul	None	None	G4	S2	2B.2		2009-01-06	No Photo Available
<i>Atriplex argentea</i> var. <i>longitrichoma</i>	Pahrump orache	Chenopodiaceae	annual herb	Apr-May	None	None	G5T2	S2	1B.1		2010-07-29	No Photo Available
<i>Boechera lincolnensis</i>	Lincoln rockcress	Brassicaceae	perennial herb	Mar-May	None	None	G4G5	S3	2B.3		1984-01-01	No Photo Available
<i>Bouteloua trifida</i>	three-awned grama	Poaceae	perennial herb	(Apr)May-Sep	None	None	G4G5	S3	2B.3		1974-01-01	No Photo Available
<i>Chaetadelpa wheeleri</i>	Wheeler's dune-broom	Asteraceae	perennial rhizomatous herb	Apr-Sep	None	None	G4	S2	2B.2		2001-01-01	No Photo Available
<i>Cymopterus gilmanii</i>	Gilman's cymopterus	Apiaceae	perennial herb	Apr-May	None	None	G3	S2	2B.3		1974-01-01	No Photo Available
<i>Cymopterus multineratus</i>	purple-nerve cymopterus	Apiaceae	perennial herb	Mar-Apr	None	None	G4G5	S2	2B.2		2008-11-20	No Photo Available
<i>Ephedra torreyana</i>	Torrey's Mormon-tea	Ephedraceae	perennial evergreen shrub	May	None	None	G5	S1	2B.1		2012-02-08	No Photo Available
<i>Eremothera boothii</i> ssp. <i>intermedia</i>	Booth's hairy evening-primrose	Onagraceae	annual herb	(May)Jun	None	None	G5T3T4	S3	2B.3		2001-01-01	No Photo Available
<i>Eriogonum bifurcatum</i>	forked buckwheat	Polygonaceae	annual herb	Apr-Jun	None	None	G3	S3	1B.2		1974-01-01	No Photo Available
<i>Eriogonum contiguum</i>	Reveal's buckwheat	Polygonaceae	annual herb	(Feb)Mar-May(Jun)	None	None	G3	S2	2B.3		1974-01-01	No Photo Available
<i>Eriogonum heermannii</i> var. <i>floccosum</i>	Clark Mountain buckwheat	Polygonaceae	perennial deciduous shrub	Aug-Oct	None	None	G5T4	S4	4.3		1974-01-01	No Photo Available
<i>Eriogonum umbellatum</i> var. <i>juniporinum</i>	juniper sulphur-flowered buckwheat	Polygonaceae	perennial herb	Jul-Oct	None	None	G5T4	S3	2B.3		1988-01-01	No Photo Available

<i>Erioneuron pilosum</i>	hairy erioneuron	Poaceae	perennial herb	(Apr)May-Jun	None	None	G5	S2	2B.3		1974-01-01	No Photo Available
<i>Escobaria chlorantha</i>	desert pincushion	Cactaceae	perennial stem	Apr-Sep	None	None	G3	S3	2B.1		2006-11-08	No Photo Available
<i>Fendlerella utahensis</i>	yerba desierto	Hydrangeaceae	perennial deciduous shrub	Jun-Aug	None	None	G5	S4	4.3		1974-01-01	No Photo Available
<i>Funastrum utahense</i>	Utah vine milkweed	Apocynaceae	perennial herb	(Mar)Apr-Jun(Sep-Oct)	None	None	G4	S4	4.2		1980-01-01	 © 2004 James M. Andre
<i>Galium hilendiae</i> ssp. <i>kingstonense</i>	Kingston Mountains bedstraw	Rubiaceae	perennial herb	(May)Jun(Oct)	None	None	G4T3	S2	1B.3		1984-01-01	 © 2011 Duncan S. Bell
<i>Galium proliferum</i>	desert bedstraw	Rubiaceae	annual herb	Mar-Jun	None	None	G5	S2	2B.2		2009-01-06	 © 2011 Duncan S. Bell
<i>Hecastocleis shockleyi</i>	prickle-leaf	Asteraceae	perennial evergreen shrub	May-Jul	None	None	G4	S4	3		1974-01-01	 © 2013 Aaron Schusteff
<i>Hedeoma nana</i> ssp. <i>californica</i>	California mock pennyroyal	Lamiaceae	perennial herb	Apr-Jun	None	None	G5T4	S4	4.3		2001-01-01	 © 2008 Steve Matson
<i>Ivesia patellifera</i>	Kingston Mountains ivesia	Rosaceae	perennial herb	Jun-Oct	None	None	G2	S2	1B.3	Yes	1974-01-01	No Photo Available
<i>Johnstonella holoptera</i>	winged cryptantha	Boraginaceae	annual herb	Mar-Apr	None	None	G4G5	S4	4.3		1980-01-01	No Photo Available
<i>Mentzelia pterosperma</i>	wing-seed blazing star	Loasaceae	annual/perennial herb	Apr-Jun	None	None	G4	S1S2	2B.2		2006-12-21	No Photo Available
<i>Mentzelia tricuspis</i>	spiny-hair blazing star	Loasaceae	annual herb	Mar-May	None	None	G4	S2	2B.1		2010-10-28	No Photo Available
<i>Monardella eremicola</i>	Clark Mountain monardella	Lamiaceae	perennial shrub	Jun-Aug	None	None	G3Q	S3	1B.3	Yes	2011-12-06	No Photo Available

<i>Mortonia utahensis</i>	Utah mortonia	Celastraceae	perennial evergreen shrub	Mar-May	None	None	G4G5	S3?	4.3		2001-01-01	 © 2010 James M. Andre
<i>Nama demissa</i> var. <i>covillei</i>	Coville's purple mat	Namaceae	annual herb	Feb-May	None	None	G5T3	S3	1B.3	Yes	2018-05-30	No Photo Available
<i>Pellaea truncata</i>	spiny cliff-brake	Pteridaceae	perennial rhizomatous herb	Apr-Jun	None	None	G5	S3	2B.3		1980-01-01	No Photo Available
<i>Penstemon fruticiformis</i> var. <i>amargosae</i>	Amargosa beardtongue	Plantaginaceae	perennial herb	Apr-Jun	None	None	G4T3	S2	1B.3		1980-01-01	 Steve Matson 2017
<i>Penstemon stephensii</i>	Stephens' beardtongue	Plantaginaceae	perennial herb	Apr-Jun	None	None	G3?	S3?	1B.3	Yes	1974-01-01	No Photo Available
<i>Penstemon utahensis</i>	Utah beardtongue	Plantaginaceae	perennial herb	Apr-May	None	None	G4	S2	2B.3		2001-01-01	No Photo Available
<i>Peteria thompsoniae</i>	spine-noded milk vetch	Fabaceae	perennial herb	May-Jun	None	None	G4	S1	2B.1		1988-01-01	No Photo Available
<i>Phacelia parishii</i>	Parish's phacelia	Hydrophyllaceae	annual herb	Apr-May(Jun- Jul)	None	None	G2G3	S1	1B.1		1980-01-01	No Photo Available
<i>Phacelia pulchella</i> var. <i>gooddingii</i>	Goodding's phacelia	Hydrophyllaceae	annual herb	Apr-Jun	None	None	G5T3	S2	2B.2		1994-01-01	No Photo Available
<i>Sclerocactus johnsonii</i>	Johnson's bee-hive cactus	Cactaceae	perennial stem	Apr-May	None	None	G3	S2	2B.2		2001-01-01	No Photo Available
<i>Sphaeralcea rusbyi</i> var. <i>eremicola</i>	Rusby's desert- mallow	Malvaceae	perennial herb	Mar-Jun	None	None	G4T2	S2	1B.2	Yes	1974-01-01	No Photo Available
<i>Stipa arida</i>	Mormon needle grass	Poaceae	perennial herb	May-Jul	None	None	G5	S3?	2B.3		1974-01-01	No Photo Available
<i>Tetradymia argyraea</i>	striped horsebrush	Asteraceae	perennial deciduous shrub	(May)Jun-Sep	None	None	G4?	S4	4.3		1974-01-01	No Photo Available

Showing 1 to 50 of 50 entries

[Go to top](#)

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2025. Rare Plant Inventory (online edition, v9.5.1). Website <https://www.rareplants.cnps.org> [accessed 5 August 2025].

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Appendix H Desert Tortoise Survey Results





BONANZA PEAK SOLAR PROJECT DESERT TORTOISE SURVEY RESULTS

To: Stephanie Lauer, 174 Power Global

From: Stephanie Locke, Allied Pacific Partners

Date: August 21, 2025

Subject: Desert Tortoise Survey Results Bonanza Peak Solar

SUMMARY

The Bonanza Peak Solar Project Desert Tortoise Survey, conducted in April and May 2025 across 1,487 acres in Pahrump Valley, followed USFWS protocols to assess the presence of the Mojave Desert tortoise. While no live tortoises were found during systematic transect surveys, biologists documented 24 burrows of various classes and one pallet, indicating at least occasional tortoise usage within the project area.

PROJECT AREA

Bonanza Peak Solar area is in Pahrump Valley with elevations ranging from 2,560 to 2,660 feet (780 to 810 meters) above mean sea level. It features low clay hills with deep washes and patchy sand dunes that support mesquite groves. Some areas are primarily populated by creosote (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*), along with scattered honey mesquite (*Prosopis glandulosa*). Where the terrain becomes less steep, dominant vegetation includes saltbush (*Atriplex spp.*) and boxthorn (*Lycium cooperi*) (Ironwood Consulting 2021). The area is segmented into quarter sections by dirt roads, most of which are still functional.

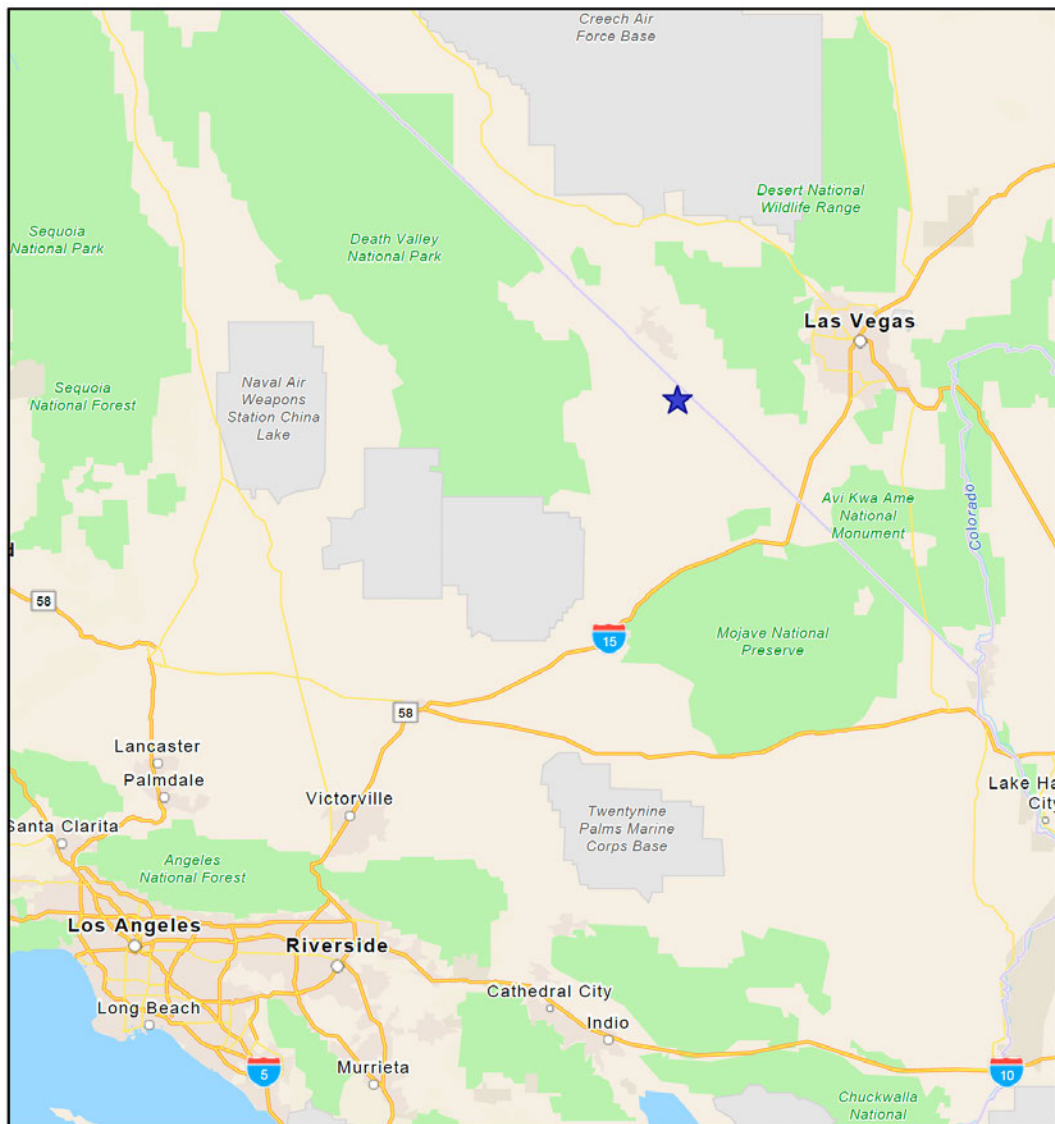


FIGURE 1. BONANZA PEAK SOLAR PROJECT LOCATION (BLUE STAR)

METHODS

Desert tortoise presence/absence surveys were conducted throughout the project area during the species' spring active period, specifically in April and May 2025 (April 20, 22, 23-26, 29-30 and May 1-3, 6-10, 13-17 and 20-28), and adhered to U.S. Fish and Wildlife Service (USFWS) pre-project survey protocols as outlined in *Preparing for any Action that may Occur within the Range of the Mojave desert Tortoise (Gopherus agassizii)* (USFWS 2019). Qualified biologists systematically surveyed the entire survey area (1,487 acres) using 10-meter wide transects. Surveys were led by Melody Reilly (USFWS



authorized desert tortoise biologist [ADTB] since 2021¹) and Karla Chittick (biological monitor), with support from Ken Chittick (authorized ADTB since 2016), John Grueneich (ADTB since 2021), and Benjamin Velasquez (biological monitor). All team members utilized GPS units to ensure spatial accuracy. Survey activities commenced shortly after sunrise when ambient temperatures ranged from 60–95°F, with temperature data recorded daily.

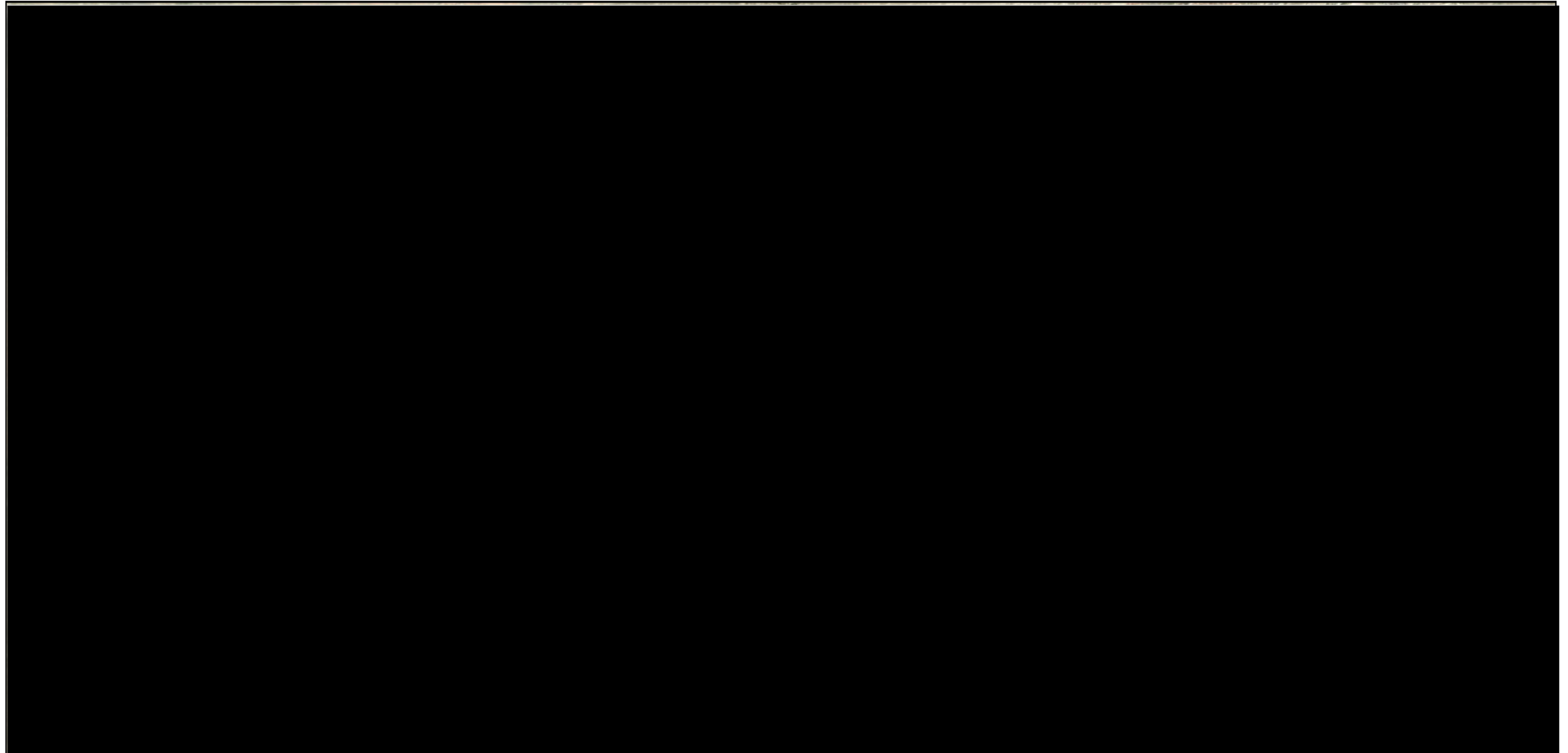
All signs and observations of desert tortoises were documented using Fulcrum, a mobile location-based data collection platform. The application automatically captured the coordinates and photos of each sign. Burrow and pallet data were categorized according to the definitions outlined in the USFWS Desert Tortoise (Mojave Population) Field Manual (*Gopherus agassizii*) (USFWS 2009). The USFWS classifications are as follows: Class 1 denotes currently active burrows with either desert tortoise presence or recent signs; Class 2 comprises burrows in good condition, confirmed as desert tortoise but lacking recent use evidence; Class 3 refers to deteriorated burrows, including collapsed structures, evidently associated with desert tortoises; Class 4 includes burrows in good condition and possibly used by desert tortoises; and Class 5 encompasses deteriorated burrows, such as collapsed ones, that may possibly be attributable to desert tortoises.

DESERT TORTOISE SURVEY RESULTS

No live desert tortoises were detected during the surveys; however, evidence of their presence included 24 burrows (categorized as fourteen [14] Class 2, two [2] Class 3, and eight [8] Class 4) and one pallet. The locations of observed tortoise sign are depicted in Figure 2. Representative pictures are included in Figures 3 - 6.

¹ The USFWS does not grant section 10(a)(1)(A) Endangered Species Act permits for ADTB to conduct surveys generally, but only for specific projects. Here, ADTB experience is cited to demonstrate relevant qualifications; each ADTB mentioned has been authorized for multiple projects in Nevada and California.

Tortoise Survey Results



 Bonanza Peak Tortoise Survey Area

-  Burrow Class 2
-  Burrow Class 3
-  Burrow Class 4
-  Pallet

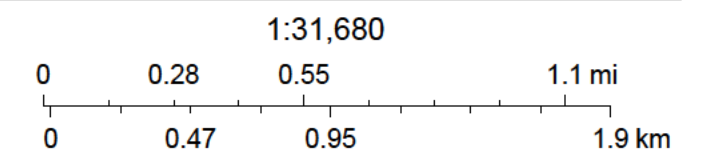




FIGURE 3. PALLET



FIGURE 4. CLASS 2 BURROW



FIGURE 5. CLASS 4 BURROW



FIGURE 6. CLASS 2 BURROW



REFERENCES

Ironwood Consulting. 2021. "Desert Tortoise Survey Report." February.

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