

# **DRAFT JURISDICTIONAL DETERMINATION REPORT**

## **FOR THE MARATHON SOLAR SITE**

Cougar Buttes USGS 7.5' quadrangle  
Section 27, Township 4 North, Range 1 East  
APNs 0449-631-02 and 0449-172-75

## **SAN BERNARDINO COUNTY, CALIFORNIA**

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URS Project Number 28907132

December 2011, Revised March 2012



**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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**TABLE OF CONTENTS**

<b><u>Section</u></b>	<b><u>Page</u></b>
<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>1.0 INTRODUCTION.....</b>	<b>1-1</b>
1.1 SUMMARY OF PROJECT DESCRIPTION.....	1-1
1.2 PROJECT LOCATION .....	1-1
<b>2.0 REGULATORY SETTING .....</b>	<b>2-1</b>
2.1 FEDERAL.....	2-1
2.1.1 Clean Water Act – Section 404.....	2-1
2.1.2 Clean Water Act – Section 401.....	2-4
2.2 STATE .....	2-4
2.2.1 California Fish and Game Code.....	2-4
2.2.2 Porter-Cologne Water Quality Control Act .....	2-5
<b>3.0 STUDY METHODS .....</b>	<b>3-1</b>
3.1 LITERATURE REVIEW .....	3-1
3.2 DELINEATION OF WATERS OF THE UNITED STATES.....	3-1
3.2.1 Ordinary High Water Mark.....	3-1
3.2.2 Adjacent Wetlands.....	3-2
3.3 DELINEATION OF CDFG-JURISDICTIONAL STREAMBEDS.....	3-2
3.4 DELINEATION OF WATERS OF THE STATE.....	3-3
3.5 VEGETATION MAPPING .....	3-3
<b>4.0 RESULTS .....</b>	<b>4-1</b>
4.1 SITE OVERVIEW.....	4-1
4.1.1 Vegetation.....	4-1
4.1.2 Soils.....	4-1
4.1.3 Hydrology .....	4-3

**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

---

<b><u>Section</u></b>	<b><u>Page</u></b>
4.2 JURISDICTIONAL DRAINAGES .....	4-3
4.2.1 Drainage W1 .....	4-4
4.2.2 Drainage W2 .....	4-4
4.3 JURISDICTIONAL WETLANDS .....	4-5
4.4 SUMMARY OF REGULATORY AGENCY JURISDICTION .....	4-5
4.4.1 Waters of the United States .....	4-5
4.4.2 Waters of the State .....	4-5
4.4.3 California Department of Fish and Game Jurisdictional Streams .....	4-6
<b>5.0 CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>5-1</b>
5.1 U.S. ARMY CORPS OF ENGINEERS PERMIT REQUIREMENTS .....	5-1
5.2 COLORADO RIVER BASIN REGIONAL WATER QUALITY CONTROL BOARD PERMIT REQUIREMENTS .....	5-1
5.3 CALIFORNIA DEPARTMENT OF FISH AND GAME PERMIT REQUIREMENTS.....	5-1
<b>6.0 REFERENCES.....</b>	<b>6-1</b>

**List of Tables**

Table 1 Drainage Descriptions.....	4-4
Table 2 Acreages of Jurisdictional Areas at the Project Site .....	4-5

**List of Figures**

	<b><u>Follows Page</u></b>
Figure 1 Topographic Map.....	1-2
Figure 2 Vegetation Communities .....	4-2
Figure 3 Soils Map .....	4-2
Figure 4 Jurisdictional Areas.....	4-6

**List of Appendices**

Appendix A Photo Documentation	
Appendix B Plant Species List	

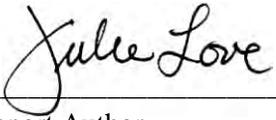
**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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**CERTIFICATION**

*“I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a nondisclosure or consultant confidentiality agreement with the project applicant or applicant’s representative and that I have no financial interest in the project.”*

DATE: March 12, 2012

SIGNED:   
Report Author  
Julie Love  
Senior Biologist

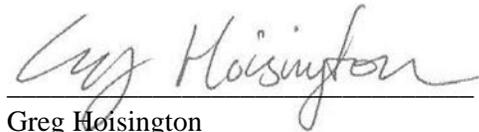
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**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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**EXECUTIVE SUMMARY**

Marathon Solar, LLC (the Applicant) has retained URS Corporation (URS) to prepare this General Biological Resources Assessment Report for the Marathon Solar Project (Project), a proposed 20-megawatt solar photovoltaic electrical power generating facility on approximately 154 acres located in unincorporated San Bernardino County, California. The proposed Project will connect with an existing Southern California Edison (SCE) 33-kilovolt (kV) transmission line. No new off-site transmission line is proposed.

A total of two ephemeral drainages were mapped, traversing the site in a south-north direction. Because the site's watershed is intra-state and is isolated from navigable waters, the waters on-site are not subject to federal jurisdiction under the Clean Water Act. However, the two ephemeral desert washes for a total of 5.31 acres are under state jurisdiction and are subject to the permitting authority of the California Department of Fish and Game and the Colorado River Basin Regional Water Quality Control Board.



**SECTION 1.0  
INTRODUCTION**

On behalf of WDG Capital Partners (WDG), URS has prepared this Wetland Delineation and Jurisdictional Determination Report for the Marathon solar site (Project) located in San Bernardino County, California. This report presents an assessment and delineation of U.S. Army Corps of Engineers (USACE) jurisdictional waters of the U.S. (including wetlands), waters of the state subject to the permitting authority of the Colorado River Basin Regional Water Quality Control Board (RWQCB), and California Department of Fish and Game (CDFG) jurisdictional streams.

**1.1 SUMMARY OF PROJECT DESCRIPTION**

The Applicant proposes to construct and operate a 20-megawatt (MW) renewable solar photovoltaic (PV) electrical power generating facility, the Marathon Solar Project (Project). The proposed Project will connect with the existing Southern California Edison (SCE) 33-kilovolt (kV) transmission line that runs north-south along Camp Rock Road (adjacent to the Project's eastern boundary). No new off-site transmission line is proposed.

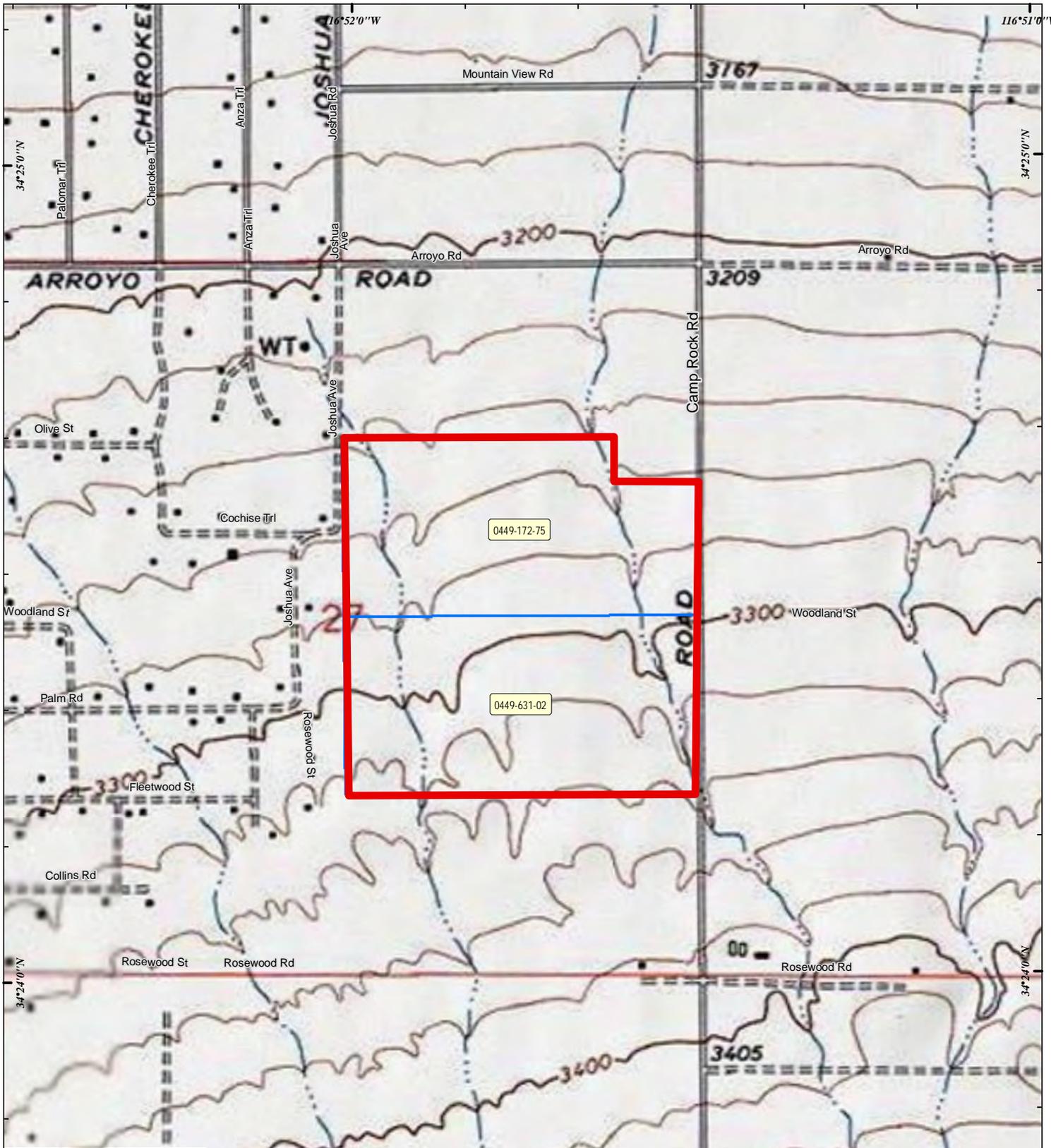
**1.2 PROJECT LOCATION**

The approximately 154-acre Marathon Project site is located in the Lucerne Valley in the Mojave Desert, in southwestern San Bernardino County. The Project site can be accessed from State Highway 247 (Old Woman Springs Road) and is bordered by two roads, Camp Rock Road on the eastern side and Joshua Avenue on the western side. The Project site is located in Section 27, Township 04N, and Range 01E. The Project site is undeveloped and rural single-family development and areas of undisturbed desert vegetation are located in the vicinity of the site. The San Bernardino Mountains are approximately 3 miles south of the site. See Figure 1 for a topographic map that shows the Project location.

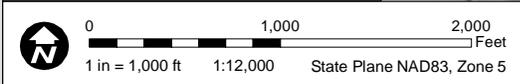
**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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Source: [1] Seamless, scanned images of United States Geological Survey (USGS) paper topographic 1:24,000-scale maps by National Geographic TOPO!, [2] ESRI StreetMap USA (2007).



**Legend**

- Project Boundary

**NAD 1983 UTM Zone 11N**



WDG CP Marathon Solar Project  
Jurisdictional Determination Report  
San Bernardino County, CA

**Figure 1. TOPOGRAPHIC MAP**

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**SECTION 2.0  
REGULATORY SETTING**

Streams and waterways, including ephemeral drainages, dry streambeds, and wetlands, can possess unique ecological functions and values, and are protected from human-induced destruction or degradation by a number of federal and state statutes. The federal and state agencies charged with administering these statutes and their responsibilities are described briefly below.

**2.1 FEDERAL**

**2.1.1 Clean Water Act – Section 404**

Pursuant to Section 404 of the Clean Water Act (CWA), the USACE regulates the discharge of dredge and/or fill material into waters of the United States. Section 404 requires that any person proposing an activity that would discharge these materials must first obtain a permit from the USACE. For discharges proposed in the Project region, Section 404 Permits are issued by the USACE’s Los Angeles District. The CWA stipulates that the USACE may not issue a Section 404 Permit if the proposed activity would be contrary to the public interest or would cause substantial degradation of the nation’s waters, or if a less environmentally damaging practicable alternative exists.

Waters of the U.S. generally include navigable waterways and wetlands adjacent to navigable waterways, non-navigable tributaries to navigable waterways, and wetlands adjacent to non-navigable waters that are contiguous with navigable waterways. Regulatory definitions of wetlands and waters of the U.S., as well as recent Supreme Court decisions affecting the interpretation of those definitions, are discussed below.

**2.1.1.1 Waters of the United States Defined**

The term “waters of the U.S.” is defined in regulations promulgated by the USACE under the authority of the CWA (see 33 CFR Part 328) and typically includes all navigable waters (including all waters subject to the ebb and flow of the tide); all interstate waters and wetlands; all impoundments of waters mentioned above; all tributaries to waters mentioned above; the territorial seas; and, all wetlands adjacent to waters mentioned above. However, recent Supreme Court decisions have curtailed CWA jurisdiction in some cases, as described in Section 2.1.1.2 below. In water bodies lacking adjacent wetlands, the lateral extent of the USACE’s jurisdiction is bounded by Ordinary High Water Mark (OHWM). The OHWM is defined at 33 CFR 328.3(e) as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.” Where adjacent wetlands are present (see Section 2.1.1.3), CWA

## **DRAFT JURISDICTIONAL DETERMINATION REPORT MARATHON SOLAR SITE**

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jurisdiction extends laterally to the landward edge of the adjacent wetlands. The upstream/downstream limit of CWA jurisdiction is the point beyond which the OHWM is no longer perceptible.

### **2.1.1.2 Recent Court Cases Limiting Clean Water Act Jurisdiction**

In the last decade, two important decisions by the U.S. Supreme Court have limited the scope of CWA jurisdiction. In 2001, the court ruled in *Solid Waste Agency of North Cook County v. United States Army Corps of Engineers* that the USACE exceeded its statutory authority by asserting CWA jurisdiction over “an abandoned sand and gravel pit in northern Illinois, which provides habitat for migratory birds.” This ruling invalidated the 1986 “Migratory Bird Rule,” and stands for the proposition that CWA jurisdiction does not extend to waters that are non-navigable, isolated, and intrastate. In *Rapanos v. United States* and *Carabell v. United States* (consolidated cases), the question was whether CWA jurisdiction extends to wetlands that do not contain, and are not adjacent to, waters traditionally understood as “navigable.” The Court issued two controlling opinions in this case, specifying conditions under which ephemeral and intermittent tributaries and adjacent wetlands are subject to CWA jurisdiction. In the wake of these decisions, the Environmental Protection Agency (EPA) and the Department of the Army have issued a joint guidance memorandum clarifying CWA jurisdiction.

As described in the USACE and EPA guidance documents, the agencies will assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent, where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries

The USACE and EPA will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditionally navigable water:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to, but that do not directly abut, a relatively permanent non-navigable tributary

## **DRAFT JURISDICTIONAL DETERMINATION REPORT MARATHON SOLAR SITE**

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Where this significant nexus analysis is required, the analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters. The analysis will include consideration of hydrologic and ecologic factors.

The USACE and EPA generally will not assert CWA jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

### **2.1.1.3 Wetlands Defined**

Wetlands are defined in USACE regulations at 33 CFR 328.3(b) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” In 1987, the USACE published the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987; Wetland Delineation Manual) to guide its field personnel in determining jurisdictional wetland boundaries. In 2008, the USACE published the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008; Arid West Regional Supplement) to complement the Wetland Delineation Manual in the southwestern U.S. The methods set forth in the Wetland Delineation Manual and the Arid West Regional Supplement involves the delineation of wetlands based on the presence of three wetland parameters: a predominance of hydrophytic vegetation; wetland hydrology; and hydric soils. These wetland parameters are discussed in greater detail below.

**2.1.1.3.1 Hydrophytic Vegetation.** A site is considered to have a “predominance of hydrophytic vegetation” when 50 percent or more of the dominant plant species are classified as Obligate Wetland, Facultative Wetland, or Facultative according to the National List of Plant Species That Occur in Wetlands (Reed 1988). Hydrophytic vegetation can also be demonstrated using a different mathematical equation called the “Prevalence Index,” as described in the Arid West Regional Supplement.

**2.1.1.3.2 Hydric Soils.** A hydric soil is defined by the National Technical Committee for Hydric Soils (NTCHS) as “a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (USDA-NRCS 1994). A hydric soil may be drained or undrained, and a drained hydric soil may not continue to support hydrophytic vegetation yet still retain the appearance of a hydric soil. The Wetland Delineation Manual and Arid West Regional Supplement describe

## **DRAFT JURISDICTIONAL DETERMINATION REPORT MARATHON SOLAR SITE**

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visual and textural indicators of hydric soils used in the field to determine the presence of hydric soils. In most situations, only one of these indicators is required to make a positive determination.

**2.1.1.3.3 Wetland Hydrology.** Wetlands are characterized by various hydrologic regimes that range from permanently inundated to irregularly inundated or saturated. In other words, some wetlands are always wet while other wetlands may contain water during only part of the year. For an area to have “wetland hydrology,” as defined in the Wetland Delineation Manual, the area must be “inundated or saturated to the surface for at least five percent of the growing season in most years.” In the Arid West Region, the minimum threshold for wetland hydrology under most circumstances is 14 or more consecutive days of flooding or ponding, or a water table 12 inches or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10. The Wetland Delineation Manual and Arid West Regional Supplement describe visual indicators of wetland hydrology used in the field to determine the presence of wetland hydrology. Where either a single primary indicator or two secondary indicators are observed, a positive determination for wetland hydrology is made.

### **2.1.2 Clean Water Act – Section 401**

Under Section 401 of the CWA, every applicant for a federal permit or license for any activity which may result in a discharge of dredge or fill material to a water body must obtain a state-issued Water Quality Certification that the proposed activity will comply with state water quality standards (i.e., beneficial uses, water quality objectives, and anti-degradation policy). In California, the State Water Resources Control Board (SWRCB) has delegated the responsibility for issuing Section 401 Certifications to the nine Regional Water Quality Control Boards (RWQCB) throughout the state. The Colorado River Basin RWQCB issues Section 401 Certifications for projects in San Bernardino County. A CWA Section 404 Permit is a federal permit subject to the terms of Section 401 as described above, and the USACE therefore cannot issue a Section 404 permit in the project region until the permit applicant also receives a Section 401 Certification from the Colorado River Basin RWQCB. Because Section 401 of the CWA is restricted to activities requiring a federal license or permit, this section does not apply to activities affecting waters outside federal jurisdiction, such as isolated, intrastate waters or those excluded from federal jurisdiction based on the significant nexus standard described in Section 2.1.1.2 above. If the waters on the project site are not under CWA jurisdiction, a certification under Section 401 will not be required.

## **2.2 STATE**

### **2.2.1 California Fish and Game Code**

Pursuant to Sections 1600–1616 of the California Fish and Game Code, the CDFG regulates all diversions, obstructions, or substantial changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. In regulations promulgated by

## **DRAFT JURISDICTIONAL DETERMINATION REPORT MARATHON SOLAR SITE**

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the CDFG at 14 CCR 1.72, a stream is defined 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 practice, CDFG has interpreted the term “streambed” to encompass all portions of the bed, banks, and channel of any stream, including intermittent and ephemeral streams, extending laterally to the upland edge of riparian vegetation. In the case of watercourses with vegetated floodplains, this interpretation often results in a jurisdictional area that is much wider than the active channel of the stream. The upstream limit of CDFG jurisdiction is the point upstream of which there is no evidence of a defined bed and bank, and riparian vegetation is not present.

The CDFG jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and other wildlife. Generally:

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects and riparian vegetation will be treated like natural waterways
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses should be treated by CDFG as natural waterways
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions

### **2.2.2 Porter-Cologne Water Quality Control Act**

Under the Porter-Cologne Water Quality Control Act (a California statute), the SWRCB regulates discharges of pollutants into “waters of the state,” broadly defined as any surface water or groundwater, including saline waters, within the boundaries of the state. This authority is independent of any federal requirements, and is applicable to all waters of the state regardless of whether CWA jurisdiction applies. To ensure that California’s isolated waters are protected and that the permitting process is as efficient as possible, the SWRCB has issued general Waste Discharge Requirements (WDR) regulating discharges to “isolated” waters of the state that are not under federal CWA jurisdiction (Water Quality Order No. 2004-0004-DWQ, Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by the USACE to be Outside of Federal Jurisdiction).



## **SECTION 3.0 STUDY METHODS**

Waters of the U.S., CDFG-jurisdictional streambeds, and waters of the state within the Marathon Project site were delineated using a combination of desktop literature review and field mapping methods.

### **3.1 LITERATURE REVIEW**

Prior to field efforts, the United States Geologic Survey (USGS) Cougar Buttes, CA 7.5 minute quadrangle map (USGS 1994), the Soil Survey for the San Bernardino County, California, Mojave River Area (USDA-NRCS 1986, USDA-NRCS SSURGO 2008), the National Hydrography Dataset (NHD; USGS-NHD 2000), and a high quality aerial photograph of the Project site and the surrounding area (USDA-NAIP 2009) were reviewed to determine the locations of potential hydrologic features. Additionally, an initial reconnaissance-level survey was conducted on February 16, 2010 by URS biologists Cristina Slaughter and Ronald Cummings to determine potentially-jurisdictional areas.

The USGS 7.5 minute quadrangle map (USGS 1994) and the National Hydrography Dataset (NHD; USGS-NHD 2000) indicated the presence of two potential hydrological features on the Project site designated as intermittent streams (shown on Figure 1 with a dashed blue line). During the initial reconnaissance-level survey, no additional intermittent drainages were found on the Project site; however, side drainages for these two features were identified.

### **3.2 DELINEATION OF WATERS OF THE UNITED STATES**

A formal wetland delineation and jurisdictional determination of waters of the U.S. (including wetlands), waters of the state, and CDFG-jurisdictional streambeds was performed on the Project site on September 13, 2011 (time: 1200–1830; weather: temperature ranged from 71°F to 82°F, wind ranged from 4 mph [ESE] to 19 mph [SE]). The methods used during the field surveys are described below. The field delineations were conducted by URS biologists Julie Love and Greg Hoisington. Following completion of the surveys, watershed maps, aerial photographs, and other applicable literature were reviewed to ascertain whether waters identified in the field were tributary to navigable waters.

#### **3.2.1 Ordinary High Water Mark**

The extent of non-wetland waters within the Project site was determined based on the location of the OHWM. Each of the intermittent drainages identified during the preliminary investigations was visited in the field, and the channel banks were examined for signs of flow, terraces, drift deposits, changes in vegetation, and other indicators that would determine the location of the OHWM. The upstream and downstream ends of each drainage

## **DRAFT JURISDICTIONAL DETERMINATION REPORT MARATHON SOLAR SITE**

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were explored, and locations where the drainages either crossed the site boundary (i.e., entered or exited the site) or ceased to exhibit an OHWM were documented. Once the OHWM was identified in the field, the boundary was walked with a Trimble GeoXH Geoplotter 2008 handheld GPS unit set to collect positional data in a “streaming” fashion. In addition to the hydrologic features indicated on the USGS quadrangle map, NHD map, and found during the initial reconnaissance-level survey, the Project site was surveyed for additional hydrologic features via meandering transects.

At each drainage feature, average channel width and depth were estimated in the field and features such as substrate type and topography were recorded. When field data collection was complete, jurisdictional boundaries were downloaded from the Trimble GPS unit and converted into a GIS shape file using ArcGIS software. Properties such as length, width, and acreage of the drainage were calculated through ArcGIS. Photographs were taken to document site conditions (Appendix A).

### **3.2.2 Adjacent Wetlands**

Typical of the Mojave Desert region, wetland characteristics were not observed on-site. The Project site consisted of xeric vegetation characteristic of the Mojave Desert region, therefore no hydrophytic vegetation was observed on-site. The Soil Survey for the San Bernardino County, California, Mojave River Area (USDA-NRCS 1986, USDA-NRCS SSURGO 2008) indicated that no hydric soils were present on-site. On-site soils were sandy and well drained upon observation. Hydric soils were not observed on-site; however, sandy soils are naturally problematic and may lack hydric soil indicators even if the soil is hydric. Hydrologic evidence indicates that flows on-site are ephemeral and that long-term inundation or saturation does not occur. In addition, only one hydrologic field indicator for all twelve drainages was observed on-site (drainage patterns). Therefore wetland hydrology was not observed on-site. Due to the lack of wetland indicators, sampling points could not be established in potential wetland areas, and a formal wetland delineation was not conducted on-site.

### **3.3 DELINEATION OF CDFG-JURISDICTIONAL STREAMBEDS**

The extent of streambeds falling under the jurisdiction of the CDFG pursuant to section 1600 et seq. of the California Fish and Game Code was determined based on the presence of a defined physical bed, bank, or channel. No riparian vegetation was present within or adjacent to the streambeds on-site, and vegetation was therefore not used as a determining characteristic. Upon investigation, no distinction between the OHWM and the top of the CDFG-jurisdictional stream bank was evident. Thus, the GIS shapefiles created from the OHWM boundaries were used to determine the extent of CDFG jurisdiction within the site.

**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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### **3.4 DELINEATION OF WATERS OF THE STATE**

The extent of waters of the state on-site subject to the authority of the Colorado River Basin RWQCB under the Porter-Cologne Water Quality Control Act was determined to be coterminous with the extent of CDFG jurisdictional streambeds, due to the simple nature of the drainages present and the absence of any aquatic features that would be under the jurisdiction of one agency but not the other. Therefore, the GIS shape files representing CDFG jurisdiction were also used to calculate the extent of waters of the state.

### **3.5 VEGETATION MAPPING**

A plant species list was compiled from the initial reconnaissance level biological surveys conducted on February 16, 2010, focused botanical surveys conducted on May 5, 2011, and wetland delineation and jurisdictional determination surveys conducted on September 13, 2011 (Appendix B). On a Project-wide scale, vegetation communities were classified using Sawyer et al.'s *A Manual of California Vegetation* (2009), which establishes systematic classifications and definitions of vegetation communities. Each vegetation mapping unit was analyzed for characteristics to define the applicable vegetation community, such as dominant and/or co-dominant plant species and community membership rules. Vegetation within the Project site boundary was mapped by hand in the field using field observations and a high quality aerial photograph of the Project site (USDA-NAIP 2009), which was then converted into a GIS shape file using ArcGIS software.



## **SECTION 4.0 RESULTS**

Results of the wetland delineation and jurisdictional determination are presented below. An overview of the site's vegetation, hydrology, and soils is presented, followed by a description of the jurisdictional areas identified during the delineation.

### **4.1 SITE OVERVIEW**

This section provides an overview of the existing vegetation, soils, and hydrology within the Project site, to provide a context within which to understand the delineation results.

#### **4.1.1 Vegetation**

The Project site is located within the Mojave Desert geographical region (Sawyer Keeler-Wolf 1995), a distinct vegetation region. The Project site is relatively undisturbed. Native trees and shrubs are common with a low lying understory of herbaceous natives and non-natives. Vegetation within the site is relatively diverse. The vegetation is dominated by shrubs and herbaceous understory and most closely corresponds with Sawyer et al.'s (2009) creosote bush-white burr sage scrub (*Larrea tridentata*-*Ambrosia dumosa* shrubland alliance) (153.77 acres). Dominant species on-site include native shrubs such as creosote bush (*Larrea tridentata*), white burr sage (*Ambrosia dumosa*), and non-native herbs such as Arab grass (*Schismus arabicus*). Joshua trees (*Yucca brevifolia*) are a common species on-site. See Figure 2 for a map of the vegetation communities and Appendix B for a plant species list.

#### **4.1.2 Soils**

The Project site is located in Lucerne Valley which is surrounded by the Granite mountain range, the Ord mountain range, and the San Bernardino mountain range. Lucerne Valley is characterized by relatively flat-lying topography and valley fill deposits. The Soil Survey for the San Bernardino County, California, Mojave River Area (USDA-NRCS SSURGO 2008) indicates that four soil types occur within the Project site, including the Arizo, Cajon, Kimberlina, and Trigger series, which are described below. None of the soil series within the Project site are identified as hydric soils by the Soil Survey. The descriptions of these soils below are abridged from the USDA-NRCS Official Soil Series Description database (USDA-NRCS 2011) and reflect characteristics of the soils as series, not specific characteristics of the Marathon Project site. See Figure 3 for a map of the soil types.

##### **4.1.2.1 Arizo Series**

The Arizo series consists of very deep, excessively drained soils that formed in mixed alluvium. Arizo soils occur on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, and floodplains of intermittent streams and channels. Slopes range from 0 to 15

## **DRAFT JURISDICTIONAL DETERMINATION REPORT MARATHON SOLAR SITE**

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percent. For the geographical area in which these soils occur, the mean annual precipitation is approximately 18 cm (7 in) and the mean annual temperature is about 17°C (62°F). Arizo soils tend to be used for rangeland and wildlife habitat. The associated vegetation is mainly creosote bush and white burr sage. Arizo soils are Entisols, which are defined by a dominance of mineral soil materials and an absence of distinct horizons. They are taxonomically classified as sandy-skeletal, mixed, thermic Typic Torriorthents. Arizo soils occur in the southwest portion of the Project site.

### **4.1.2.2 Cajon Series**

The Cajon series consists of very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rocks. Cajon soils occur on alluvial fans, fan aprons, fan skirts, inset fans, and river terraces. Slopes range from 0 to 15 percent. For the geographical area in which these soils occur, the average annual precipitation is approximately 15.24 cm (6 in) and the mean annual temperature is approximately 18°C (65°F). Cajon soils are used mostly for range, watershed, and recreation; although specific examples for watershed and recreation use are not defined by the USDA-NRCS Official Soil Series Description database. A few areas are irrigated and are used for growing alfalfa and other crops. The associated vegetation is mostly desert shrubs including creosote bush, saltbush (*Atriplex* spp.), Mormon tea (*Ephedra* spp.), Joshua trees, some Indian ricegrass (*Stipa* [*Achnatherum*] *hymenoides*), annual grasses, and forbs. Cajon soils are Entisols. They are taxonomically classified as mixed, thermic Typic Torripsamments. Cajon soils occur in the northwest and southeast portion of the Project site.

### **4.1.2.3 Kimberlina Series**

The Kimberlina series consists of very deep, well drained soils that formed in mixed alluvium derived dominantly from igneous and/or sedimentary rock sources. Kimberlina soils occur on flood plains and recent alluvial fans. Slopes range from 0 to 9 percent. For the geographical area in which these soils occur, the average annual precipitation is approximately 15.24 cm (6 in) and the mean annual temperature is approximately 18°C (64°F). Kimberlina soils are used for growing irrigated field, forage, and row crops. Some areas are used for livestock grazing. When not irrigated, the associated vegetation is annual grasses, forbs, and saltbush (*Atriplex* spp.). Kimberlina soils are Entisols. They are taxonomically classified as coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents. Kimberlina soils occur in a small portion of the eastern side of the Project site.

### **4.1.2.4 Trigger Series**

The Trigger series consists of shallow, well drained soils that formed in material weathered from hard sedimentary rocks. Trigger soils occur on uplands. Slopes range from 5 to 50 percent. For the geographical area in which these soils occur, the average annual precipitation is approximately 10.2 cm (4 in) and the average annual temperature is

116°52'0"W

Joshua Ave

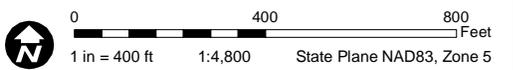
W2

W1

Camp Rock Rd



Source: [1] I-cubed Nationwide Prime - Aerials Express (2009-04-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007).



### Legend

Project Boundary

Drainages

### Vegetation Type

Creosote Bush-White Burr Sage Scrub (153.77)

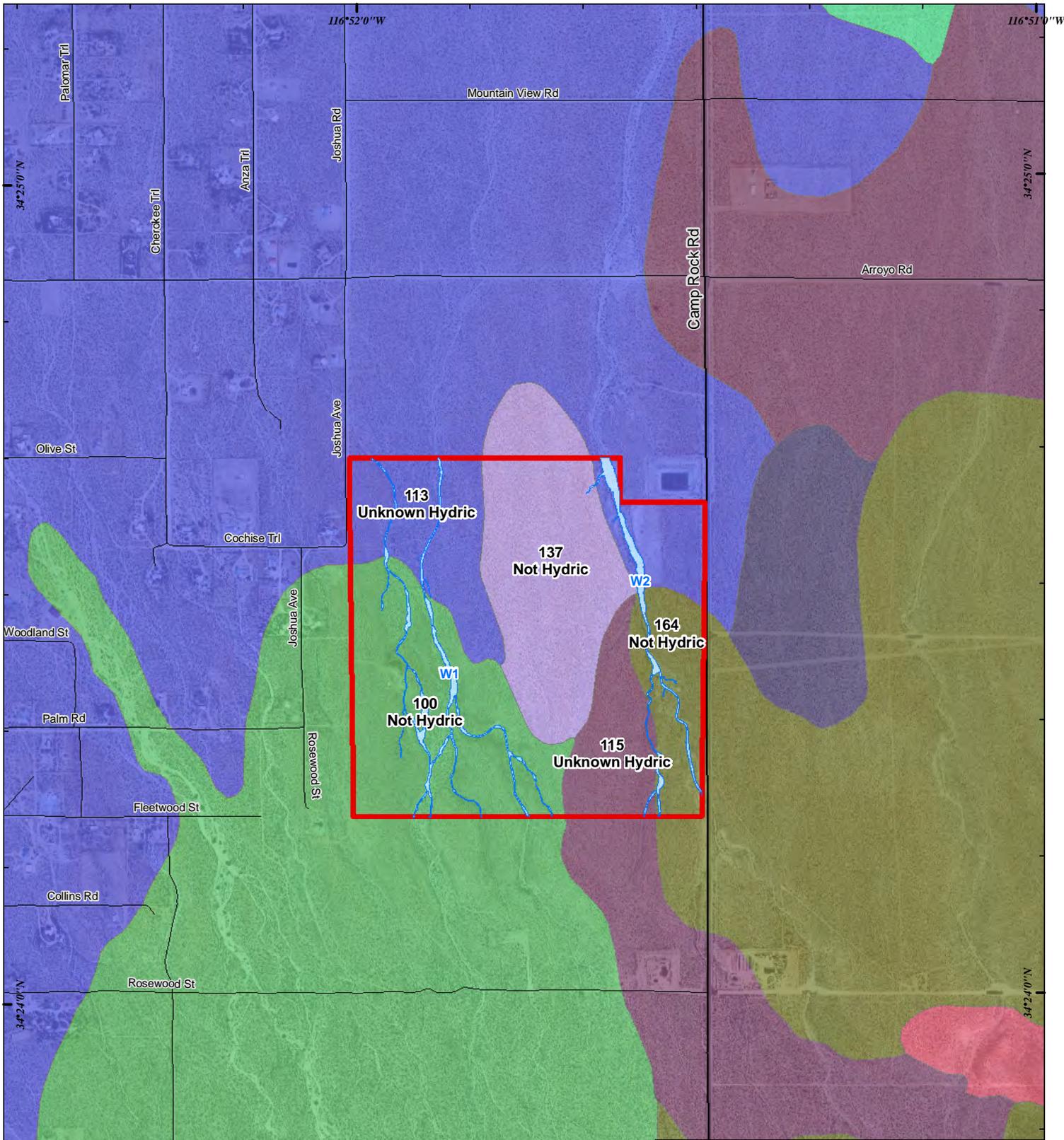


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Jurisdictional Determination Report  
San Bernardino County, CA

Figure 2. VEGETATION COMMUNITY

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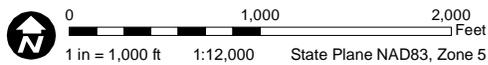
**Legend**

- Project Boundary
- Drainages

**Soil Type**

- 100 - ARIZO GRAVELLY LOAMY SAND, 2 TO 9 PERCENT SLOPES
- 113 - CAJON SAND, 2 TO 9 PERCENT SLOPES
- 137 - KIMBERLINA LOAMY FINE SAND, COOL, 0 TO 2 PERCENT SLOPES
- 115 - CAJON GRAVELLY SAND, 2 TO 15 PERCENT SLOPES
- 164 - TRIGGER GRAVELLY LOAM, 5 TO 15 PERCENT SLOPES

Source: [1] I-cubed Nationwide Prime - Aerials Express (2009-04-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007) [3] U.S. Department of Agriculture, Natural Resources Conservation Service: Soil Survey Geographic (SSURGO) database for San Bernardino County, California, Mojave River Area (09/26/2008).



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Jurisdictional Determination Report  
San Bernardino County, CA

**Figure 3. SOILS MAP**

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## **DRAFT JURISDICTIONAL DETERMINATION REPORT MARATHON SOLAR SITE**

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approximately 17°C (63°F). Trigger soils are used for wildlife habitat, limited grazing, and recreation. The associated vegetation is creosote bush, cactus, annual grasses, and forbs. Trigger soils are Entisols. They are taxonomically classified as loamy, mixed, superactive, calcareous, thermic Lithic Torriorthents. Trigger soils occur in the eastern portion of the Project site.

### **4.1.3 Hydrology**

According to the Watershed Boundary Dataset prepared by the California Interagency Watershed Mapping Committee (CalWater), which is responsible for all interagency watershed mapping and dataset creation in the state of California, the Project site is within the Lucerne Lake hydrologic unit of the Colorado River hydrologic region. More specifically, the site is within the Lucerne Lake planning watershed in the Lucerne Lake super planning watershed (CalWater 2004)<sup>1</sup>. This watershed is not tributary to the ocean or any other water body; rather, all water either infiltrates into the groundwater basin, evaporates, or flows toward the dry lakebed of Lucerne Lake. On-site drainages originate off-site (south) in the San Bernardino Mountains and convey flows downstream (northwest), ultimately conveying flow to the dry lakebed of Lucerne Lake via sheet flow. Drainage patterns within the site are well-defined in most cases, with many tributaries and interconnected/braided systems occurring on-site. Two main drainage systems bisect the Project site, one on the east and one on the west, with no drainages in the central portion of the site (see Section 4.2 for further details). All flow channels on-site are intermittent or ephemeral and likely only receive stream flow during and following significant rain events. Lucerne Valley is characterized by a moderate climate with warm, dry summers and cold, dry winters with occasional dustings of snowfall. Average monthly temperatures range from 30°F in January and February to 99°F in July and August. Average monthly rainfall totals range from 0.05 inches in June to 1.26 inches in February, with an average yearly total of 6.19 inches (The Weather Channel 2011).

## **4.2 JURISDICTIONAL DRAINAGES**

The USGS 7.5 minute quadrangle map (USGS 1994) and the National Hydrography Dataset (USGS-NHD 2000) indicated the presence of two potential on-site intermittent drainages, represented by a dashed blue line on these maps. The drainages are located in the western and eastern portions the Project site, and were detected and evaluated in the field. These drainages are described below, and drainage characteristics are summarized in Table 1.

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<sup>1</sup> The California Interagency Watershed Map is the State of California's working definition of watershed boundaries. The California Interagency Watershed Map describes California watersheds, beginning with the division of the State's 101 million acres into ten Hydrologic Regions (HR). Each HR is progressively subdivided into six smaller, nested levels: the Hydrologic Unit (HU, major rivers), Hydrologic Area (HA, major tributaries), Hydrologic Sub-Area (HSA), Super Planning Watershed (SPWS), and Planning Watershed (PWS). At the Planning Watershed level (the most detailed level), where implemented, polygons range in size from approximately 3,000 to 10,000 acres. At all levels, a total of 7,035 polygons represent the State's watersheds (CalWater 2004).

**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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**TABLE 1  
DRAINAGE DESCRIPTIONS**

Drainage	Length (Feet)	Width (Feet)	Depth (Feet)	Acreage	Description
W1	2,846	Highly variable, 3 to 10 average, up to 65	0.25 to 3 average, up to 10	2.92	V: mostly un-vegetated channel bottom S: channel substrate: loose and unconsolidated, mostly sand; bank substrate: consolidated sand to cobble H: mostly defined gradual sloped banks; complex ephemeral braided system
W2	2,784	Highly variable, 8 to 10 average, up to 87	0.25 to 3 average	2.39	V: mostly un-vegetated channel bottom S: channel substrate: loose and unconsolidated, mostly sand; bank substrate: consolidated sand to cobble H: defined cut banks; complex ephemeral braided system

Note: Length and acreage was determined using GIS, width was determined in the field and using GIS, and depth was determined in the field.

V = Vegetation, S = Soils, H = Hydrology.

#### **4.2.1 Drainage W1**

This drainage is identified as the western most intermittent stream on the USGS topographic map. Drainage W1 is complex braided system that originates off-site (south) and conveys flows northwest (downstream) and off-site. Drainage W1 has mostly defined gradual sloped banks with some cut banks. Bank heights range from 0.25 feet to 3 feet on average, with heights up to 10 feet. The length of Drainage W1 within the Project site is approximately 2,846 feet, making it the longest on-site drainage, and the width varies from 3 to 10 feet on average, with widths up to 65 feet. Sinuosity is mild, as the channel is relatively straight. The channel bottom is mostly un-vegetated although typical desert wash species occur along the banks. The drainage does not support any riparian vegetation. The substrate within the channel bottom is loose and unconsolidated and composed mostly of sand, with varying particle size from sand to cobble. The bank substrate is consolidated and composed mostly of sand to cobble with some boulders.

#### **4.2.2 Drainage W2**

This drainage is identified as the eastern most intermittent stream on the USGS topographic map. Drainage W2 is comprised of two drainages that originate off-site (south) and merge into one drainage that conveys flows downstream (northwest) and off-site. Drainage W2 has mostly defined cut banks. Bank heights range from 0.25 feet to 3 feet on average. The length of Drainage W2 within the Project site is approximately 2,784 feet and the width varies from 8 to 10 feet on average, with widths up to 87 feet. Sinuosity is mild, as the channel is

**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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relatively straight. The channel bottom is mostly un-vegetated although typical desert wash species occur along the banks. The drainage does not support any riparian vegetation. The substrate within the channel bottom is loose and unconsolidated and composed mostly of sand, with varying particle size from sand to cobble and some boulders. The bank substrate is consolidated and composed mostly of sand to cobble with some boulders.

### **4.3 JURISDICTIONAL WETLANDS**

No jurisdictional wetlands were observed on-site. Refer to Section 3.2.2 for information on lack of hydrophytic vegetation, hydric soils, and wetland hydrology.

### **4.4 SUMMARY OF REGULATORY AGENCY JURISDICTION**

As described above, the Project site contains two drainages that exhibit bed/bank characteristics. A summary of the total acreage of waters subject to the permitting authority of the USACE, CDFG, and the Colorado River Basin RWQCB is presented below. All jurisdictional areas are displayed on Figure 4 and summarized in Table 2.

**TABLE 2  
ACREAGES OF JURISDICTIONAL AREAS WITHIN THE PROJECT SITE**

<b>Drainage</b>	<b>Waters of the U.S. (Acres)</b>	<b>Waters of the State (Acres)</b>	<b>CDFG Jurisdictional Streams (Acres)</b>
W1	--	2.92	2.92
W2	--	2.39	2.39
Total Jurisdictional Area	--	5.31	5.31

#### **4.4.1 Waters of the United States**

Because no hydrophytic vegetation, hydric soil, or wetland hydrology was observed on-site, no USACE-jurisdictional wetlands are present within the Project site. Further, because drainages within the Project site are contained within an isolated watershed that is not tributary to any navigable body of water, these ephemeral streams are not subject to CWA jurisdiction pursuant to regulatory guidance issued by the USACE and EPA (see 33 CFR Part 328). Thus, waters of the U.S. do not occur within the Project site.

#### **4.4.2 Waters of the State**

Although they lack federal CWA protection, the defined stream channels of Drainages W1 and W2 exhibit defined beds and banks, and are waters of the state. The jurisdictional acreage in these areas under the Porter-Cologne Water Quality Control Act was determined to be coterminous with the extent of CDFG jurisdictional streambeds (see Section 4.4.3

## **DRAFT JURISDICTIONAL DETERMINATION REPORT MARATHON SOLAR SITE**

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below), due to the simple nature of the drainages present and the absence of any aquatic features that would be under the jurisdiction of one agency but not the other. A total of 5.31 acres of waters of the state under the jurisdiction of the Colorado River Basin RWQCB were present on the Project site (Figure 4).

### **4.4.3 California Department of Fish and Game Jurisdictional Streams**

Because they exhibited a defined bed, banks, and channel, Drainages W1 and W2 are subject to the CDFG's permitting authority under Section 1600 *et seq.* of the California Fish and Game Code. A total of 5.31 acres of CDFG jurisdictional streams are present on the Project site (Figure 4). As stated above, the boundaries of CDFG-jurisdictional streambeds are coterminous with the limits of waters of the state in this case.

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Camp Rock Rd

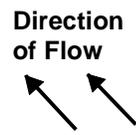
W1

W2

Drainage Name	Acres
W1	2.921
W2	2.386
<b>Total</b>	<b>5.307</b>



Source: [1] I-cubed Nationwide Prime - Aerials Express (2009-04-15 image date, 0.3m resolution).



**Legend**

- Project Boundary
- USGS blue-line stream
- CDFG Jurisdictional Stream/RWQCB (5.3 ac)



WDG CP Marathon Solar Project  
Jurisdictional Determination Report  
San Bernardino County, CA

**Figure 4. JURISDICTIONAL AREAS**

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**SECTION 5.0  
CONCLUSIONS AND RECOMMENDATIONS**

A total of 5.31 acres of intermittent drainages that are under the jurisdiction of the CDFG and the Colorado River Basin RWQCB are present at the Project site. No wetlands or non-wetland waters of the U.S. subject to CWA jurisdiction were found at the Project site, due to the fact that the waters present are intrastate and isolated from navigable waters.

**5.1 U.S. ARMY CORPS OF ENGINEERS PERMIT REQUIREMENTS**

Based on the current information available, no USACE permits will be needed for the proposed Project. However, URS recommends that this Wetland Delineation and Jurisdictional Determination Report be submitted to the USACE's Los Angeles District for approval, and that WDG obtain written concurrence from the USACE regarding the conclusions presented herein. Written concurrence from the USACE should be included in the Project record, and WDG may be required to provide this information to San Bernardino County.

**5.2 COLORADO RIVER BASIN REGIONAL WATER QUALITY CONTROL BOARD PERMIT REQUIREMENTS**

The Project site contains two intermittent drainages, comprising a total of 5.31 acres of waters of the state. If the Project impacts waters of the state, Colorado River Basin RWQCB permits would be needed. Pursuant to the Porter-Cologne Water Quality Control Act, WDG would be required to obtain authorization from the Colorado River Basin RWQCB if the proposed Project would discharge any pollutant (including fill material for construction) into these drainages. Because the waters present are not subject to CWA jurisdiction, a Section 401 Water Quality Certification would not be required. If feasible, avoiding impacts to waters of the state by planning for these features during site design would reduce the overall impacts of the Project, and would eliminate the need for RWQCB authorization. If impacts to waters of the state cannot be avoided, URS recommends that WDG obtain authorization from the Colorado River Basin RWQCB prior to discharging any fill or other material into the on-site drainages.

**5.3 CALIFORNIA DEPARTMENT OF FISH AND GAME PERMIT REQUIREMENTS**

The Project site contains two intermittent drainages, comprising a total of 5.31 acres of CDFG-jurisdictional streambeds. If the Project impacts CDFG-jurisdictional streambeds, CDFG permits would be needed. Sections 1600 *et seq.* of the California Fish and Game Code regulate activities that would alter the flow, bed, channel, or bank of streams and lakes. Any Project-related impacts to on-site CDFG-jurisdictional streambeds would require authorization in the form of a Streambed Alteration Agreement from CDFG. A Streambed Alteration Agreement for the Project would contain terms and conditions governing the nature of the impacts allowed, and

**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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may include restrictions on the locations, methods, or timing of Project activities affecting the streams. In addition, compensatory mitigation to offset any permanent losses of streambeds caused by the Project may be required. If feasible, avoiding impacts to CDFG-jurisdictional streambeds by planning for these features during site design would reduce the overall impacts of the Project, and would eliminate the need for CDFG authorization. If impacts to CDFG-jurisdictional streambeds cannot be avoided, URS recommends that WDG submit a Notification of Lake or Streambed Alteration to the CDFG prior to diverting, obstructing, or altering the on-site drainages.

**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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**SECTION 6.0  
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**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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MARATHON SOLAR SITE**

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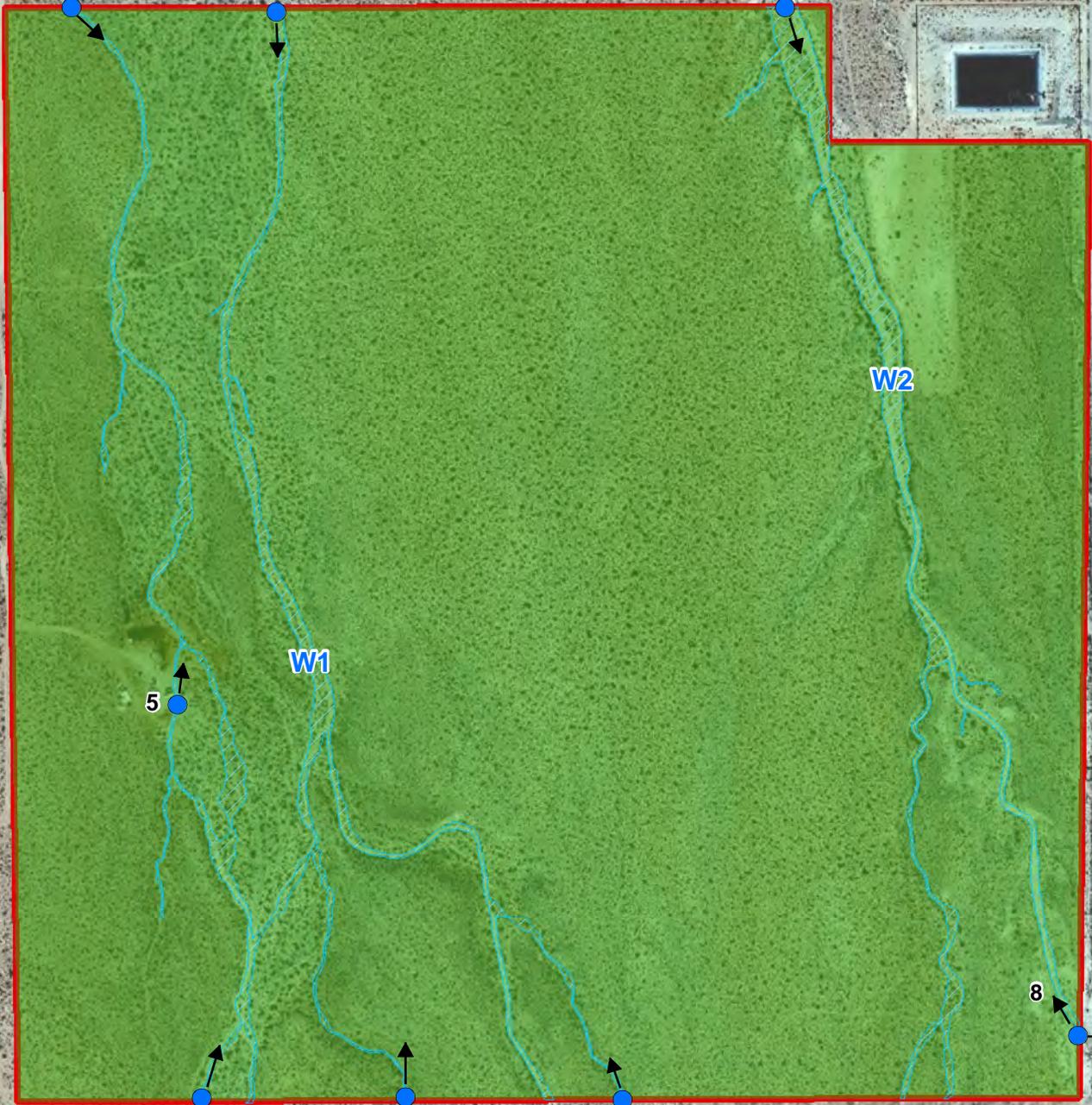
**APPENDIX A  
PHOTO DOCUMENTATION**



116°52'0"W

Joshua Ave

Camp Rock Rd

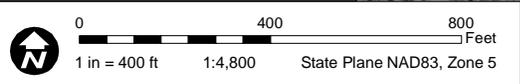


### Legend

- Project Boundary
- Drainages
- ↗ Photograph Number and Direction
- Vegetation Type**
- Creosote Bush-White Burr Sage Scrub (153.77)



Source: [1] I-cubed Nationwide Prime - Aerials Express (2009-04-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007).



WDG CP Marathon Solar Project  
Jurisdictional Determination Report  
San Bernardino County, CA

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**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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Photograph 1. September 13, 2011.  
View to the north, taken from southern project boundary.  
Drainage W1 (east fork), facing downstream. APN 0449-631-02.



Photograph 2. September 13, 2011.  
View to the north, taken from southern project boundary.  
Drainage W1 (middle fork), facing downstream. APN 0449-631-02.

**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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Photograph 3. September 13, 2011.  
View to the north, taken from southern project boundary.  
Drainage W1 (west fork), facing downstream. APN 0449-631-02.



Photograph 4. September 13, 2011.  
View to the south, taken from northern project boundary.  
Drainage W1 (east fork), facing upstream. APN 0449-172-75.

**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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Photograph 5. September 13, 2011.  
View to the north, domicile on left.  
Drainage W1, facing downstream. APN 0449-631-02.



Photograph 6. September 13, 2011.  
View to the southeast, taken from northern project boundary.  
Drainage W1 (west fork), facing upstream. APN 0449-172-75.

**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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Photograph 7. September 13, 2011.  
Culvert located at southeast end of Drainage W2. APN 0449-631-02.



Photograph 8. September 13, 2011.  
View to the north, taken from southern project boundary.  
Drainage W2, facing downstream. APN 0449-631-02.

**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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Photograph 9. September 13, 2011.  
View to the south, taken from northern project boundary.  
Drainage W2 (west side of drainage), facing upstream. APN 0449-172-75.



**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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**APPENDIX B  
PLANT SPECIES LIST**



**DRAFT JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

**TABLE B-1  
PLANT SPECIES LIST**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Habit</b>	<b>Family</b>	<b>Dominant?</b>
<i>Abronia villosa</i>	Desert sand verbena	PH	Nyctaginaceae	
<i>Acamptopappus sphaerocephalus</i>	Goldenhead	S	Asteraceae	
<i>Ambrosia (Hymenoclea) salsola</i> var. <i>salsola</i>	Cheesebush	S	Asteraceae	
<i>Ambrosia acanthicarpa</i>	Annual burr Sage	AH	Asteraceae	
<i>Ambrosia dumosa</i>	White burr Sage	S	Asteraceae	Y
<i>Amsinckia tessellata</i>	Fiddleneck	AH	Boraginaceae	
<i>Atriplex canescens</i>	Fourwing saltbush	S	Chenopodiaceae	
<i>Baileya pleniradiata</i>	Woolly desert marigold	AH/PH	Asteraceae	
<i>Brassica tournefortii</i> <sup>1</sup>	Asian mustard		Brassicaceae	
<i>Bromus madritensis</i> ssp. <i>rubens</i> <sup>1</sup>	Red brome	AG	Poaceae	
<i>Camissonia boothii</i>	Booth's evening primrose	AH	Onagraceae	
<i>Castilleja exserta</i> ( <i>Orthocarpus purpurascens</i> )	Purple owl's clover	AH	Orobanchaceae	
<i>Chaenactis carphoclinia</i>	Pebble pincushion	AH	Asteraceae	
<i>Chorizanthe brevicornu</i>	Brittle spine flower	AH	Polygonaceae	
<i>Croton californicus</i>	California croton	PH/S	Euphorbiaceae	
<i>Cryptantha circumscissa</i>	Cushion cryptantha	AH	Boraginaceae	
<i>Cylindropuntia bigelovii</i>	Teddybear cholla	S	Cactaceae	
<i>Cylindropuntia ramosissima</i>	Pencil cholla	S	Cactaceae	
<i>Cylindropuntia</i> sp.	Cholla	S	Cactaceae	
<i>Datura wrightii</i>	Jimsonweed	PH	Solanaceae	
<i>Delphinium parishii</i>	Parish's delphinium	AH	Ranunculaceae	
<i>Descurainia pinnata</i>	Yellow tansy mustard	AH	Brassicaceae	
<i>Encelia farinosa</i>	Brittlebush	S	Asteraceae	
<i>Encelia</i> sp.	Brittlebush	S	Asteraceae	
<i>Ephedra</i> sp.	Ephedra	S	Ephedraceae	
<i>Eriastrum eremicum</i>	Desert woollystar	AH	Polemoniaceae	
<i>Ericameria</i> sp.	Goldenbush	S	Asteraceae	
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	California buckwheat	S	Polygonaceae	
<i>Eriogonum inflatum</i>	Desert trumpet	AH	Polygonaceae	
<i>Eriogonum mohavense</i>	Western Mohave buckwheat	AH	Polygonaceae	
<i>Eriophyllum wallacei</i>	Wallace's woolly daisy	AH	Asteraceae	

**JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

**TABLE B-1 (CONTINUED)  
PLANT SPECIES LIST**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Habit</b>	<b>Family</b>	<b>Dominant?</b>
<i>Erodium cicutarium</i> <sup>1</sup>	Red-stem fillaree	AH	Geraniaceae	
<i>Eschscholzia minutiflora</i>	Pygmy poppy	C	Papaveraceae	
<i>Ferocactus cylindraceus</i>	Barrel cactus	S	Cactaceae	
<i>Grayia spinosa</i>	Hop sage	S	Chenopodiaceae	
<i>Krameria erecta</i>	Little leaved ratany	S	Krameriaceae	
<i>Krascheninnikovia lanata</i>	Winterfat	S	Chenopodiaceae	
<i>Larrea tridentata</i>	Creosote bush	S	Zygophyllaceae	Y
<i>Lepidium fremontii</i>	Desert allysum	AH	Brassicaceae	
<i>Lepidium nitidum</i>	Pepperweed	AH	Brassicaceae	
<i>Linanthus (Gilia) filiformis</i>	Yellow gilia	AH	Polemoniaceae	
<i>Loeseliastrum matthewsii</i>	Desert calico	AH	Polemoniaceae	
<i>Lycium andersonii</i>	Anderson thornbush	S	Solanaceae	
<i>Malacothrix glabrata</i>	Desert dandelion	AH	Asteraceae	
<i>Mentzelia albicaulis</i>	Small flowered blazing Star	AH	Loasaceae	
<i>Mirabilis multiflora</i>	Desert four o'clock	AH	Nyctaginaceae	
<i>Nama demissum</i>	Purple mat	AH	Boraginaceae	
<i>Opuntia basilaris</i>	Beavertail cactus	S	Cactaceae	
<i>Orobanche cooperi</i>	desert broomrape	AH	Orobanchaceae	
<i>Peritoma (Isomeris) arborea</i>	Bladderpod	S	Cleomaceae	
<i>Petalonyx thurberi</i>	Sandpaper plant	PH	Loasaceae	
<i>Phacelia crenulata</i>	Notch leaved phacelia	AH	Boraginaceae	
<i>Pleuraphis (Hilaria) rigida</i>	Galleta grass	PG	Poaceae	
<i>Psoralethamnus arborescens</i>	Mojave indigobush	S	Fabaceae	
<i>Psoralethamnus fremontii</i>	Fremont indigobush	S	Fabaceae	
<i>Rafinesquia neomexicana</i>	Desert chicory	AH	Asteraceae	
<i>Rhus aromatica (R. trilobata)</i>	Skunkbrush	S	Anacardiaceae	
<i>Schismus arabicus</i> <sup>1</sup>	Arab grass	AG	Poaceae	Y
<i>Schismus barbatus</i> <sup>1</sup>	Mediterranean grass	AG	Poaceae	
<i>Scutellaria (Salazaria) mexicana</i>	Paper bag bush	S	Lamiaceae	
<i>Sphaeralcea ambigua</i>	Desert Mallow	PH	Malvaceae	
<i>Stanleya pinnata</i>	Desert princesplume	PH/S	Brassicaceae	
<i>Stephanomeria exigua</i>	wirelettuce	AH	Asteraceae	
<i>Stephanomeria pauciflora</i>	Wire lettuce	PH	Asteraceae	

**JURISDICTIONAL DETERMINATION REPORT  
MARATHON SOLAR SITE**

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**TABLE B-1 (CONTINUED)  
PLANT SPECIES LIST**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Habit</b>	<b>Family</b>	<b>Dominant?</b>
<i>Stipa (Achnatherum) hymenoides</i>	Indian ricegrass	PG	Poaceace	
<i>Stipa speciosa (Achnatherum speciosum)</i>	Desert needlegrass	PG	Poaceace	
<i>Xylorhiza tortifolia</i>	Mohave aster	PH/S	Asteraceae	
<i>Yucca brevifolia</i>	Joshua tree	T	Agavaceae	
<i>Yucca schidigera</i>	Mojave yucca	S	Agavaceae	

<sup>1</sup> Non-native species.

**Notes:**

Scientific nomenclature, native status, and habit follows Jepson 2012.

**Habit definitions:**

AF = annual fern or fern ally

AV = annual vine

PF = perennial fern or fern all

PV = perennial vine

AG = annual grass or graminoid

AV = annual vine

PG = perennial grass or graminoid

S = shrub

AH = annual herb

BH = biennial herb

PH = perennial herb

T = tree