# Biological Resources Technical Report

Imperial Irrigation District Red Hill Bay Best Available Control Measure Project

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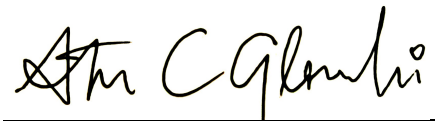


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# Acronyms / Abbreviations

| | |
|---|---|
| BACM | Best Available Control Measure |
| BGEPA | Bald and Golden Eagle Protection Act |
| BRTR | Biological Resources Technical Report |
| BSA | Biological Study Area |
| CCH | Consortium of California Herbaria |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFR | Code of Federal Regulations |
| CNDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| CRPR | California Rare Plant Rank |
| CWA | Clean Water Act |
| DCH | Designated Critical Habitat |
| EFH | Essential Fish Habitat |
| FESA | Federal Endangered Species Act |
| FGC | Fish and Game Code |
| FMP | Fishery Management Plan |
| FR | Federal Register |
| GPS | Global Positioning System |
| HCP | Habitat Conservation Plan |
| ICAPCD | Imperial County Air Pollution Control District |
| IID | Imperial Irrigation District |
| LSAA | Lake or Streambed Alteration Agreement |
| Magnuson-Stevens Act | Magnuson-Stevens Fishery Conservation and Management Act |
| MBTA | Migratory Bird Treaty Act |
| MCVII | Manual of California Vegetation, 2nd Edition |
| NEPA | National Environmental Policy Act |
| NCCP | Natural Community Conservation Plan |
| NMFS | National Marine Fisheries Service |
| NPPA | Native Plant Protection Act |
| NRCS | Natural Resources Conservation Service |
| NWI | National Wetlands Inventory |
| NWPR | Navigable Waters Protection Rule |
| Project | Red Hill Bay Best Available Control Measure Project |
| RHA | River and Harbors Act |
| RWQCB | Regional Water Quality Control Board |
| SSC | Species of Special Concern |

| | |
|---|---|
| Stantec | Stantec Consulting Services Inc. |
| TNW | traditional navigable water |
| U.S. | Unites States |
| USACE | United States Army Corps of Engineers |
| USEPA | United States Environmental Protection Agency |
| USC | United States Code |
| USFWS | United States Fish & Wildlife Service |
| USGS | United States Geological Survey |
| WOTUS | Waters of the United States |

# 1 Introduction

The purpose of this Biological Resources Technical Report (BRTR) is to document the biological resources that are associated with the Imperial Irrigation District (IID) Red Hill Bay Best Available Control Measure Project (Project) located in the City of Calipatria, Imperial County, California (Appendix A, Figure 1). The surveys conducted and discussions presented within this BRTR are intended to support planning and regulatory agency permitting and associated documentation.

Reconnaissance surveys were conducted by Stantec Consulting Services Inc. (Stantec) biologists on May 18, 19, and 20, and December 16 and 17, 2021; in addition, aquatic and biological resources surveys were conducted May 18, 19, and 20, 2021 and July 2, 2024. The reconnaissance surveys were conducted within accessible portions of the approximately 660-acre Project site, in addition to a 300-foot buffer zone surrounding the Project site. This approximately 660-acre Project site (work area and potential staging area) and the 300-foot buffer zone are defined as the Biological Study Area (BSA) (refer to Appendix A, Figure 2) and include approximately 845 acres. The aquatic resources survey area includes the Project site (approximately 660 acres) and a 100-foot buffer zone (approximately 723 acres). In addition, a supplemental survey focused on the presence of burrowing owls at a potential staging area in the northwest portion of the Project area and along the travel route for water trucks to the Vail 3 Drain was conducted on December 15, 2025.

The BRTR describes the existing environmental conditions that occur within the BSA and surrounding areas and evaluates the potential for biological resources to occur based on those conditions with an emphasis on special-status plant and wildlife species, wildlife corridors, and special-status/sensitive natural communities.

## 1.1 Project Location

The Project site is located on IID owned property adjacent to Red Hill Park on the Salton Sea playa near the city of Calipatria, Imperial County, California (Appendix A, Figure 1 Project Location). The property is in the southern half of Section 22 of Township 11 South, Range 13 East and the northern half of Section 27 of Township 11 South, Range 13 East, in San Bernardino Base and Meridian, as depicted on the 2021 Niland 7.5-minute topographic quadrangle, U.S. Geological Survey (USGS). It is located on Assessor's Parcel Numbers 020-100-032, 020-100-042, and 020-100-023.

## 1.2 Project Objective

IID provides water and energy service within a 6,471-square mile service area, including all of Imperial County and parts of Riverside and San Diego counties. IID serves over 150,000 customers and provides water to over 500,000 acres of Imperial County farmland. Central to the service area is the Salton Sea, California's largest inland body of water. Due to reduced inflows to the Sea, additional shoreline is becoming exposed over time. Exposure of the playa at the shoreline has the potential to increase emissions of particulate matter 10 microns in diameter or less (PM10). The objective of the Project is to



control dust emissions on the Project site in compliance with the Stipulated Order for Abatement between IID and Imperial County Air Pollution Control District (ICAPCD).

## 1.3 Project Description

The Project would reduce dust emissions by applying chemical stabilizers over the majority of the Project site (currently barren playa).

### 1.3.1 Soil Stabilizer

The Project would reduce dust emissions by applying a commercially available chemical stabilization product to protect the surface from wind erosion. After assessing several surface stabilizer products, IID identified Soiltac® as an effective chemical stabilizer for the playa soils of the Project site. Soiltac® soil stabilizer is a hydraulically applied, proprietary, ecologically safe, biodegradable, synthetic vinyl copolymer used to stabilize and solidify soils to protect against wind and water erosion. The surface crust that is created is water-resistant, durable, and non-emissive, especially at higher application rates.

Application of soil stabilizer would not occur within 300 feet of existing vegetated wetlands and ditches. Temporary resources protection berms would be installed to protect onsite wetlands from construction of the dust control project (Appendix A, Figure 2).

**Application Method**. Soiltac® will be applied using the recommended raw product application rate from the manufacturer (275 gal/acre) and a water dilution factor of approximately eight, resulting in a final application rate of approximately 2,500 gallons/acre. The Soiltac® product will be blended with water inside a temporary storage tank and applied to the Project area with an articulated water truck or an in-field applicator (e.g., hose reel and irrigation boom). Application would include:

- **Surface Stabilizer Product Transport and Storage**. The surface stabilizer will be delivered as a concentrate to the Project site in semi-tankers. Up to 20 semi-tankers will travel approximately 265 miles from Casa Grande, Arizona. The product would be stored in one temporary storage tank, located within a secondary containment device.
- **Water Transport and Storage**. Up to 850,000 gallons of water would be supplied by a temporary suction pump in IID's Vail 3 Drain. Semi-truck trailers or on-road water trucks would be used to transport water from Vail 3 Drain to the in-field staging area. The trucks would travel approximately 1 mile north along Garst Road. The semi-truck trailer capacity is approximately 7,000 gallons and the on-road water truck capacity is approximately 4,000 gallons. If semi-trucks are used, then the Project may include up to 10 truck trips per day for 30 working days. If on-road water trucks are used, then the Project may include up to 14 truck trips per day for 30 working days.
- **Product Dilution**. The soil stabilizer would be blended with raw water in one temporary storage tank located within a secondary containment device.
- **Option 1 In-field Application with Water Truck**. The capacity of the articulated water truck is estimated at 6,000 gallons. To manage traffic flow, the water trucks may be only partially filled. Assuming a range of 3,000 to 6,000 gallons/truck, approximately 200 in-field truck trips would be



required to apply the stabilizer. Assuming 2 acres/truck trip and six truck trips/day, up to 30 working days are anticipated.

- **Option 2 In-field Application with Hose Reel and Irrigation Boom**. Two to three tractors over approximately 12 to 16 weeks would be required for this option. If the hose reel and irrigation boom are used, site preparation would be necessary to facilitate product application. This may include collapsing surface roughening in the following locations: 1) an approximately 50-foot width along the northern Project boundary and access road, 2) approximately 20-foot width along the proposed access routes, and 3) other incidental areas necessary for equipment access. Minor earthwork may be completed to facilitate access near the south end of the borrow pit.
- **Equipment Flushing**. Application equipment with blended water will be flushed with fresh water. The flush water will be spread in a similar manner to the surface stabilizer application at the end of each workday. The storage tank used for blending will be flushed only when the tank is empty of product (e.g., at the end of product application).
- **Application Timing**. Application will not occur during precipitation events. The weather forecast will be monitored using National Weather Service forecast models to ensure application does not proceed if there is precipitation forecasted within 24 hours. Once cured (24 hours), Soiltac® is non-dissipating and will not wash away with water.
- **Spill Control**. The temporary storage tanks used for product storage and blending will be located within secondary containment for accidental leaks and minor fitting leaks. The secondary containment will have the capacity to contain 4 percent of the full tank volume, which provides protection for minor fitting leaks. Examples of secondary containment devices include Rain for Rent E-CONTAIN® or high wall spillguards, hose spill guards, and coupling spill guards.
- **Resource Protection Berms**. To protect the onsite ditches and wetlands against spills from the application apparatus resulting in runoff, 18-inch-tall resource protection berms will be installed as close as practical to the 300-foot buffer. Actual pushup berm locations will be based on constructability, with the main factor being soil moisture conditions. The soil stabilizer would not be applied to the resource protection berms.

### 1.3.2 Access Routes

Graded access routes (at grade, unpaved) are proposed around select BACM areas (Appendix A, Figure 2). Additionally, the existing 20-foot access road may be improved with an 8-inch layer of California Department of Transportation (Caltrans) Class II aggregate base (up to 2,130 cubic yards (CY) of base). Up to 285 truck trips would be required to deliver aggregate to the site.

### 1.3.3 Staging Areas

Two staging areas are identified to support implementation, including an in-field staging area. [A third staging area was considered at the northwest corner of the site but was eliminated from the Project description due to the presence of burrowing owls.] The in-field staging area (approximately 1.4 acres) will be used for surface stabilizer product storage, water storage, product mixing, equipment storage,



equipment parking, and a temporary portable restroom for employees. Three storage tanks are anticipated: one for raw water, one for stabilizer product, and one for blended product. An 8-inch layer of Caltrans Class II aggregate base (up to 1,550 CY of base) may be installed at the in-field staging area.

The northern staging area (Appendix A, Figure 2) will provide overflow staging to be used as needed. If the northern staging is required, a portion of the existing surface roughening may be collapsed.

## 1.4 Operation and Maintenance

### 1.4.1 Soil Stabilizer

During the application period, the integrity of the resource protection berms would be monitored to ensure containment of the applied stabilizer product. Once application is complete, dust control effectiveness would be monitored. Based on testing to-date, the surface stabilizer is anticipated to perform well on all soil types across the Project site. However, over the long-term, surface stabilizer longevity and performance could potentially vary based on soil type, precipitation, and any disturbance (e.g., sand deposition on the edges of the Project, or other disturbance events). Therefore, soils where the surface stabilizer is applied would be monitored with multiple lines of evidence, consistent with the approach for dust control performance monitoring in the Salton Sea Air Quality Mitigation Program.

### 1.4.2 Access Routes

Access routes may require periodic maintenance to flatten ruts, restore stability, or repair washouts. Access routes would be maintained, as required, with a roader grader or tractor with a scraper. If necessary, water would be applied to the access routes with a water truck.

# 2 Methods

This biological resource assessment of the BSA includes but was not limited to a literature review, reconnaissance-level survey, non-protocol survey to detect the presence of special-status plant and wildlife species, and a non-protocol avian survey to document the presence of birds, including listed species. Stantec biologists conducted the reconnaissance-level surveys in May 2021 and December 2021 and the aquatic and biological surveys in May 2021 and July 2024. A supplemental survey focused on burrowing owls was conducted in December 2025. Prior to the survey, a preliminary literature review of readily available resources was performed. The survey was conducted where accessible, based on terrain and availability of public access, on foot or via vehicle within the BSA.

## 2.1 Literature Review

A focused literature search of the BSA was conducted prior to the field surveys. The BSA is located within the USGS Niland, California, 7.5-minute topographic quadrangle. A search of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) was conducted for the BSA

and a surrounding 10-mile buffer area to determine special-status plants, wildlife, and vegetation communities that have been documented within this area (CDFW 2026a). The database included portions of the following quadrangles surrounding the BSA:

- Frink
- Wister
- Obsidian Butte
- Calipatria SW
- Iris Wash
- Iris
- West
- Westmorland

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:

- State and Federally Listed Endangered and Threatened Animals of California (CDFW 2024b, 2026b)
- Special Animals List (CDFW 2024c, 2026c)
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2024d, 2026d
- California Sensitive Natural Communities (CDFW 2024e, 2026e)
- Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society [CNPS] 2024, 2026)
- Consortium of California Herbaria (CCH) (CCH 2024, 2026)
- IID Habitat Conservation Plan (IID, CDFW, United States Fish and Wildlife Service ([USFWS] 2006)

## 2.2 Biological Surveys and Habitat Assessments

### 2.2.1 Site Reconnaissance and Field Surveys

Stantec conducted a habitat assessment and reconnaissance-level survey to document the environmental conditions present within the BSA, this assessment did not include focused, protocol-level surveys for rare plants or wildlife or other special-status resources. The primary goal of these initial surveys was to identify and assess habitat that may be capable of supporting special-status plant or wildlife species and determine the potential need for additional focused surveys for special-status resources. Biologists recorded all incidental plant and wildlife observations.

The survey was conducted during a season and time of day when resident and migratory birds would be expected to be present and exhibiting normal activity, small mammals would be active and detectable visually or by sign, and above-ground amphibian and reptile movement would generally be detectable. However, it should be noted that some wildlife species and individuals may have been difficult to detect due to their elusive nature, cryptic morphology, or nocturnal behavior. The surveys were conducted during daylight hours when temperatures were such that reptiles and other wildlife would be active (i.e., between 65-95 degrees Fahrenheit). The May 19 and 20, 2021, surveys were started shortly after sunrise considering most birds are generally active at sunrise. The May 18, 2021, survey occurred in the afternoon. The December 2021 surveys occurred in the morning and into the early afternoon. The July 2024 surveys occurred in the morning and into early afternoon with temperatures above 100 degrees Fahrenheit.



The BSA was investigated on foot (where accessible) by experienced field biologists walking throughout publicly accessible areas at an average pace of approximately 2 miles per hour while visually scanning for wildlife and their sign and listening to wildlife songs and calls. Biologists paused as necessary to listen for wildlife or to identify, record, or enumerate any observed species. Species present within the BSA were identified and recorded through direct visual observation, sound, or their sign (e.g., scat, tracks, etc.). Species identifications conform to the most up-to-date field guides and technical literature.

### 2.2.2 Vegetation Mapping

Vegetation descriptions and nomenclature are based on the second edition of *A Manual of California Vegetation* (MCVII) (Sawyer et al. 2009), where applicable, and have been defined to the alliance level. Vegetation maps were prepared by recording tentative vegetation type boundaries over recent aerial photograph base maps using the ESRI Collector for ArcGIS app on an Apple iPhone coupled with a Bad Elf GNSS Surveyor sub-meter external global positioning system (GPS) unit. Mapping was further refined in the office using ESRI ArcGIS (version 10.7) with aerial photograph base maps with an accuracy of 1 foot. Most boundaries shown on the maps are accurate within approximately 3 feet; however, boundaries between some vegetation types are less precise due to difficulties in interpreting aerial imagery and accessing stands of vegetation.

To support the vegetation mapping presented in this BRTR, Stantec conducted reconnaissance-level field surveys (see Appendix B for photographs). The biologists used binoculars to scan the habitats, take notes as to species composition, and record GPS locations for larger and easily identifiable vegetation on aerial based tablet maps. Stantec used these data to produce a vegetation community and land cover map for the entirety of the BSA (refer to Appendix A, Figure 3).

Vegetation communities can overlap in many characteristics and over time may shift from one community type to another. All vegetation maps and descriptions are subject to variability for the following reasons:

- In some cases, vegetation boundaries result from distinct events, such as wildfire or flooding, but vegetation types usually tend to intergrade on the landscape, without precise boundaries between them. Even distinct boundaries caused by fire or flood can be disguised after years of post-disturbance succession. Mapped boundaries represent best professional judgment, but usually should not be interpreted as literal delineations between sharply defined vegetation types.
- Natural vegetation tends to exist in generally recognizable types, but also may vary over time and geographic region. Written descriptions cannot reflect all local or regional variation. Many (perhaps most) stands of natural vegetation do not strictly fit into any named type. Therefore, a mapped unit is given the best name available in the classification system being used, but this name does not imply that the vegetation unambiguously matches written descriptions.
- Vegetation tends to be patchy. Small patches of one named type are often included within larger stands mapped as units of another type.

# 3 Regulatory Environment

## 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 United States Code [USC] 4321- 4327; 40 Code of Federal Regulations [CFR 1500-1508]). These guidelines establish an overall federal process for the environmental evaluation of projects.

### 3.1.2 Federal Endangered Species Act

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 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 CFR Section 17.3).

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 recent Ninth Circuit judicial opinion, *Gifford Pinchot Task Force v. USFWS*.

Activities that may result in "take" of federally listed species are regulated by USFWS. USFWS produced an updated list of candidate species December 6, 2007 (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.



### 3.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 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 the Interior. The MBTA encompasses whole birds, parts of birds, bird nests, and eggs.

### 3.1.4 Bald and Golden Eagle Protection Act of 1940 (16 USC 668)

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 USC 668, enacted by 54 Stat. 250) protects bald and golden eagles 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).

USFWS is the primary federal authority charged with the management of golden eagles in the United States. On November 10, 2009, the USFWS implemented new rules (74 FR 46835) governing the take of golden and bald eagles. The new 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 this act. 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 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act, as amended in 1964, requires that all federal agencies consult with National Marine Fisheries Service (NMFS), USFWS, and state wildlife agencies (i.e., CDFW) when proposed actions might result in modification of a natural stream or body of water. Federal agencies must consider effects that these projects would have on fish and wildlife development and provide for improvement of these resources. The Fish and Wildlife Coordination Act allows NMFS, USFWS, and CDFW to provide comments to United States Army Corps of Engineers (USACE) during review of projects under Section 404 of the Clean Water Act (concerning the discharge of dredged materials into navigable waters of the United States [WOTUS]) and Section 10 of the Rivers and Harbors Act regarding



obstructions in navigable waterways. NMFS comments provided under the Fish and Wildlife Coordination Act are intended to reduce environmental impacts to migratory, estuarine, and marine fisheries and their habitats.

### 3.1.6 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) provides for the conservation and management of the nation's fishery resources through the preparation and implementation of Fishery Management Plans (FMPs). The Magnuson-Stevens Act calls for the National Marine Fisheries Service (NMFS) to work with regional Fishery Management Councils to develop FMPs for each fishery under their jurisdiction.

One of the required provisions of FMPs specifies that Essential Fish Habitat (EFH) be identified and described for the fishery, adverse fishing impacts on EFH be minimized to the extent practicable, and other actions to conserve and enhance EFH be identified. The act also mandates that NMFS coordinate with and provide information to federal agencies to further the conservation and enhancement of EFH. Federal agencies must consult with NMFS on any action that might adversely affect EFH. When NMFS finds that a federal or state action would adversely affect EFH, it is required to provide conservation recommendations.

### 3.1.7 Clean Water Act Section 404 and Federal Jurisdictional Waters

The Clean Water Act (CWA), introduced in 1977 via amendatory legislation of the Federal Water Pollution Control Act, is the primary federal law in the United States regulating water pollution. Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or certain types of excavation within WOTUS and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Permits can be issued for individual projects (individual permits) or for general categories of projects (general permits). Terrestrial WOTUS as defined by the CWA have typically included rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands. Wetlands are defined by the CWA as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions." The USACE has adopted several revisions to their regulations to more clearly define WOTUS. The protection of federal jurisdictional WOTUS has been particularly contentious and subject to numerous legal decisions since 2001.

#### 3.1.7.1 1986 Regulations

In 1986, the federal agencies (USACE and United States Environmental Protection Agency [USEPA]) implemented historic regulations (the 1986 Regulations) that defined WOTUS to mean traditional navigable waters (TNWs), the territorial seas, interstate waters, and intrastate waters whose use or



degradation could affect interstate or foreign commence, as well as tributaries of and wetlands adjacent to any of those waters.

### 3.1.7.2 2001 Solid Waste Agency of Northern Cook County Ruling

Until the beginning of 2001, WOTUS included, among other things, isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters that are not part of a tributary system to interstate waters or to navigable WOTUS. The jurisdictional extent of USACE regulation changed with the 2001 Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers ruling. The United States Supreme Court held that the USACE could not apply Section 404 of the CWA to extend their jurisdiction over an isolated quarry pit. The Court ruled that the CWA does not extend federal regulatory jurisdiction over non-navigable, isolated, intra-state waters. However, the Court made it clear that non-navigable wetlands adjacent to navigable waters are still subject to USACE jurisdiction.

### 3.1.7.3 2006 Rapanos Ruling

In 2006, the United States Supreme Court issued its seminal decision in Rapanos v. United States (Rapanos). Justice Scalia narrowly interpreted the statutory term “waters of the United States” in a four-Justice plurality opinion, holding that CWA jurisdiction extended over only “relatively permanent, standing or continuously flowing bodies of water” that are connected to TNWs, plus wetlands with a “continuous surface connection” to such relatively permanent water bodies. Justice Kennedy wrote separately, concurring with the Court’s judgment with respect to the facts of the case, but interpreted “waters of the United States” to include wetlands that possess a “significant nexus” to waters that are or were navigable in fact or that could reasonably be so made.

The Court’s split decision and lack of a commanding majority opinion in Rapanos created confusion among the federal agencies and public. In 2008, the federal agencies released a regulatory guidance document, the 2008 Rapanos Guidance (USACE and USEPA 2008) addressing common questions about federal jurisdiction over WOTUS and clarifying the two jurisdictional standards from Rapanos. In the 2008 Rapanos Guidance, the federal agencies concluded that federal jurisdiction existed over certain waterbodies that meet either the “relatively permanent” standard from Justice Scalia’s plurality opinion or Justice Kennedy’s “significant nexus” standard.

### 3.1.7.4 2015 Clean Water Rule

The 1986 Regulations as interpreted by the 2008 Rapanos Guidance were later replaced by the 2015 Clean Water Rule. The federal agencies attempted to provide clarification on jurisdiction following the Rapanos ruling by replacing the numerous categories of waterbodies found in the 1986 Regulations with three broader categories: waters that are categorically “jurisdictional by rule” without the need for further analysis; waters that are subject to case-specific jurisdictional analysis; and waters that are categorically excluded from jurisdiction. The 2015 Clean Water Rule emphasized the “significant nexus” standard over the “relatively permanent” standard to include additional types of waters in the new “jurisdictional by rule” category. Traditional navigable waters, the territorial seas, interstate waters, tributaries of these waters, and wetlands adjacent to these waters were all deemed “jurisdictional by rule.” The result of the 2015



Clean Water Rule was an expansion in federal jurisdiction over waterbodies that might have otherwise been excluded from the definition of WOTUS on a case-by-case basis under the 1986 Regulations and the Rapanos ruling.

Federal jurisdictional WOTUS protected under the CWA were defined in a final 2015 Clean Water Rule; however, the Sixth Circuit United States Court of Appeals issued an order staying the 2015 Rule nationwide, pending a determination by the court on jurisdiction to review the rule. The 2015 Clean Water Rule was stayed, and the prior Regulations published in 1986, along with some changes in 2008 as a result of the Rapanos ruling, remained in effect.

#### 3.1.7.5 2020 Navigable Waters Protection Rule

In 2017, the Trump Administration issued Executive Order 13778, “Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the ‘Waters of the United States’ Rule.” The executive order directed the federal agencies to review the 2015 Clean Water Rule for consistency with the policy outlined in Section 1 of the order and to issue a proposed rule rescinding or revising the 2015 Clean Water Rule as appropriate and consistent with law. The federal agencies repealed the 2015 Rule and restored the previous regulatory regime as it existed prior to finalization of the 2015 Clean Water Rule with, “Definition of ‘Waters of the United States’—Recodification of Pre-Existing Rules.”

On January 23, 2020, the federal agencies issued the Navigable Waters Protection Rule (NWPR) to redefine WOTUS. The agencies streamlined the definition to include four simple categories of jurisdictional waters:

1. Traditional navigable waters and the territorial seas;
2. Tributaries of traditional navigable waters and the territorial seas;
3. Certain lakes, ponds, and impoundments of WOTUS; and
4. Wetlands adjacent to other WOTUS.

The NWPR provided clear exclusions for many water features that traditionally have not been regulated, and defined terms in the regulatory text that had never been defined before. Congress, in the CWA, explicitly directed the federal agencies to protect “navigable waters.” The intent of the NWPR was to regulate waters and the core tributary systems that provide perennial or intermittent flow and excluded ephemeral waters. The final NWPR fulfilling Executive Order 13788 became effective on June 22, 2020; however, on August 30, 2021, the United States District Court for the District of Arizona vacated the NWPR finding “fundamental, substantive flaws that cannot be cured without revising or replacing the NWPR’s definition.”

#### 3.1.7.6 2023 Revised Definition of “Waters of the United States”

On June 9, 2021, the USACE and USEPA under the Biden Administration announced intent to protect more waterways through environmental regulations, beginning a new rulemaking process that restores



protections put in place before 2015. Following the federal district court decision vacating the NWPR, USEPA and USACE halted implementation of the NWPR and began interpreting WOTUS consistent with the pre-2015 regulatory regime, deciding that prompt replacement of the NWPR through the administrative rulemaking process was vital.

On January 18, 2023, the federal agencies published the final "Revised Definition of 'Waters of the United States'" rule in the Federal Register and the rule became effective on March 20, 2023 (USACE and USEPA 2023). The 2023 Rule establishes a clear and reasonable definition of WOTUS and exercises their discretion under the statute to return generally to the familiar pre-2015 definition that has bounded the CWA's protections for decades. The implications of the final 2023 WOTUS rule are such that many ephemeral waters not considered protected under the former 2020 NWPR will now be protected.

With the 2023 WOTUS rule, USEPA and USACE interpreted the term WOTUS to include:

1. Traditional navigable waters, the territorial seas, and interstate waters;
2. Impoundments of other jurisdictional WOTUS;
3. Tributaries to either of the above waters, or when the tributaries meet the "relatively permanent" standard or the "significant nexus" standard, (collectively, "jurisdictional tributaries");
4. Wetlands adjacent to traditional waters, wetlands adjacent and with a continuous surface connection to relatively permanent tributaries and impoundments, and wetlands adjacent to other jurisdictional tributaries when those wetlands meet the "significant nexus" standard; and
5. Intrastate lakes and ponds, streams, or wetlands as defined in 1–4 above that meet either the "relatively permanent" standard or the "significant nexus" standard.

For purposes of characterizing a "jurisdictional adjacent wetland" under the 2023 WOTUS Rule, a wetland may be considered "adjacent" to WOTUS if any of the following three criteria are satisfied:

1. The wetland has an unbroken surface or shallow subsurface connection to WOTUS;
2. The wetland is physically separated from WOTUS by man-made dikes or barriers, natural river berms, and the like; or
3. The wetland is reasonably proximate to WOTUS such that the wetland has significant effects on water quality and the aquatic ecosystem of WOTUS.

#### 3.1.7.7 2023 Sackett Ruling

On May 25, 2023, the United States (U.S.) Supreme Court issued its ruling in Sackett v. Environmental Protection Agency (Sackett), which established a more stringent test to determine whether the CWA applies to certain categories of wetland. The Sackett family had backfilled a lot near Priest Lake in Idaho, and in agreeing that the Sacketts' lot is a wetland, the U.S. Court of Appeals for the 9th Circuit applied the test outlined by Justice Kennedy in Rapanos: whether there is a "significant nexus" between the wetlands



and waters that are covered by the CWA, and whether the wetlands "significantly affect" the quality of those waters. With Sackett, the U.S. Supreme Court unanimously reversed the 9th Circuit's ruling, where in a majority opinion, lower courts were directed to apply a more stringent test in Rapanos, in which the CWA applies to a particular wetland only if it blends or flows into a neighboring water that is a channel for interstate commerce. While the Court decided that it is clear that some "adjacent" wetlands will also qualify under the CWA as "waters of the United States," wetlands that are entirely separate from traditional bodies of water will not qualify. The CWA will apply to wetlands that are "as a practical matter indistinguishable from waters of the United States" because they have a "continuous surface connection" with a larger body of water, "making it difficult to determine where the 'water' ends and the 'wetland' begins."

The result of the Sackett ruling is that certain adjacent wetlands formerly protected under the CWA will no longer be federally protected. The USACE and USEPA have acknowledged the Sackett ruling and indicated they will interpret the phrase "waters of the United States" consistent with the U.S. Supreme Court's decision in Sackett.

#### 3.1.7.8 Amendment to the 2023 WOTUS Rule

On August 29, 2023, the USEPA and USACE announced a final rule amending the 2023 definition of WOTUS to conform with the recent U.S. Supreme Court decision in Sackett. While EPA's and USACE's 2023 WOTUS rule defining WOTUS was not directly before the Supreme Court, the decision in Sackett made clear that certain aspects of the WOTUS 2023 rule are invalid. The amendments issued are limited and change only parts of the 2023 rule that are invalid under the Sackett decision. For example, the final rule removes the significant nexus test from consideration when identifying tributaries and other waters as federally protected.

#### 3.1.7.9 Exemptions Under Clean Water Act Section 404

Activities that are exempt under CWA Section 404(f) include:

1. Nominal farming, silviculture and ranching activities,
2. (Emergency) maintenance activities,
3. Construction and maintenance of farm ponds, stock ponds, or irrigation ditches or the maintenance of drainage ditches,
4. Construction of temporary sedimentation basins,
5. Any activity with respect to which a State has an approved program under CWA Section 208(b)(4) which meets the requirements of sections 208(b)(4) (B) and (C) (this pertains to certain applicable statewide waste treatment management programs), and
6. Construction or maintenance of farm roads, forest roads, or temporary roads for moving mining equipment.



Exceptions to these exemptions include:

1. Discharge of toxic pollutants, and

2. If it is part of an activity whose purpose is to convert an area of a WOTUS into a use to which it was not previously subject, where the flow and/or circulation of waters may be impaired or the reach of the waters reduced.

#### 3.1.7.10 Extent of Jurisdiction

The extent of CWA Section 404 jurisdiction for non-tidal waters includes non-isolated aquatic features (including wetlands qualifying under the original federal 1986 standards and non-wetland WOTUS) bound by an "ordinary high water mark" as defined by 33 CFR 328.3(e):

> *"The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."*

Features considered isolated from TNWs and the exemptions listed above are not considered WOTUS under the jurisdiction of CWA Section 404.

### 3.1.8 Federally Regulated Habitats

Areas that meet the regulatory definition of "waters of the United States" are subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (CWA) (1972) and Section 10 of the Rivers and Harbors Act (RHA) (1899). WOTUS may include all waters used or potentially used for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (e.g., intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as WOTUS, tributaries of waters otherwise defined as WOTUS, territorial seas, and wetlands (i.e., "Special Aquatic Sites") adjacent to WOTUS (33 CFR Part 328, Section 328.3).

Construction activities within WOTUS are regulated by USACE. The placement of fill into such waters must comply with permit requirements of USACE. No USACE permit would be effective in the absence of State Water Quality Certification pursuant to Section 401 of the CWA. As a part of the permit process, the USACE works directly with the USFWS to assess potential Project impacts on biological resources.

### 3.1.9 Rivers and Harbors Act of 1899

#### 3.1.9.1 Section 14

Compliance with Section 14 of the RHA (1899 and codified in 33 USC 408) is required if a project would modify, alter, and/or occupy an existing USACE-constructed public works project (e.g., a levee). In order

for the USACE Lead District to approve any proposed alterations requests, it must meet USACE standards, and must not be injurious to the public interest or affect the USACE project's ability to meet its authorized purpose.

#### 3.1.9.2 Section 10

Section 10 of the RHA (33 USC Section 403) requires authorization from the USACE for work or structures in or affecting navigable WOTUS.

The term "navigable waters of the U. S." generally includes those waters that are subject to the ebb and flow of the tide or are presently used, have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody and is not extinguished by later actions or events that impede or destroy navigable capacity (33 CFR Section 329.4).

The term "structure" includes, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other obstacle or obstruction (33 CFR Section 322.2).

The term "work" includes, without limitation, any dredging or disposal of dredged material, excavation, filling, or other modification of a navigable WOTUS (33 CFR Section 322.2).

The geographic and jurisdictional limits of the USACE's Section 10 jurisdiction in rivers and lakes are:

*(a) Jurisdiction over entire bed. Federal regulatory jurisdiction, and powers of improvement for navigation, extend laterally to the entire water surface and bed of a navigable waterbody, which includes all the land and waters below the ordinary high-water mark. Jurisdiction thus extends to the edge (as determined above) of all such waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation or other barriers. Marshlands and similar areas are thus considered navigable in law, but only so far as the area is subject to inundation by the ordinary high waters.*

*(1) The ordinary high-water mark of non-tidal rivers is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas.*

*(2) Ownership of a river or lakebed or of the lands between high and low water marks will vary according to state law; however, private ownership of the underlying lands has no bearing on the existence or extent of the dominant Federal jurisdiction over a navigable waterbody.*

*(b) Upper limit of navigability. The character of a river will, at some point along its length, change from navigable to non-navigable. Very often that point will be at a major fall or rapids, or other place where there is a marked decrease in the navigable capacity of the river. The upper limit will therefore often be the same point traditionally recognized as the head of navigation, but may, under some of the tests described above, be at some point yet farther upstream.*

The geographic and jurisdictional limits of Corps jurisdiction in oceanic and tidal waters of the U.S. are:

*(a) Ocean and coastal waters. The navigable waters of the U.S. over which Corps regulatory jurisdiction extends include all ocean and coastal waters within a zone three geographic (nautical) miles seaward from the baseline (The Territorial Seas). Wider zones are recognized for special regulatory powers exercised over the outer continental shelf. 33 C.F.R. § 322.3(b).*

*(1) Baseline defined. Generally, where the shore directly contacts the open sea, the line on the shore reached by the ordinary low tides comprises the baseline from which the distance of three geographic miles is measured. The baseline has significance for both domestic and international law and is subject to precise definitions. Special problems arise when offshore rocks, islands, or other bodies exist, and the baseline may have to be drawn seaward of such bodies.*

*(2) Shoreward limit of jurisdiction. Corps regulatory jurisdiction in coastal areas extends to the line on the shore reached by the plane of the mean (average) high water. Where precise determination of the actual location of the line becomes necessary, it must be established by survey with reference to the available tidal datum, preferably averaged over a period of 18.6 years. Less precise methods, such as observation of the "apparent shoreline" which is determined by reference to physical markings, lines of vegetation, or changes in type of vegetation, may be used only where an estimate is needed of the line reached by the mean high water.*

*(b) Bays and estuaries. Corps regulatory jurisdiction extends to the entire surface and bed of all waterbodies subject to tidal action. Jurisdiction thus extends to the edge (as determined by paragraph (a)(2) above) of all such waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation, or other barriers. Marshlands and similar areas are thus considered "navigable in law," but only so far as the area is subject to inundation by the mean high waters. The relevant test is therefore the presence of the mean high tidal waters, and not the general test described above, which generally applies to inland rivers and lakes.*

Structures or work outside the limits defined above for navigable WOTUS require a Department of the Army permit pursuant to Section 10 of the RHA if the structure or work affects the course, location, or condition of the water body in such a manner as to impact on its navigable capacity (33 CFR Section 322.3).



The BSA contains potential navigable WOTUS subject to USACE jurisdiction under Section 10 of the RHA.

Section 14 of the RHA of 1899 (33 USC Section 408), commonly referred to as "Section 408," authorizes the USACE to grant permission to alter, occupy, or use a USACE civil works project if the Secretary determines that the activity would not be injurious to the public interest and would not impair the usefulness of the project.

## 3.2 State Regulations

### 3.2.1 California Environmental Quality Act

The 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 state of California process for the environmental evaluation of projects.

### 3.2.2 California Endangered Species Act

Provisions of the California Endangered Species Act (CESA) protect state-listed threatened and endangered species. The CDFW regulates activities that may result in take of individuals (i.e., 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 California Fish and Game Code (FGC). Additionally, the FGC contains lists of vertebrate species designated as "fully protected" (FGC Sections 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]). Such species may not be taken or possessed.

In addition to federal and State-listed species, the CDFW has also produced a list of Species of Special Concern (SSC) to serve as a "watch list." Species on this list are of limited distribution or the extent of their habitats has 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.

Birds of prey are protected in California under the FGC. FGC Section 3503.5 states that 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." 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 FGC, 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, or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the MBTA, or the taking of any non-game bird pursuant to FGC Section 3800 are prohibited.



### 3.2.3 Section 1602 of the California Fish and Game Code

Section 1602 of the FGC requires any person, state or local governmental agency, or public utility which proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, or use materials from a streambed, or result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake, to first notify the CDFW of the proposed project. Notification is generally required for any project that would take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Based on the notification materials submitted, the CDFW would determine whether the proposed project may impact fish or wildlife resources.

If the CDFW determines that a proposed project involving a waterway may substantially adversely affect existing fish or wildlife resources, a Lake or Streambed Alteration Agreement (LSAA) would be required. A completed CEQA document must be submitted to CDFW before an LSAA would be issued.

### 3.2.4 Porter-Cologne Water Quality Control Act

California Regional Water Quality Control Boards (RWQCBs) regulate the “discharge of waste” to “waters of the State”. All projects proposing to discharge waste that could affect waters of the State must file a Waste Discharge Report with the appropriate RWQCB. The board responds to the report by issuing Waste Discharge Requirements or by waiving them for that project discharge. Both terms “discharge of waste” and waters of the State are broadly defined such that discharges of waste include fill, any material resulting from human activity, or any other “discharge.” Isolated wetlands within California, which are no longer considered waters of the US, as defined by Section 404 of the CWA, are addressed under the Porter Cologne Water Quality Control Act.

### 3.2.5 State-Regulated Habitats

The State Water Resources Control Board is the state agency (together with the RWQCBs) charged with implementing water quality certification in California.

The CDFW extends the definition of stream to include “intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (USGS-defined), and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife” (CDFW 1994).

Activities that result in the diversion or obstruction of the natural flow of a stream; that substantially change its bed, channel, or bank; or that use any materials (including vegetation) from the streambed may require that the project applicant to enter into an LSAA with the CDFW.



### 3.2.6 Native Plant Protection Act

Under FGC 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 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 CDFW to salvage listed plant species that would otherwise be destroyed. A Project applicant is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of the NPPA and sections of CEQA that apply to rare or endangered plants.

### 3.2.7 California Native Plant Society Rare Plant Program

The mission of the 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 species has been identified as being of potential conservation concern, it is put through an extensive review process. Once a species has gone through the review process, information on all aspects of the species (e.g., listing status, habitat, distribution, threats, etc.) is entered into the online CNPS Rare Plant Inventory and given a California Rare Plant Rank (CRPR). The Rare Plant Program currently recognizes more than 1,600 plant taxa (species, subspecies and varieties) as rare or endangered in California.

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

- CRPR 1A: Plants considered by the CNPS to be extinct in California
- CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
- CRPR 2: Plants rare, threatened, or endangered in California, but more numerous elsewhere
- CRPR 3: Plants about which we need more information – a review list
- 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 added onto the CRPR and designates the level of endangerment by a 0.1 to 0.3 ranking, with 0.1 being the most endangered and 0.3 being the least endangered. Threat ranks are described as follows:

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

# 3.3 Local Regulations

## 3.3.1 Imperial Valley Natural Community Conservation Plan and Habitat Conservation Plan

The Imperial Valley Natural Community Conservation Plan (NCCP) and Habitat Conservation Plan (HCP) Planning Agreement Number 2810-2004-001-06 was executed on February 1, 2006, by the IID, CDFW, and USFWS. This NCCP/HCP is still in process and has not been finalized (IID 2024). This NCCP/HCP was created to provide protection and conservation of local biological diversity including sensitive species, common species, natural communities, and ecological processes and to continue the growth and development of human activities in the area. This NCCP/HCP covers approximately 500,000 acres within Imperial County (including the Project site) and a small portion of Riverside County. The area includes the rights-of-way along the All-American Canal from the Imperial Dam on the Colorado River to Calexico and the IID service area from the United States and Mexico border to the Salton Sea, which includes the rights-of-way along the canals (IID, CDFW, USFWS 2006).

Within the NCCP/HCP planning area, there are specific species that are protected (or may be protected in the future) under CESA and/or FESA. Wetlands are also protected by this NCCP/HCP.

## 3.3.2 Imperial County General Plan – Conservation and Open Space Element

The Conservation and Open Space Element of the Imperial County General Plan (Imperial County 2016) contains plans and measures for the preservation and management of biological and cultural resources, soils, minerals, energy, regional aesthetics, air quality, and open space. The purpose of the Conservation and Open Space Element is to promote the protection, maintenance, and use of the County's cultural and natural resources, to prevent destruction and neglect of cultural resources, to recognize the importance of maintaining natural resources, and to protect open space for the conservation of natural and cultural resources, the managed production of resources, outdoor recreation, and public health and safety.

The Conservation and Open Space Element discusses the enactment of policies to protect natural resources within Imperial County for future generations as detailed in the sections summarized below.

### 3.3.2.1 Biological Resources

The General Plan establishes goals and objectives that prioritize the conservation of critical habitats and to manage their integrity, function, productivity, and long-term viability.

The objectives include:

- designating critical habitats for Federally and State-listed species;
- developing management programs for flat-tailed horned lizard (*Phrynosoma mcallii*), desert pupfish (*Cyprinodon macularius*), and burrowing owl (*Athene cunicularia*); and

- giving conservation of sensitive species and habitat a high priority in County Parks acquisition and development programs.

Critical habitat is designated in Imperial County for the following species: desert pupfish, razorback sucker (*Xyrauchen texanus*), desert tortoise (*Gopherus agassizii*), Peirson's milk-vetch (*Astragalus magdalenae peirsonii*), Peninsular bighorn sheep (*Ovis canadensis nelson*), and yellow-billed cuckoo (*Coccyzus americanus*).

#### 3.3.2.2 Water Resources

The General Plan establishes goals and objectives that prioritize the conservation, protection, and enhancement of water resources in Imperial County.

The objectives include:

- the use and protection of all the rivers, waterways, and groundwater sources in Imperial County for use by future generations,
- ensuring proper drainage and providing accommodation for storm runoff from urban and other developed areas in manners compatible with requirements to provide necessary agricultural drainage,
- protecting and improving water quality and quantity for all water bodies in Imperial County, and
- encouraging water conservation and efficient water use among municipal and industrial water users, as well as reclamation and reuse of wastewater.

#### 3.3.2.3 Open Space and Recreation

Open space preservation can serve many purposes, including the preservation and enhancement of environmental resources for both ecological and recreational purposes, as well as the proper management of environmental hazards.

Imperial County includes Sunbeam Lake Park, Wiest Lake Park, Red Hill Marina Park, Ocotillo Community Park, and Palo Verde Park. The open space objectives are set to recognize the regional significance of the development and conservation of recreational opportunities in Imperial County and conserve desert lands within Imperial County's jurisdiction for wildlife protection, recreation, and aesthetic purposes.

#### 3.3.2.4 Conservation and Restoration of the Salton Sea

The General Plan establishes a goal for Imperial County to work towards comprehensive restoration of the Salton Sea to provide recreation, healthy habitat for wildlife, and economic revitalization in the region.

The objectives include:



- developing programs in association with County, State, and Federal agencies, and the Salton Sea Joint Powers Authority to restore the Salton Sea,
- encouraging renewable energy developments that include Salton Sea restoration components,
- coordination with USFWS, CDFW, and the Salton Sea Joint Powers Authority in developing programs to protect and restore migratory bird habitat, desert pupfish, and other sensitive or endangered species associated with the Salton Sea, and
- developing educational programs to promote a greater understanding of the value and importance of the Salton Sea habitat management areas among Imperial County residents.

# 4 Existing Conditions

## 4.1 Setting

The BSA is located near the City of Calipatria, Imperial County, California and is mostly open space with the Alamo River to the north, agricultural fields and Garst Road to the east, agricultural fields and Sonny Bono Salton Sea National Wildlife Refuge to the southwest, and open playa and the Salton Sea to the west. The elevation of the BSA ranges between approximately 225 and 230 feet below mean sea level. The BSA falls within areas that were previously underwater and part of the Salton Sea.

## 4.2 Vegetation Communities and Land Cover Types

As defined in Manual of California Vegetation II (MCVII) (Sawyer et al. 2009), a vegetation alliance is “a category of vegetation classification which describes repeating patterns of plants across a landscape. Each alliance is defined by plant species composition and reflects the effects of local climate, soil, water, disturbance, and other environmental factors.” Generally, Stantec’s mapping and description of plant communities follows the classification system described in MCVII. The MCVII is generally limited to communities that are native to or naturalized within California; however, in addition to these communities, disturbed habitat occurs within the BSA that is not defined in MCVII. Therefore, land cover types assigned to these types of habitats are descriptive in nature and are not specifically referenced in the MCVII.

A list of vegetation communities and acreages in the BSA are included in Table 1. As with any annual vegetation, the cover and abundance of annual species may vary year to year depending on several factors including the amount and timing of precipitation (Sawyer et. al 2009). The botanical nomenclature within this report follows the Jepson Herbarium online database, eFlora (Jepson Flora Project 2024). Plant species documented during the reconnaissance surveys are provided in Section 4.2.3.

*Table 1. Vegetation Communities and Land Cover Types within the Project Site and BSA*

| Vegetation Communities/Land Cover Types | Project Site (acres) | BSA (acres) |
|---|---|---|
| **Vegetation Communities** | | |
| Cattail Marsh | -- | 22.90 |
| Giant Reed and Tamarisk Thickets | -- | 19.86 |
| Iodine Bush Scrub | 47.59 | 48.84 |
| Tamarisk Thickets | 33.97 | 35.97 |
| **Land Cover Types** | | |
| Disturbed/Developed | 6.02 | 78.59 |
| Disturbed Playa | 568.99 | 612.08 |
| Rock Outcrop | -- | 1.92 |
| Row and Field Agriculture | -- | 10.46 |
| Borrow Pit | 1.70 | 1.70 |
| Excavated Channel | 1.35 | 1.43 |
| Vegetated Channel | -- | 0.51 |
| Non-Vegetated Channel | -- | 6.00 |
| Riverine | -- | 3.98 |
| Open Water | -- | 0.29 |
| **Total** | 659.62 | 844.53 |

## 4.2.1 Vegetation Communities

### 4.2.1.1 Cattail Marsh (*Typha* [*angustifolia, domingensis, latifolia*] Herbaceous Alliance)

This classification is dominated/co-dominated by narrow leaf cattail (*Typha angustifolia*), southern cattail (*Typha domingensis*), or broadleaf cattail (*Typha latifolia*) in the herbaceous layer including but not limited to creeping bentgrass (*Agrostis stolonifera*), Cyperus (*Cyperus* sp.), salt grass (*Distichlis spicata*), spike rush (*Eleocharis macrostachya*), rushes (*Juncus* sp.), perennial pepperweed (*Lepidium latifolium*), dotted smartweed (*Persicaria punctata*), California bulrush (*Schoenoplectus californicus*), and cocklebur (*Xanthium strumarium*). Emergent trees may be present at low cover, including willows. This classification is found in semi-permanently flooded freshwater or brackish marshes. Soils are clayey or silty. The USFWS Wetland Inventory (1996 national list) recognizes narrow leaf cattail, southern cattail, or broadleaf cattail as obligate (OBL) plants. The state rarity rank is S5 (CNPS MCV 2024a).

Within the BSA, the Cattail Marsh vegetation community was dominated by narrowleaf cattail (*Typha angustifolia*) and southern cattail (*Typha domingensis*). During the 2021 and 2024 surveys, there was little to no water within the Cattail Marsh found along Garst Road, but there was water within the Cattail Marsh found adjacent to Gentry Road at the southwestern section of the BSA. Approximately 22.90 acres of Cattail Marsh occurs within the BSA. However, there was no Cattail Marsh mapped within the Project Site.



#### 4.2.1.2 Giant Reed and Tamarisk Thicket (*Arundo donax* and *Tamrisk spp.* Semi-natural Stands)

The Giant Reed and Tamarisk Thicket is not a MCVII vegetation community; however, information on these vegetation communities is provided below.

The Giant Reed Semi-Natural Stand classification is dominated by giant reed (*Arundo donax*) in the herbaceous layer with species including, but not limited to, perennial ragweed (*Ambrosia psilostachya*), yerba mansa (*Anemopsis californica*), desert salt grass (*Distichlis spicata*), Baltic rush (*Juncus arcticus*), perennial pepperweed (*Lepidium latifolium*), chairmaker's bulrush (*Schoenoplectus americanus*), and cattails (*Typha* spp.). Emergent trees may be present at low cover and emergent shrubs may be present, including Fremont's cottonwood (*Populus fremontii*), willows (*Salix* ssp.), saltmarsh baccharis (*Baccharis douglasii*), and buttonbush (*Cephalanthus occidentalis*). This vegetation community is found in riparian areas, low gradient streams, ditches, and brackish marshes (CNPS MCV 2024b). See Section 4.2.1.4 for information on Tamarisk Thicket.

Within the BSA, the Giant Reed and Tamarisk Thicket vegetation community was co-dominated by giant reed and salt cedar/tamarisk. The Giant Reed and Tamarisk Thicket was found along the Alamo River at the northern border of the BSA. Approximately 19.86 acres of Giant Reed and Tamarisk Thickets occur at the northeastern corner along the Alamo River within the BSA. However, there are no Giant Reed and Tamarisk Thickets within the Project Site.

#### 4.2.1.3 Iodine Bush Scrub (*Allenrolfea occidentalis* Shrubland Alliance)

This classification is dominated/co-dominated by iodine bush (*Allenrolfea occidentalis*) in the shrub and herbaceous layers with four-wing saltbush (*Atriplex canescens*), salt grass (*Distichlis spicata*), alkali heath (*Frankenia salina*), Mojave red sage (*Kochia californica*), greasewood (*Sarcobatus vermiculatus*), alkali sacaton (*Sporobolus airoides*), and bush seepweed (*Suaeda moquinii*). This classification is found in dry lakebed margins, playas perched above current drainages, and seeps. The USFWS Wetland Inventory (1996 national list) recognizes iodine bush as a facultative positive (FACW+) plant. The state rarity rank is S3.2 (CNPS MCV 2024c).

Within the BSA, the Iodine Bush Scrub vegetation community was dominated by iodine bush with no other typical Iodine Bush Scrub species; however, this vegetation community was adjacent to and mixed in with the Tamarisk Thicket. The Iodine Bush Scrub was found within the southern section of the BSA and along the Central Ditch and Southern Ditch. Approximately 48.84 acres of Iodine Bush Scrub occur in the southern portion of the BSA. Approximately 47.59 acres of Iodine Bush Scrub occur within the southern portion of the Project Site.

#### 4.2.1.4 Tamarisk Thicket (*Tamarix* spp. Shrubland Semi-Natural Alliance)

This classification is dominated by salt cedar/tamarisk (*Tamarix ramosissima*) or another tamarisk species in the shrub canopy. Emergent trees may be present at low cover, including Fremont cottonwood (*Populus fremontii*) or willow (*Salix* spp.). This classification is found in arroyo margins, lake margins,



ditches, washes, rivers, and other watercourses. The USFWS Wetland Inventory (1996 national list) recognizes small flower tamarisk (*Tamarix parviflora*) and salt cedar as a facultative (FAC) plant. There is no state rarity rank for this classification (CNPS MCV 2024d).

Within the BSA, the Tamarisk Thicket vegetation community was dominated by salt cedar/tamarisk (*Tamarix* ssp) with no other typical Tamarisk Thicket species; however, this vegetation community was adjacent to and mixed with Iodine Bush Scrub. The Tamarisk Thicket was found within the southern Section of the BSA and along the Central Ditch and Southern Ditch. Approximately 35.97 acres of Tamarisk Thicket occur in the southern portion of the BSA. Approximately 33.97 acres of Tamarisk Thicket occur within the southern portion of the Project Site.

## 4.2.2 Land Cover Types

### 4.2.2.1 Disturbed/Developed

This land cover type includes areas that have been graded or paved and are developed with urban infrastructure. These areas are generally maintained for weed control, precluding any significant growth of non-ornamental species, but may be sparsely interspersed with ruderal pioneer plant species that readily colonize open disturbed soil such as along disturbed areas or roadsides.

Within the BSA, this land cover type includes maintained accessed roads on the north, east, west, and south sides of the BSA and developed basins along the northern portion of the BSA. Approximately 78.59 acres of Disturbed/Developed areas occur within the BSA. Approximately 6.02 acres of Disturbed/Developed areas occur within the Project Site.

### 4.2.2.2 Disturbed Playa

This land cover type includes tilled and furrowed dry lakebed, which was formerly part of the Salton Sea. This area is sparsely vegetated with fleeting annual grasses and herbs.

Approximately 612.08 acres of Playa occur within the majority of the center and northern sections of the BSA. Approximately 568.99 acres of Playa occur within the majority of the center and northern sections of the Project Site.

### 4.2.2.3 Rock Outcrop

This is an area of visible exposure of bedrock at the northwestern corner of the BSA. Approximately 1.92 acres occur within the BSA. While there is a Rock Outcrop near the northwest end of the Project Site, Rock Outcrop does not occur within the Project Site.

### 4.2.2.4 Row and Field Agriculture

This is an area of agricultural fields along the southern portion of the BSA. Approximately 10.46 acres occur within the BSA. However, Row and Field Agriculture does not occur within the Project Site.



#### 4.2.2.5 Borrow Pit

This land cover type is a human-dug pit with standing, stagnant water which encompasses approximately 1.70 acres between the Center Ditch and the Southern Ditch along the western portion of the BSA and Project Site.

#### 4.2.2.6 Riverine

This land cover type was used to map the approximate limits of the perennial Alamo River which encompasses approximately 3.98 acres along the northern portion of the BSA. However, the Riverine feature does not occur within the Project Site.

#### 4.2.2.7 Open Water

This land cover type was used to map the approximate limits of the open water habitat which encompasses approximately 0.29 acres along the eastern border of the BSA. However, Open Water does not occur within the Project Site.

#### 4.2.2.8 Vegetated Channel

This land cover type was used to map the approximate limits of the vegetated man-made excavated channels in the southern portion of the BSA. The vegetation within the channels is comprised of ruderal plants. This channel encompasses approximately 0.51 acres within the BSA adjacent to the Row and Field Agriculture. However, the vegetated channels do not occur within the Project Site.

#### 4.2.2.9 Non-Vegetated Channel

This land cover type was used to map the approximate limits of the irrigation channel open water habitat which runs parallel to and east of Garst Road. This channel encompasses approximately 6.00 acres within the BSA. However, non-vegetated channel does not occur within the Project Site.

#### 4.2.2.10 Excavated Channel

This land cover type was used to map the approximate limits of the man-made excavated channels in the Project Site, including the Center Ditch, Southern Ditch, and the two unnamed excavated channels along the eastern border of the BSA. Excavated channels encompass approximately 1.43 acres within the BSA. Approximately 1.35 acres of excavated channel occur within the Project Site.

### 4.2.3 Plant Species Observed

Plant species observed in the BSA are presented in Table 2.

*Table 2. Plant Species Observed in the BSA*

| Scientific Name | Common Name |
|---|---|
| *Allenrolfea occidentalis* | iodine bush |
| *Arundo donax** | giant reed |
| *Atriplex hymenelytra* | desert holly |
| *Atriplex canescens* | hoary saltbush |
| *Atriplex lentiformis* | big saltbush |
| *Cyperus* sp. | sedge |
| *Distichlis spicata* | saltgrass |
| *Heliotropium curassavicum* | salt heliotrope |
| *Lycium* sp. | boxthorn sp. |
| *Parkinonia* sp.* | Palo verde |
| *Pluchea odorata* | mash fleabane |
| *Pluchea sericea* | arrowweed |
| *Rumex* sp.* | dock sp. |
| *Salix* sp. | willow |
| *Tamarix ssp.** | tamarisk |
| *Typha* sp. | cattail sp. |
| *Typha angustifolia** | narrowleaf cattail |
| *Typha domingensis* | southern cattail |

* Non-native species

# 4.3 Common Wildlife

## 4.3.1 Terrestrial Invertebrates

While a focused survey for insects was not conducted within the BSA during the May and December 2021 surveys, randomly selected areas within the appropriate micro habitats (e.g., leaf litter, woody debris piles, etc.) were hand raked or visually inspected to determine the presence/absence of invertebrates and gastropods, as a variety of common insects are known to occur in the area. Conditions in the BSA provide a suite of microhabitat variations for a wide variety of terrestrial insects and other invertebrates. As in all ecological systems, invertebrates in the BSA play a crucial role in a number of biological processes. They serve as the primary or secondary food source for a variety of bird, reptile, and mammal predators; they provide important pollination vectors for numerous plant species; they act as efficient components in controlling pest populations; and they support the naturally occurring maintenance of an area by consuming detritus and contributing to necessary soil nutrients. The hand raked and visually inspected areas of the BSA detected a wide variety of common and non-native invertebrates. Some of the orders identified in the BSA included beetles (*Coleoptera* spp.), flies (*Diptera* spp.), grasshoppers (*Orthoptera* spp.), crickets (*Gryllidae* spp.), isopods (*Isopoda* spp.), snails (*Gastropoda*



spp.), spiders (*Araneae* spp.), moths and butterflies (*Lepidoptera* spp.), bees (*Apis* spp.), and ants (*Hymenoptera* spp.).

### 4.3.2 Fish

The Project site was inundated with water from the late 1940s until around 2012 to 2014, when it was fully exposed due to a reduction in flows to the Salton Sea. Because of berms, roads, and other land features, the site is hydraulically isolated from all overland flood flows, with the exception of the northwest Project site which receives uncontrolled surface flow runoff from Red Hill. The remainder of the site receives only rainfall precipitation, which averages around 3 inches annually (NOAA 2024). In the southeast corner of the site, there are agricultural runoff surface discharges originating from adjacent upslope agricultural areas. These flows are variable and the actual volume discharged is unquantified. Agricultural drainage flow is currently conveyed through the Project site in two ditches: the Center Ditch, and the Southern Ditch.

Desert pupfish have been known to be found in waters in the surrounding area (USFWS 2014) and were observed in the Southern Ditch during the May 2021 surveys. Nonnative fish, such as tilapia (*Tilapia* sp.), longjaw mudsucker (*Gillichthys mirabilis*), mosquitofish (*Gambusia affinis*), and sailfin molly (*Poecilia latipinna*) also have potential to be found within the Project site. During the July 2024 survey, black molly (*Poecilia sphenops*) and sailfin molly were observed in the Southern Ditch.

### 4.3.3 Amphibians

Amphibians require a source of standing or flowing water to complete their life cycle. However, some terrestrial species can survive in drier areas by remaining in moist environments or by burrowing into the soil. Downed logs, bark, and other woody material in various stages of decay (often referred to as coarse woody debris) likely provide shelter and feeding sites for a variety of wildlife, including amphibians and reptiles (Maser and Trappe 1984; Aubry et al. 1988). These species are highly cryptic and often difficult to detect. Amphibians require aquatic habitats for all or part of their life cycle, which is present within the BSA; however, no amphibians were observed during the 2021 or 2024 surveys.

Although these species were not detected, suitable habitat conditions for common amphibians were observed within the BSA, including western spadefoot (*Spea hammondii*), arroyo toad (*Anaxyrus californicus*), and western toad (*Anaxyrus boreas*).

### 4.3.4 Reptiles

The number and type of reptile species that may occur at a given site are related to a number of biotic and abiotic features. These include the diversity of plant communities, substrate, soil type, and presence of refugia such as rock piles, boulders, and native debris. Weather conditions were favorable during the surveys for reptile activity.

Many reptile species, even if present, are difficult to detect because they are cryptic and their life history characteristics (e.g., foraging, thermoregulatory behavior, fossorial nature, camouflage etc.) limit their



ability to be observed during most surveys. Further, many species are only active within relatively narrow thermal limits, avoiding both cold and hot conditions, and most take refuge in microhabitats that are not directly visible to the casual observer, such as rodent burrows, in crevices, under rocks and boards, and in dense vegetation where they are protected from unsuitable environmental conditions and predators (USACE and California Department of Fish and Game 2010). In some cases, they are only observed when flushed from their refugia.

Although these species were not detected, suitable habitat conditions for common reptiles were observed within the BSA, including common side-blotched lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), and western whiptail (*Aspidoscelis tigris*).

### 4.3.5 Birds

Birds were identified by sight and sound and were observed throughout the BSA. Most bird species were observed within wetland areas in the southwestern and eastern portions of the BSA. Flyovers by turkey vulture (*Cathartes aura*) and American kestrel (*Falco sparverius*) were noted. A group of cliff swallows (*Petrochelidon pyrrhonota*) were observed and likely nesting under the bridge at the Alamo River in the northern portion of the BSA. Seven special-status bird species were observed within and adjacent to the BSA during the May 2021 surveys, including the burrowing owl (*Athene cunicularia*), Caspian tern (*Hydroprogne caspia*), gull-billed tern (*Gelochelidon nilotica*), white-faced ibis (*Plegadis chihi*), black-tailed gnatcatcher (*Polioptila melanura*), black skimmer (*Rynchops niger*), and yellow warbler (*Setophaga petechia*) and are described in Section 5.4.

Black-necked stilts (*Himantopus mexicanus*) were observed nesting in surface water in the northern portion of the BSA.

Additional bird species use the BSA at different periods, either as year-round residents, wintering habitat, seasonal breeding, or as occasional migrants. Common bird species include mallard (*Anas platyrhynchos*), Cooper's hawk (*Accipiter cooperii*), and greater roadrunner (*Geococcyx californianus*).

### 4.3.6 Mammals

Generally, the distribution of mammals on a given site is associated with the presence of factors such as access to perennial water, topographical and structural components (e.g., rock piles, vegetation) that provide cover and support prey base, and the presence of suitable soils for fossorial mammals (e.g., sandy areas). Multiple desert cottontails (*Sylvilagus audubonii*) and a coyote (*Canis latrans*) were observed during the May 2021 surveys.

Signs of other mammal species (tracks, scat, etc.) were detected, but no live individuals (other than noted above) were observed during the 2021 and 2024 surveys. Other common mammals are expected to occur within the BSA given the habitat conditions and species that are known to occur in the region. No special-status mammal species were observed in the BSA.

Although bats were not detected in the BSA, they likely forage and roost in the region, particularly along riparian corridors. Many bats tend to concentrate foraging activities in riparian habitats like those occurring within and adjacent to the BSA where insect abundance is high (CDFW 2008).

*Table 3. Wildlife Species Observed in the BSA*

| Scientific Name | Common Name |
|---|---|
| **Birds** | |
| *Anser caerulescens* | snow goose |
| *Ardea alba* | great egret |
| *Ardea herodias* | great blue heron |
| *Athene cunicularia* | burrowing owl |
| *Buteo jamaicensis* | red-tailed hawk |
| *Butorides virescens* | green heron |
| *Callipepla gambelii* | Gambel's quail |
| *Cathartes aura* | turkey vulture |
| *Charadrius vociferus* | killdeer |
| *Circus hudsonius* | northern harrier |
| *Egretta thula* | snowy egret |
| *Falco sparverius* | American kestrel |
| *Fulica americana* | American coot |
| *Himantopus mexicanus* | black-necked stilt |
| *Larus* sp. | gull sp. |
| *Limnodromus scolopaceus* | long-billed dowitcher |
| *Pelecanus erythrorhynchos* | white pelican |
| *Petrochelidon pyrrhonota* | cliff swallow |
| *Plegadis chihi* | white-faced ibis |
| *Sayornis nigricans* | black phoebe |
| *Setophaga coronata* | yellow-rumped warbler |
| *Spatula clypeata* | northern shoveler |
| *Sterna* sp. | tern sp. |
| *Urile penicillatus* | Brandt's cormorant |
| *Zonotrichia leucophrys* | white-crowned sparrow |
| **Fish** | |
| *Poecilia sphenops* | black molly |
| *Poecilia latipinna* | sailfin molly |
| *Cyprinodon macularius* | desert pupfish |
| **Invertebrates** | |
| *Danaus plexippus* | monarch butterfly |

| Scientific Name | Common Name |
|---|---|
| *Vanessa* sp. | unknown lady butterfly |

## 4.4 Aquatic Resources

The USFWS National Wetlands Inventory (NWI) has mapped a variety of wetland and riparian resources within the BSA associated with the Salton Sea, its floodplain, and associated tributaries. The features in this area were photo interpreted using 1 meter (or less) digital, true color imagery from 2012. The features mapped within the BSA include lake, freshwater forested/shrub wetland, freshwater pond, freshwater emergent wetland, and riverine features (USFWS 2024). Based on the 2021 and 2024 surveys, the USFWS NWI mapped features no longer depict current conditions (Appendix A, Figure 4). A full discussion of the aquatic features can be found in the Aquatics Field Verification conducted by Stantec in 2024 (Appendix C, Aquatics Field Verification Report).

## 4.5 Soils

Prior to conducting the field reconnaissance, historical soils data from the Natural Resources Conservation Service (NRCS) were used to determine potential soil types that may occur within the BSA (refer to Appendix A, Figure 5 and Appendix D Soils Report). Characteristics of soils present on the site are summarized in Table 4 (NRCS 2024).

*Table 4. Historical Soil Units Occurring within the BSA*

| Map Unit Symbol | Map Unit Name | Description | Area within BSA (acres) |
|---|---|---|---|
| 104 | Fluvaquents, saline | A poorly drained soil associated with basin floors at elevations between -230 to 150 feet, low runoff; parent material derived from alluvium derived from mixed sources; minor components include Rositas and unnamed soils. | 16.92 |
| 110 | Holtville silty clay, wet | A moderately well drained soil associated with basin floors at elevations between -230 to 200 feet, low runoff; silty clay, clay, silt loam, and loamy very fine sand; parent material derived from alluvium derived from mixed sources; minor components include Glenbar, Imperial, Indio, and Vint. | 14.02 |
| 115 | Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes | A moderately well drained soil associated with basin floors at elevations between -230 to 200 feet, low runoff; silty clay loam; parent material derived from clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed; minor components include Meloland and Holtville. | 114.56 |
| 122 | Meloland very fine sandy loam, wet | A moderately well drained soil associated with basin floors at elevations between -230 to 200 feet, low runoff; very fine sandy loam, stratified loamy fine sand to silt loam, and clay; parent material derived from alluvium derived from mixed and/or eolian | 12.67 |

| Map Unit Symbol | Map Unit Name | Description | Area within BSA (acres) |
|---|---|---|---|
| | | deposits derived from mixed; minor components include Glenbar, Imperial, Indio, Holtville, and Vint. | |
| 140 | Torriorthents-Rock outcrop complex, 5 to 60 percent slopes | A somewhat excessively drained soil associated with hills at elevations between -230 to 400 feet, very high runoff. | 33.80 |
| 144 | Vint and Indio very fine sandy loams, wet | A moderately well drained soil associated with basin floors at elevations between -230 to 300 feet, very low runoff; very fine sandy loam, loamy fine sand, and silty clay; parent material derived from alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; minor components include Rositas and Meloland. | 87.42 |
| 145 | Water | 100 percent water. | 1.28 |
| NOTCOM | No Digital Data Available | No digital data available. | 563.86 |
| | | **Total** | 844.53 |

# 5 Special-Status Biological Resources

The background information presented above combined with habitat assessments performed during the surveys were used to evaluate special-status natural communities and special-status plant and animal taxa that either occur or may have the potential to occur within the BSA and adjacent habitats. For the purposes of this BRTR, special-status taxa are defined as plants or animals that:

- Have been designated as either rare, threatened, or endangered by CDFW or the USFWS, and are protected under either the CESA or FESA,
- Are candidate species being considered or proposed for listing under these same acts,
- Are recognized as SSC by the CDFW,
- Are ranked by CNPS as CRPR 1, 2, 3, or 4 plant species,
- Are fully protected by the FGC, Sections 3511, 4700, 5050, or 5515, or
- Are of expressed concern to resource/regulatory agencies, or local jurisdictions.

## 5.1 Special-Status Natural Communities

Special-status natural communities are defined by CDFW (2009) as, "...communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects." All vegetation within the state is ranked with an "S" rank, however only those that are of special concern (S1-S3 rank) are generally evaluated under CEQA.



Of the vegetation communities observed within the BSA, Cattail Marsh and Iodine Bush Scrub have been designated as sensitive natural communities by the CDFW with state rarity ranking of S5 and S3.2, respectively. However, there is no Cattail Marsh found within the Project Site.

## 5.2 Designated Critical Habitat

The BSA does not occur within Designated Critical Habitat for any species. The closest Designated Critical Habitat area is approximately 15 miles southwest of the BSA for the Peirson's milk-vetch and the desert pupfish.

## 5.3 Special-Status Plants

No special-status plants were observed within the BSA during the 2021 or 2024 surveys. Table 5 presents a list of special-status plants, including federally- and state-listed species and CRPR 1-4 species that are known to occur in the region surrounding the BSA (within 10 miles).

Records searches of the CNDDB, the CNPS Online Inventory, and the CCH were performed for special-status plant taxa. Each of the taxa identified in the record searches was assessed for their potential to occur within the BSA based on the following criteria:

- **Present**: Taxa were observed within the BSA during recent botanical surveys or population has been acknowledged by CDFW, USFWS, or local experts.
- **High**: Both a documented recent record (within 10 years) exists of the taxa within the BSA or immediate vicinity (approximately 5 miles) and the environmental conditions (including soil type) associated with taxa presence occur within the BSA.
- **Moderate**: Both a documented recent record (within 10 years) exists of the taxa within the BSA or the immediate vicinity (approximately 5 miles) and the environmental conditions associated with taxa presence are marginal and/or limited within the BSA; the BSA is located within the known current distribution of the taxa and the environmental conditions (including soil type) associated with taxa presence occur within the BSA.
- **Low**: A historical record (over 10 years) exists of the taxa within the BSA or general vicinity (approximately 10 miles) and the environmental conditions (including soil type) associated with taxa presence are marginal and/or limited within the BSA.
- **Not Likely to Occur**: The environmental conditions associated with taxa presence do not occur within the BSA.

### 5.3.1 Known and Potential Occurrences of Special-Status Plants within the BSA

*Table 5. Known and Potential Occurrences of Special-Status Plants within the BSA*

| Species | Status | Habitat and Distribution | Blooming Period* | Occurrence | Occurrence Potential |
|---|---|---|---|---|---|
| *Astragalus insularis* var. *harwoodii* Harwood's milk-vetch | S2, 2B.2 | Sandy or gravely places in desert dunes and Mojavean desert scrub; 0 to 710 meters (m). | Jan-May | The nearest and most recent recorded occurrence is approximately 9.02 miles north, northeast of the BSA from 2005. | Low |
| *Astragalus sabulonum* gravel milk-vetch | S2, 2B.2 | Usually sandy, sometimes gravelly areas within flats, washes, and roadsides of desert dunes, Mojavean desert scrub, and Sonoran desert scrub; 60 to 930 m. | Feb-Jun | The nearest and most recent recorded occurrence is approximately 4.35 miles east, northeast of the BSA from 1906. | Low |
| *Nama stenocarpa* mud nama | S1S2, 2B.2 | Marshes and swamps (lake margins, riverbanks); 5 to 500 m. | Jan-Jul | The nearest and most recent recoded occurrence is approximately 0.43 mile east of the BSA from 2018. | Moderate |

Source: CDFW, 2026a, 2024d; CNPS, 2024.

**Status Codes**

**California Rare Plant Rank (CRPR) designation**

2B Plants presumed extinct in California but more common elsewhere.

.2 Fairly threatened in California (moderate degree/immediacy of threat).

## 5.4 Special-Status Wildlife

Special-status taxa include those listed as threatened or endangered under the federal or California Endangered Species Acts, taxa proposed for such listing, Species of Special Concern, and other taxa that have been identified by the USFWS, CDFW, or local jurisdictions as unique or rare and which have the potential to occur within the BSA.

Seven special-status bird species, burrowing owl, Caspian tern, gull-billed tern, white-faced ibis, black-tailed gnatcatcher, black skimmer, and yellow warbler were observed within and adjacent to the BSA during the 2021 and 2024 field surveys. Burrowing owls were also observed during survey of a potential staging area in 2025.

A biological opinion for the federally and state endangered desert pupfish was written for a previously proposed project at this Project Site in March 2014 (USFWS 2014). It was determined that the Project may affect the federally listed desert pupfish. A 5-year review of the desert pupfish was conducted in 2022 (CDFW 2022). Desert pupfish were observed in the Southern Ditch between the tamarisk thicket



patches in the southern portion of the BSA in 2021. Focused desert pupfish surveys were not performed in 2024.

The CNDDB was queried for occurrences of special-status wildlife taxa within the BSA and surrounding 10-mile area, as discussed above in Section 2.0. Table 6 summarizes the special-status wildlife taxa known to occur regionally (within 10 miles) and their potential for occurrence in the BSA; refer to Appendix A, Figures 6, 6a, and 6b for a graphical depiction of species locations. Each of the taxa identified in the database reviews/searches was assessed for its potential to occur within the BSA based on the following criteria:

- **Present:** Taxa (or sign) were observed in the BSA or in the same watershed (aquatic taxa only) during the most recent surveys, or a population has been acknowledged by CDFW, USFWS, or local experts.
- **High:** Habitat (including soils) for the taxa occurs on site and a known occurrence occurs within the BSA or adjacent areas (within 5 miles of the BSA) within the past 20 years; however, these taxa were not detected during the most recent surveys.
- **Moderate:** Habitat (including soils) for the taxa occurs on site and a known regional record occurs within the database search, but not within 5 miles of the BSA or within the past 20 years; or a known occurrence occurs within 5 miles of the BSA and within the past 20 years and marginal or limited amounts of habitat occurs on site; or the taxa's range includes the geographic area and suitable habitat exists.
- **Low:** Limited habitat for the taxa occurs on site and no known occurrences were found within the database search and the taxa's range includes the geographic area.
- **Not Likely to Occur:** The environmental conditions associated with taxa presence do not occur within the BSA.

## 5.4.1 Known and Potential Occurrences of Special Status Wildlife within the BSA

*Table 6. Known and Potential Occurrences of Special Status Wildlife within the BSA*

| Taxa | | Status | Habitat Types | Comments | Occurrence Potential |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | | | | |
| **FISH** | | | | | |
| *Cyprinodon macularius* | desert pupfish | **FE, SE** | Occurs in several springs, seeps, and slow-moving streams in the Salton Sink Basin, as well as in backwaters and sloughs along the lower Colorado River. | Surface water was present within the BSA during the May 2021 surveys.<br>Based on the Desert Pupfish Biological Opinion for Sonny Bono Salton Sea National Wildlife Refuge Red Hill Bay Restoration Project, approximately 200 to 250 juvenile desert pupfish were observed within the BSA in 2013. | **Present** |
| *Xyrauchen texanus* | razorback sucker | **FE, SE, S2, FP** | This species is restricted to a relatively small number of sites in the Colorado River system, from southwestern Wyoming to southeastern California. | Surface water was present within the BSA during the May 2021 surveys; however, the water within the Project site does not provide suitable habitat for this species.<br>The nearest recorded occurrence is within the BSA from 1949. The most recent recorded occurrence is approximately 6.58 miles northeast of the BSA from 1994. | **Not Likely to Occur** |
| **AMPHIBIANS** | | | | | |
| *Incilius alvarius* | Sonoran Desert toad | **SH, SSC** | This species can be found in a variety of desert and semi-arid habitats: brushy desert with creosote bush and mesquite washes, semi-arid grasslands and woodlands. It is semi-aquatic and is usually associated with large, somewhat permanent streams. It is occasionally found near small springs, temporary rain pools, human-made canals and irrigation ditches. They are frequently found in rodent burrows. | Suitable habitat does not occur within the BSA.<br>The nearest and most recent recorded occurrence is approximately 4.35 miles east, northeast of the BSA from 1916. | **Not Likely to Occur** |

| Taxa | | Status | Habitat Types | Comments | Occurrence Potential |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | | | | |
| *Lithobates yavapaiensis* | lowland leopard frog | **SX, SSC** | This species occurs in streams, river side channels, springs, ponds, stock ponds in desert scrub, grassland, woodland, and Pinyon Juniper. This species may be extirpated from California. | Suitable habitat does not occur within the BSA, and this species is expected to be extirpated.<br>The nearest and most recent recorded occurrence is approximately 4.62 miles northeast of the BSA from 1940. | **Not Likely to Occur** |
| *Scaphiopus couchii* | Couch's spadefoot | **S2, SSC** | Desert and arid regions of grassland, prairie, mesquite, creosote bush, thorn forest, sandy washes. In California, this spadefoot occurs in scattered populations east of the Algodones sand dunes in Imperial County, north into San Bernardino County. | Suitable habitat does not occur within the BSA.<br>The nearest and most recent recorded occurrence is approximately 4.92 miles north, northeast of the BSA from 2007. | **Not Likely to Occur** |
| **REPTILES** | | | | | |
| *Phrynosoma mcallii* | flat-tailed horned lizard | **S3, SSC** | Typical habitat is sandy desert hardpan or gravel flats with scattered sparse vegetation of low species diversity. Most common in areas with a high density of harvester ants and fine windblown sand, but rarely occurs on dunes. | The playa provides marginal low-quality habitat. Potential suitable habitat near Alamo River and on the edges of the restored wetlands.<br>The nearest and most recent recorded occurrence is approximately 9.12 miles south of the BSA from 1929. | **Low** |
| **INVETEBRATES** | | | | | |
| *Melitta californica* | California mellitid bee | **S2?** | A solitary bee often found nesting in burrows tunneled into sand or soil. | Suitable habitat does not occur within the BSA.<br>The nearest and most recent recorded occurrence is approximately 9.12 miles south of the BSA from 1949. | **Not Likely to Occur** |

| Taxa | | Status | Habitat Types | Comments | Occurrence Potential |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | | | | |
| *Danaus plexippus* | Monarch butterfly | **FC** | Found in many habitats. The majority of breeding habitat occurs where milkweed plants grow, which includes grasslands, scrublands, croplands, roadsides, urban and suburban parks and gardens, and sand dune areas. | Not included in the CNDDB data search.<br>Preferred food plants and/or roosting habitat are not present on the Project site and the potential for the Project to impact other nectar producing flowering plants is limited; this species is known to use the adjacent Sonny Bono Salton Sea National Wildlife Refuge as a stopover point during migration and the Project site observation was likely a transient moving through. | **Present** |
| **BIRDS** | | | | | |
| *Anarhynchus montanus* | mountain plover | **S2, SSC, BCC** | Found on short grasslands and plowed fields of the Central Valley from Sutter and Yuba counties southward. Also found in foothill valleys west of San Joaquin Valley, Imperial Valley, plowed fields of Los Angeles and western San Bernardino counties, and along the central Colorado River valley. Avoids high and dense cover. Uses open grasslands, plowed fields with little vegetation, and open sagebrush areas. Often roosts in depressions such as ungulate hoof prints and plow furrows. | Suitable foraging and nesting habitat occur within the BSA.<br>The nearest recorded occurrence is within the BSA from 2011. The most recent recorded occurrence is approximately 7.5 miles southeast of the BSA from 2011. | **High (nesting and foraging)** |
| *Anarhynchus nivosus nivosus* | western snowy plover | **FT, S3, SSC** | Sandy or gravelly beaches, salt pond levees, shores of large alkali lakes including the Salton Sea. During the breeding season, seen nesting along the shores, peninsulas, offshore islands, bays, estuaries, and rivers of the United States' Pacific Coast from Oregon to California. | Suitable foraging and nesting habitat occur within the BSA.<br>The nearest and most recent recorded occurrence is from within the BSA in 1999. | **High (foraging) Moderate (nesting)** |

| Taxa | | Status | Habitat Types | Comments | Occurrence Potential |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | | | | |
| *Asio flammeus* | short-eared owl | **S2, SSC** | Usually found in open areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Breeding range includes coastal areas in Del Norte and Humboldt counties, the San Francisco Bay Delta, northeastern Modoc plateau, the east side of the Sierra from Lake Tahoe south to Inyo County, and the San Joaquin valley | Suitable habitat occurs within limited portions of the BSA.<br>The nearest and most recent recorded occurrence is approximately 9.12 miles south of the BSA from 1956. | **Moderate (foraging)**<br>**Not Likely to Occur (nesting)** |
| *Athene cunicularia* | burrowing owl | **S2, SSC, SC, BCC** | Open, dry annual or perennial grasslands, deserts and scrublands characterized by low- growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel. | Suitable foraging and nesting habitat occur within portions of the BSA. Foraging habitat is found within and around the Southern Ditch. Due to the lack of vegetation and absence of small mammal burrows for nesting and insects/lizards for food, burrowing owls are unlikely to nest and/or forage within areas of open playa.<br>Individuals were observed in the southern portion of the BSA during the May 2021, July 2024, and December 2025 surveys. Burrowing owls were also observed in the southern portion of the BSA and northwest portion of the BSA in 2025. See Appendix A, Figure 3. | **Present** |
| *Empidonax traillii extimus* | southwestern willow flycatcher | **FE, SE, S3** | For nesting, requires dense riparian habitats with cottonwood/willow and tamarisk vegetation. Saturated soils, standing water or nearby streams, pools, or cienegas are also required for nesting. Winter in Central America. | Suitable foraging and nesting habitat occur within the BSA.<br>The nearest and most recent recorded occurrence is approximately 7.37 miles north, northeast of the BSA from 2007. | **Moderate (nesting and foraging)** |

| Taxa | | Status | Habitat Types | Comments | Occurrence Potential |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | | | | |
| *Falco columbarius* | merlin | **S3S4, WL** | Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches. Prefers forested areas with expanses of open grassland. Stands of trees or windbreaks are required for roosting in open country. | Suitable foraging habitat occurs within the BSA.<br>The nearest recorded occurrence is approximately 5.72 miles north, northeast of the BSA from 2007. The most recent recorded occurrence is approximately 6.31 miles north-northeast from 2007. | **Moderate (foraging) Low (nesting)** |
| *Gelochelidon nilotica* | gull-billed tern | **S1, SSC, BCC** | This species forages over many habitats including fresh and saline emergent wetlands, lakes, mudflats, croplands, grasslands, and, rarely, brushlands. In California, nests only at the Salton Sea, but breeding range in North America includes the Gulf of California, Gulf of Mexico, and the Atlantic Coast north to New York. At the Salton Sea, nests on sandy flats amidst shells and debris. | Suitable foraging and nesting habitat occur within the BSA.<br>Individuals were observed flying over the site during the May 2021 surveys. | **Present** |
| *Hydroprogne caspia* | Caspian tern | **S4** | Nests in dense colonies on sandy estuarine shores, on levees in salt ponds, and on islands in alkali and freshwater lakes in San Francisco Bay, San Diego Bay, and several lakes in Modoc and Lassen counties. Large numbers are present at the Salton Sea in the breeding season but nesting no longer occurs at the Salton Sea. | There is limited suitable foraging habitat within the BSA.<br>Individuals were observed flying over the site during the May 2021 surveys. | **Present** |
| *Icteria virens* | yellow-breasted chat | **S4, SSC** | Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests, in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 3 m of ground. | Suitable foraging and nesting habitat occur within the BSA.<br>The nearest and most recent recorded occurrence is approximately 6.94 miles north of the BSA from 1961. | **Moderate (foraging) Moderate (nesting)** |

| Taxa | | Status | Habitat Types | Comments | Occurrence Potential |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | | | | |
| *Larus californicus* | California gull | **S4, WL, BCC** | Preferred habitats along the coast are sandy beaches, mudflats, rocky intertidal, and pelagic areas of marine and estuarine habitats, as well as fresh and saline emergent wetlands. Inland, frequents lacustrine, riverine, and cropland habitats, landfill dumps, and open lawns in cities. A fairly common nester at alkali and freshwater lacustrine habitats east of the Sierra Nevada and Cascades, and an abundant visitor to coastal and interior lowlands in nonbreeding season. | Suitable habitat occurs within the BSA.<br>The nearest and most recent recorded occurrence is approximately 1.39 miles west, southwest of the BSA from 1999. | **High (foraging and nesting)** |
| *Laterallus jamaicensis coturniculus* | California black rail | **ST, FP** | Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation. Key plant species in these habitats include saltmeadow hay (*Spartina patens*), sand cordgrass (*Spartina bakeri*), chairmaker's bulrush (*Schoenoplectus americanus*), saltgrass, needlerush species (genus *Juncus*), and various species of pickleweed (genus *Salicornia*). | Suitable habitat occurs within limited portions of the BSA.<br>The nearest recorded occurrence is within the BSA; however, it should be noted that this occurrence was recorded well over 20 years ago from 1947. The most recent recorded occurrence is approximately 4.06 miles east of the BSA from 2015. | **Low (foraging and nesting)** |
| *Melanerpes uropygialis* | Gila woodpecker | **SE, BCC** | Occurs in southern California along the Colorado River and locally in Brawley in Imperial County. Occurs mostly in desert riparian and desert wash habitats, but also found in orchard-vineyard and urban habitats, particularly in shade trees and date palm groves. Nests in cavities in riparian trees or saguaros. | Suitable habitat occurs within the BSA.<br>The nearest and most recent recorded occurrence is approximately 1.39 miles south, southwest of the BSA from 1950. | **High (foraging) Moderate (nesting)** |

| Taxa | | Status | Habitat Types | Comments | Occurrence Potential |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | | | | |
| *Pelecanus occidentalis californicus* | California brown pelican | **S3, Delist.** | Brown pelicans live year-round in estuaries and coastal marine habitats along both the east and west coasts. They breed between Maryland and Venezuela, and between southern California and southern Ecuador—often wandering farther north after breeding as far as British Columbia or New York. On the Atlantic and Gulf coasts they breed mostly on barrier islands, natural islands in estuaries, and islands made of refuse from dredging. On the west coast they breed on dry, rocky offshore islands. When not feeding or nesting, they rest on sandbars, pilings, jetties, breakwaters, mangrove islets, and offshore rocks. | Small pockets of suitable habitat occur within the BSA.<br>The nearest recorded occurrence is approximately 0.02 mile northeast of the BSA from 2004. The most recent recorded occurrence is approximately 1.42 mile north of the BSA from 2006. | **Moderate (foraging) Not Likely to Occur (nesting)** |
| *Plegadis chihi* | white-faced ibis | **S3S4, WL** | Occurs in freshwater marshes, irrigated lands, and tules. For nesting, they select shallow marshes with scattered areas of taller emergent vegetation such as cattail, bur-reed, or bulrush. | Foraging habitat is found southeast of the BSA in flooded agricultural fields.<br>This species was observed flying over the BSA during the May 2021 surveys. | **Present (fly-over)**<br>**High (foraging and nesting)** |
| *Polioptila melanura* | black-tailed gnatcatcher | **S3S4, WL** | Occurs in desert brush, ravines, dry washes, mesquites, and in many dry, scrubby habitats. Most common in Sonoran Desert with varied growth of mesquites, acacias, and paloverdes, but also found in low acacia scrub and on open flats of creosote bush. | Small pockets of suitable habitat occur within the BSA.<br>This species was observed adjacent to the BSA within the Sonny Bono National Wildlife Refuge picnic area during the May 2021 surveys. The nearest and most recent recorded occurrence is within the BSA from 1968. | **High (foraging) Moderate (nesting)** |

| Taxa | | Status | Habitat Types | Comments | Occurrence Potential |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | | | | |
| *Rallus obsoletus yumanensis* | Yuma Ridgway's rail | **FE, ST, FP** | Occurs in a variety of marsh types that are dominated by emergent plants, including southern cattail, bullwhip bulrush, three-square bulrush, and sedges. Significant populations are found in marshes at the south end of the Salton Sea. | Freshwater marsh suitable habitat occurs on the north, west, and east edges of the BSA.<br>The nearest recorded occurrence is within the BSA from 2005. The most recent recorded occurrence is approximately 0.57 mile east of the BSA from 2009.<br>Based on the Desert Pupfish Biological Opinion for Sonny Bono Salton Sea National Wildlife Refuge Red Hill Bay Restoration Project, the Yuma Ridgway's Rail is present on the Sonny Bono Salton Sea National Wildlife Refuge; however, this species does not occupy habitat within or adjacent to the BSA. | **High (nesting and foraging)** |
| *Rynchops niger* | black skimmer | **S2, SSC, BCC** | Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. | Suitable habitat occurs on the north, west, and east edges of the BSA.<br>The nearest and most recent recorded occurrence is approximately 0.12 mile west of the BSA from 1998.<br>This species was observed within 500 feet of the BSA during the May 2021 surveys. | **Present** |
| *Setophaga petechia* | yellow warbler | **S3, SSC** | Riparian vegetation in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets and in other riparian plants including cottonwoods, sycamores, ash, and alders. | Low quality suitable habitat occurs within the BSA.<br>The nearest and most recent recorded occurrence is approximately 2.05 mile north, northeast of the BSA from 1952.<br>This species was observed within tamarisk thickets at the southeastern portion of the BSA during the May 2021 surveys. | **Present** |

| Taxa | | Status | Habitat Types | Comments | Occurrence Potential |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | | | | |
| *Toxostoma crissale* | Crissal thrasher | **S2, SSC** | Found in dense, low scrubby vegetation, such as desert and foothill scrub and riparian brush. Breeding is usually below 152 m. Typical breeding locations were Providence Mountains, San Bernardino County; Colorado River, from Needles to Pilot Knob (San Bernardino, Riverside, and Imperial counties), and at Fort Yuma (Imperial County); Palm Springs and the Coachella Valley (Indio, Thermal, and Mecca), Riverside County; and Alamorio, Imperial County. | Suitable foraging and nesting habitat occur within the BSA.<br>The nearest and most recent recorded occurrence is within the BSA from 1969. | **Moderate (foraging) Moderate (nesting)** |
| *Toxostoma lecontei* | Le Conte's thrasher | **S3, SSC, BCC** | Inhabits harsh desert environments throughout the southwestern U.S. including desert scrub, mesquite, and riparian areas. | Suitable foraging and nesting habitat occur within the BSA.<br>The nearest and most recent recorded occurrence is approximately 0.38 mile south, southwest of the BSA in 2009. | **High (nesting and foraging)** |
| **MAMMALS** | | | | | |
| *Eumops perotis californicus* | western mastiff bat | **S3S4, SSC** | Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels. | Suitable habitat does not occur within the BSA.<br>The nearest and most recent recorded occurrence is approximately 8.62 miles northeast of the BSA in 1994. | **Not Likely to Occur** |
| *Lasiurus xanthinus* | western yellow bat | **S3, SSC** | Prefer riparian woodland habitat, especially with palm trees (for roosting). Also occupy cottonwood-willow riparian woodlands. | Suitable habitat does not occur within the BSA.<br>The nearest and most recent recorded occurrence is approximately 9.12 miles south of the BSA from 1994. | **Not Likely to Occur** |
| *Nyctinomops femorosaccus* | pocketed free-tailed bat | **S3, SSC** | Variety of arid areas in southern California; pinyon-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. rocky areas with high cliffs. | Small pockets of suitable habitat occur within the BSA.<br>The nearest and most recent recorded occurrence is approximately 8.62 miles northeast of the BSA from 1994. | **Low** |

| Taxa | | Status | Habitat Types | Comments | Occurrence Potential |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | | | | |
| *Sigmodon hispidus eremicus* | Yuma hispid cotton rat | **S2, SSC** | The preferred habitat of this species is grassy fields and overgrown roadsides, providing dense vegetative cover. Occurs south of the Palo Verde Mountains, and small, isolated areas of suitable habitat west of Yuma, Arizona, in Imperial County, California. | Suitable habitat does not occur within the BSA.<br>The nearest recorded occurrence is approximately 0.41 mile east of the BSA from 2008. The most recent recorded occurrence is approximately 6.49 miles south, southwest of the BSA from 2008. | **Not Likely to Occur** |
| *Taxidea taxus* | American badger | **S3, 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. | Suitable habitat does not occur within the BSA.<br>The nearest and most recent recorded occurrence is within the BSA from 1937. | **Not Likely to Occur** |

***Sources:*** CDFW 2026a, Cornell 2024

**Federal Rankings:**
FE = Federally Endangered
FT = Federally Threatened
FC = Federal Candidate for Listing
BCC = USFWS Bird of Conservation Concern
Delist. = removed from federal listing

**State Rankings:**
FP = Fully Protected
SE= State Endangered
ST = State Threatened
SA = CDFW Special Animal
SC = State Candidate for Listing
WL = CDFW Watch List
SSC = Species of Special Concern
Delist. = removed from state listing
SX = Presumed Extirpated
SH = Possibly Extirpated
S1 = Critically Imperiled
S2 = Imperiled
S3 = Vulnerable
S4 = Apparently Secure
S5 = Secure

## 5.5 Wildlife Corridors and Special Linkages

Linkages and corridors facilitate regional animal movement and are generally centered in or around waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Drainages generally serve as movement corridors because wildlife can move easily through these areas, and fresh water is available. Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals.

As the movements of wildlife species are more intensively studied using radio-tracking devices, there is mounting evidence that some wildlife species do not necessarily restrict their movements to some obvious landscape element, such as a riparian corridor. For example, radio-tracking and tagging studies of Coast Range newts, California red-legged frogs, southwestern pond turtles, and two-striped garter snakes found that long-distance dispersal involved radial or perpendicular movements away from a water source with little regard to the orientation of the assumed riparian “movement corridor” (Hunt 1993; Rathbun et al. 1992; Bulger et al. 2002; Trentham 2002; Ramirez 2003). Likewise, carnivores do not necessarily use riparian corridors as movement corridors, frequently moving overland in a straight line between two points when traversing large distances (Newmark 1995; Beier 1993, 1995; Noss et al. 1996; Noss et al. no date). In general, the following corridor functions can be utilized when evaluating impacts to wildlife movement corridors:

- Movement corridors are physical connections that allow wildlife to move between patches of suitable habitat. Simberloff et al. (1992) and Beier and Loe (1992) correctly state that, for most species, we do not know what corridor traits (length, width, adjacent land use, etc.) are required for a corridor to be useful. But, as Beier and Loe (1992) also note, the critical features of a movement corridor may not be its physical traits but rather how well a particular piece of land fulfills several functions, including allowing dispersal, plant propagation, genetic interchange, and recolonization following local extirpation.

- Dispersal corridors are relatively narrow, linear landscape features embedded in a dissimilar matrix that links two or more areas of suitable habitat that would otherwise be fragmented and isolated from one another by rugged terrain, changes in vegetation, or human-altered environments. Corridors of habitat are essential to the local and regional population dynamics of a species because they provide physical links for genetic exchange and allow animals to access alternative territories as dictated by fluctuating population densities.

- Habitat linkages are broader connections between two or more habitat areas. This term is commonly used as a synonym for a wildlife corridor (Meffe and Carroll 1997). Habitat linkages may themselves serve as source areas for food, water, and cover, particularly for small- and medium-size animals.

- Travel routes are usually landscape features, such as ridgelines, drainages, canyons, or riparian corridors within larger natural habitat areas that are used frequently by animals to facilitate movement and provide access to water, food, cover, den sites, or other necessary resources. A travel route is generally preferred by a species because it provides the least amount of



topographic resistance in moving from one area to another yet still provides adequate food, water, or cover (Meffe and Carroll 1997).

### 5.5.1 Wildlife Movement in the BSA

The BSA includes both developed and natural undisturbed land. The natural undisturbed portion of the BSA contains a large open space with non-native vegetation (tamarisk and giant reed), disturbed playa, the Alamo River, cattail marshes, and other wetlands. The southwestern portions of the BSA are adjacent to the Sonny Bono Salton Sea National Wildlife Refuge. The Sonny Bono Salton Sea National Wildlife Refuge contains medium quality habitat suitable for a variety of species; however, there are conditions and infrastructure that would generally constrain the movement of wildlife within the region and, by extension, through the site. The area surrounding the BSA is characterized by cattail freshwater wetlands, agricultural fields, a man-made channel, and man-made development and infrastructure, including barriers to terrestrial wildlife movement such as buildings, fencing, and roadways.

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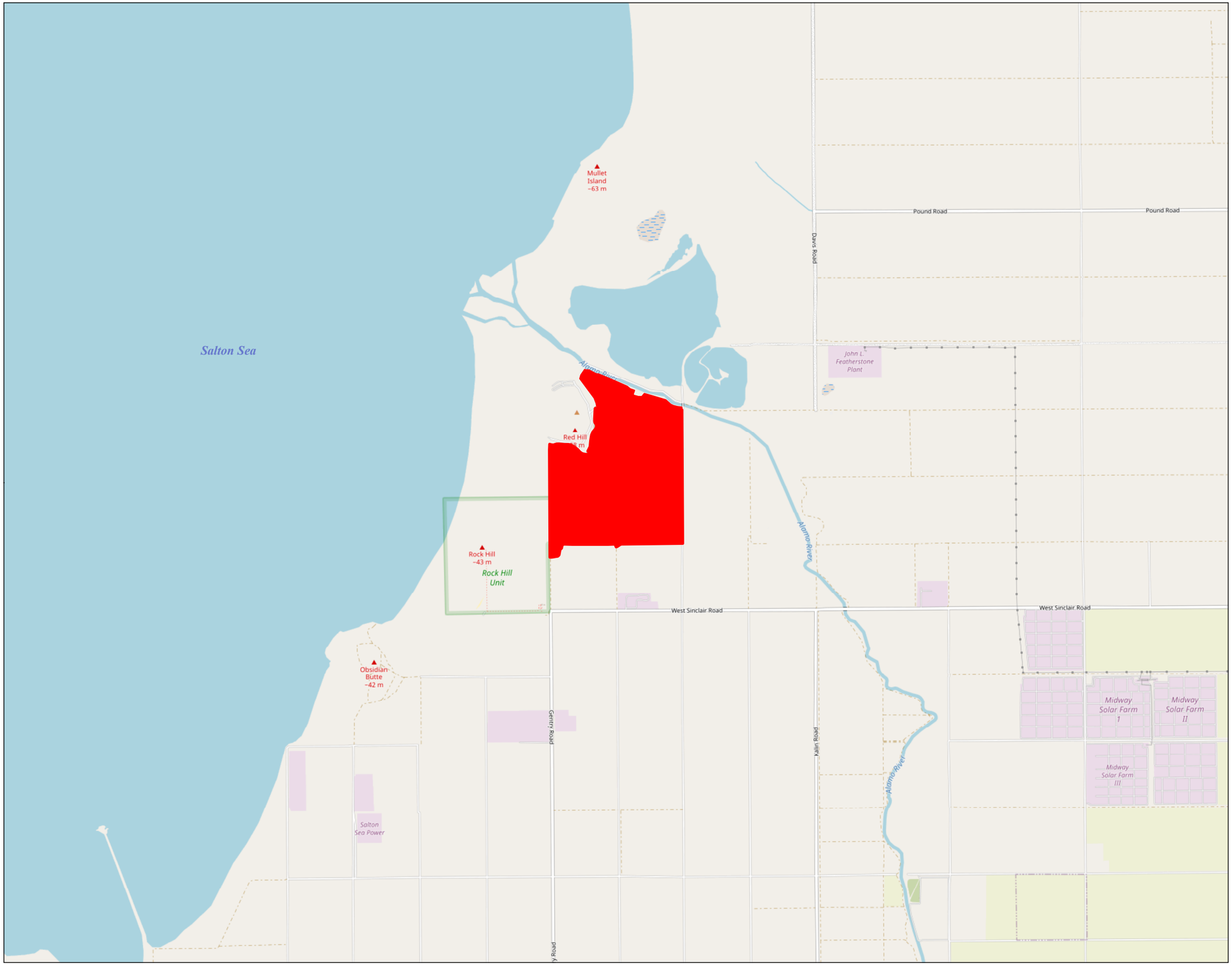
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# Appendices

# Appendix A Figures




Stantec

Project Area

N

0 4,000 8,000 Feet

(At original document size of 11x17)
1:48,000

***Notes***
**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
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Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors
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*Project Location*
Calipatria
Imperial County, California

Prepared by DL on 2024-02-14
TR by SET on 2024-02-14
IR by SG on 2024-02-14

*Client/Project*
185865263

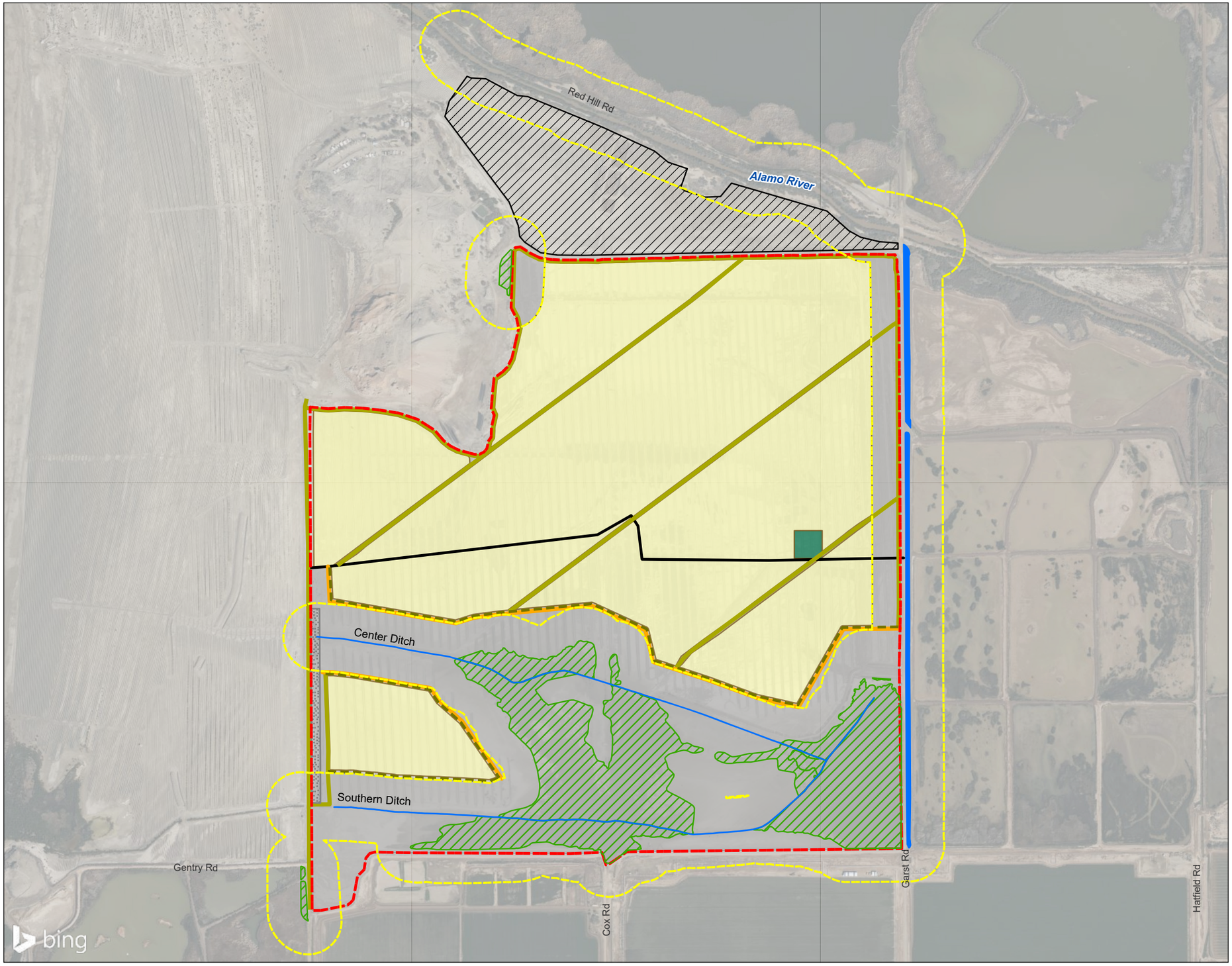
Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**1**

*Title*
**Project Location**

V:\185B\Active\185865263_Salton_Sea_IID\Figure 1_BRTR_ProjectLocationMap_20240202.mxd Revised: 2024-02-14 By: dallaw

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Stantec

- Waters/Wetlands 300 ft. Buffer
- Wetlands (CDFW, RWQCB) [2024]
- Former Borrow Area
- Existing Channels to be Maintained

**Existing Features**

- Access Road
- Access Route

**Proposed Features**

- Project Area
- Staging Areas
- Temporary Resource Protection Berm (Approximate Location)
- In Field Staging Area
- Surface Stabilizer Application Area
- Proposed Access Route

**Avoidance Areas**

- Resource Avoidance/ Inaccessable Areas

N

0 900 1,800 Feet

(At original document size of 11x17)
1:10,800

***Notes***

**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
**2.** Data Sources: Stantec 2024.
**3.** Background: California Streams:
World Ocean Base: Esri, GEBCO, Garmin
World Ocean Reference: Esri, GEBCO, NGS
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*Project Location*
Calipatria
Imperial County, California

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IR by SG on 2026-02-10

*Client/Project*
185865263

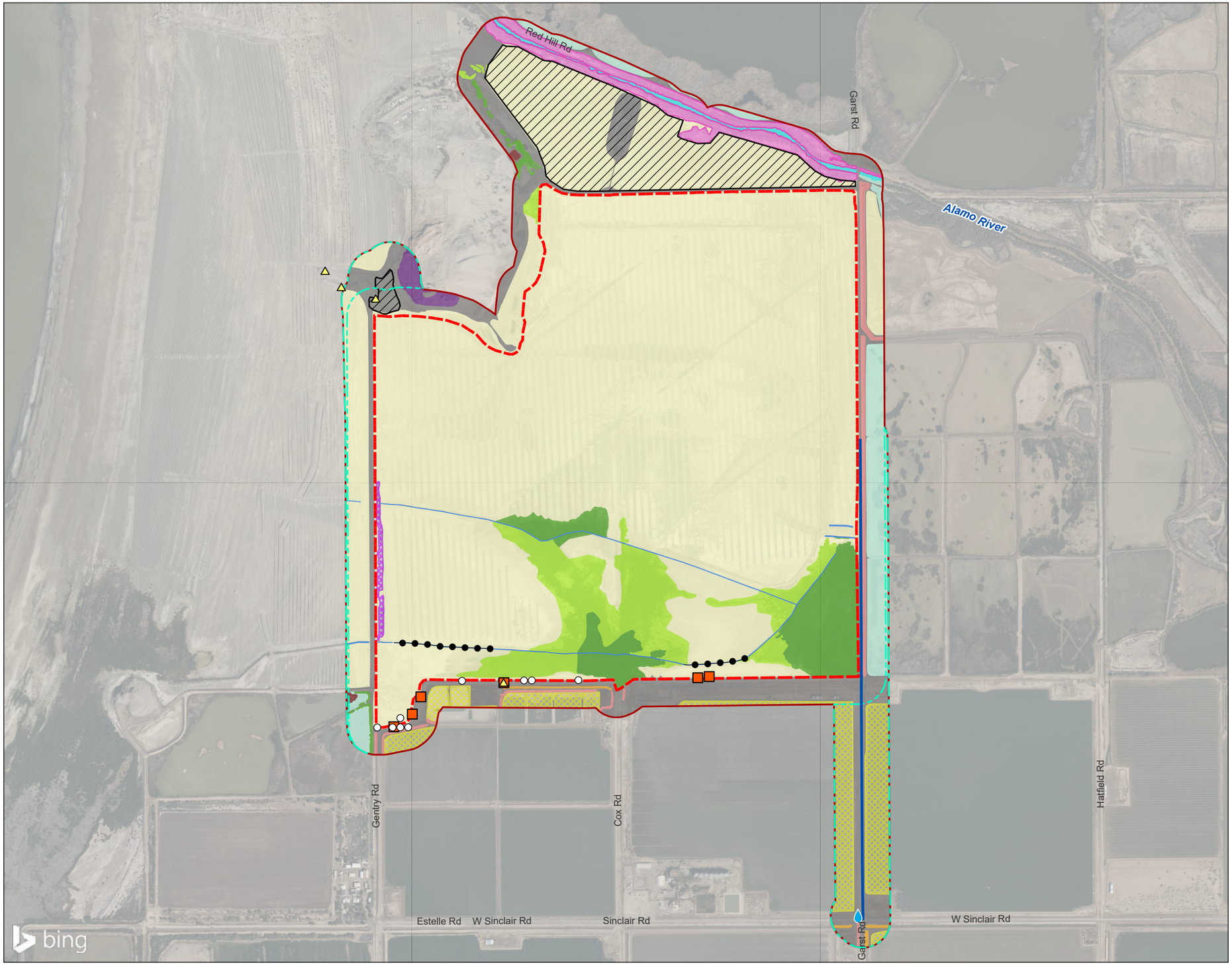
Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**2**

*Title*
**Project Components**

U:\185865263\RedHillBay_SaltonSea_IID_ProMaps\RedHillBay_SaltonSea_IID_ProMaps.aprx Revised: 2026-02-10 By: dalaw

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Stantec

- Survey Area (300 ft. Buffer)
- Supplemental Burrowing Owl Survey Area
- Desert Pupfish

**Special-Status Wildlife**
- Burrowing Owl - 2021 (STN)
- Burrowing Owl - 2025 (STN)
- Burrowing Owl - 2025 (IID)

**Existing Features**
- Access Road
- Access Route
- Water Transport Route
- Water Source

**Proposed Features**
- Project Area
- Staging Areas

**Vegetation Communities and Land Cover Types**
- Borrow Pit
- Cattail Marsh
- Disturbed/Developed
- Disturbed Playa
- Giant Reed and Tamarisk Thicket
- Iodine Bush Scrub
- Rock Outcrop
- Row and Field Agriculture
- Tamarisk Thicket

**Water Features**
- Riverine
- Excavated Channel
- Non-vegetated Channel
- Open Water
- Vegetated Channel

N

0 1,100 2,200 Feet

(At original document size of 11x17)
1:13,200

***Notes***
**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
**2.** Data Sources: Stantec 2024.
**3.** Background: California Streams:
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*Project Location*
Calipatria
Imperial County, California

Prepared by DL on 2026-01-30
TR by SET on 2026-01-30
IR by SG on 2026-01-30

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185865263

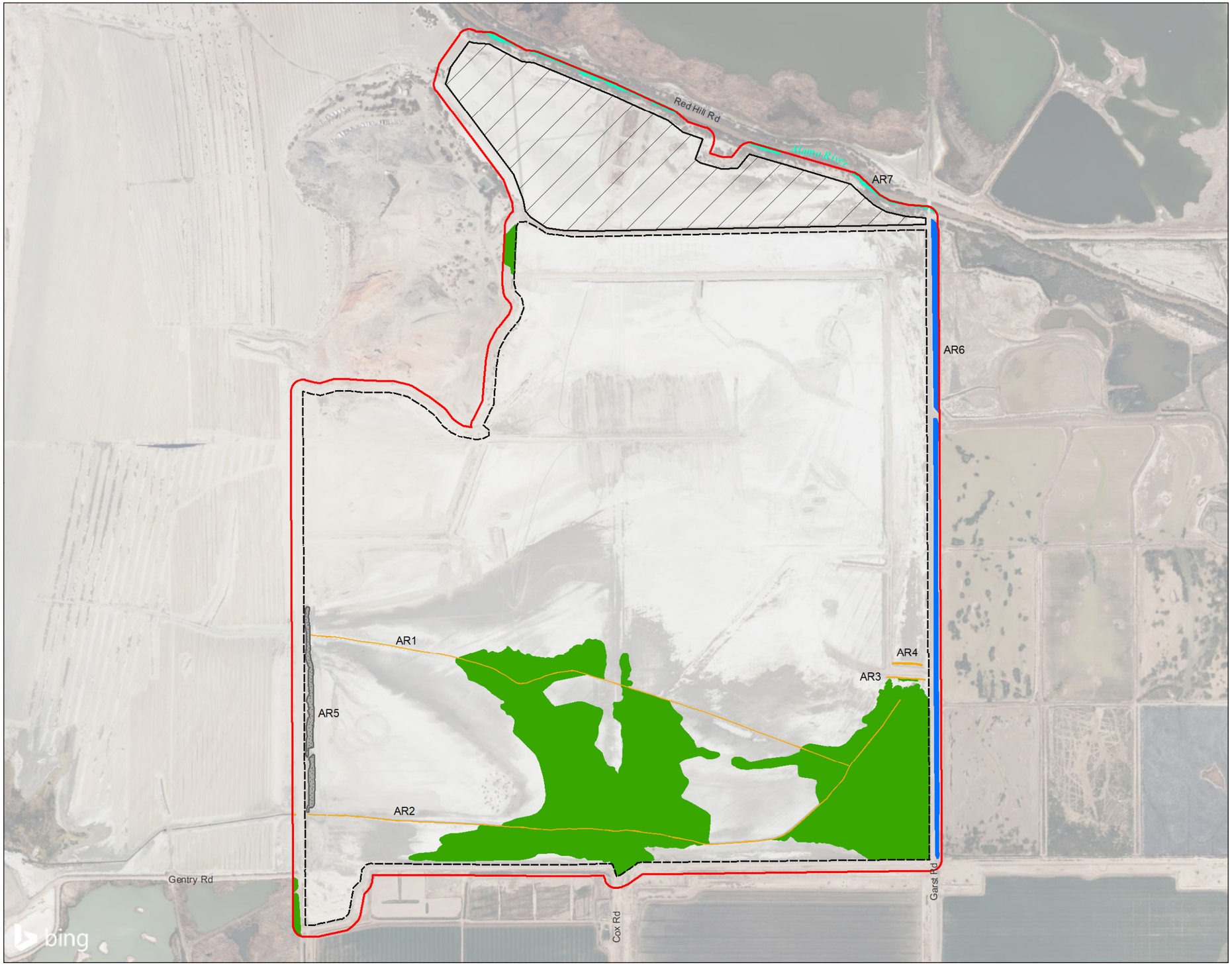
Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**3**

*Title*
**Vegetation Communities, Land Cover Types, and Select Wildlife Locations**

U:\185\185865263\Red Hill Bay_SaltonSea_IID_ProMaps\RedHillBay_SaltonSea_IID_ProMaps.aprx Revised: 2026-01-30 By: dalaw

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Stantec

- Survey Area (100 ft. Buffer)
- Project BACM Area
- Borrow Pit
- Potential Staging Area
- Potential CDFW Jurisdiction
- Potential CDFW and RWQCB Jurisdiction
- Potential CDFW, RWQCB, and USACE Jurisdiction
- Wetlands (CDFW, RWQCB)

N

0 850 1,700 Feet

(At original document size of 11x17)
1:10,200

***Notes***
**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
**2.** Data Sources: Stantec 2024
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Imperial County, California

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IR by SG on 2024-09-03

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185865263

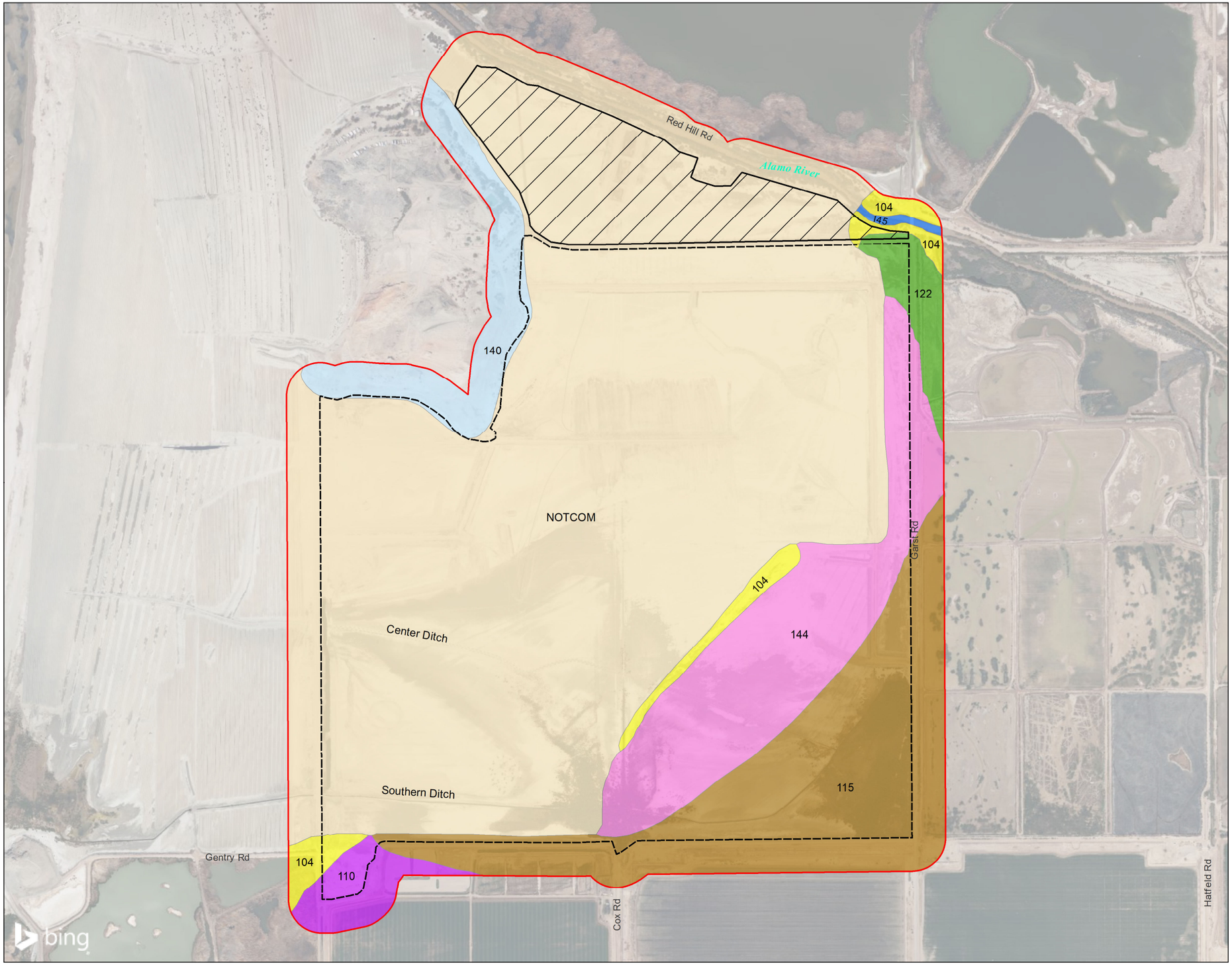
Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**4**

*Title*
**Aquatics/ Wetlands**

V:\185\Active\185865263_Salton_Sea_IID\Figures\4_BRTR_Waters_20240202.mxd Revised: 2024-09-03 By: dalaw

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Stantec

- Survey Area (300 ft. Buffer)
- Project BACM Area
- Potential Staging Area

**Soils Map Unit Symbol**

- 104; Fluvaquents, saline
- 110; Holtville silty clay, wet
- 115; Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes
- 122; Meloland very fine sandy loam, wet
- 140; Torriorthents-Rock outcrop complex, 5 to 60 percent slope
- 144; Vint and Indio very fine sandy
- 145; Water
- NOTCOM, No Digital Data Avaliable

N

0 900 1,800 Feet

(At original document size of 11x17)
1:10,800

***Notes***

**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
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Imperial County, California

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IR by SG on 2024-02-14

*Client/Project* 185865263

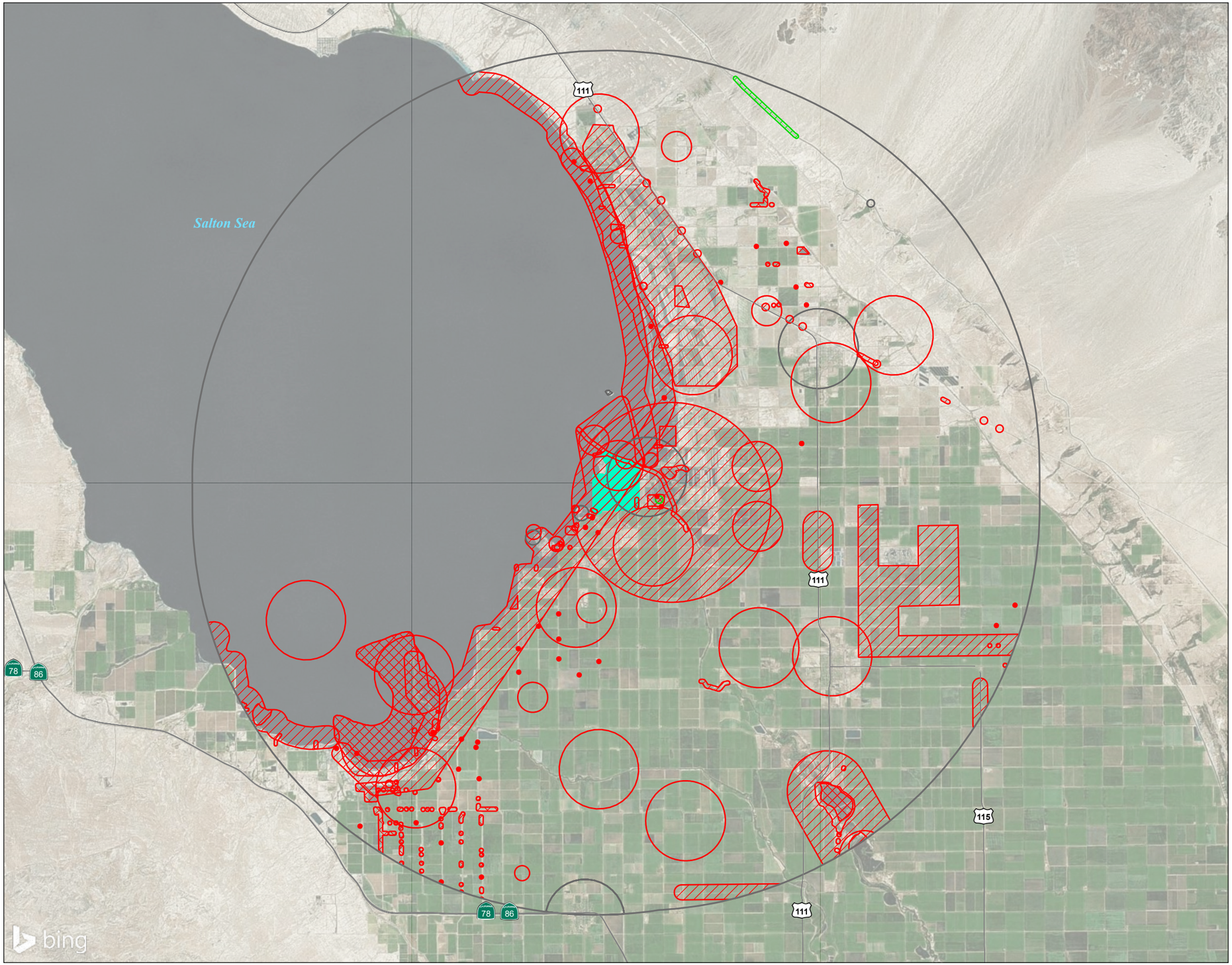
Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**5**

*Title*
**Historical Soils**

V:\185\Active\185865263_Salton_Sea_IID\Figure5_BRTR_Soils_20240202.mxd Revised: 2024-02-14 By: dalaw

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Stantec

- Survey Area (300 ft. Buffer)
- 10 Mile Search Radius

**10 Mile CNDDB Results**

- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Multiple (specific)
- Multiple (circular)

N

0 2.5 5 Miles

(At original document size of 11x17)
1:158,400

***Notes***
**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
**2.** Data Sources: Stantec 2024. CNDDB Data from CDFW 2024.
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World Ocean Base: Esri, GEBCO, Garmin, NaturalVue
World Ocean Reference: Esri, GEBCO, Garmin, NGS




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Imperial County, California

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IR by SG on 2026-02-18

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185865263

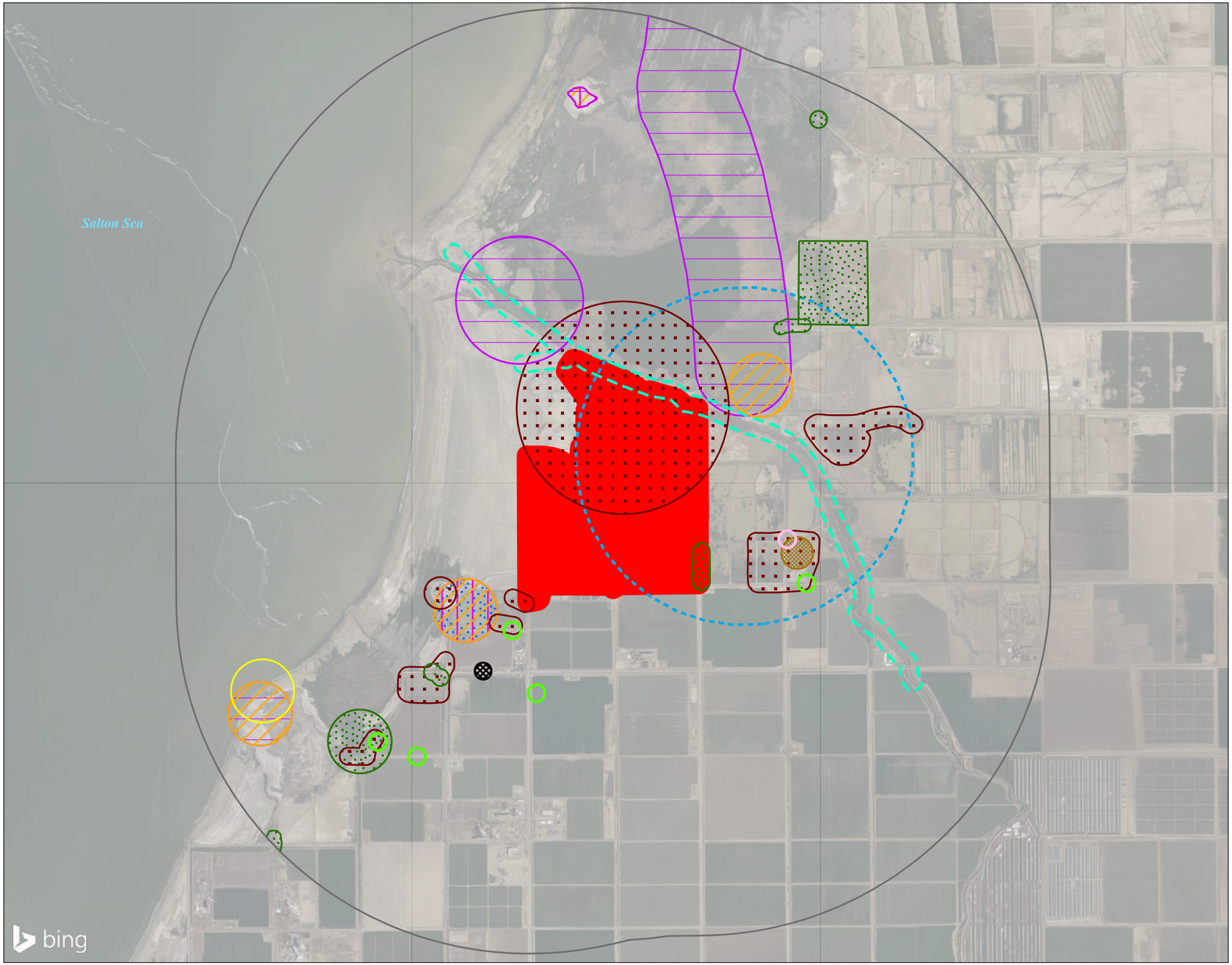
Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**6**

*Title*
**10 Mile CNDDB Results**

U:\185\185865263\RedHillBay_SaltonSea_IID_ProMaps\RedHillBay_SaltonSea_IID_ProMaps.aprx Revised: 2026-02-18 By: dalaw

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Stantec

- Survey Area (300 ft. Buffer)
- 2 Mile Search Radius

**2 Mile CNDDB Results**

**Wildlife**

- black skimmer
- Yuma hispid cotton rat
- Le Conte's thrasher
- gull-billed tern
- California gull
- desert pupfish
- Caspian tern
- California brown pelican
- burrowing owl
- Yuma Ridgway's rail
- razorback sucker
- black-tailed gnatcatcher

**Plants**

- mud nama

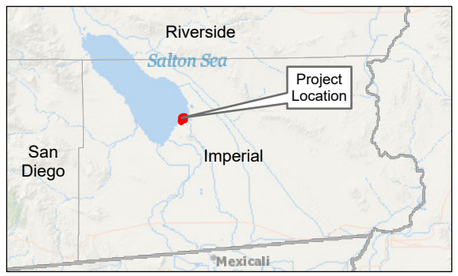
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0 3,100 6,200 Feet

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***Notes***

**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
**2.** Data Sources: Stantec 2024. CNDDB Data from CDFW 2024.
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World Ocean Base: Esri, GEBCO, Garmin, NaturalVue
World Ocean Reference: Esri, GEBCO, Garmin, NGS




*Project Location*
Calipatria
Imperial County, California

Prepared by DL on 2026-02-18
TR by SET on 2026-02-18
IR by SG on 2026-02-18

*Client/Project*
185865263

Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**6a**

*Title*
**2 Mile CNDDB Results - Wildlife & Plants**

U:\185\185865263\RedHillBay_SaltonSea_IID_ProMaps\RedHillBay_SaltonSea_IID_ProMaps.aprx Revised: 2026-02-18 By: dalaw

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Stantec

- Survey Area (300 ft. Buffer)
- 2 Mile Search Radius

**2 Mile CNDDB Results**

**Wildlife**

- mountain plover
- western snowy plover
- California black rail
- Gila woodpecker
- Crissal thrasher
- American badger

N

0 3,100 6,200 Feet

(At original document size of 11x17)
1:37,200

***Notes***

**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
**2.** Data Sources: Stantec 2024. CNDDB Data from CDFW 2024.
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World Ocean Base: Esri, GEBCO, Garmin, NaturalVue
World Ocean Reference: Esri, GEBCO, Garmin, NGS




*Project Location*
Calipatria
Imperial County, California

Prepared by DL on 2026-02-18
TR by SET on 2026-02-18
IR by SG on 2026-02-18

*Client/Project*
185865263

Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**6b**

*Title*
**2 Mile CNDDB Results - Wildlife & Plants Cont.**

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# Appendix B Photographic Log

**STANTEC CONSULTING SERVICES INC.**
**PHOTOGRAPHIC RECORD**

| | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 1: July 2, 2024**



View from the northeastern edge of the Biological Study Area (BSA) facing north towards the Alamo River, Disturbed Playa, and Tamarisk Thicket.

**Photo 2: July 2, 2024**



View from the northern portion of the BSA facing south towards the Disturbed Playa.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 3: May 20, 2021**



View from the northern portion of the BSA facing southwest at an empty basin.

**Photo 4: July 2, 2024**



View from the northwest portion of the BSA facing south towards the Disturbed Playa.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 5: July 2, 2024**



View from western portion of the BSA facing east towards the Borrow Pits and Central Ditch.

**Photo 6: May 19, 2021**



View from western portion of the BSA facing northeast towards the Borrow Pits.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 7: May 18, 2021**



View from western portion of the BSA facing west into a Cattail Marsh adjacent Gentry Road.

**Photo 8: July 2, 2024**



View from southern portion of the BSA facing southeast at the Row and Field Agriculture.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 9: July 2, 2024**



View from southern portion of the BSA facing north towards the Disturbed Playa, Iodine Bush Scrub, and the Southern Ditch.

**Photo 10: July 2, 2024**



View from the southern portion of the BSA facing north towards Tamarisk Thicket.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 11: July 2, 2024**



View from the southern portion of the BSA facing northwest at the Southern Ditch.

**Photo 12: July 2, 2024**



View from the central portion of the BSA facing south towards Iodine Bush Scrub and Tamarisk Thicket.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 13: May 20, 2021**



View from the southern portion of the BSA facing Iodine Bush Scrub and Tamarisk Thicket.

**Photo 14: July 2, 2024**



View from western portion of the BSA facing east towards the Central Ditch and iodine bush.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 15: July 2, 2024**



View from southeastern portion of the BSA facing west at an unnamed excavated channel with iodine bush and tamarisk.

**Photo 16: July 2, 2024**



View from eastern portion of the BSA facing west at the Disturbed Playa from Garst Road.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 17: May 19, 2021**



View from northeastern portion of the BSA facing east at the Alamo River.

**Photo 18: May 19, 2021**



View from northeastern portion of the BSA facing west at the Alamo River.

# Appendix C Aquatic Resource Assessment and Preliminary Delineation Report

# Aquatic Resource Assessment and Preliminary Delineation Report

Imperial Irrigation District Red Hill Bay Best Available Control Measure Project Field Verification

February 17, 2026

Prepared for:
Imperial Irrigation District
PO Box 937
333 E. Barioni Boulevard
Imperial, California 92251

Prepared by:
Stantec Consulting Services Inc.
6826 Rosecrans Avenue
Paramount, California 90723

Stantec

The conclusions in the Report titled Aquatic Resources Assessment and Preliminary Delineation 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 Imperial Irrigation (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

Hannah Hart, Associate Biologist

Printed Name

Reviewed by



Signature

Stan Glowacki, Senior Biologist

Printed Name

Approved by



Signature

Jared Varonin, Senior Principal Biologist/Business Center Practice Leader

Printed Name

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# Acronyms / Abbreviations

| | |
|---|---|
| ARAPDR | Aquatic Resource Assessment and Preliminary Delineation Report |
| BACM | Best Available Control Measure |
| CCR | California Code of Regulations |
| CDFW | California Department of Fish and Wildlife |
| CFGC | California Fish and Game Code |
| CFR | Code of Federal Regulations |
| CNPS | California Native Plant Society |
| CWA | Clean Water Act |
| FAC | Facultative Plants |
| FACU | Facultative Upland Plants |
| FACW | Facultative Wetland Plants |
| GPS | Global Positioning System |
| ICAPCD | Imperial County Air Pollution Control District |
| IID | Imperial Irrigation District |
| LSAA | Lake and Streambed Alteration Agreement |
| MCVII | Manual of California Vegetation II |
| NRCS | National Resources Conservation Service |
| NWPR | Navigable Waters Protection Rule |
| OBL | Obligate Wetland Plants |
| OHWM | Ordinary High-Water Mark |
| PCC | prior converted cropland |
| PM10 | particulate matter 10 microns diameter or less |
| Project | Red Hill Bay Best Available Control Measure Project |
| Rapanos | Rapanos v. United States and Carabell v. United States |
| RWQCB | Regional Water Quality Control Board |
| Sackett | Sackett v. Environmental Protection Agency |
| Stantec | Stantec Consulting Services, Inc |
| SWRCB | Stater Water Resources Control Board |
| UPL | Upland Plants |
| U.S. | United States |
| USACE | United States Army Corps of Engineers |
| USDA | United States Department of Agriculture |
| USEPA | United States Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| WDR | Waste Discharge Requirements |
| WOTUS | Waters of the United States |
| WQC | Water Quality Certification |



# 1 Introduction

This Aquatic Resource Assessment and Preliminary Jurisdictional Delineation Report (Aquatic Resource Assessment and Preliminary Delineation Report [ARAPDR]) is intended to document and reassess the potential jurisdiction of aquatic resources that are within the Imperial Irrigation District (IID) Red Hill Bay Best Available Control Measure Project (Project) site. This report also provides updates on agency jurisdictional regulations that relate to the Project.

Aquatic resource surveys were conducted for the Project by Stantec Consulting Services Inc. (Stantec) Biologists, Melissa Tu and Hannah Hart on May 18, 19, and 20, 2021 and senior biologist Stan Glowacki and Ms. Hart on July 2, 2024. This Report summarizes the methods and results of the surveys, as well as an assessment of potential jurisdiction of aquatic resources within the Project site (approximately 660 acres) and a 100-foot buffer (Survey Area); the Survey Area is approximately 723 acres.

The aquatic resources identified within the Project site may be under the jurisdiction of the United States Army Corps of Engineers (USACE), pursuant to Section 404 of the federal Clean Water Act (CWA) and may be under the jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA or the Porter-Cologne Water Quality Control Act. The aquatic resources within the Project site may also be under the jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Section 1600 of the California Fish and Game Code (CFGC).

Stantec's assessments in this report regarding areas of potential jurisdiction are subject to final verification and approval by regulatory agencies, including the USACE, RWQCB, and CDFW.

## 1.1 Purpose of the Report

The ARAPDR has been prepared to assess the presence of potentially jurisdictional aquatic resources that may occur within the Survey Area (Appendix A: Figure 1). This Report may be used to support associated permitting that may be required for the Project site.

## 1.2 Project Location

The Project is adjacent to the City of Calipatria, Imperial County, California within the United States Geological Survey Niland 7.5-minute topographic quadrangle (Appendix A: Figure 1). The Project is located on approximately 660 acres and the Survey Area is approximately 723 acres. The Survey Area is bound by the Alamo River to the north, Sonny Bono Salton Sea United States Fish and Wildlife Service (USFWS) Wildlife Refuge to the south, agricultural fields and Garst Road to the east, and disturbed playa and the Salton Sea to the west.

## 1.3 Project Objective

IID provides water and energy service within a 6,471-square mile service area, including all of Imperial County and parts of Riverside and San Diego counties. IID serves over 150,000 customers and provides water to over 500,000 acres of Imperial County farmland. Central to the service area is the Salton Sea, California's largest inland body of water. Due to reduced inflows to the Salton Sea, additional shoreline has become exposed over time. Exposure of the playa along the shoreline has the potential to increase windblown fugitive dust emissions of small particulate matter of 10 microns in diameter or less (PM10). The objective of the Project is to control dust emissions on the Project site in compliance with the Stipulated Order for Abatement between IID and Imperial County Air Pollution Control District (ICAPCD).

## 1.4 Project Description

The Project would reduce dust emissions by applying a commercially available chemical stabilization product (Soiltac®) to protect the surface from wind erosion. Stabilizer application would be via water truck or hose reel and irrigation boom. Temporary resource protection berms would be installed to protect onsite ditches and wetlands from construction of the dust control project; application of soil stabilizer would not occur within 300 feet of existing vegetated wetlands and ditches. The Project also includes graded access routes and improvement of an existing on-site access road.

# 2 Environmental Setting/Existing Site Conditions

## 2.1 Setting, Topography, and Land Use

The Survey Area is located near the City of Calipatria, Imperial County, California and is mostly open space with the Alamo River to the north, agricultural fields and Garst Road to the east, agricultural fields and Sonny Bono Salton Sea National Wildlife Refuge to the southwest, and open playa and the Salton Sea to the west. The Survey Area falls within areas that were previously underwater and part of the Salton Sea with an elevation range between 225 and 230 feet below mean sea level.

## 2.2 Climate

The Salton Sea area in Imperial County has one of the hottest climates in the United States (U.S.) due to its desert location. The average annual high temperature for Imperial County is 88 degrees Fahrenheit (F), the average annual low temperature is 57 degrees F, and the average annual rainfall is 2.9 inches. Summer temperatures reach over 100 degrees F daily between June and September, and winter temperatures fall to the 40s between November to February (U.S. Climate Data 2024).

## 2.3 Hydrology

The Survey Area is located within the Colorado River Basin Region which covers approximately 13,000,000 acres (approximately 20,000 square miles) in the southeastern portion of California, within the most arid portion of California. It includes Imperial County and portions of San Bernardino, Riverside, and San Diego Counties. Geographically, the Colorado River Basin Region represents only a portion of the total Colorado River drainage area, which includes portions of Arizona, Nevada, Utah, Wyoming, Colorado, New Mexico, and Mexico (State Water Resources Control Board [SWRCB] 2024a).

The Salton Sea Transboundary Watershed (United States Geologic Survey Hydrologic Unit 18100200) falls within the Colorado River Basin Region. The Salton Sea Transboundary Watershed encompasses approximately 8,360 square miles and has been identified as a Category I (impaired) Watershed under the 1997 California Unified Watershed Assessment (SWRCB 2024b).

The Survey Area is just east of the Salton Sea in an area known as the Salton Trough or Salton Sink. This area is below sea level. The current Salton Sea was formed in 1905 when the Colorado River breached an irrigation inlet and water flowed into the area. The breach was finally closed in 1907 after creating a lake approximately 316,000 acres in size. The elevation of the Salton Sea rose as agricultural production increased in the Coachella and Imperial valleys. The Salton Sea levels began to drop in the early 2000s due to lower inflows. In 2022, approximately 27,000 acres of playa was exposed around the shoreline (IID 2024).

## 2.4 Soils

Prior to conducting surveys, historic soils data from the Natural Resources Conservation Service was used to determine potential soil types that may occur within the Survey Area; this data was used to determine where hydric soils have historically occurred (Appendix A: Figure 3). Table 1 identifies the soils historically known to occur within the Survey Area and provides a summary of characteristics of these soils (United States Department of Agriculture [USDA] 2024).

*Table 1. Historic Soil Units Occurring in the Survey Area*

| Map Unit Symbol | Map Unit Name | Description | Area within Survey Area (acres) |
|---|---|---|---|
| 104 | Fluvaquents, saline | A poorly drained soil associated with basin floors at elevations between -230 to 150 feet, low runoff; parent material derived from alluvium derived from mixed sources; minor components include Rositas and unnamed soils. Contains hydric soil components. | 10.83 |
| 110 | Holtville silty clay, wet | A moderately well drained soil associated with basin floors at elevations between -230 to 200 feet, low runoff; silty clay, clay, silt loam, and loamy very fine sand; parent material derived from alluvium derived from mixed sources; minor components include Glenbar, Imperial, Indio, and Vint. | 6.41 |

| | | | |
|---|---|---|---|
| 115 | Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes | A moderately well drained soil associated with basin floors at elevations between -230 to 200 feet, low runoff; silty clay loam; parent material derived from clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed; minor components include Meloland and Holtville. | 79.66 |
| 122 | Meloland very fine sandy loam, wet | A moderately well drained soil associated with basin floors at elevations between -230 to 200 feet, low runoff; very fine sandy loam, stratified loamy fine sand to silt loam, and clay; parent material derived from alluvium derived from mixed and/or eolian deposits derived from mixed; minor components include Glenbar, Imperial, Indio, Holtville, and Vint. | 6.36 |
| 140 | Torriorthents-Rock outcrop complex, 5 to 60 percent slopes | A somewhat excessively drained soil associated with hills at elevations between -230 to 400 feet, very high runoff. | 11.24 |
| 144 | Vint and Indio very fine sandy loams, wet | A moderately well drained soil associated with basin floors at elevations between -230 to 300 feet, very low runoff; very fine sandy loam, loamy fine sand, and silty clay; parent material derived from alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; minor components include Rositas and Meloland. | 83.55 |
| 145 | Water | Open water. | 0.58 |
| NOTCOM | No Digital Data Available | No digital data available. | 524.16 |
| | | **Total** | 722.78 |

Source: USDA 2024

## 2.5 Vegetation Communities and Land Cover Types

As defined in Manual of California Vegetation II (MCVII) (Sawyer et al. 2009), a vegetation alliance is “a category of vegetation classification which describes repeating patterns of plants across a landscape. Each alliance is defined by plant species composition and reflects the effects of local climate, soil, water, disturbance, and other environmental factors.” Generally, Stantec’s mapping and description of plant communities follows the classification system described in MCVII. The MCVII is generally limited to communities that are native to or naturalized within California; however, in addition to these communities, disturbed habitat occurs within the Survey Area that is not defined in MCVII. Therefore, land cover types assigned to these types of habitats are descriptive in nature and are not specifically referenced in the MCVII.

A list of vegetation communities, land cover types, and acreages in the Survey Area are included in Table 2 below.

*Table 2. Vegetation Communities and Land Cover Types within the Project Site and Survey Area*

| Vegetation Communities/Land Cover Types | Project Site (acres) | Survey Area (acres) |
|---|---|---|
| **Vegetation Communities** | | |
| Cattail Marsh | -- | 0.22 |
| Giant Reed and Tamarisk Thickets | -- | 8.56 |
| Iodine Bush Scrub | 47.59 | 48.38 |
| Tamarisk Thickets | 33.97 | 34.31 |
| **Land Cover Types** | | |
| Disturbed/Developed | 6.02 | 38.72 |
| Disturbed Playa | 568.99 | 583.04 |
| Row and Field Agriculture | -- | 0.26 |
| Borrow Pit | 1.70 | 1.70 |
| Excavated Channel | 1.35 | 1.35 |
| Vegetated Channel | -- | 0.51 |
| Non-Vegetated Channel | -- | 4.98 |
| Riverine | -- | 0.75 |
| **Total** | 659.62 | 722.78 |

## 2.5.1 Vegetation Communities

### 2.5.1.1 Cattail Marsh (Typha [*angustifolia, domingensis, latifolia*] Herbaceous Alliance)

This classification is dominated/co-dominated by narrow leaf cattail (*Typha angustifolia*), southern cattail (*Typha domingensis*), or broadleaf cattail (*Typha latifolia*) in the herbaceous layer including but not limited to creeping bentgrass (*Agrostis stolonifera*), Cyperus (*Cyperus* sp.), salt grass (*Distichlis spicata*), spike rush (*Eleocharis macrostachya*), rushes (*Juncus* sp.), perennial pepperweed (*Lepidium latifolium*), dotted smartweed (*Persicaria punctata*), California bulrush (*Schoenoplectus californicus*), and cocklebur (*Xanthium strumarium*). Emergent trees may be present at low cover, including willows. This classification is found in semi-permanently flooded freshwater or brackish marshes. Soils are clayey or silty. The USFWS Wetland Inventory (1996 national list) recognizes narrow leaf cattail, southern cattail, or broadleaf cattail as obligate (OBL) plants. The state rarity rank is S5 (California Native Plant Society [CNPS] MCV 2024a).

Within the Survey Area, the Cattail Marsh vegetation community was dominated by narrowleaf cattail (*Typha angustifolia*) and southern cattail (*Typha domingensis*). During the 2021 and 2024 surveys, there was little to no water within the Cattail Marsh found along Garst Road, but there was water within the Cattail Marsh found adjacent to Gentry Road at the southwestern section of the Survey Area. Approximately 0.22 acres of Cattail Marsh occur within the Survey Area.

#### 2.5.1.1 Giant Reed and Tamarisk Thickets (*Arundo donax* and *Tamrisk* spp. Semi-natural Stands)

The Giant Reed and Tamarisk Thicket is not a MCVII vegetation community; however, information on these vegetation communities is provided below.

The Giant Reed Semi-Natural Stand classification is dominated by giant reed (*Arundo donax*) in the herbaceous layer with species including, but not limited to, perennial ragweed (*Ambrosia psilostachya*), yerba mansa (*Anemopsis californica*), desert salt grass (*Distichlis spicata*), Baltic rush (*Juncus arcticus*), perennial pepperweed (*Lepidium latifolium*), chairmaker's bulrush (*Schoenoplectus americanus*), and cattails (*Typha* spp.). Emergent trees may be present at low cover and emergent shrubs may be present, including Fremont's cottonwood (*Populus fremontii*), willows (*Salix* ssp.), saltmarsh baccharis (*Baccharis douglasii*), and buttonbush (*Cephalanthus occidentalis*). This vegetation community is found in riparian areas, low gradient streams, ditches, and brackish marshes (CNPS MCV 2024b).

See Section 2.5.1.3 for information on Tamarisk Thicket.

Within the Survey Area, the Giant Reed and Tamarisk Thicket vegetation community was co-dominated by giant reed and salt cedar/tamarisk. The Giant Reed and Tamarisk Thicket was found along the Alamo River at the northern border of the Survey Area. Approximately 8.56 acres of Giant Reed and Tamarisk Thickets occur at the northeastern corner along the Alamo River within the Survey Area.

#### 2.5.1.2 Iodine Bush Scrub (*Allenrolfea occidentalis* Shrubland Alliance)

This classification is dominated/co-dominated by iodine bush (*Allenrolfea occidentalis*) in the shrub and herbaceous layers with four-wing saltbush (*Atriplex canescens*), salt grass (*Distichlis spicata*), alkali heath (*Frankenia salina*), Mojave red sage (*Kochia californica*), greasewood (*Sarcobatus vermiculatus*), alkali sacaton (*Sporobolus airoides*), and bush seepweed (*Suaeda moquinii*). This classification is found in dry lakebed margins, playas perched above current drainages, and seeps. The USFWS Wetland Inventory (1996 national list) recognizes iodine bush as a facultative positive (FACW+) plant. The state rarity rank is S3.2 (CNPS MCV 2024c).

Within the Survey Area, the Iodine Bush Scrub vegetation community was dominated by iodine bush with no other typical Iodine Bush Scrub species; however, this vegetation community was adjacent to and mixed in with the Tamarisk Thicket. The Iodine Bush Scrub was found within the southern section of the Survey Area and along the Central Ditch and Southern Ditch. Approximately 48.38 acres of Iodine Bush Scrub occur in the southern portion of the Survey Area.

#### 2.5.1.3 Tamarisk Thicket (*Tamarix* spp. Shrubland Semi-Natural Alliance)

This classification is dominated by salt cedar/tamarisk (*Tamarix ramosissima*) or another tamarisk species in the shrub canopy. Emergent trees may be present at low cover, including Fremont cottonwood (*Populus fremontii*) or willow (*Salix* spp.). This classification is found in arroyo margins, lake margins, ditches, washes, rivers, and other watercourses. The USFWS Wetland Inventory (1996 national list)

recognizes small flower tamarisk (*Tamarix parviflora*) and salt cedar as a facultative (FAC) plant. There is no state rarity rank for this classification (CNPS MCV 2024d).

Within the Survey Area, the Tamarisk Thicket vegetation community was dominated by salt cedar/tamarisk (*Tamarix* ssp) with no other typical Tamarisk Thicket species; however, this vegetation community was adjacent to and mixed with Iodine Bush Scrub. The Tamarisk Thicket was found within the southern Section of the Survey Area and along the Central Ditch and Southern Ditch. Approximately 34.31 acres of Tamarisk Thickets occur in the southern portion of the Survey Area.

## 2.5.2 Land Cover Types

### 2.5.2.1 Borrow Pit

This land cover type is a human-dug pit with standing, stagnant water which encompasses approximately 1.70 acres between the Center Ditch and the Southern Ditch along the western portion of the Survey Area.

### 2.5.2.2 Disturbed/Developed

This land cover type includes areas that have been graded or paved and are otherwise developed. These areas are generally maintained for weed control, precluding any significant growth of non-ornamental species, but may be sparsely interspersed with ruderal pioneer plant species that readily colonize open disturbed soil such as along disturbed areas or roadsides.

Within the Survey Area, this land cover type includes maintained access roads on the north, east, west, and south sides of the Survey Area and developed basins along the northern portion of the Survey Area. Approximately 38.72 acres of Disturbed/Developed areas occur on the north, east, west, and south sides of the Survey Area.

### 2.5.2.3 Disturbed Playa

This land cover type includes tilled and furrowed dry lakebed, which was formerly part of the Salton Sea. This area is sparsely vegetated with fleeting annual grasses and herbs.

Approximately 583.04 acres of Playa occur within the majority of the center and northern sections of the Survey Area.

### 2.5.2.4 Row and Field Agriculture

This is an area of agricultural fields along the southern portion of the Survey Area. Approximately 0.26 acres occur within the Survey Area.

#### 2.5.2.5 Excavated Channel

This land cover type was used to map the approximate limits of the man-made excavated channels, including the Center Ditch, Southern Ditch, and the two unnamed excavated channels along the eastern border of the Survey Area. Excavated channels encompass approximately 1.35 acres within the Survey Area.

#### 2.5.2.6 Vegetated Channel

This land cover type was used to map the approximate limits of the vegetated man-made excavated channels in the southern portion of the Survey Area. The vegetation within the channels is comprised of ruderal plants. This channel encompasses approximately 0.51 acres within the Survey Area adjacent to the Row and Field Agriculture. However, the vegetated channels do not occur within the Project site.

#### 2.5.2.7 Non-Vegetated Channel

This land cover type was used to map the approximate limits of the irrigation channel open water habitat which runs parallel to and east of Garst Road. This channel encompasses approximately 4.98 acres along the eastern border of the Survey Area.

#### 2.5.2.8 Riverine

This land cover type was used to map the approximate limits of the perennial Alamo River which encompasses approximately 0.75 acres along the northern portion of the Survey Area.

# 3 Regulatory Background

## 3.1 Clean Water Act Section 404 and Federal Jurisdictional Waters

The CWA, introduced in 1977 via amendatory legislation of the Federal Water Pollution Control Act, is the primary federal law in the U.S. regulating water pollution. Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or certain types of excavation within federal waters of the United States (WOTUS) and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Permits can be issued for individual projects (individual permits) or for general categories of projects (general permits). Terrestrial WOTUS as defined by the CWA have typically included rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands. Wetlands are defined by the CWA as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands are transitional areas between well-drained upland habitats and permanently flooded (deepwater) habitats, and generally include swamps, marshes, bogs, and similar areas. The definition of WOTUS has changed over time, and the USACE has adopted several revisions to their regulations in order to more clearly define WOTUS. The protection of federal jurisdictional WOTUS has been particularly contentious and subject to numerous legal decisions since 2001.

### 3.1.1 1986 Regulations

In 1986, the federal agencies (USACE and United States Environmental Protection Agency [USEPA]) implemented historic regulations (the 1986 Regulations) that defined WOTUS (under Code of Federal Regulations [CFR] 33 §328.3) to mean traditional navigable waters, the territorial seas, interstate waters, intrastate waters whose use or degradation could affect interstate or foreign commence, as well as tributaries (streams that flow into larger streams or other bodies of water) of and wetlands adjacent to any of those waters.

### 3.1.2 2001 SWANCC Rulings

Until the beginning of 2001, WOTUS included isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters that are not part of a tributary system to interstate waters or to navigable WOTUS. The jurisdictional extent of USACE regulation changed with the 2001 *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers* ruling. The U.S. Supreme Court held that the USACE could not apply Section 404 of the CWA to extend their jurisdiction over an isolated quarry pit. The Court ruled that the CWA does not extend federal regulatory jurisdiction over non-navigable, isolated, intra-state waters. However, the Court made it clear that non-navigable wetlands adjacent to navigable waters are still subject to USACE jurisdiction.

### 3.1.3 2006 Rapanos Ruling

In 2006, the U.S. Supreme Court issued its seminal decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (collectively referred to as *Rapanos*). Justice Scalia narrowly interpreted the statutory term "waters of the United States" in a four-Justice plurality opinion, holding that CWA jurisdiction extended over only "relatively permanent, standing or continuously flowing bodies of water" that are connected to traditional navigable waters, plus wetlands with a "continuous surface connection" to such relatively permanent water bodies. Justice Kennedy wrote separately, concurring with the Court's judgment with respect to the facts of the case, but interpreted "waters of the United States" to include wetlands that possess a "significant nexus" to waters that are or were navigable in fact or that could reasonably be so made.

The Court's split decision and lack of a commanding majority opinion in *Rapanos* created confusion among the federal agencies and public. On December 2, 2008, the federal agencies released a regulatory guidance document, Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United State*s and *Carabell v. United States* (USACE and USEPA 2008), addressing common questions about federal jurisdiction over WOTUS and clarifying the two jurisdictional standards from *Rapanos*. In the 2008 *Rapanos* Guidance, the federal agencies concluded that federal jurisdiction existed over certain waterbodies that meet the "relatively permanent" standard from Justice Scalia's plurality opinion or Justice Kennedy's "significant nexus" standard, the latter of which would be determined by a fact-specific analysis.

### 3.1.4 2015 Clean Water Rule

The 1986 Regulations as interpreted by the 2008 Rapanos Guidance were later replaced by the 2015 Clean Water Rule. The federal agencies attempted to provide clarification on jurisdiction following the Rapanos ruling by replacing the numerous categories of waterbodies found in the 1986 Regulations with four broader categories: (1) waters that are categorically "jurisdictional by rule" without the need for further analysis, including traditional navigable waters, interstate waters, the territorial seas, and impoundments of these waters; (2) waters that are jurisdictional by rule, if they meet the definitions for tributaries and adjacent waters established in the 2015 Clean Water Rule; (3) waters that are subject to case-specific jurisdictional analysis under the "significant nexus" standard; and (4) waters that are categorically excluded from jurisdiction. The 2015 Clean Water Rule therefore resulted in an expansion in federal jurisdiction over waterbodies that might have otherwise been excluded from the definition of WOTUS on a case-by-case basis under the 1986 Regulations and the Rapanos ruling.

After the final 2015 Clean Water Rule was published, the Sixth Circuit Court of Appeals issued an order staying the rule nationwide, pending a determination by the court on jurisdiction to review the rule. While the 2015 Clean Water Rule was stayed, the pre-2015 regulatory regime remained in effect. Following additional litigation and administrative processes, the 2015 Clean Water Rule was briefly in effect in select states beginning in August 2018.



### 3.1.5 2020 Navigable Waters Protection Rule

In 2017, the Trump Administration issued Executive Order 13778, “Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the ‘Waters of the United States’ Rule.” The executive order directed the federal agencies to review the 2015 Clean Water Rule for consistency with the policy "to ensure that the nation’s navigable waters are kept free from pollution, while at the same time promoting economic growth, minimizing regulatory uncertainty, and showing due regard for the roles of the Congress and the States under the Constitution.” It further directed the federal agencies to issue a proposed rule rescinding or revising the 2015 Clean Water Rule as appropriate and consistent with law.

On December 11, 2018, the federal agencies proposed a revised definition of WOTUS, which would repeal the 2015 Clean Water Rule. On December 23, 2019, the federal agencies repealed the 2015 Rule and restored the previous regulatory regime as it existed prior to finalization of the 2015 Clean Water Rule with the publication of a final rule described as “Definition of ‘Waters of the United States’—Recodification of Pre-Existing Rules.”

On April 21, 2020, the federal agencies published the Navigable Waters Protection Rule (NWPR) to redefine WOTUS. The agencies streamlined the definition to include four simple categories of jurisdictional waters:

1. Traditional navigable waters and the territorial seas;
2. Tributaries of traditional navigable waters and the territorial seas;
3. Lakes, ponds, and impoundments of the first two categories of waters; and
4. Wetlands adjacent to the first three categories of waters.

The NWPR provided clear exclusions for many water features that traditionally have not been regulated, and defined terms in the regulatory text that had never been defined before. Congress, in the CWA, explicitly directed the federal agencies to protect “navigable waters.” The intent of the NWPR was to regulate waters and the core tributary systems that provide perennial or intermittent flow and excluded ephemeral waters. The final NWPR fulfilling Executive Order 13788 became effective on June 22, 2020. However, on August 30, 2021, the U.S. District Court for the District of Arizona vacated the NWPR finding “fundamental, substantive flaws that cannot be cured without revising or replacing the NWPR’s definition.” The federal agencies subsequently announced that they would interpret WOTUS consistent with the pre-2015 regulatory regime until further notice.

### 3.1.6 2023 Revised Definition of “Waters of the United States” Rule

On June 9, 2021, the USACE and USEPA under the Biden Administration announced their intent to revise the definition of WOTUS to protect more waterways, beginning a new rulemaking process that restores protections put in place before 2015.



On January 18, 2023, the federal agencies published the final "Revised Definition of 'Waters of the United States'" rule (2023 Rule) in the Federal Register, which became effective on March 20, 2023 (USACE and USEPA 2023). The 2023 Rule generally returns to the pre-2015 definition. The implications of the final 2023 WOTUS rule are such that many ephemeral waters not considered protected under the former 2020 NWPR would now be protected.

The 2023 Rule defines WOTUS to include:

1. Traditional navigable waters, the territorial seas, and interstate waters;
2. Impoundments of other jurisdictional WOTUS, except for those that qualify under category 5, below;
3. Tributaries to either of the above waters and tributaries that meet the “relatively permanent” standard or the “significant nexus” standard, (collectively, “jurisdictional tributaries”);
4. Wetlands adjacent to traditional waters, wetlands adjacent and with a continuous surface connection to relatively permanent tributaries and impoundments, and wetlands adjacent to other jurisdictional tributaries when those wetlands meet the “significant nexus” standard; and
5. Intrastate lakes and ponds, streams, or wetlands that are not identified in categories 1–4 above that meet either the “relatively permanent” standard or the “significant nexus” standard.

For purposes of characterizing a “jurisdictional adjacent wetland” under the 2023 WOTUS Rule, a wetland may be considered “adjacent” to WOTUS if it is bordering, contiguous, or neighboring a WOTUS, including wetlands separated from other WOTUS by man-made dikes or barriers, natural river berms, beach dunes, and similarly situated wetlands.

However, a wetland, even if “adjacent,” must satisfy either the “relatively permanent” standard or the “significant nexus” standard to be considered WOTUS. The federal agencies have not necessarily defined "relatively permanent" or “significant nexus” and will likely determine the applicability of these standards on a case-by-case basis.

On March 19, 2023, the U.S. District Court for the Southern District of Texas enjoined the 2023 Rule in Texas and Idaho pending its consideration of those states’ legal challenges to the rule. On April 12, 2023, the U.S. District Court for the District of North Dakota similarly issued a preliminary injunction preventing the application of the 2023 Rule in 24 states: Alabama, Alaska, Arkansas, Florida, Georgia, Indiana, Iowa, Kansas, Louisiana, Mississippi, Missouri, Montana, Nebraska, New Hampshire, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Utah, Virginia, West Virginia, and Wyoming. The federal agencies announced that, pending resolution of the litigation, they will apply the pre-2015 regulatory regime in the 26 states subject to injunctions and the 2023 Rule in the remaining 24 states, including California.



### 3.1.7 2023 Sackett Ruling

On May 25, 2023, the U.S. Supreme Court issued its ruling in *Sackett v. Environmental Protection Agency (Sackett)*, which established a more stringent test to determine whether the CWA applies to certain categories of wetland. The Sackett family had backfilled a lot near Priest Lake in Idaho, and in agreeing that the Sacketts' lot is a wetland, the U.S. Court of Appeals for the 9th Circuit applied the test outlined by Justice Kennedy in *Rapanos*: whether there is a "significant nexus" between the wetlands and waters that are covered by the CWA, and whether the wetlands "significantly affect" the quality of those waters. With Sackett, the U.S. Supreme Court unanimously reversed the 9th Circuit's ruling, where in a majority opinion, lower courts were directed to apply a more stringent test in *Rapanos*, in which the CWA applies to a particular wetland only if it blends or flows into a neighboring water that is a channel for interstate commerce. While the Court decided that it is clear that some "adjacent" wetlands will also qualify under the CWA as "waters of the United States," wetlands that are entirely separate from traditional bodies of water will not qualify. The CWA will apply to wetlands that are "as a practical matter indistinguishable from waters of the United States" because they have a "continuous surface connection" with a larger body of water, "making it difficult to determine where the 'water' ends and the 'wetland' begins."

The result of the *Sackett* ruling is that certain adjacent wetlands formerly protected under the CWA will no longer be federally protected. The USACE and USEPA have acknowledged the *Sackett* ruling and indicated they will interpret the phrase "waters of the United States" consistent with the U.S. Supreme Court's decision in *Sackett*.

### 3.1.8 Amendment to the 2023 WOTUS Rule

On August 29, 2023, the USEPA and USACE announced a final rule amending the 2023 definition of WOTUS to conform with the recent U.S. Supreme Court decision in Sackett. While EPA's and USACE's 2023 WOTUS rule defining WOTUS was not directly before the Supreme Court, the decision in Sackett made clear that certain aspects of the WOTUS 2023 rule are invalid. The amendments issued are limited and change only parts of the 2023 rule that are invalid under the Sackett decision. For example, the final rule removes the significant nexus test from consideration when identifying tributaries and other waters as federally protected. The results of the final 2023 WOTUS rule are that ephemeral waters are no longer considered federally protected under CWA Section 404.

### 3.1.9 Exemptions Under Clean Water Act Section 404

Activities that are exempt under CWA Section 404(f) include

1. Nominal farming, silviculture and ranching activities,

2. (Emergency) maintenance activities that would not change the original fill design;

3. Construction and maintenance of farm ponds, stock ponds, or irrigation ditches or the maintenance of drainage ditches;

4. Construction of temporary sedimentation basins;

5. Any activity with respect to which a State has an approved program under CWA Section 208(b)(4) which meets the requirements of sections 208(b)(4) (B) and (C) (this pertains to certain applicable statewide waste treatment management programs); and

6. Construction or maintenance of farm roads, forest roads, or temporary roads for moving mining equipment.

Exceptions to these exemptions (USACE 2023b) include:

1. Discharge of toxic pollutants, and

2. If it is part of an activity whose purpose is to convert an area of a WOTUS into a use to which it was not previously subject, where the flow and/or circulation of waters may be impaired or the reach of the waters reduced.

### 3.1.10 Extent of Jurisdiction

The extent of CWA Section 404 jurisdiction for non-tidal waters includes non-isolated aquatic features (including wetlands qualifying under the original federal 1986 standards and non-wetland WOTUS) bound by an "ordinary high water mark" (OHWM) as defined by 33 CFR 328.3(e):

> *"The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."*

Features considered isolated from traditional navigable waters and the exemptions listed above are not considered WOTUS under the jurisdiction of CWA Section 404.

## 3.2 Clean Water Act Section 401, Porter-Cologne Water Quality Control Act, and Waters of the State of California

### 3.2.1 Clean Water Act Section 401 Water Quality Certification

Section 401 of the CWA ensures that federally permitted activities comply with the federal CWA and state water quality laws. Under CWA Section 401, an applicant for a federal permit or license for any activity which may result in a discharge to federal waters must obtain a Water Quality Certification (WQC) certifying that the proposed activity will comply with applicable water quality standards. WQCs are generally issued by the state or tribe with jurisdiction over the area in which the activity will occur. If there is not a state or tribe with authority over the activity, the EPA will issue a WQC.



In California, CWA Section 401 is implemented either by the SWRCB or the applicable Regional Water Quality Control Board, with most WQCs issued in connection with USACE CWA Section 404 permits for dredge and fill discharges. The SWRCB or RWQCB issues a WQC via the CWA Section 401 process verifying that a proposed project complies with water quality standards and other conditions of California law. CWA Section 401 certification typically precedes USACE CWA Section 404 permit issuance.

In addition, the Porter-Cologne Water Quality Control Act serves as the primary water quality state law in California and addresses two primary functions: water quality control planning and waste discharge regulation. The SWRCB and various RWQCBs are charged with protecting all waters of the state of California (waters of the state), broadly defined as "any surface water or groundwater, including saline waters, within the boundaries of the State." This encompasses all waters of the state, including those waters not under federal jurisdiction; therefore, the State of California's jurisdiction expands beyond federal jurisdiction. The Porter-Cologne Water Quality Control Act does not include physical descriptors or interstate commerce limitations in defining "waters of the state."

### 3.2.2 Porter-Cologne Water Quality Act Waste Discharge Requirements

Under the Porter-Cologne Water Quality Control Act, discharges of dredged or fill material to waters of the state not subject to CWA Section 404 (i.e., non-USACE jurisdictional) are regulated under the Porter-Cologne Water Quality Control Act Chapter 3, Article 4 via Waste Discharge Requirements (WDRs). The WDR permit requirements ensure that the permitted activities comply with state water quality standards over the term of the action and are consistent with the requirements of the Porter-Cologne Water Quality Control Act, CEQA, and the California Endangered Species Act. There are two types of WDRs: individual WDRs, which are tailored to specific dischargers, and general WDRs, which are for a similar group of dischargers. The applicable RWQCB (for respective regions) or the SWRCB (for statewide applicability) can adopt general WDRs for categories of discharges if they involve similar operations, types of waste, and monitoring. Applicants must file an application with the Water Boards for any activity that could result in the discharge of dredged or fill material to waters of the state in accordance with Title 23 California Code of Regulations Section 3855. Procedures for complying with WDR regulations, including submittal of an application with a project description and impact assessment, are similar to CWA Section 401 procedures.

### 3.2.3 State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State

On April 2, 2019, the California Water Boards (including the SWRCB and the nine RWQCBs) adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures)* (SWRCB 2020). The Procedures became effective on May 28, 2020, and were subsequently revised on April 6, 2021. Additional Implementation Guidance for the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* was released in April 2020 (SWRCB 2020); this implementation guidance has been considered during the preparation of this ARAPDR.



The *Procedures* define wetlands as follows:

> *"An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation."*

Per the *Procedures*, the following wetlands are considered waters of the state (SWRCB 2021):

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state, and
3. Artificial wetlands (that result from human activity) that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the state;
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
    d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b);
        i. Industrial or municipal wastewater treatment or disposal,
        ii. Settling of sediment,
        iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
        iv. Treatment of surface waters,
        v. Agricultural crop irrigation or stock watering,
        vi. Fire suppression,
        vii. Industrial processing or cooling,

viii. Active surface mining – even if the site is managed for interim wetlands functions and values,

ix. Log storage,

x. Treatment, storage, or distribution of recycled water, or

xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or

xii. Fields flooded for rice growing.

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c as outlined above are not waters of the state. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state (SWRCB 2021).

### 3.2.4 Activities and Area Excluded from the Application Procedures for Regulation of Discharges of Dredged or Fill Material to Waters of the State

The Procedures do not apply to proposed discharges of dredged or fill material to waters of the state from the following activities or to the following areas (SWRCB 2021):

1. Activities excluded from application procedures:

    a. Activities that are exempt under CWA section 404(f) include:

        i. Nominal farming, silviculture and ranching activities,

        ii. (Emergency) maintenance activities,

        iii. Construction and maintenance of farm ponds, stock ponds, or irrigation ditches or the maintenance of drainage ditches,

        iv. Construction of temporary sedimentation basins,

        v. Any activity with respect to which a State has an approved program under CWA Section 208(b)(4) which meets the requirements of sections 208(b)(4) (B) and (C) (this pertains to certain applicable statewide waste treatment management programs), and

        vi. Construction or maintenance of farm roads, forest roads, or temporary roads for moving mining equipment.

        vii. Exceptions to these exemptions (USACE 2023b) include:

1. Discharge of toxic pollutants, and

2. If it is part of an activity whose purpose is to convert an area of a WOTUS into a use to which it was not previously subject, where the flow and/or circulation of waters may be impaired or the reach of the waters reduced.

b. Suction dredge mining activities for mineral recovery regulated under CWA Section 402.

c. Routine and emergency operation and maintenance activities conducted by public agencies, water utilities, or special districts that result in discharge of dredged or fill material to artificial, existing waters of the state:

i. Currently used and maintained primarily for one or more of the purposes previously listed in 3.d. (ii), (iii), (iv), (x), or (xi) of Section 3.2.3 of this ARAPDR; or

ii. For the purpose of preserving the line, grade, volumetric or flow capacity within the existing footprint of a flood control or stormwater conveyance facility.

d. Routine operation and maintenance activities that result in discharge of dredged or fill material to artificially-created waters currently used and maintained primarily for one or more of the purposes previously listed in section II.3.d. (i), (ii), (iii), (vi), (vii), (x), or (xi) of this ARAPDR. This exclusion does not apply to the discharge of dredged or fill material to (a) a water of the U.S., (b) a water specifically identified in a water quality control plan, (c) a water created by modification of a water of the state, or (d) a water approved by an agency as compensatory mitigation.

2. Areas excluded from application procedures:

a. Wetland areas that qualify as prior converted cropland (PCC) within the meaning of 33 CFR 507 Section 328.3(b)(2). The applicant may establish that the area is PCC by providing relevant documentary evidence that the area qualifies as PCC and has not been abandoned due to 5 consecutive years of non-use for agricultural purposes, or by providing a current PCC certification by the Natural Resources Conservation Service (NRCS), the USACE, or the USEPA to the permitting authority;

b. Wetlands that are, or have been, in rice cultivation (including wild rice) within the last 5 years as of April 2, 2019 and have not been abandoned due to five consecutive years of non-use in rice production;

c. The following features used for agricultural purposes:

i. Ditches with ephemeral flow that are not a relocated water of the state or excavated in a water of the state;

ii. Ditches with intermittent flow that are not a relocated water of the state or excavated in a water of the state, or that do not drain wetlands other than any wetlands described in (iv) or (v) below;

iii. Ditches that do not flow, either directly or through another water, into another water of the state;

iv. Artificially irrigated areas that would revert to dry land should application of waters to that area cease; or

v. Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, and settling basins.

These exclusions do not apply to discharges of dredged or fill material that convert wetland areas to a non-agricultural use.

### 3.2.5 Extent of Jurisdiction

The extent of CWA Section 401 jurisdiction is identical to CWA Section 404 jurisdiction (i.e., up to the OHWM of a federal wetland or non-wetland WOTUS); Porter-Cologne jurisdiction may extend beyond CWA Section 401 jurisdiction. If there happens to be both CWA Section 404/401 WOTUS and non-WOTUS waters of the state that could be impacted by a proposed project, the Water Boards may issue coverage under a single CWA Section 401 WQC permitting action, rather than separate WQC and WDR permitting actions.

## 3.3 Jurisdictional Aquatic Resources Under California Fish and Game Code 1602

### 3.3.1 Notification

Section 1602 of the CFGC requires a proponent proposing a project that may affect a “river, stream, or lake” to notify the CDFW before beginning the project, within a format similar to a permit application process. Any activities that result in one or more of the following require a CDFW notification (CDFW 2023):

1. Substantially divert or obstruct the natural flow of any river, stream, or lake;

2. Substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or

3. Deposit or dispose of debris, waste or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

Note that "any river, stream, or lake" includes those features that are dry for periods of time (e.g., intermittent and ephemeral features) as well as those that flow perennially year-round. If an applicant is not certain a particular activity requires notification, CDFW recommends the applicant notify them. CDFW has historically required a Lake and Streambed Alteration Agreement (LSAA) for activities within a feature that has a definable “bed and bank.” In addition, CDFW does not necessarily distinguish between a “pond” and a “lake;” therefore, natural and artificial pond features may be regulated under CFGC Section 1602.

### 3.3.2 Lake and Streambed Alteration Agreement

Once a Section 1602 notification is processed, CDFW may issue a draft LSAA. An LSAA is an agreement between the applicant and CDFW for the performance of activities subject to CFGC Section 1602. An LSAA lists the conditions relative to a proposed project that CDFW identifies as necessary to protect applicable water quality, plants, and wildlife. If the parties agree to the conditions, they will execute the LSAA, which will govern the activities described in the agreement.

### 3.3.3 Extent of Jurisdiction

CFGC Section 1602 jurisdiction typically extends from the thalweg (deepest portion) of a river or stream, or from a lake surface up to the top of bank, the outer edge of associated riparian vegetation, or outer edge of the associated floodplain (whichever is greater).

# 4 Assessment/Delineation Methods

Various agencies regulate activities within inland streams, wetlands, and riparian areas in California. The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal CWA, the SWRCB/RWQCB regulate activities under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act, and the CDFW regulates activities under CFGC Section 1600-1607.

Resource agencies have differing definitions and criteria for defining jurisdictional wetlands. Positive indicators for each of the three parameters outlined below are required for a wetland to meet the USACE criteria for jurisdictional wetland determination. Wetland indicators and the parameters for all resource agencies are outlined below in Section 4.1.2.

## 4.1 Desktop and Field Assessment

This ARAPDR is based on aquatic resource field delineations that were conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Arid West Manual)* (USACE 2008), and *A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States* (USACE 2008). Field data at sample points were recorded on Wetland Determination Data Forms – Arid West Region (see Appendix C). Munsell Soil Color Charts (Munsell 2009) and the Web Soil Survey (NRCS 2024) were used to aid in identifying hydric soils in the field. The Jepson eFlora online manual (Jepson 2021, 2024) was used for plant nomenclature and identification.

Prior to the field surveys, the USFWS National Wetland Inventory, Google Earth color aerial imagery, and the July 2020 Aquatic Resources Delineation (ECORP) were reviewed. These resources were used to identify potential aquatic features within the Project site, based on visual changes in vegetation communities, topographic changes, visible drainage patterns, and previously delineated features. Prior to field surveys, the Project site and potential features were digitized into a working field map that was then used as a reference during field surveys.

Field surveys and aquatic feature boundary verifications were conducted by Stantec biologists and wetland specialists Melissa Tu and Hannah Hart on May 18, 19, and 20, 2021 and Stan Glowacki and Ms. Hart on July 2, 2024. Boundaries of aquatic resources and jurisdictional features outlined in the July 2020 Aquatic Resources Delineation (ECORP) were field checked and verified during field surveys in May 2021 and July 2024. Additional aquatic resources and vegetation communities observed in the field during the surveys were recorded using a sub-meter Arrow Global Positioning System (GPS) receiver paired with the FieldMaps application. Field data at specific sample points were recorded on USACE Arid West Wetland Determination Data Forms and Arid West OHWM Data Forms (see Appendix C). Field notes were recorded and photographs were taken during the surveys (Appendix B: Photographic Log).

### 4.1.1 Drainages and Other Waters

Drainages and other waters that do not fall within the "wetland" category (e.g., impoundments, tidal channels, etc.) but do potentially fall under the jurisdiction of USACE, RWQCB, and CDFW, were mapped within the Survey Area. As with wetlands, the definition of what constitutes a "drainage" or other water varies between the agencies. As such, a variety of data was collected on the ground in order to establish adequate documentation per the various agency requirements. Additional detail for each agency is included below.

- **USACE:** OHWM boundaries were documented to determine the extent of the USACE's jurisdiction in the Project site, and support Section 404 and 401 of the CWA.
- **RWQCB**: The RWQCB follows the USACE methods to determine the presence of a drainage following previously listed guidance and methods based on presence of an OHWM. The RWQCB also takes jurisdiction over bed and bank to the extent of the top of bank.
- **CDFW**: Typically, top of bank measurements would be noted for each drainage, also called a "stream" and defined under Title 14, California Code of Regulations (CCR) 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." The term "stream" does not include areas under tidal influence. In general, CDFW jurisdiction generally extends beyond the bed and banks of a stream to the extent of contiguous riparian habitat.

Drainages were mapped using an Arrow GPS unit with sub-foot-accuracy paired with FieldMaps. Representative photographs were also taken of the drainage features (Appendix B). The following attributes were collected or measured for each mapped drainage where applicable: OHWM width and depth, hydrologic regime, OHWM indicators, substrate below OHWM, and depth of water. All potentially jurisdictional drainages with primary or secondary indicators of OHWM and bed and bank were mapped.

### 4.1.2 Wetlands

All potential wetland aquatic resources were evaluated within the Survey Area. The definition of what constitutes a "wetland" varies between the agencies. As such, a variety of data was collected on the ground to establish adequate documentation per the various agency requirements. The definition of a "wetland" summarized by agency is as follows:

- **USACE**: Wetland delineation per USACE guidance follows 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 USACE 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 features. 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 region (outlined in the 2008 Arid West Regional Supplement), especially in areas that have been altered by human activity.

- **RWQCB**: Wetlands as defined and adopted on April 2, 2019, and updated on April 6, 2021, by the State Water Resources Control Board (SWRCB) follow the USACE three-parameter requirement as outlined above. However, unlike the federal definition, the SWRCB wetland definition allows for the presence of hydric substrates as criteria for wetland identification (not just wetland soils) and wetland hydrology for an area devoid of vegetation (less than 5 percent cover) to be considered a wetland.

- **CDFW**: Previous guidance by CDFW considers riparian canopy and riparian wetlands under the jurisdiction of CDFW when a wetland, shrub, or forest community associated with a drainage feature or "stream" passes the USACE criterion for hydrophytic vegetation.

Jurisdictional features were mapped using a sub-meter Arrow GPS receiver paired with FieldMaps based on the limits of the hydrophytic vegetation. All spatial data were collected in the World Geodetic System 1984 database. The features were assigned a vegetation community based on dominant vegetation within each delineated feature. Nomenclature for vegetation communities contained within aquatic resources follows the alliances and associations used in the MCV and updated in the online edition (Sawyer et al. 2009, CNPS 2024). Detailed descriptions applicable at the aquatic resource survey level (i.e., vegetation for each delineated feature) are provided in the Results Section.

## 4.2 Jurisdictional Assessment

The jurisdictional assessment was made for each feature after completion of field work and completion of a working aquatic resource map. Once the resource map was completed, each feature was analyzed per a variety of requirements to determine potential jurisdiction under each of the three resource agencies. All jurisdictional assessments in this report should be considered preliminary until the USACE, RWQCB, and CDFW provide verification. Specifics as to potential jurisdiction for each agency are described below.

### 4.2.1 Drainages and Other Waters

The potential jurisdiction of a feature, defined as non-wetland drainage (or other water), varies across the agencies. All potential drainages and other waters were evaluated to identify their connection to on-site and off-site hydrologic resources. All mapped features were then assessed for potential jurisdiction under each agency based on the following agency guidance:

- **USACE**: Other waters are defined as traditional navigable waters and their tributaries (33 Code of Federal Regulations [CFR] 329). Delineation of other waters was based on presence of an OHWM as defined in USACE regulations (33 CFR 328.3 and 33 CFR 328.4). Physical characteristics of an OHWM include but are not limited to the following conditions: a natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, presence of litter and debris, leaf litter disturbed or washed away, scour, deposition,



presence of bed and bank, and water staining. One data point was selected to best represent the OHWM of other waters for each other waters type. This data point was used to collect information regarding the OHWM, along with dominant substrate, anthropogenic influences, and other features (floodplain, low flow channel, etc.) associated with the other waters' type (USACE 2010, 2008b).

- **RWQCB**: The RWQCB generally takes jurisdiction over all waters defined as "drainages" based upon the presence of an 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 RWQCB. Therefore, all drainages (tidal or otherwise) or other non-wetland waters on-site are considered potentially jurisdictional.

- **CDFW**: "Stream" is not defined in the CFGC and CDFW has not promulgated any regulation that defines "stream." However, the Fish and Game Commission (FGC) has defined "stream" in Section 1.72 in Title 14 of the California Code of Regulations as follows:

    - A body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation.

In general, CDFW jurisdiction generally extends beyond the bed and banks of a stream to the extent of contiguous riparian habitat.

### 4.2.2 Wetlands

Regarding what defines a "wetland", the potential jurisdiction of a wetland under one or more agencies varies. All mapped features were assessed for potential jurisdiction under each agency following their specific guidance:

- **USACE**: all three-parameter wetlands adjacent to WOTUS.

- **RWQCB**: Under the broad Porter-Cologne definition of Waters of the State, all waters defined as "wetlands" under the USACE three-parameter requirement, including isolated features, would likely be considered RWQCB jurisdictional. Therefore, all wetlands that meet the three-parameter wetland criterion are considered potentially jurisdictional, even if they are not directly connected to a WOTUS.

- **CDFW**: Wetlands typically fall under the jurisdiction of CDFW when they are adjacent to or associated with a drainage feature or "stream". However, Under Title 14, CCR 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 supports or has supported riparian vegetation."

In summary, potential jurisdiction of wetlands was assessed for each agency and generally assigned as follows: all three-parameter wetlands within the Survey Area were considered potentially USACE and RWQCB jurisdictional; all three-parameter wetlands adjacent to an (a)(1) – (a)(3) WOTUS were considered potentially USACE jurisdictional. Assessment of each mapped resource was on a case-by-case basis; additional details on each case are included in the Results section.

#### 4.2.2.1 Vegetation

Hydrophytic vegetation is typically found in wetlands and is defined as macrophyte vegetation that is adapted to, and occurs in, areas where soils are frequently or permanently saturated of sufficient duration to exert a controlling influence on the plant species present. Plant species adjacent to the sample points were identified and included following the "50/20 rule," meaning that plant species in each vegetation stratum (i.e., tree, sapling/shrub, herb, and woody vine) were included in order of abundance until at least 50% of the total vegetation cover was accounted for, plus any other species that, by itself, accounts for at least 20% of the total. Plants are assigned a Wetland Indicator Status based on frequency of occurrence in wetland habitats following the 2020 National Wetland Plant List (USACE 2020) and using the Indicator Ratings Definitions (Lichvar et al. 2012) as follows:

1. OBL (Obligate Wetland Plants): Almost always occur under natural conditions in wetlands. With few exceptions, these plants (herbaceous or woody) are found in standing water or seasonally saturated soils (14 or more consecutive days) near the surface;

2. FACW (Facultative Wetland Plants): Usually occur in wetlands but may occur in non-wetlands. These plants predominately occur with hydric soils, often in geomorphic settings where water saturates the soils or floods the soil surface at least seasonally;

3. FAC (Facultative Plants): Occur in wetlands and non-wetlands. These plants can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil pH, and elevation, and they have a wide tolerance of soil moisture conditions;

4. FACU (Facultative Upland Plants): Usually occur in non-wetlands but may occur in wetlands. These plants predominately occur on drier or more mesic sites in geomorphic settings, where water rarely saturates the soils or floods the soil surface seasonally; and

5. UPL (Upland Plants): Almost never occur under natural conditions in wetlands. These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.

The hydrophytic vegetation parameter is met when at least one of the following tests is fulfilled:

1. The prevalent vegetation (more than 50% of the dominant plant species) is typically adapted to areas having wetland hydrology and hydric soil conditions and rated OBL, FACW, or FAC.



2. The prevalence index, which is a value determined by accounting for the relative cover and wetland indicator status and ranges from 1 (only OBL species present) to 5 (only UPL species present), is less than or equal to 3.

3. Vegetation has morphological adaptations to growing in inundated or saturated conditions.

#### 4.2.2.2 Soils

Hydric Soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (U.S. Department of Agriculture Soil Conservation Service 1994). Hydric soils are identified based on observable properties that result from prolonged saturated-anaerobic conditions. To assess whether hydric soil was present at each sample point, soil attributes (including color [hue, value, and chroma], redoximorphic features [color patterns in a soil formed by oxidation/reduction of iron and/or manganese that are caused by loss/depletion], or gain/concentration of pigment compared to the matrix color, mottling, texture, grain size, structure, streaking, etc.) were recorded on the delineation forms. Soil colors were assessed using Munsell Soil Color Charts.

#### 4.2.2.3 Hydrology

Wetland hydrology refers to inundation and/or saturation of the soil by flooding or a shallow water table for a prolonged period during the growing season, such that the character of the soil and vegetation are substantially different from areas that do not experience inundation/saturation in this manner. The identification of wetland hydrology follows the Corps of Engineers Wetlands Delineation Manual and Arid West Regional Supplement (USACE 2008). Visual evidence among the positive indicators of wetland hydrology includes surface water, high water table, or soil saturation; geomorphic features associated with inundation (e.g., channels, shorelines); and water marks, sediment deposits, or drift deposits.

Regarding the types of federal WOTUS regulated by the USACE:

1. The term “wetlands” includes WOTUS in the instances where all three wetland parameters (i.e., hydrophytic vegetation, hydric soil, and wetland hydrology) are present.

2. The term “other waters” typically encompasses drainages and other features bound by a definable OHWM with connectivity to jurisdictional waters and includes WOTUS lacking one or more of the three wetland parameters.

# 5 Results

## 5.1 Aquatic Resources

Based on the 2021 and 2024 surveys, a total of 89.62 acres of aquatic resources were mapped within the Survey Area (Table 3). These include 82.75 acres of wetlands and 6.87 acres of non-wetland waters. A discussion of these aquatic resources is presented below, and the aquatic resources jurisdictional delineation map is presented in Appendix A: Figure 4.

Based on location, the aquatic resources observed in the Survey Area are likely under the jurisdiction of the USACE as WOTUS, and/or the RWQCB, and CDFW as waters of the State. The acreages of the aquatic resources and their potential jurisdictions are included in Tables 3 and 4 and are shown in Appendix A: Figure 4.

*Table 3. Wetlands and Waters within the Survey Area*

| Feature | Agency | Acreage |
|---|---|---|
| Wetlands | CDFW, RWQCB | 82.75 |
| Non-Wetland Waters | CDFW, RWQCB, USACE | 0.75 |
| Non-Wetland Waters | CDFW | 4.77 |
| Non-Wetland Waters | CDFW and RWQCB | 1.35 |
| | *Total* | 89.62 |

*Table 4. Wetlands and Waters within the Project Site*

| Feature | Agency | Acreage |
|---|---|---|
| Wetlands | CDFW, RWQCB | 81.55 |
| Non-Wetland Waters | CDFW and RWQCB | 1.35 |
| | *Total* | 82.90 |

### 5.1.1 Drainages and Other Waters

**Aquatic Resource 1 (Center Ditch) -** Aquatic Resource 1 (Center Ditch) is an excavated channel (ditch) with variable width (approximately 4 feet wide on average) that traverses mostly barren playa habitat near the center of the Project site. The ditch passes through sections of Iodine Bush Scrub and Tamarisk Thicket. The ditch has a natural bottom substrate and carries agricultural runoff intermittently. The Center Ditch is potentially under the jurisdiction of the RWQCB and CDFW because of the presence of a bed and banks and intermittent flow. However, the Center Ditch is not under USACE jurisdiction as a WOTUS because it is an excavated ditch that carries agricultural runoff, it does not have a clear OHWM, and it is intermittent in nature; therefore, the features of this resource do not meet the current definition of a WOTUS.



**Aquatic Resource 2 (Southern Ditch) -** Aquatic Resource 2 (Southern Ditch) is an excavated channel (ditch) with variable width (approximately 5 feet wide on average) that passes through the two wetland areas in the southern portion of the Project site, including Iodine Bush Scrub and Tamarisk Thicket. The ditch has a natural bottom substrate, an OHWM, and carries agricultural runoff. Eastern sections of Aquatic Resource 2 (Southern Ditch) and areas within the wetlands were flowing during aquatic surveys in May 2021 and July 2024; however, the western sections of the Southern Ditch are intermittent (western section of the ditch was dry during the July 2, 2024, survey). Aquatic Resource 2 (Southern Ditch) is potentially under the jurisdiction of the RWQCB and CDFW because of the presence of a bed and banks and intermittent flow. However, Aquatic Resource 2 (Southern Ditch) is not under USACE jurisdiction as a WOTUS because it is an excavated ditch that carries agricultural runoff and is intermittent in nature; therefore, it does not meet the current definition of a WOTUS. Additionally, an Approved Jurisdictional Determination was submitted to the USACE for review in 2020 that included this resource; the USACE determined that Aquatic Resource 2 did not meet the requirements to be a WOTUS.

**Aquatic Resource 3 & 4 -** There are two short excavated ephemeral ditches, noted as Aquatic Resources 3 and 4, located along the eastern boundary of the Survey Area which are isolated and run east/west. These short, isolated ditches are potentially under the jurisdiction of the RWQCB and CDFW as waters of the State because of the presence of a bed and banks and intermittent flow. These features are not under USACE jurisdiction because these features are excavated, are ephemeral, do not connect to a WOTUS, and thus they do not meet the current definition of a WOTUS.

**Aquatic Resource 5 -** The borrow pits, noted as Aquatic Resource 5, are intermittently filled with rainwater but do not have a direct connection to WOTUS or waters of the State. The borrow pits do not fit the criteria for wetlands or waters of the State outlined above in Section 3.2 and thus are not under the jurisdiction of USACE, RWQCB, or the CDFW.

**Aquatic Resource 6 -** This resource is an excavated ditch that runs parallel to Garst Road that carries agricultural runoff to wetland areas east of Garst Road. This agricultural ditch is potentially under the jurisdiction of the RWQCB and CDFW as waters of the State because of the presence of a bed and banks and intermittent flow. This feature is not under USACE jurisdiction because it is an excavated ditch that carries agricultural runoff, it is ephemeral, does not connect to a WOTUS; therefore, it does not meet the current definition of a WOTUS. This ditch is located outside of the Project site.

**Aquatic Resource 7 (Alamo River)** – Aquatic Resource 7 (Alamo River) is a located along the northern portion of the Survey Area; however, it does not fall within the Project site. Aquatic Resource 7 (Alamo River) is a perennial stream that originates in Mexico and flows north into the Salton Sea. The Aquatic Resource 7 (Alamo River) contains agricultural return flows from Imperial Valley and carries treated wastewater from point sources in Imperial Valley (SWRCB 2024b). The portion of the Aquatic Resource 7 (Alamo River) within the Survey Area has steep vegetated banks. The vegetation along the banks includes Giant Reed and Tamarisk Thicket. Aquatic Resource 7 (Alamo River) is potentially under the jurisdiction of the USACE, RWQCB, and CDFW because it has a bed and bank, an OHWM, is perennial, and connects to a WOTUS (the Salton Sea).

*Table 5. Aquatic Resources within the Project Site and Survey Area*

| Aquatic Resource | Agency | Project Site (Acres) | Survey Area (Acres) |
|---|---|---|---|
| Aquatic Resource 1 | CDFW, RWQCB | 0.55 | 0.55 |
| Aquatic Resource 2 | CDFW, RWQCB | 0.64 | 0.65 |
| Aquatic Resource 3 | CDFW, RWQCB | 0.08 | 0.08 |
| Aquatic Resource 4 | CDFW, RWQCB | 0.08 | 0.08 |
| Aquatic Resource 5 | -- | -- | -- |
| Aquatic Resource 6 | CDFW | -- | 4.77 |
| Aquatic Resource 7 | CDFW, RWQCB, USACE | -- | 0.75 |
| | *Total* | 1.35 | 6.87 |

### 5.1.2 Wetlands

The two vegetated areas in the southern portion of the Survey Area and the vegetated area in the northern portion of the Survey Area delineated as wetlands by ECORP in 2020 (Palustrine Scrub Shrub Wetland [PSSW-1, PSSW-2, and PSSW-3 in ECORP 2020]) were confirmed to have maintained their indicative CDFW and RWQCB wetland features, but is no longer considered a USACE wetland due to lack of association with a known WOTUS. These areas qualify as wetlands under the jurisdiction of the CDFW and RWQCB (see Appendix A: Figure 4). The 2020 ECORP report noted a total of 49.09 acres of wetlands within their assessment area. Based on the information from the Stantec 2021 survey and wetland delineation and the 2024 survey, there is currently 82.75 acres of wetlands within the Survey Area.

There is a cattail marsh at the southwestern corner of the Survey Area that qualifies as jurisdictional under CDFW and RWQCB; however, this area does not fall within the Project site.

# 6 Conclusion

All mapped drainages within the Survey Area, except Aquatic Resource 5 (borrow pits), fall under potential RWQCB and CDFW jurisdiction as waters of the State due to the clear evidence of bed, bank, and in some instances, presence of an OHWM. Under the new Amendment to the 2023 WOTUS Rule, any ephemeral or non-perennial aquatic resources no longer fall under federal (USACE) jurisdiction. Because of its perennial nature and its eventual connection to the Salton Sea, Aquatic Resource 7 (Alamo River) is expected to fall under jurisdiction of the USACE. All mapped wetlands within the Survey Area also fall under potential RWQCB and CDFW jurisdiction.

For impacts on federal aquatic resources under jurisdiction of both the USACE and RWQCB it will be necessary to obtain a CWA Section 404 Permit and a Section 401 Water Quality Certification. For impacts on State aquatic resources under the jurisdiction of the RWQCB and CDFW, it will be necessary to obtain a general WDR Permit from the RWQCB and a Lake and Streambed Alteration Agreement Permit from CDFW.

It should be noted that Stantec's determinations regarding areas of potential jurisdiction are subject to final verification and approval by the USACE, RWQCB, and CDFW. Stantec advises all interested parties to treat the information contained herein as preliminary pending verification of jurisdictional boundaries by the regulatory agencies.

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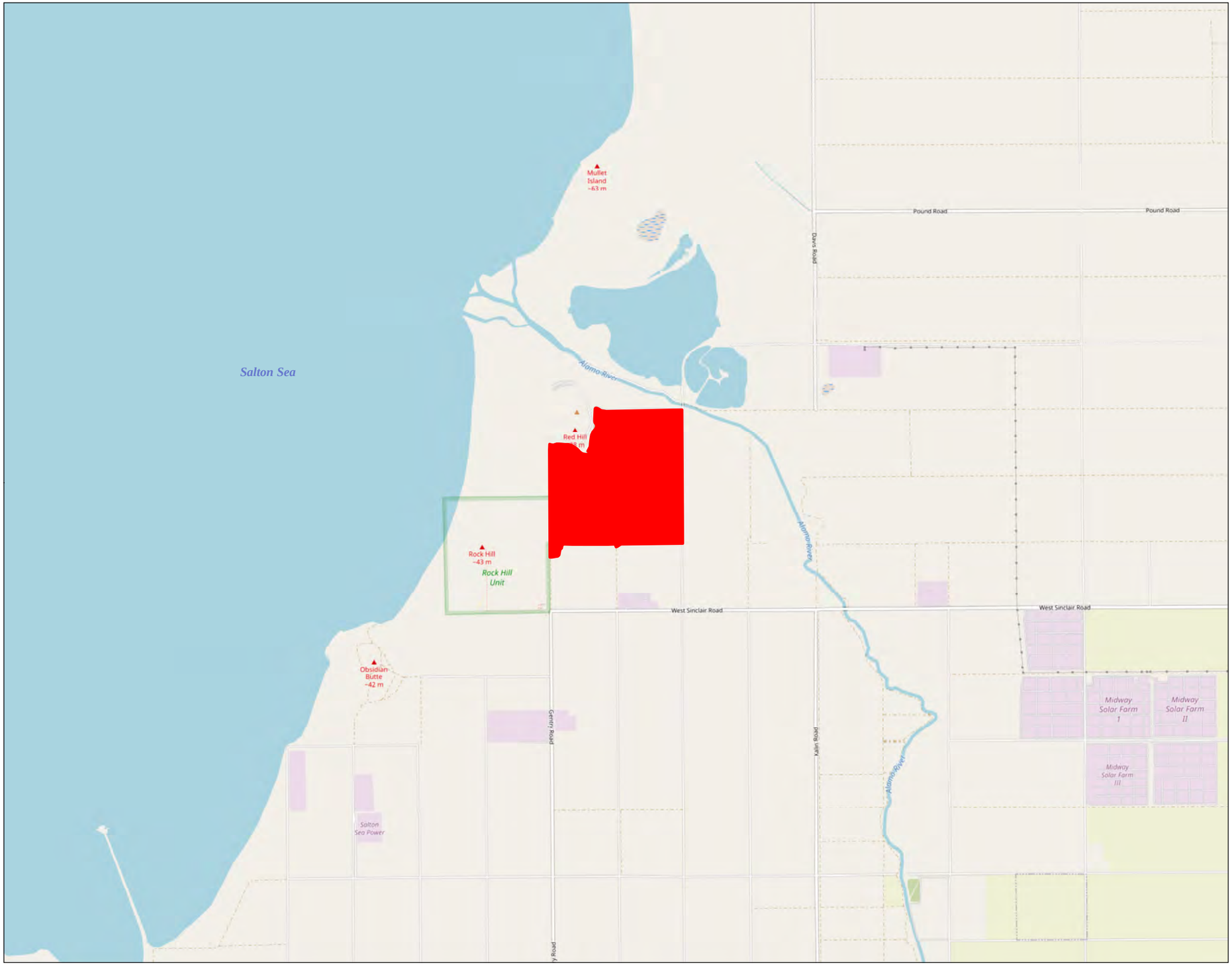
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# Appendices

# Appendix A Figures




Stantec

Project Area

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(At original document size of 11x17)
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***Notes***
**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
**2.** Data Sources: Stantec 2024.
**3.** Background: © OpenStreetMap (and) contributors, CC-BY-SA
Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors




*Project Location*
Calipatria
Imperial County, California

Prepared by DL on 2024-02-09
TR by SET on 2024-02-09
IR by SG on 2024-02-09

*Client/Project* 185865263

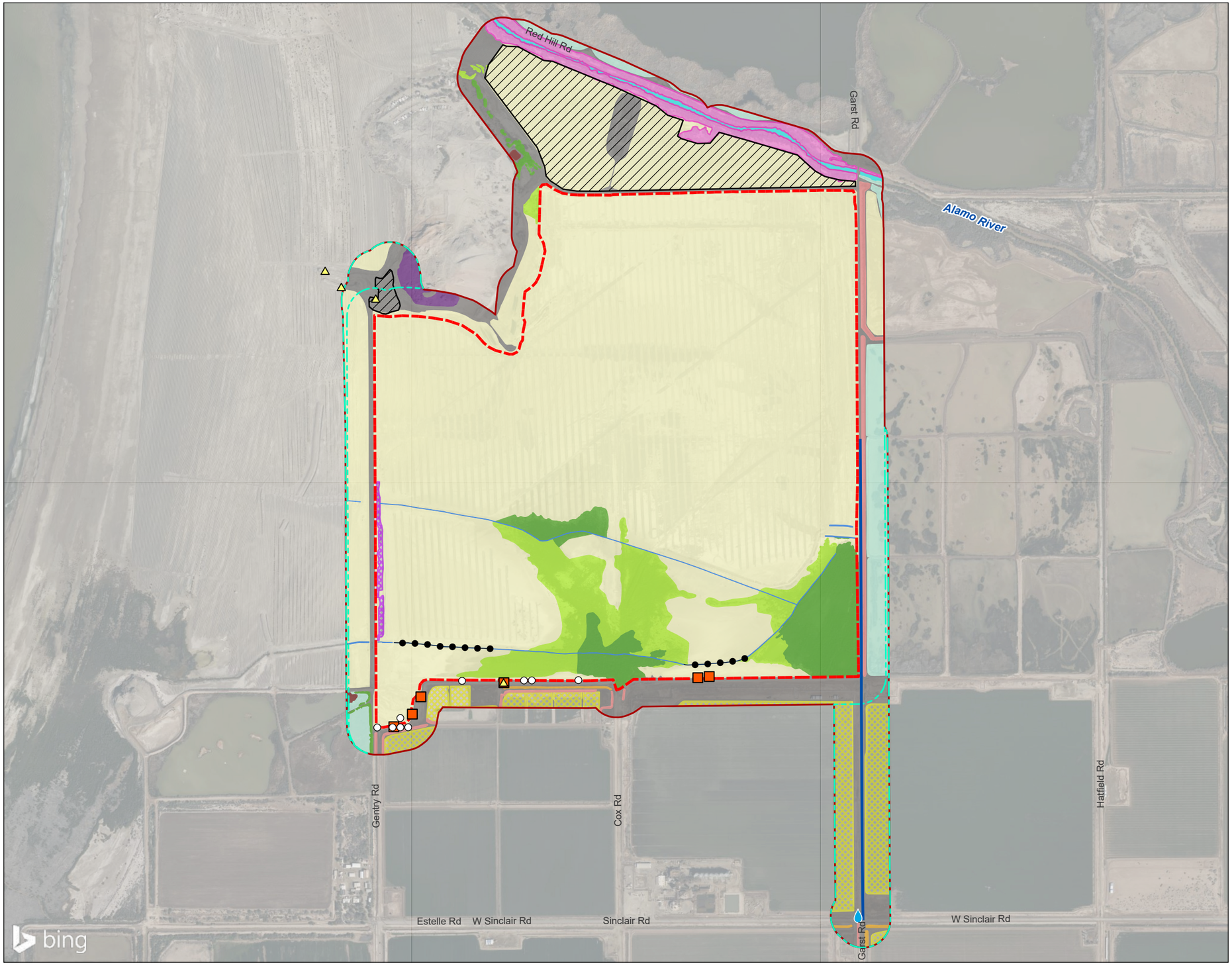
Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**1**

*Title*
**Project Location**

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Stantec

- Survey Area (300 ft. Buffer)
- Supplemental Burrowing Owl Survey Area
- Desert Pupfish

**Special-Status Wildlife**
- Burrowing Owl - 2021 (STN)
- Burrowing Owl - 2025 (STN)
- Burrowing Owl - 2025 (IID)

**Existing Features**
- Access Road
- Access Route
- Water Transport Route
- Water Source

**Proposed Features**
- Project Area
- Staging Areas

**Vegetation Communities and Land Cover Types**
- Borrow Pit
- Cattail Marsh
- Disturbed/Developed
- Disturbed Playa
- Giant Reed and Tamarisk Thicket
- Iodine Bush Scrub
- Rock Outcrop
- Row and Field Agriculture
- Tamarisk Thicket

**Water Features**
- Riverine
- Excavated Channel
- Non-vegetated Channel
- Open Water
- Vegetated Channel

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(At original document size of 11x17)
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***Notes***
**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
**2.** Data Sources: Stantec 2024.
**3.** Background: California Streams:
World Ocean Base: Esri, GEBCO, Garmin
World Ocean Reference: Esri, GEBCO, NGS
Bing Maps Aerial: © 2026 Microsoft Corporation © 2026 Maxar ©CNES (2026) Distribution Airbus DS




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Calipatria
Imperial County, California

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IR by SG on 2026-01-30

*Client/Project*
185865263

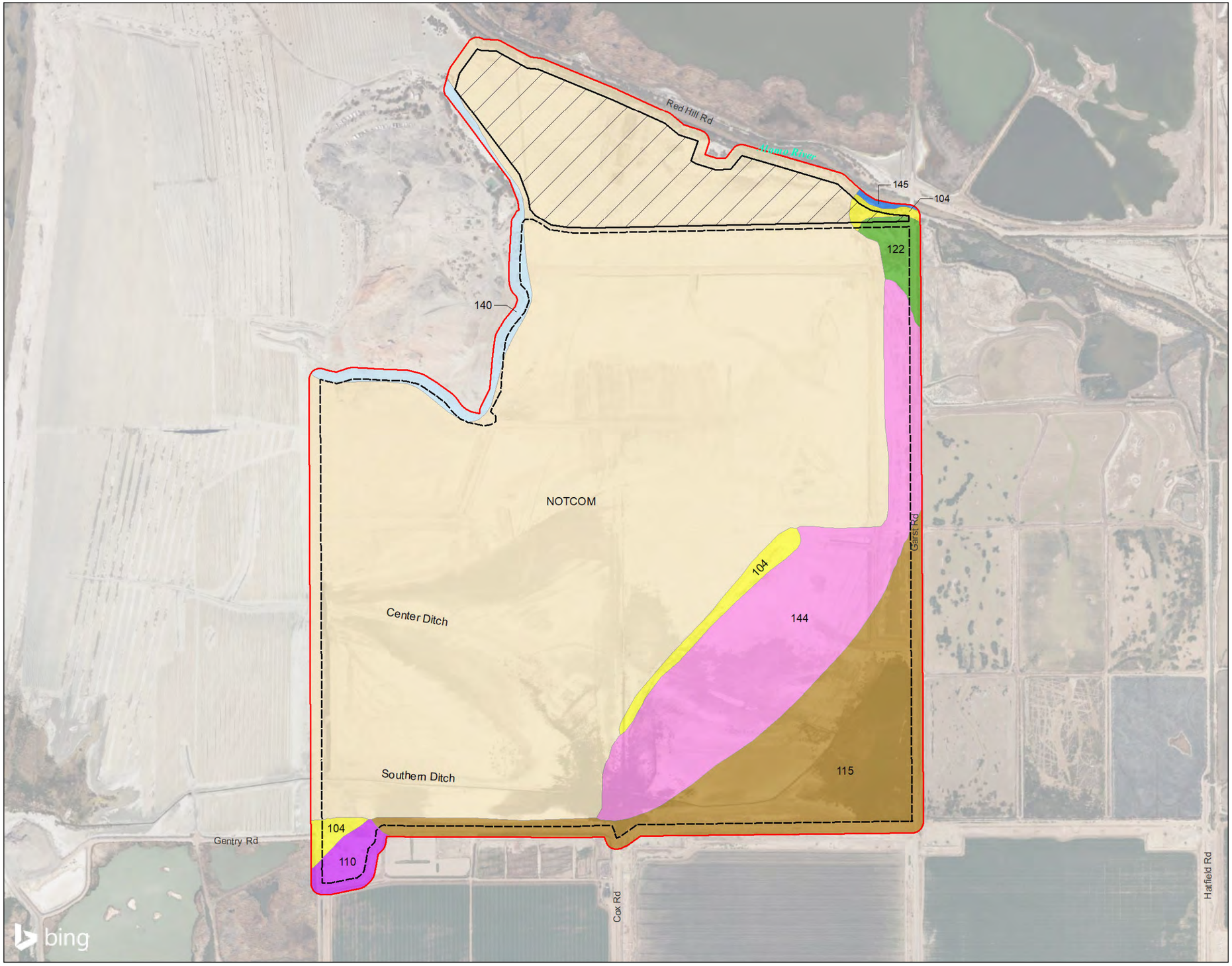
Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**2**

*Title*
**Vegetation Communities, Land Cover Types, and Select Wildlife Locations**

U:\185\185865263\Red Hill Bay_SaltonSea_IID_ProMaps\RedHillBay_SaltonSea_IID_ProMaps.aprx Revised: 2026-01-30 By: dalaw

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Stantec

- Survey Area (100 ft. Buffer)
- Project BACM Area
- Potential Staging Area

**Soils Map Unit Symbol**

- 104; Fluvaquents, saline
- 110; Holtville silty clay, wet
- 115; Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes
- 122; Meloland very fine sandy loam, wet
- 140; Torriorthents-Rock outcrop complex, 5 to 60 percent slope
- 144; Vint and Indio very fine sandy
- 145; Water
- NOTCOM, No Digital Data Avaliable

N

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(At original document size of 11x17)
1:10,800

***Notes***

**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
**2.** Data Sources: Stantec 2021.
**3.** Background: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors
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Calipatria
Imperial County, California

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IR by SG on 2024-07-16

*Client/Project*
185865263

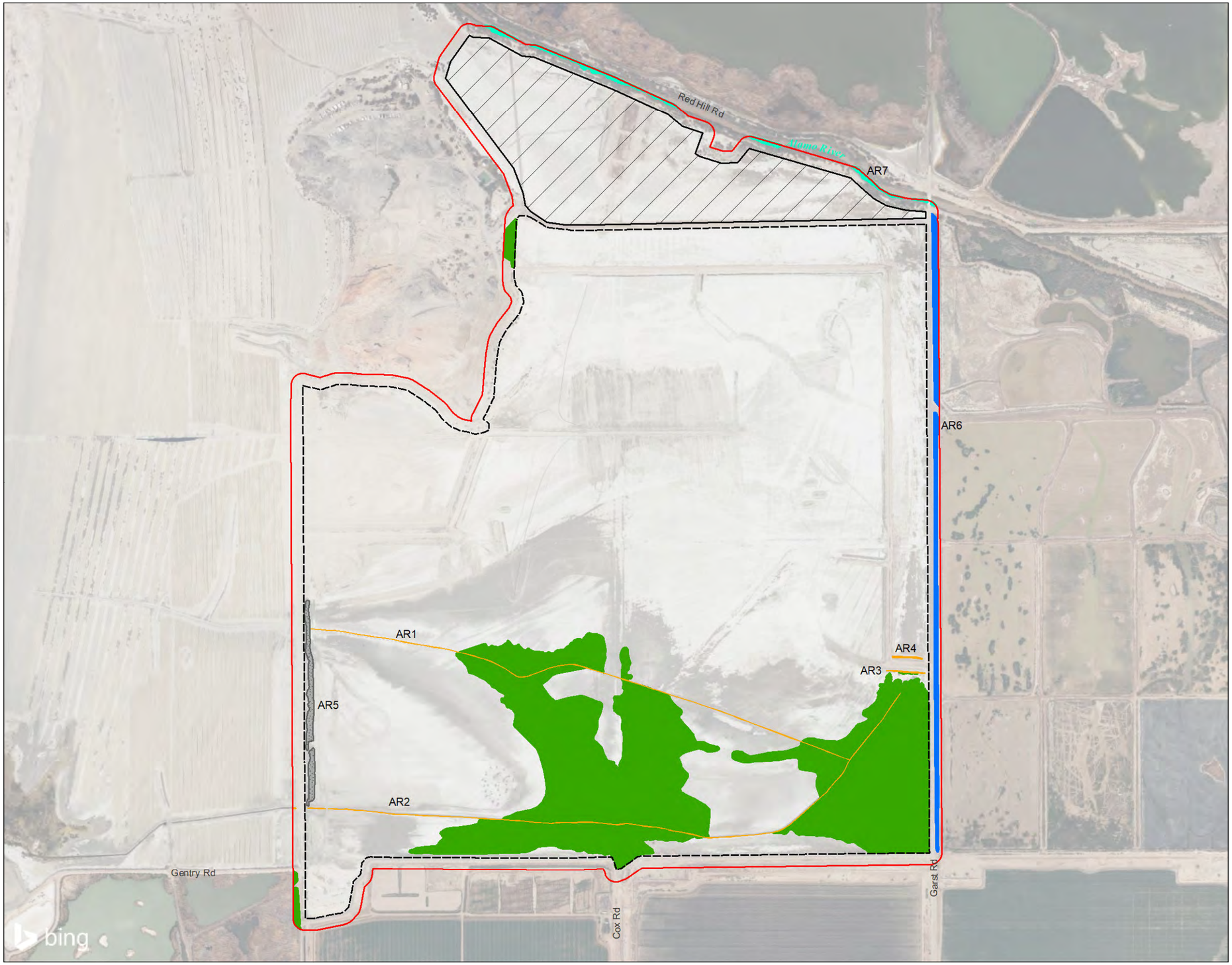
Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**3**

*Title*
**Historical Soils**

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Stantec

- Survey Area (100 ft. Buffer)
- Project BACM Area
- Borrow Pit
- Potential Staging Area
- Potential CDFW Jurisdiction
- Potential CDFW and RWQCB Jurisdiction
- Potential CDFW, RWQCB, and USACE Jurisdiction
- Wetlands (CDFW, RWQCB)

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(At original document size of 11x17)
1:10,200

***Notes***
**1.** Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
**2.** Data Sources: Stantec 2024
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*Project Location*
Calipatria
Imperial County, California

Prepared by DL on 2024-09-04
TR by SET on 2024-09-04
IR by SG on 2024-09-04

*Client/Project*
185865263

Imperial Irrigation District
Red Hill Bay BACM Project

*Figure No.*
**4**

*Title*
**Aquatics/ Waters**

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# Appendix B Photographic Log

**STANTEC CONSULTING SERVICES INC.**
**PHOTOGRAPHIC RECORD**

| | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 1: July 2, 2024**



View from central portion of Survey Area with iodine bush wetland scrub facing south.

**Photo 2: July 2, 2024**



View from southern portion of the Survey Area looking southwest toward Tamarisk and Iodine Bush Wetland.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 3: July 2, 2024**



View of Southern Ditch looking northwest.

**Photo 4: July 2, 2024**



View of Central Ditch looking southeast towards wetland area.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 5: May 18, 2021**



View from eastern portion of the Survey Area looking southwest toward wetland areas with Elmore Geothermal Facility in the background

**Photo 6: May 18, 2021**



View from the southern portion of the Survey Area looking north into wetland areas with iodine bush in foreground and tamarisk in background.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 7: May 19, 2021**



View from the central portion of the Survey Area looking west with Central Ditch and playa and adjacent to wetland area.

**Photo 8: July 2, 2024**



View from western portion of the Survey Area looking west at the Central Ditch.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 9: July 2, 2024**



View from western portion of the Survey Area at the Central Ditch looking north towards the Disturbed Playa.

**Photo 10: July 2, 2024**



View from southeastern portion of the Survey Area looking west at an unnamed channel.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 11: July 2, 2024**



View from southeastern portion of the Survey Area looking west at an unnamed channel with iodine bush and tamarisk wetland in background.

**Photo 12: May 19, 2021**



View from Wetland Sample Point 1 with excavated wetland soil pit

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 13: May 19, 2021**



View of red redox features in hydric soils excavated from wetland sample pit.

**Photo 14: July 2, 2024**



View from the western portion of the Survey Area looking east at the Borrow Pits and the Central Ditch.

| STANTEC CONSULTING SERVICES INC.<br>PHOTOGRAPHIC RECORD | |
|---|---|
| **Client:** Imperial Irrigation District | **Job Number:** 185865263 |
| **Site Name:** Red Hill Gravel Project | **Photographer:** H. Hart, S. Glowacki |

**Photo 15: May 19, 2021**



View from northeastern portion of the Survey Area looking east at the Alamo River.

**Photo 16: May 19, 2021**



View from northeastern portion of the Survey Area looking west at the Alamo River and tamarix along the banks of the river.

# Appendix C Wetlands Data Forms

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Red Hill City/County: Imperial Sampling Date: 5/19/2021

Applicant/Owner: IID State: CA Sampling Point: 1

Investigator(s): Melissa Tu, Hannah Hart Section, Township, Range: S27,T11S, R13E

Landform (hillslope, terrace, etc.): historic lake/playa Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✔ | No | **Is the Sampled Area within a Wetland?** Yes ✔ No |
| Hydric Soil Present? | Yes ✔ | No | |
| Wetland Hydrology Present? | Yes ✔ | No | |

Remarks:

Iodine bush patch, hydric soil, and salt crust

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 1 meter) | | | |
| 1. Allenrolfea occidentalis | 85 | Y | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 85 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species | x 1 = |
| FACW species | x 2 = |
| FAC species | x 3 = |
| FACU species | x 4 = |
| UPL species | x 5 = |
| Column Totals: (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

✔ Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✔ No

Remarks:

Iodine bush vegetation along the south bank of a drain/ditch in the playa on the east side of the site.

## SOIL

Sampling Point: 1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-1 | 2.5Y5/3 | 100 | | 0 | | | clay loam | salt crust |
| 1-7 | 2.5Y5/3 | 90 | 5YR4/6 | 10 | C | PL | clay loam | |
| 7-15 | 2.5Y5/3 | 100 | | 0 | | | silty clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: clay/rock

Depth (inches): 15

**Hydric Soil Present?** Yes ☑ No ☐

Remarks:

see photo

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): _____

**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Red Hill City/County: Imperial Sampling Date: 5/19/2021

Applicant/Owner: IID State: CA Sampling Point: 1

Investigator(s): Melissa Tu, Hannah Hart Section, Township, Range: S27,T11S, R13E

Landform (hillslope, terrace, etc.): historic lake/playa Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✔ | No | **Is the Sampled Area within a Wetland?** Yes ✔ No |
| Hydric Soil Present? | Yes ✔ | No | |
| Wetland Hydrology Present? | Yes ✔ | No | |

Remarks:

Iodine bush patch, hydric soil, and salt crust

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 1 meter) | | | |
| 1. Allenrolfea occidentalis | 85 | Y | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 85 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species | x 1 = |
| FACW species | x 2 = |
| FAC species | x 3 = |
| FACU species | x 4 = |
| UPL species | x 5 = |
| Column Totals: (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

✔ Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✔ No

Remarks:

Iodine bush vegetation along the south bank of a drain/ditch in the playa on the east side of the site.

## SOIL

Sampling Point: 1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-1 | 2.5Y5/3 | 100 | | 0 | | | clay loam | salt crust |
| 1-7 | 2.5Y5/3 | 90 | 5YR4/6 | 10 | C | PL | clay loam | |
| 7-15 | 2.5Y5/3 | 100 | | 0 | | | silty clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: clay/rock

Depth (inches): 15

**Hydric Soil Present?** Yes ☑ No ☐

Remarks:

see photo

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): _____

**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Red Hill City/County: Imperial Sampling Date: 5/19/2021

Applicant/Owner: IID State: CA Sampling Point: 1

Investigator(s): Melissa Tu, Hannah Hart Section, Township, Range: S27,T11S, R13E

Landform (hillslope, terrace, etc.): historic lake/playa Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✔ | No | **Is the Sampled Area within a Wetland?** Yes ✔ No |
| Hydric Soil Present? | Yes ✔ | No | |
| Wetland Hydrology Present? | Yes ✔ | No | |

Remarks:

Iodine bush patch, hydric soil, and salt crust

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 1 meter) | | | |
| 1. Allenrolfea occidentalis | 85 | Y | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 85 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species | x 1 = |
| FACW species | x 2 = |
| FAC species | x 3 = |
| FACU species | x 4 = |
| UPL species | x 5 = |
| Column Totals: (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

✔ Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✔ No

Remarks:

Iodine bush vegetation along the south bank of a drain/ditch in the playa on the east side of the site.

## SOIL

Sampling Point: 1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-1 | 2.5Y5/3 | 100 | | 0 | | | clay loam | salt crust |
| 1-7 | 2.5Y5/3 | 90 | 5YR4/6 | 10 | C | PL | clay loam | |
| 7-15 | 2.5Y5/3 | 100 | | 0 | | | silty clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: clay/rock

Depth (inches): 15

**Hydric Soil Present?** Yes ☑ No ☐

Remarks:

see photo

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): _____

**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Stantec

Stantec is a global leader in sustainable architecture, engineering, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.



# Appendix D Soils Report

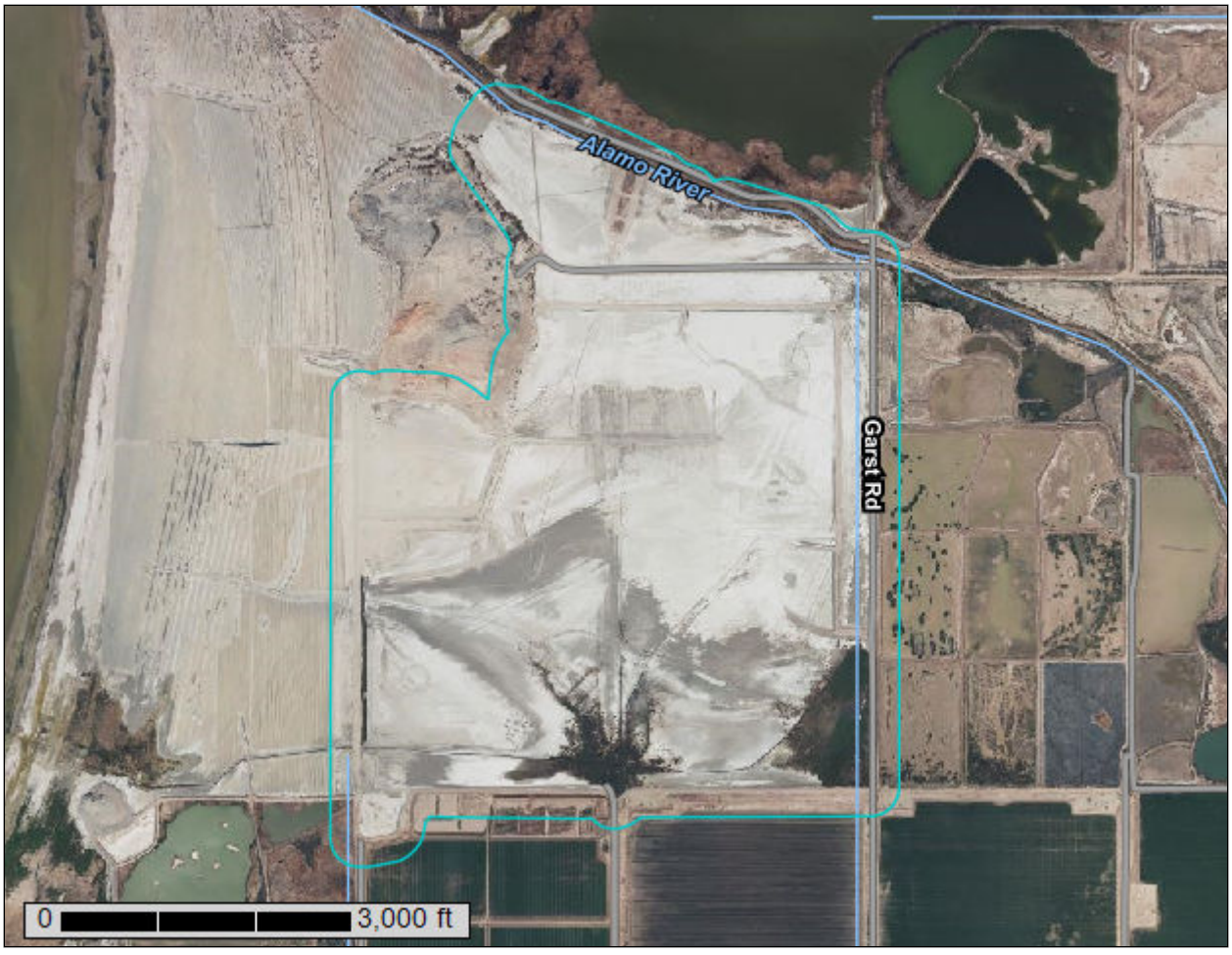
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

# Custom Soil Resource Report for Anza-Borrego Area, California; and Imperial County, California, Imperial Valley Area




August 28, 2024

# Preface

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

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

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

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

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

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

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# How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

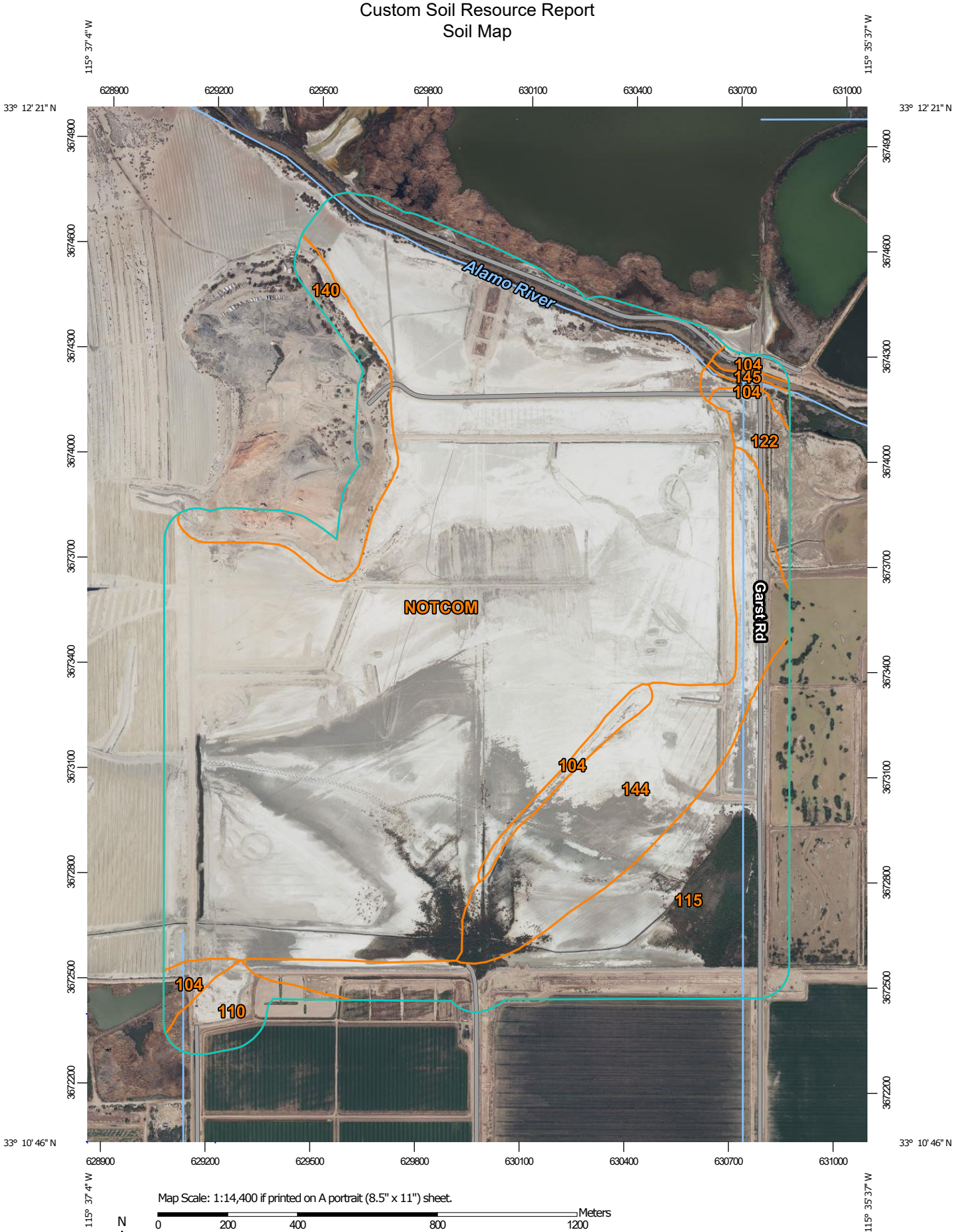
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

# Soil Map

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

# Custom Soil Resource Report
## Soil Map




Map Scale: 1:14,400 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

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

## MAP LEGEND

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

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

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

**Water Features**
- Streams and Canals

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

**Background**
- Aerial Photography

## MAP INFORMATION

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

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

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

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

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

Soil Survey Area: Anza-Borrego Area, California
Survey Area Data: Version 5, Aug 30, 2023

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 15, Aug 30, 2023

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Feb 6, 2021—May 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

## MAP LEGEND

## MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| NOTCOM | No Digital Data Available | 563.5 | 66.7% |
| **Subtotals for Soil Survey Area** | | **563.5** | **66.7%** |
| **Totals for Area of Interest** | | **844.6** | **100.0%** |

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 104 | Fluvaquents, saline | 16.9 | 2.0% |
| 110 | Holtville silty clay, wet | 14.1 | 1.7% |
| 115 | Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes | 115.0 | 13.6% |
| 122 | Meloland very fine sandy loam, wet | 12.8 | 1.5% |
| 140 | Torriorthents-Rock outcrop complex, 5 to 60 percent slo pes | 33.5 | 4.0% |
| 144 | Vint and Indio very fine sandy loams, wet | 87.5 | 10.4% |
| 145 | Water | 1.3 | 0.2% |
| **Subtotals for Soil Survey Area** | | **281.1** | **33.3%** |
| **Totals for Area of Interest** | | **844.6** | **100.0%** |

# Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a

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

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

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

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

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

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

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

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

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

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

# Anza-Borrego Area, California

## NOTCOM—No Digital Data Available

### Map Unit Composition

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

### Description of Notcom

#### Properties and qualities

# Imperial County, California, Imperial Valley Area

## 104—Fluvaquents, saline

### Map Unit Setting

*National map unit symbol:* h8zb
*Elevation:* -230 to 150 feet
*Mean annual precipitation:* 0 to 3 inches
*Mean annual air temperature:* 72 to 75 degrees F
*Frost-free period:* 300 to 350 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Fluvaquents, saline, and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Fluvaquents, Saline

#### Setting

*Landform:* Basin floors
*Landform position (three-dimensional):* Dip
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from mixed

#### Typical profile

*H1 - 0 to 60 inches:* variable

#### Properties and qualities

*Slope:* 0 to 1 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Poorly drained
*Runoff class:* Low
*Depth to water table:* About 0 inches
*Frequency of flooding:* Frequent
*Frequency of ponding:* None
*Maximum salinity:* Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 10.0

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 8w
*Ecological site:* R040XD007CA - Lacustrine Basin and Large RIver Floodplain
*Hydric soil rating:* Yes

### Minor Components

#### Unnamed soils

*Percent of map unit:* 10 percent
*Hydric soil rating:* No

#### Rositas

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

## 110—Holtville silty clay, wet

### Map Unit Setting

*National map unit symbol:* h8zj
*Elevation:* -230 to 200 feet
*Mean annual precipitation:* 0 to 3 inches
*Mean annual air temperature:* 72 to 75 degrees F
*Frost-free period:* 300 to 350 days
*Farmland classification:* Prime farmland if irrigated and drained

### Map Unit Composition

*Holtville, wet, and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Holtville, Wet

#### Setting

*Landform:* Basin floors
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from mixed sources

#### Typical profile

*H1 - 0 to 17 inches:* silty clay
*H2 - 17 to 24 inches:* clay
*H3 - 24 to 35 inches:* silt loam
*H4 - 35 to 60 inches:* loamy very fine sand

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Moderately well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Maximum salinity:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 10.0
*Available water supply, 0 to 60 inches:* Moderate (about 7.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2w
*Land capability classification (nonirrigated):* 7w
*Hydrologic Soil Group:* D
*Ecological site:* R040XD007CA - Lacustrine Basin and Large RIver Floodplain

*Hydric soil rating:* No

**Minor Components**

**Imperial**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Glenbar**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Indio**

*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Vint**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 115—Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes

**Map Unit Setting**

*National map unit symbol:* h8zp
*Elevation:* -230 to 200 feet
*Mean annual precipitation:* 0 to 3 inches
*Mean annual air temperature:* 72 to 75 degrees F
*Frost-free period:* 300 to 350 days
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Imperial, wet, and similar soils:* 41 percent
*Glenbar, wet, and similar soils:* 40 percent
*Minor components:* 19 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Imperial, Wet**

**Setting**

*Landform:* Basin floors
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed

**Typical profile**

*H1 - 0 to 12 inches:* silty clay loam
*H2 - 12 to 60 inches:* silty clay loam

**Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Moderately well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Maximum salinity:* Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 20.0
*Available water supply, 0 to 60 inches:* Moderate (about 8.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3w
*Land capability classification (nonirrigated):* 7w
*Hydrologic Soil Group:* C
*Ecological site:* R040XD007CA - Lacustrine Basin and Large RIver Floodplain
*Hydric soil rating:* No

**Description of Glenbar, Wet**

**Setting**

*Landform:* Basin floors
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from mixed

**Typical profile**

*H1 - 0 to 13 inches:* silty clay loam
*H2 - 13 to 60 inches:* clay loam

**Properties and qualities**

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Moderately well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Maximum salinity:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 15.0
*Available water supply, 0 to 60 inches:* High (about 10.8 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3w
*Land capability classification (nonirrigated):* 7w
*Hydrologic Soil Group:* C
*Ecological site:* R040XD007CA - Lacustrine Basin and Large RIver Floodplain
*Hydric soil rating:* No

**Minor Components**

**Meloland**
*Percent of map unit:* 10 percent
*Hydric soil rating:* No

**Holtville**
*Percent of map unit:* 9 percent
*Hydric soil rating:* No

## 122—Meloland very fine sandy loam, wet

**Map Unit Setting**
*National map unit symbol:* h8zx
*Elevation:* -230 to 200 feet
*Mean annual precipitation:* 0 to 3 inches
*Mean annual air temperature:* 72 to 75 degrees F
*Frost-free period:* 300 to 350 days
*Farmland classification:* Prime farmland if irrigated and drained

**Map Unit Composition**
*Meloland, wet, and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Meloland, Wet**

**Setting**
*Landform:* Basin floors
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from mixed and/or eolian deposits derived from mixed

**Typical profile**
*H1 - 0 to 12 inches:* very fine sandy loam
*H2 - 12 to 26 inches:* stratified loamy fine sand to silt loam
*H3 - 26 to 71 inches:* clay

**Properties and qualities**
*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Moderately well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None

*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Maximum salinity:* Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 13.0
*Available water supply, 0 to 60 inches:* Moderate (about 7.8 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3w
*Land capability classification (nonirrigated):* 7w
*Hydrologic Soil Group:* D
*Ecological site:* R040XD007CA - Lacustrine Basin and Large RIver Floodplain
*Hydric soil rating:* No

**Minor Components**

**Glenbar**

*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Vint**

*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Imperial**

*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Indio**

*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Holtville**

*Percent of map unit:* 3 percent
*Hydric soil rating:* No

## 140—Torriorthents-Rock outcrop complex, 5 to 60 percent slo pes

**Map Unit Setting**

*National map unit symbol:* h90h
*Elevation:* -230 to 400 feet
*Mean annual precipitation:* 0 to 3 inches
*Mean annual air temperature:* 72 to 75 degrees F
*Frost-free period:* 300 to 350 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Torriorthents and similar soils:* 80 percent
*Rock outcrop:* 20 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Torriorthents

### Setting

*Landform:* Hills
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Linear

### Typical profile

*H1 - 0 to 60 inches:* variable

### Properties and qualities

*Slope:* 5 to 60 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat excessively drained
*Runoff class:* Very high
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Very slightly saline to strongly saline (2.0 to 16.0 mmhos/cm)

### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 8e
*Ecological site:* R040XD009CA - Gravelly Fan Remnants And Fan Aprons, R040XD003CA - Rocky Slopes 2-4" p.z.
*Hydric soil rating:* No

## Description of Rock Outcrop

### Setting

*Landform:* Stream terraces
*Down-slope shape:* Concave
*Across-slope shape:* Linear

### Typical profile

*H1 - 0 to 10 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 5 to 60 percent
*Depth to restrictive feature:* 0 inches to lithic bedrock
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 in/hr)

### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 8e
*Hydric soil rating:* No

## 144—Vint and Indio very fine sandy loams, wet

### Map Unit Setting

*National map unit symbol:* h90m
*Elevation:* -230 to 300 feet
*Mean annual precipitation:* 0 to 3 inches
*Mean annual air temperature:* 72 to 75 degrees F
*Frost-free period:* 300 to 350 days
*Farmland classification:* Prime farmland if irrigated and drained

### Map Unit Composition

*Vint, wet, and similar soils:* 50 percent
*Indio, wet, and similar soils:* 40 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Vint, Wet

#### Setting

*Landform:* Basin floors
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from mixed sources and/or eolian deposits derived from mixed sources

#### Typical profile

*H1 - 0 to 10 inches:* very fine sandy loam
*H2 - 10 to 40 inches:* loamy fine sand
*H3 - 40 to 60 inches:* silty clay

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Moderately well drained
*Runoff class:* Very low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Maximum salinity:* Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 10.0
*Available water supply, 0 to 60 inches:* Moderate (about 6.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2w
*Land capability classification (nonirrigated):* 7w
*Hydrologic Soil Group:* B

*Ecological site:* R040XD007CA - Lacustrine Basin and Large RIver Floodplain
*Hydric soil rating:* No

### Description of Indio, Wet

#### Setting

*Landform:* Basin floors
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium and/or eolian deposits derived from mixed

#### Typical profile

*H1 - 0 to 12 inches:* very fine sandy loam
*H2 - 12 to 40 inches:* stratified loamy very fine sand to silt loam
*H3 - 40 to 60 inches:* silty clay

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Moderately well drained
*Runoff class:* Very low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Maximum salinity:* Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 10.0
*Available water supply, 0 to 60 inches:* Moderate (about 8.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2w
*Land capability classification (nonirrigated):* 7w
*Hydrologic Soil Group:* B
*Ecological site:* R040XD007CA - Lacustrine Basin and Large RIver Floodplain
*Hydric soil rating:* No

### Minor Components

#### Meloland

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

#### Rositas

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

## 145—Water

**Map Unit Composition**

*Water:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

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