

**Jurisdictional Delineation of Wetlands/Waters  
Subject to Regulatory Authority  
Assessor Parcel Numbers  
0607-231-07,-09,-10,-11,-12,-13,  
-14,-15,-18 and 0607-364-06  
San Bernardino County, California**



*Prepared For:*  
**Joshua Tree Solar Farm, LLC**  
700 Louisiana Street, 33rd Floor  
Houston, Texas 77002



*Prepared By:*  
**TETRA TECH**  
301 E. Vanderbilt Way, Suite 450  
San Bernardino, California 92408  
TC# 28826-02.02

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## **1.0 INTRODUCTION**

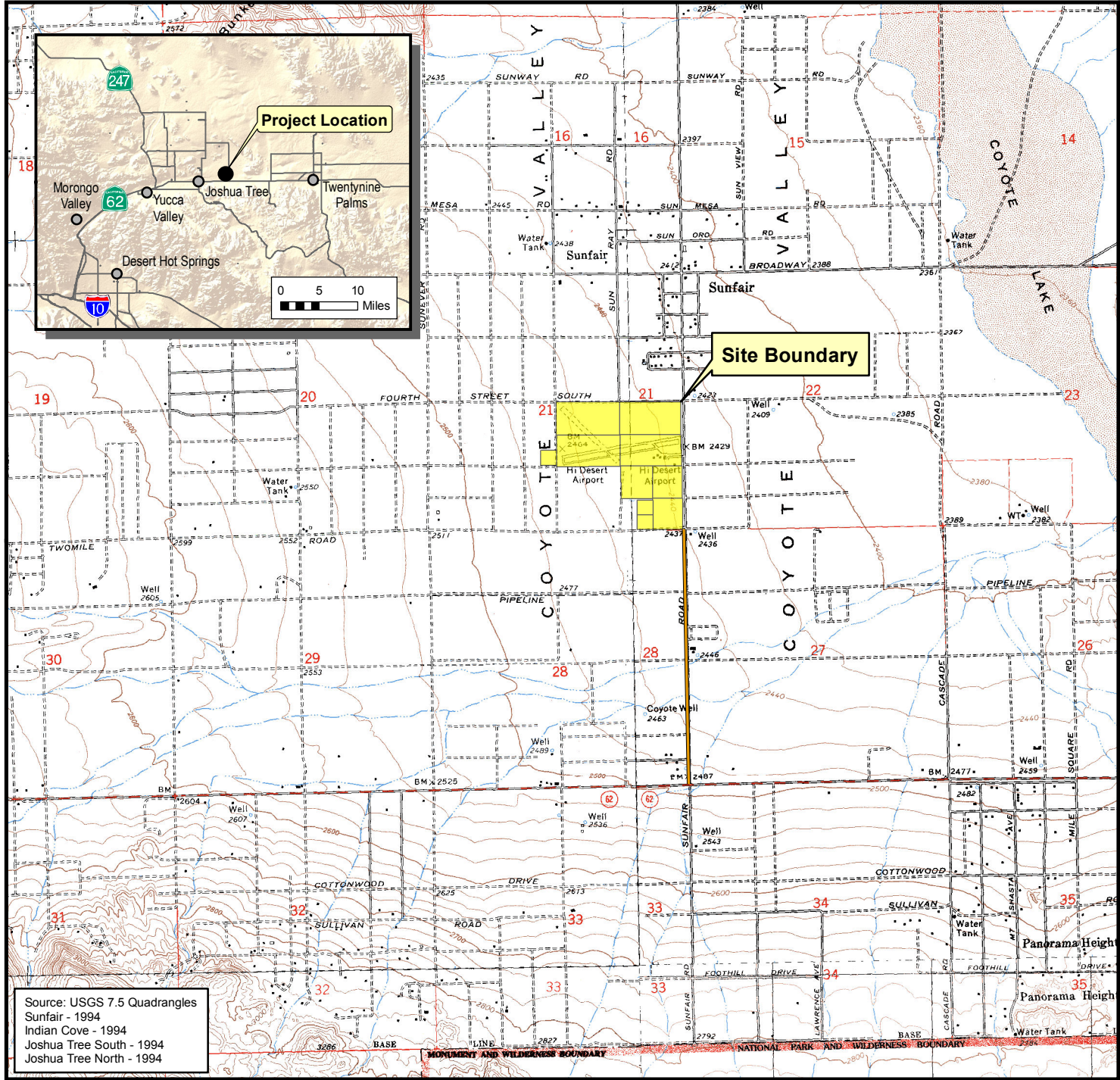
Tetra Tech, Inc. was contracted to conduct a jurisdictional wetland/ waters of the U.S. and waters of the State delineation for potential unnamed drainages for Joshua Tree Solar Farm, LLC, associated with a 115-acre area identified as Assessor Parcel Numbers (APNs) 0607-231-07, -09, -10, -11, -12, -13, -14, -15, -18 and 0607-364-16, San Bernardino County, California (Figure 1). The purpose of the delineation was to determine the limits of jurisdictional waters subject to regulatory authority under Section 404 and 401 of the Clean Water Act plus Department of Fish and Game code 1600 et seq. for any potential waters subject to regulatory authority found at the site.

## **2.0 PROJECT LOCATION AND DESCRIPTION**

The 115-acre site, located in an unincorporated portion of San Bernardino County, is currently occupied by the Hi Desert/Roy Williams airport between Two Mile Road and 4<sup>th</sup> Street South west of Coyote Valley Road (Figure 1). An additional parcel of land identified as APN 0607-231-04 found on an adjacent southern boundary to the airport area was also included in the delineation survey. The site surveyed for jurisdictional waters is located in Section 21, T1N, R7E, San Bernardino Baseline and Meridian (SBBM) of the Joshua Tree North 7.5-minute quadrangle (United States Geologic Survey 1994) and the Sunfair, California 7.5-minute quadrangle (United States Geologic Survey 1994). The topographic gradient at the site and regionally is from the west to the east.

## **3.0 ENVIRONMENTAL SETTING**

The site is occupied by a small aircraft airport surrounded by undeveloped lands of relatively undisturbed desert scrub habitat. The airport infrastructure includes buildings, a fueling island, airplane storage sheds plus paved and unpaved runways. A cement plant is located off-site on the southwestern side of the site. Plants that dominate the undeveloped landscape include creosote (*Larrea tridentata*), California croton (*Croton californicus*), and big galleta, (*Pleuraphis rigida*). The survey was conducted during a time of the year when annual herbaceous plants would not be present. Soils at the site are predominately sandy in texture. The site has no relief and has a very minor slope trending from the southwest to the northeast (United States Geologic Survey 1994). The climate at the site is arid, consisting of hot, dry summers and mild winters. A Hydrology Study has been prepared for the site (Wallace Group 2012). The preliminary flood plain model developed to analyze storm water flow showed that sheet flow of floodwater has the potential to flow north and northeast across the project site.



Source: USGS 7.5 Quadrangles  
 Sunfair - 1994  
 Indian Cove - 1994  
 Joshua Tree South - 1994  
 Joshua Tree North - 1994

0 1,500 3,000 Feet

**LEGEND**

- Generation Intertie Line
- Assessor Parcel Boundary

APNs 0607-231-07,-09,-10,-11,-12,  
-13,-14,-15,-18, and 0607-364-06

**Figure 1**  
**Site Location Map**  
**Proposed Joshua Tree Solar Farm**  
**Joshua Tree, CA**

**TETRA TECH**

## **4.0 REGULATORY SETTING**

### **4.1 FEDERAL REGULATORY SETTING**

The U.S. Army Corps of Engineers (ACOE) regulates discharges of dredged or fill material into waters of the United States. These waters, or waters of the U.S., include wetlands and non-wetland bodies of water that meet specific criteria. U.S. Army Corps of Engineers regulatory jurisdiction pursuant to Section 404 of the Clean Water Act is founded on a connection or nexus between the water body in question and interstate commerce. This connection may be direct; through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or may be indirect, through a nexus identified in the Corps regulations. The following definition of waters of the U.S. is taken from the discussion provided in 33 CFR 328.3.

“The terms waters of the U.S. means:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, the use; degradation or destruction of which could affect interstate or foreign commerce including any such waters 1) which are or could be used by interstate or foreign travelers for recreational or other purposes; 2) from which fish or shellfish are or could be taken and sole in interstate or foreign commerce; or 3) which are used or could be used for industrial purpose by industries in interstate commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition; and
- Tributaries of waters defined in earlier under the definition of waters found in this section.”

Wetlands are a subset of special aquatic sites that support water-dependent vegetation, have wet soils, and possess wetland hydrology (frequent or prolonged flooding). Wetlands support a diverse assemblage of plant and wildlife species, and are important for migrating birds.

The ACOE define wetlands as follows: "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions."

In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland

characteristic to be met (Environmental Laboratory 1987; United States Army Corps of Engineers 2008). Several parameters may be analyzed to determine whether the criteria are satisfied.

The determination of waters of the U.S. associated with intermittent streams and washes in the arid southwest is made difficult by long periods of low to no water flow through these bodies. In recognition of these environments where field determination of jurisdictional waters is difficult, technical guidance on how to determine waters of the U.S. based on physical characteristics associated with dryland fluvial systems has been provided by the ACOE (United States Army Corps of Engineers 2008). With non-tidal waters, in the absence of adjacent wetlands, the extent of ACOE jurisdiction is defined by the “ordinary high water mark” (OHWM). This is defined in 33 CFR Part 329.1, as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; and presence of litter and debris (U.S Army Corps of Engineers 2008). In dryland fluvial systems typical of the semi-arid southwest, some of the more common physical characteristics that indicate the OHWM of an intermittent channel include a clear natural scour line impressed on the bank, recent bank erosion, destruction of native terrestrial vegetation and the presence of litter and debris.

In 2006, the Supreme Court addressed the jurisdictional scope of Section 404 of the Clean Water Act, specifically the term “the waters of the U.S.,” in *Rapanos v. U.S.* and in *Carabell v. U.S.* Referred to as the Rapanos decision, the Supreme Court provided two new analytical standards for determining whether water bodies that are not Traditional Navigable Waters (TNWs), including wetland adjacent to those non-traditional navigable waters, are subject to the Clean Water Act jurisdiction if 1) the water body is relatively permanent or if the water body is a wetland that directly abuts (e.g., the wetland is not separated from the tributary by uplands, a berm, dike, or similar feature) a relatively permanent water body or 2) if a water body, in combination with all wetlands adjacent to that water body, has a significant nexus with traditional navigable waters. Traditionally Navigable Waters include but are not limited to the “navigable waters of the United States”. These waters are subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Relatively Permanent Waters that are tributaries to Traditional Navigable Waters are also subject to regulatory authority by the ACOE.

#### **4.2 STATE OF CALIFORNIA REGULATORY SETTING**

Under California State law, “waters of the state” means “any surface or groundwater including saline waters, within boundaries of the state”. After the US Supreme Court decision in *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers (SWANNC v. USCOE)*, the State Water Resources

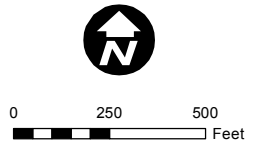
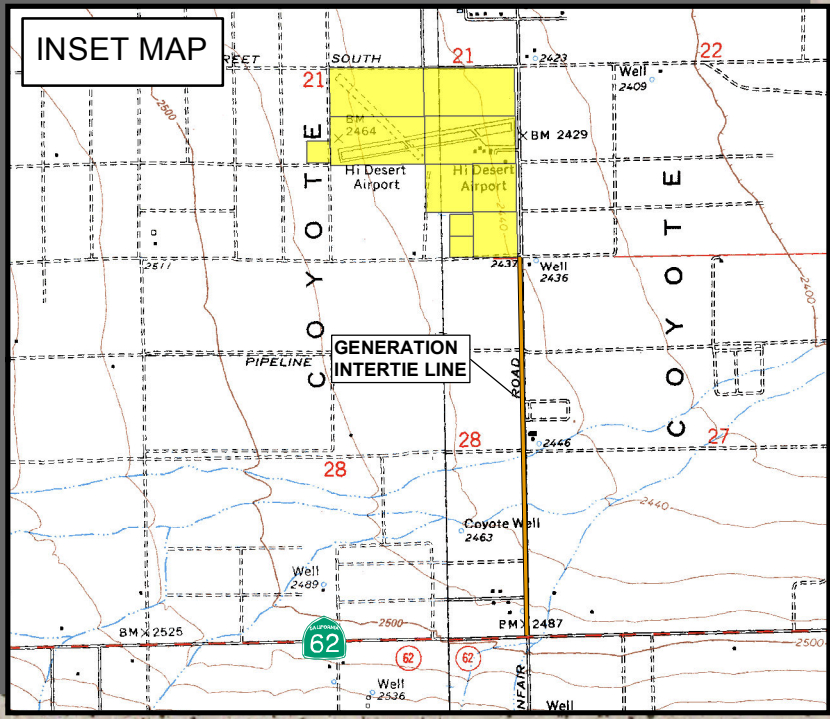
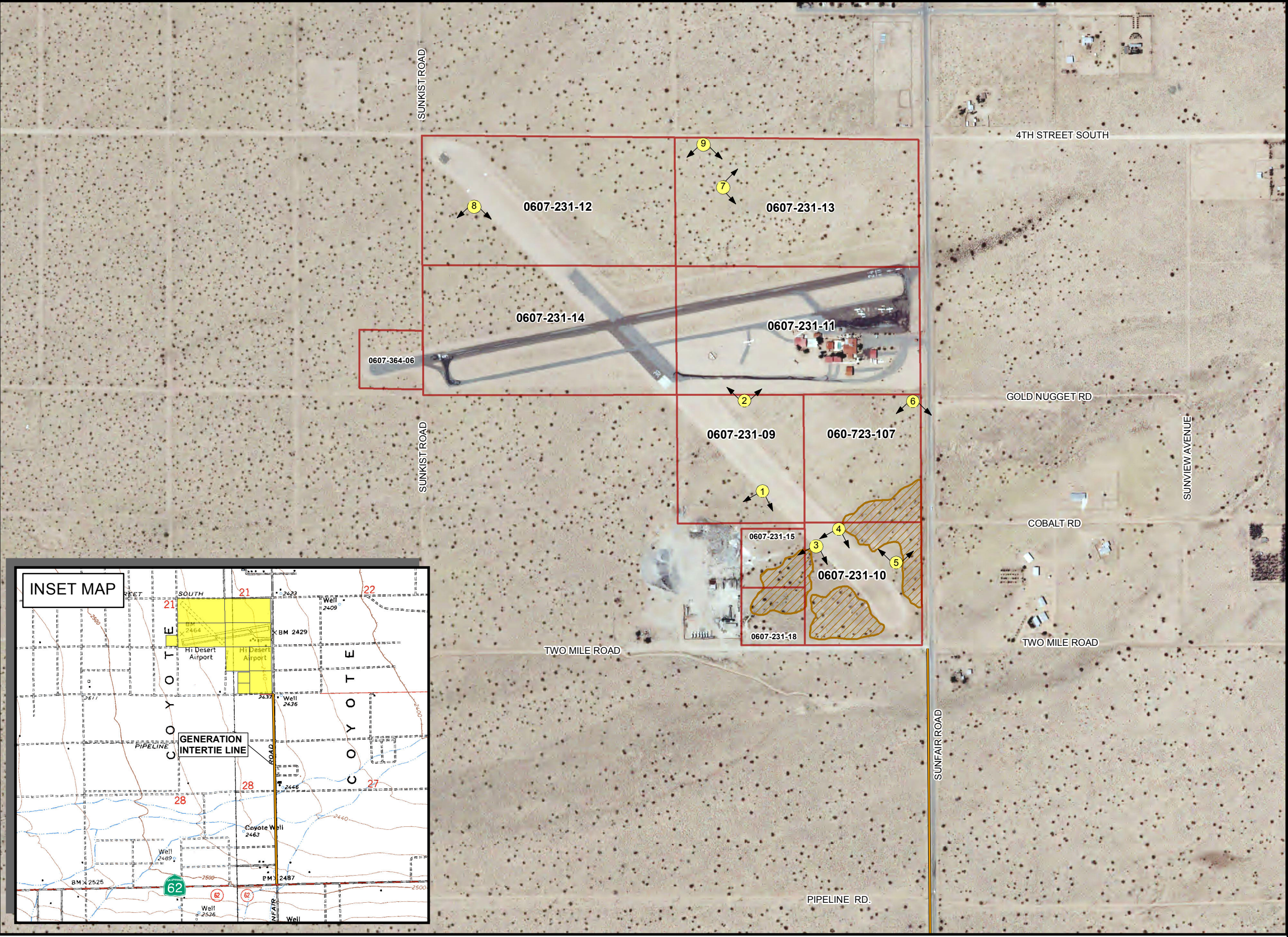
Control Board (SWRCB) confirmed the State's jurisdiction over isolated wetlands. The SWRCB has confirmed that under Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act, discharges to wetlands and other "waters of the state" are subject to State regulations that include isolated wetlands. The Regional Water Quality Control Board (RWQCB)-Colorado River Basin regulates discharge to isolated waters such as wetlands and riparian areas found in the region of the site.

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game (CDFG) Code, the CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream or lake, which support fish or wildlife (i.e., bed to bank). The CDFG defines waters of the State or "stream" (including creeks and rivers) as "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 surface or subsurface flow that supports or has supported riparian vegetation." In their definition of "lake", the CDFG also includes "natural lakes or man-made reservoirs."





## **5.0 WETLAND AND WATERS OF THE U.S./WATERS OF THE STATE DELINEATION AND DETERMINATION**

### **5.1 METHODS**

Prior to mobilizing into the field, Tetra Tech conducted a review of any potential drainage features within site as well as regionally using recent aerial topography, USGS 7.5-minute quadrangle maps and recent satellite aerial photographs. Our field team mobilized to the site and completed a survey of jurisdictional waters potentially on the site on 17 May 2012. While no channels or bed-to-bank features were noted on the site, evidence of sheet flow was observed on the southern portions of the site (Figure 2). Field conditions were documented with photographs and notes. No soil pits were dug. Vegetation associated with the undeveloped portion of the site was also recorded. A complete compendium of plants observed during the survey in the undeveloped areas of the site can be found in Appendix A.



**LEGEND**

-  Generation Intertie Line
-  Survey Boundary
-  Evidence of Sheet Flow (8.87 acres)
-  Photo Number and Direction

APNs 0607-231-07,-09,-10,-11,-12,-13,-14,-15,-18, and 0607-364-06

**Figure 2**  
**Survey Area For Waters Subject to Regulatory Authority**



## **5.2 RESULTS**

Based on a review of aerial images of the site and field verification, no on-site drainage features were noted. Photographs 1 through 9 depict site conditions and the location and orientations of these photos are indicated on Figure 2. During the field delineation, no stream flow characteristics with definable bed-to-bank features were observed. No indications of hydrology in the form of channels or drainages with definable bed to bank features are present on-site that shows any overland sheet flow leaving the site. While Hydrology Study completed for the site confirms that storm water has the potential to flow across the site generally from the southwest to the northeast, no definable channels or drainage features were observed during the survey conducted in May, 2012. A minor degree of erosion isolated to the southern portion of the earthen runway was observed (Photograph 4). It was not clear if this erosion was as a result of sheet flow originating on-site or from the cement plant located up gradient on the southwestern corner of the airport property.



Photograph 1 - Airport property, APN 0607-231-09, view to the southwest.



Photograph 2 - Airport property, APN 0607-231-09, view to the north.



Photograph 3 - Airport property, APN 0607-231-10, view to the southwest.



Photograph 4 - Airport property, APN 0607-231-09, view to the southwest.  
View of minor erosion features associated with the southern portion of the earthen runway.



Photograph 5 - Airport property, APN 0607-231-10, view to the north.



Photograph 6 - Airport property, APN 0607-231-07, view to the south.



Photograph 7 - Airport property, APN 0607-231-13, view to the northeast.



Photograph 8 - Airport property, APN 0607-231-12, view to the southwest.



Photograph 9 - Airport property, APN 0607-231-13, view to the south.

### 5.2.1 Vegetation

No hydrophytic plants or evidence of hydrophytic plants including desert dry wash woodland was observed in the survey area. Hydrophytic plants are adapted for life in permanently or periodically saturated soils. Desert dry wash woodland is dominated by drought-deciduous, microphyllous riparian thorn scrub woodland such as desert ironwood (*Olneya tesota*) and mesquite (*Prosopis* sp.) (Holland 1994). The hydrophytic vegetation criterion is met if more than 50 percent of the dominant plant species from all strata (tree, shrub and herb layer) are considered hydrophytic (Environmental Laboratory 1987; United States Army Corps of Engineers 2008). Hydrophytic species are those included on the National List of Plant Species that Occur in Wetlands: California (Region 0) (Reed 1988).

Plants noted on the site were composed of upland desert scrub vegetation (Appendix A). No emergent wetland plants or shrubs or desert dry wash woodland were observed within the site. No obligate, facultative wetland and/or facultative hydrophytic vegetation or riparian habitat associated with wetlands was observed.

### 5.2.2 Soils

Hydric soils, or soils associated with wetlands, are saturated or inundated long enough during the growing season to develop anaerobic conditions that favor growth and regeneration of hydrophytic vegetation. Soils are considered hydric when the following criteria for mineral soils are met.

- I. All Histosols except Folists; or
- II. Soils in Aquic suborders, Aquic subgroups, Albolls suborder, Salorthids great group, Pell great groups of Vertisols, Pachic suborders or Cumulic subgroups that are:
  - A. Somewhat poorly drained and have a frequently occurring water table at less than 0.5 feet from the surface for a significant period (usually more than two weeks) during the growing season; or
  - B. Poorly drained or very poorly drained and have either:
    - (1) A frequently occurring water table at less than 0.5 feet from the surface for a significant period (usually more than two weeks) during the growing season if textures are coarse sands, or fine sands in all layers within 20 inches; or
    - (2) A frequently occurring water table at less than 1.0 foot from the surface for a significant period (usually more than two weeks) during the growing season if permeability is greater than 6.0 inches/hour in all layers within 30 inches; or
    - (3) A frequently occurring water table at less than 1.5 feet from the surface for a significant period (usually more than two weeks) during the growing season if permeability is less than 6.0 inches/hour in all layers within 20 inches; or
- III. Soils that are frequently ponded for a long duration or very long duration during the growing season; or
- IV. Soils that are frequently flooded for a long duration or a very long duration during the growing season.

There are a number of indicators that may indicate the presence of hydric soils, including hydrogen sulfide generation, the presence of iron and/or manganese concretions, low chroma associated with the soil color, gleyed color, and mottling due to oxidation and reduction of accumulated metals such as iron.

A formal soil survey of the project site by the Natural Resources Conservation Service (NRCS) has not been completed. The soils observed in the survey area appeared to be primarily sandy in texture. Weak to no horizon development was observed in bank cuts associated with road shoulders adjacent to the site. No hydric soils characteristics were observed in soils within the survey area.

### **5.2.3 Hydrology**

As detailed earlier, the southern portion of the site has sign of overland water flow across the landscape (Figure 2). No sign of hydrology in the form of channels was observed in the survey area. As stated earlier, no indications of hydrology in the form of channels or drainage features are present on-site that shows any overland sheet flow leaving the site.

### **5.2.4 Traditional Navigable Waters-Waters of the United States**

The ACOE continues to assert jurisdiction over all waters that are in use or were used in the past or may be susceptible to use in interstate or foreign commerce, including all waters which may be subject to the ebb and flow of the tide and are defined as Traditional Navigable Waters (U.S. Army Corps of Engineers and Environmental Protection Agency 2007). Field observations and review of relevant aerial photographs and topographic maps confirm that there are no jurisdictional features on the site subject to regulatory authority by the ACOE.

### **5.2.5 Waters of the State**

Under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Act, the RWQCB-Colorado River Basin asserts jurisdiction over jurisdictional wetlands and those non-isolated waters associated with Traditional Navigable Waters. Based on the absence of definable channels or drainages on the site, there are no jurisdictional features subject to regulatory authority by the RWQCB-Colorado River Basin.

#### **5.2.5.1 Definable Bed to Bank Streambed Features**

Under Section 1600 et. seq. of the California Department of Fish and Game Code, the CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream or lake, which support fish or wildlife . No definable bed and bank drainage features subject to regulatory



authority by the CDFG were found on the site. Based on the absence of definable drainages within the survey area, there are no jurisdictional streambeds subject to regulatory authority by the CDFG.

### **5.3 CONCLUSIONS AND RECOMMENDATIONS**

There are no drainages found on the site that are subject to regulatory authority. There are no unique plant communities typically associated with desert washes or drainages located on site. While Hydrology Study completed for the site confirms that storm water has the potential to flow across the site generally from the southwest to the northeast, no definable channels or drainage features were observed during the survey conducted in May, 2012. No recommendations for additional studies or permitting under Section 404/401 of the Clean Water Act or Section 1600 et. seq. under the California Department of Fish and Game Code are made.

## 6.0 CERTIFICATION

*“Certification: I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this jurisdictional water/wetlands delineation and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.”*

DATE: 06 July 2012

SIGNED: 

Report Author

Field Work Performed by: Stephanie Pacheco, Tetra Tech  
Philip Henderson, Tetra Tech

## 7.0 REFERENCES

Environmental Laboratory

- 1987 *“Corps of Engineers Wetland Delineation Manual,” Technical Report Y-87-1*, US Army Engineer Waterways Experimental Station, Vicksburg, MS

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- 1994 *Preliminary Descriptions of the Terrestrial Natural Communities of California*. State of California, The Resources Agency, Nongame Heritage Program, Department of Fish and Game

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United States Army Corps of Engineers

- 2008 *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. Prepared by U.S. Army Corps of Engineers Research and Development Center.

United States Army Corps of Engineers and United States Environmental Protection Agency

- 2007 *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook*.

U.S. Geological Survey

- 1994 *Joshua Tree North*. U.S. Geological Survey 7.5-minute topographic map  
*Sunfair*. U.S. Geological Survey 7.5-minute topographic map.

Wallace Group

- 2012 *Joshua Tree Solar Site Hydrology Study*. Prepared for Joshua Tree Solar Farm LLC.



**APPENDIX A  
FLORA COMPENDIUM  
AIRPORT PROPERTY  
SAN BERNARDINO COUNTY, CALIFORNIA**

Flora	Flowering Plants
<b>Angiospermae: Monocotyledonae</b>	<b>Monocot Flowering Plants</b>
<b>Poaceae</b>	<b>Grass Family</b>
<i>Pleuraphis rigida</i>	Big galleta
<b>Angiospermae: Dicotyledonae</b>	<b>Dicot Flowering Plants</b>
<b>Amaranthaceae</b>	<b>Amaranth Family</b>
<i>Salsola tragus</i>	Russian thistle*
<b>Asteraceae</b>	<b>Aster Family</b>
<i>Croton californicus</i>	California croton
<i>Hymenoclea salsola</i>	Cheesebush
<b>Brassicaceae</b>	<b>Mustard Family</b>
<i>Sysimbrium irio</i>	London rocket*
<b>Cactaceae</b>	<b>Cactus Family</b>
<i>Opuntia basilaris</i>	Beavertail cactus
<i>Opuntia echinocarpa</i>	Silver cholla
<i>Opuntia ramosissima</i>	Pencil cholla
<b>Capparaceae</b>	<b>Caper Family</b>
<i>Isomeris arborea</i>	Bladder pod
<b>Cucurbitaceae</b>	<b>Gord Family</b>
<i>Cucurbita palmata</i>	Coyote melon
<b>Chenopodiaceae</b>	<b>Goosefoot Family</b>
<i>Atriplex canescens</i> ssp. <i>canescens</i>	Shadscale
<b>Euphorbiaceae</b>	<b>Spurge Family</b>
<i>Croton californicus</i>	California croton
<b>Fabaceae</b>	<b>Legume Family</b>
<i>Astragalus</i> sp.	Milkvetch
<b>Loasaceae</b>	<b>Loasa Family</b>
<i>Petalonyx thurberi</i>	Sandpaper plant
<b>Polygonaceae</b>	<b>Buckwheat Family</b>
<i>Eriogonum inflatum</i>	Desert trumpet
<b>Solanaceae</b>	<b>Nightshade family</b>
<i>Datura stramonium</i>	Jimson weed*
<b>Zygophyllaceae</b>	<b>Caltrop Family</b>
<i>Larrea tridentata</i>	Creosote bush

\* Denotes non-native plant