

**Vega SES LLC Solar Project  
El Centro, California  
Added Parcel (APN 051-390-  
012)  
Preliminary Jurisdictional  
Waters/Wetlands Delineation  
Report**



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January 30, 2018

## Sign-off Sheet

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# VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL WATERS/WETLANDS DELINEATION REPORT

## Executive Summary

Stantec previously conducted an investigation of jurisdictional waters for the Vega SES LLC Solar Project on the study area including Parcel Numbers (APNs) 051-360-021, 051-360-031, 051-390-004, and 051-390-012. Subsequently, the Client added an additional parcel (APN 051-360-012), to the northwest of the intersection of Drew and Lyons Roads, to the Project and requested that Stantec conduct a supplemental investigation of jurisdictional features for that property, hereto referred to as the Added Parcel. This Jurisdictional Delineation (JD) Report serves as guidance in establishing baseline conditions for resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the Los Angeles Regional Water Quality Control Board (RWQCB) for the Added Parcel. Specifically, the purpose of the JD was to determine the location and extent of waters and/or wetlands subject to potential jurisdictional authority within a defined Biological Survey Area (BSA; Added Parcel boundary plus a 150-meter buffer).

The Vega SES LLC Solar Project site is located in southwestern Imperial County, California, approximately 10 miles southwest of the City of El Centro and consists of construction of an approximately 574-acre solar photovoltaic (PV) energy generation facility. The Project also includes construction of an approximately 0.4-mile gen-tie line from the western terminus of the solar facility to the proposed Fern Substation to be constructed northwest of the intersection of Liebert Road and Mandrapa Road. Construction of this substation is not included as part of this project.

Being situated in an agricultural area, the Project site and surrounding areas are traversed by a network of drains, canals, and other irrigation infrastructure administered by the Imperial Irrigation District (IID), much of which constitute potentially jurisdictional features. Primary among these within the Added Parcel BSA are Fig Drain No. 1B and Wormwood Lateral 4. Wormwood Lateral 4 is a concrete-lined canal that borders the eastern and southern boundaries of the Added Parcel; Fig Drain No. 1B is an earthen canal that extends westward from the southwest corner of the Added Parcel within the southwestern portion of the Added Parcel BSA. Both canals ultimately drain to the Salton Sea and likely constitute “waters of the State” and/or “waters of the U.S.” Based on the field observations and data collected, approximately 0.54 acres of potential non-wetland “waters of the U.S.” and 1.25 acres of “waters of the State” occur within the Added Parcel BSA.

The drainage features within the Added Parcel BSA occur outside of the area of potential impact and are not expected to be impacted by construction or operation of the proposed Project. If impact avoidance is not feasible, then the proposed Project will likely be subject to USACE jurisdiction (“Waters of the U.S.”) and California Department of Fish and Wildlife (CDFW) and Regional Water Quality Control Board (RWQCB) jurisdiction (“Waters of the State”). Such impacts would require the procurement of a USACE Section 404 Permit; RWQCB Section 401 Water Quality Certification; and CDFW Section 1602 Lake and Streambed Alteration Agreement.

## **1.0 INTRODUCTION**

### **1.1 PURPOSE OF THE REPORT**

Stantec previously conducted an investigation of jurisdictional waters for the Vega SES LLC Solar Project (Project) on the study area including Parcel Numbers (APNs) 051-360-021, 051-360-031, 051-390-004, and 051-390-012. Subsequently, the Client added an additional parcel (APN 051-360-012), to the northwest of the intersection of Drew and Lyons Roads, to the Project and requested that Stantec conduct a supplemental investigation of jurisdictional features for that property, hereto referred to as the Added Parcel. This Jurisdictional Delineation (JD) Report serves as guidance in establishing baseline conditions for resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the Colorado River Basin Regional Water Quality Control Board (RWQCB) for the Added Parcel. Specifically, the purpose of the JD was to determine the location and extent of waters and/or wetlands subject to potential jurisdictional authority within a defined Biological Survey Area (BSA; Added Parcel boundary plus a 150-meter buffer). The Added Parcel BSA measures approximately 183 acres.

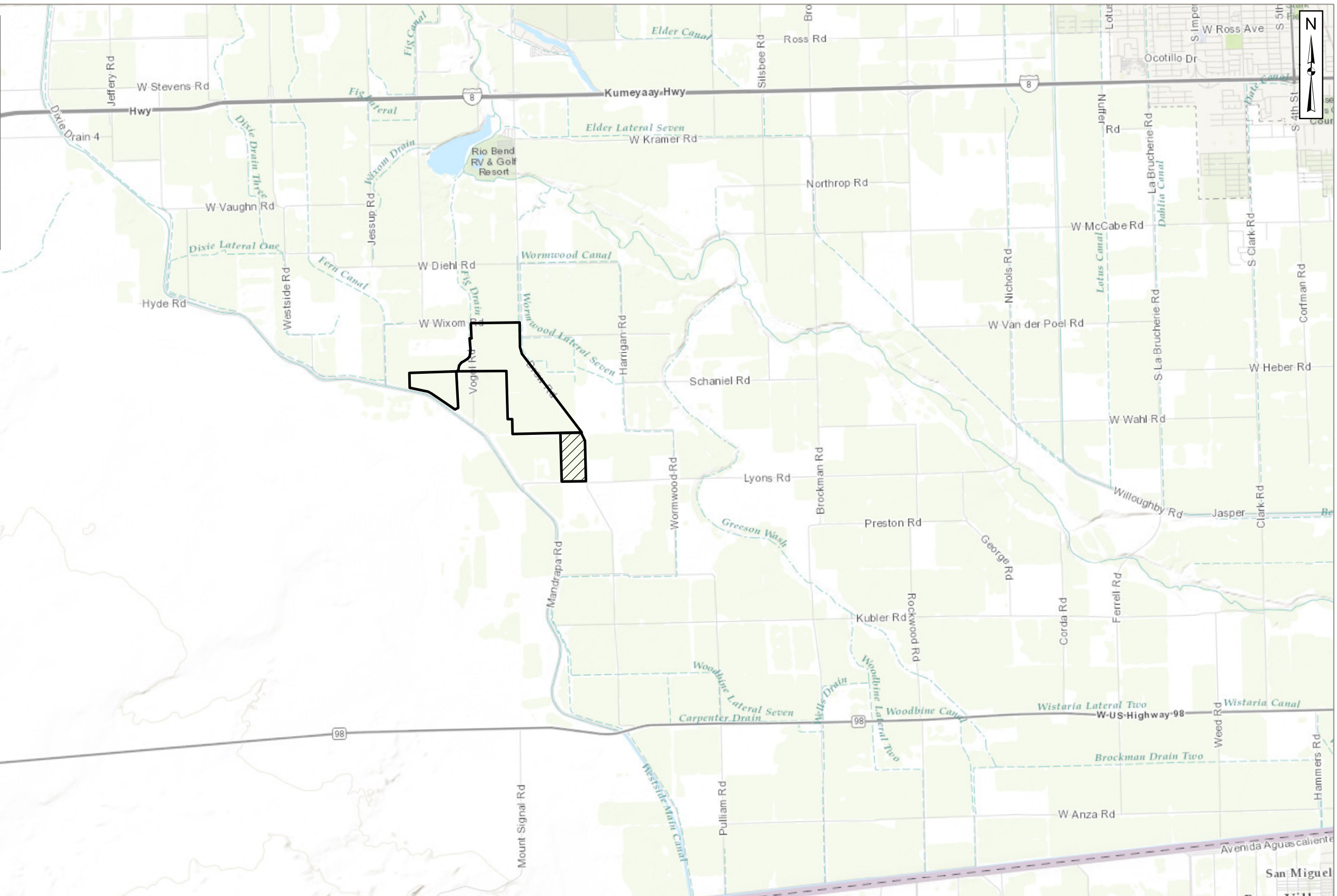
### **1.2 PROJECT LOCATION**

The Project is located within southwestern Imperial County, California, approximately 10 miles southwest of the City of El Centro (Figure 1). It is situated in Township 16 South, Range 12 East of the U.S. Geographical Survey (USGS) Mt. Signal 7.5-minute topographic quadrangle. The Project site consists of two distinct halves, both consisting of currently-farmed agricultural land, generally divided by Vogel Road and/or the Fig Drain. The eastern portion consists of 5 individual parcels, including the Added Parcel, bound to the north by W Wixom Road, to the east by Drew Road, to the west by Vogel Road/Fig Drain/adjacent farmland, and to the south by Lyons Road and/or farmland to the north of Lyons Road. The western portion consists of a single parcel bound to the east by Fig Drain, to the south by Mandrapa Road, and to the north and west by adjacent farmland.

The Added Parcel (APN 051-390-012) is contiguous with the southeastern portion of the original Project area, occurring at the northwest corner of the intersection of Drew and Lyons Roads (Figures 1 and 2). The Project site, including the Added Parcel, consists of currently-farmed agricultural land. The Added Parcel is bounded to the north by farmland, to the east by the Wormwood Lateral 4 canal and Drew Road, to the west by adjacent farmland, and to the south by the Wormwood Lateral 4 canal and Lyons Road.


### **1.3 PROJECT DESCRIPTION**


The Project consists of the proposed construction of a 574-acre solar photovoltaic (PV) energy facility site, and also includes construction of an approximately 0.4-mile gen-tie line from the

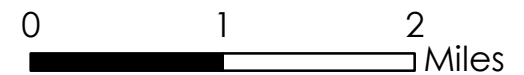


**Legend**

**Project Boundary**

 Original Parcels  
(051-360-021,  
051-360-031,  
051-390-004,  
051-390-013, and

 Added Parcel  
(051-390-012)



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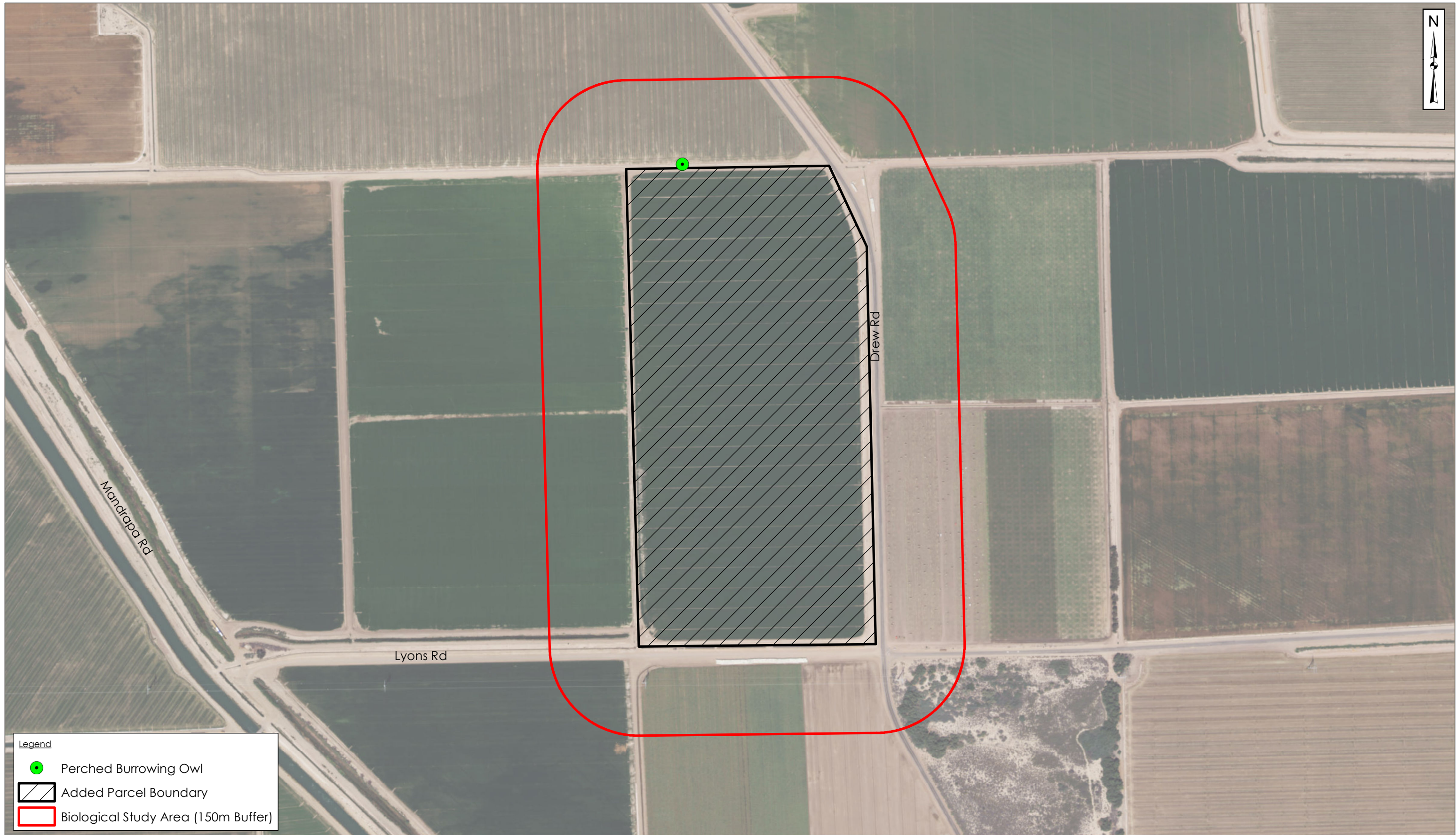
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**Project Location Map**




Figure: **1**

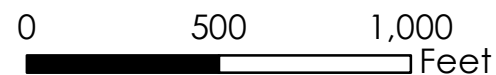
Job Number: 185803957    Drawn By: Jason Trook    Checked By: Mayra Navarro    Approved By: Rocky Brown    Date: 11/21/2017

GEOGRAPHIC INFORMATION SYSTEMS (GIS)



**Legend**

-  Perched Burrowing Owl
-  Added Parcel Boundary
-  Biological Study Area (150m Buffer)



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**Biological Study Area Map**

Figure:  
**2**

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GEOGRAPHIC INFORMATION SYSTEMS (GIS)



# VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL WATERS/WETLANDS DELINEATION REPORT

western terminus of the solar facility to the proposed Fig Substation, to be constructed at the intersection of Liebert Road and Mandrapa Road. The construction of the Fig Substation is not part of the Project.

## 1.4 LEAD AGENCY NAME AND ADDRESS

County of Imperial  
940 West Main Street  
El Centro, California 92243

## 1.5 CONTACT PERSON AND PHONE NUMBER

Jim Minnick  
Planning & Development Services Director  
801 Main Street  
El Centro, California 92243  
Phone: (442) 265-1736  
Email: jimminnick@co.imperial.ca.us

## 2.0 EXISTING CONDITIONS

### 2.1 TOPOGRAPHY AND SURROUNDING LAND USES

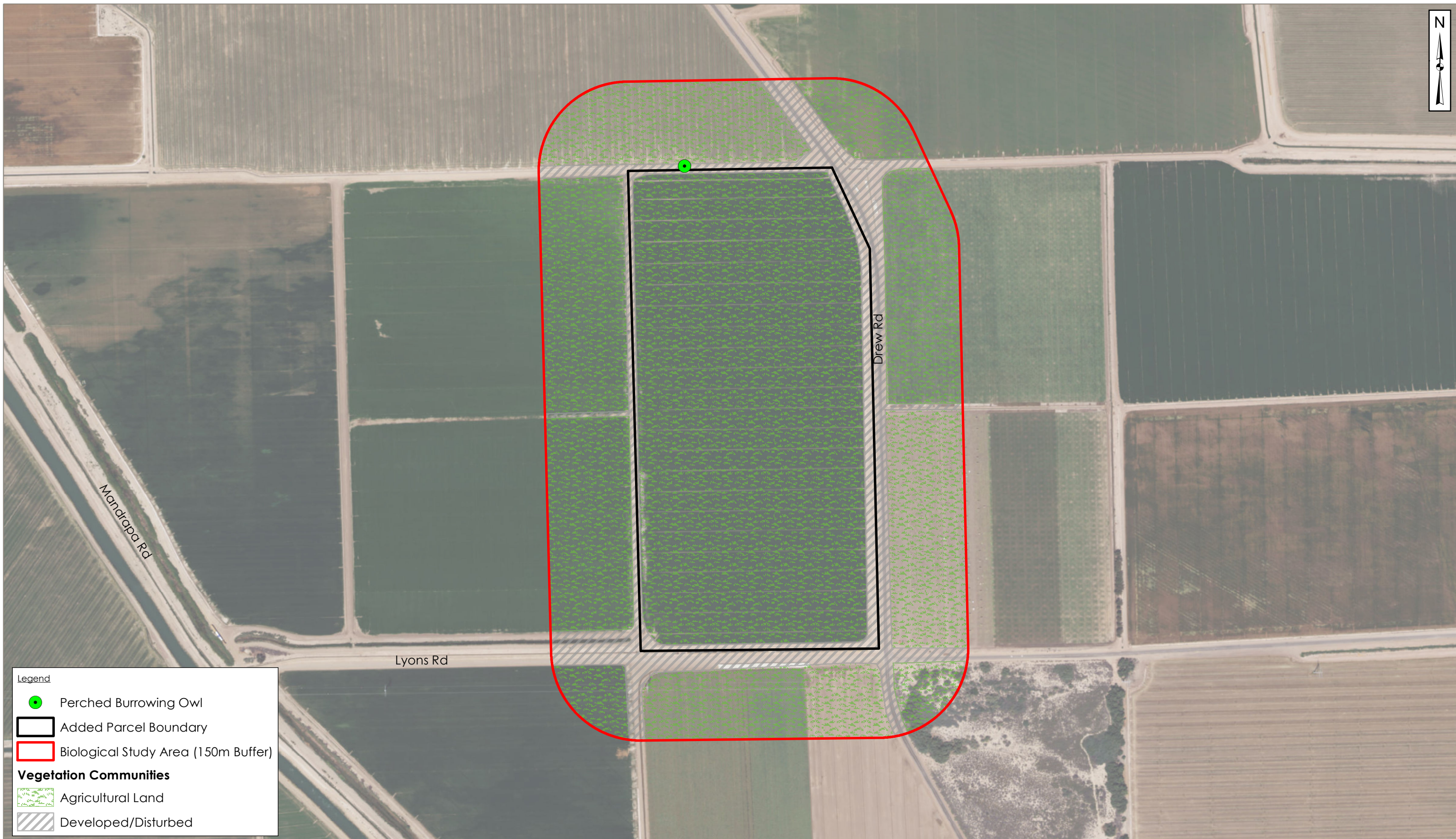
The Project is located in the Yuha Basin of the Colorado Desert. Topography within the Added Parcel BSA is generally flat, with an elevation of approximately -22 feet below mean sea level (msl). The Added Parcel and surrounding lands support active agricultural land use, and contain several unpaved roads, irrigation ditches, and other farming infrastructure.

Lands within the Added Parcel BSA are zoned as Agriculture (Planning and Development Services Department of County of Imperial 2015). Surrounding lands are also zoned as Agriculture.




### 2.2 VEGETATION

Generally, mapping and description of plant communities follows the MCV II classification system described in the second edition of *A Manual of California Vegetation* (Sawyer et al. 2009). However, there are no native habitats present within the Added Parcel BSA, and the land cover types listed below are descriptive in nature and not included in that reference. Species scientific and common names correspond to those described in the second edition of *The Jepson Manual* (Baldwin et al. 2012).



The Added Parcel BSA supports two land cover types: agricultural land and developed/disturbed land. (Figure 3). Descriptions of these land cover types are provided below.

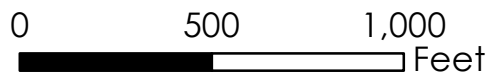


**Legend**

-  Perched Burrowing Owl
-  Added Parcel Boundary
-  Biological Study Area (150m Buffer)

**Vegetation Communities**

-  Agricultural Land
-  Developed/Disturbed



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**Vegetation Communities Map**

Figure:  
**3**

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## **Agricultural Land**

This land cover type is not described within *A Manual of California Vegetation* (Sawyer, et al. 2009). At the time of survey, this land cover type was observed to contain active and fallow fields, and associated irrigation canals immediately adjacent to the fields.

Approximately 157 acres of agricultural land occurs throughout the Added Parcel BSA.

## **Developed/Disturbed Land**

This land cover type is not described within *A Manual of California Vegetation* (Sawyer, et al. 2009), but includes developed areas such as roads, residences, and existing solar facilities. These areas are predominantly devoid of vegetation, though do support the sparse growth of ruderal herbaceous scrub, including non-native annual grasses and other weedy species.

Approximately 26 acres of developed/disturbed land occurs throughout the Added Parcel BSA.

## **2.3 CLIMATE**

The region experiences a desert climate characterized by hot, dry summers and warm winters. Average annual temperatures range from 69 degrees Fahrenheit in December to 107 degrees Fahrenheit in July, and average annual precipitation measures 2.87 inches (US Climate Data 2017).

## **2.4 HYDROLOGY AND GEOMORPHOLOGY**

The Added Parcel BSA is underlain by the Colorado River Basin, and is within the Imperial Hydrologic Unit and Brawley Hydrologic Area (SWRCB 2006). Irrigation water is supplied to the agricultural fields within and surrounding the Added Parcel BSA by an engineered system of concrete-lined canals or lateral canals operated and maintained by the IID. These canals typically contain water at all times except during maintenance periods. Water generally flows from south to north through the Added Parcel BSA.

The farm fields within the Added Parcel BSA are graded for flood irrigation. When a field is irrigated, water is allowed to flow from the IID delivery canal to a smaller earthen or concrete-lined ditch (typically referred to as a “head ditch”), which distributes the water evenly across the field. At the opposite, lower elevation side of the field, excess water is collected into another ditch (typically referred to as a “tail ditch”) and directed into an IID drain. The ditches present on the Added Parcel BSA are both earthen and concrete-lined, and earthen ditches may be frequently rebuilt when the fields are plowed and disked.

A concrete-lined canal, the Wormwood Lateral 4, borders the eastern and southern boundaries of the Added Parcel and another earthen channel, the Fig Drain No. 1B, extends westward from the southwest corner of the Added Parcel within the southwestern portion of the Added Parcel

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BSA. Fig Drain No. 1B contributes flow to the main Fig Drain, which stretches northward and ultimately contributes flows to the New River. The New River flows from Mexico into California, emptying into the Salton Sea. The majority of runoff into the New River comes from agriculture, municipal discharge, and industrial discharge.

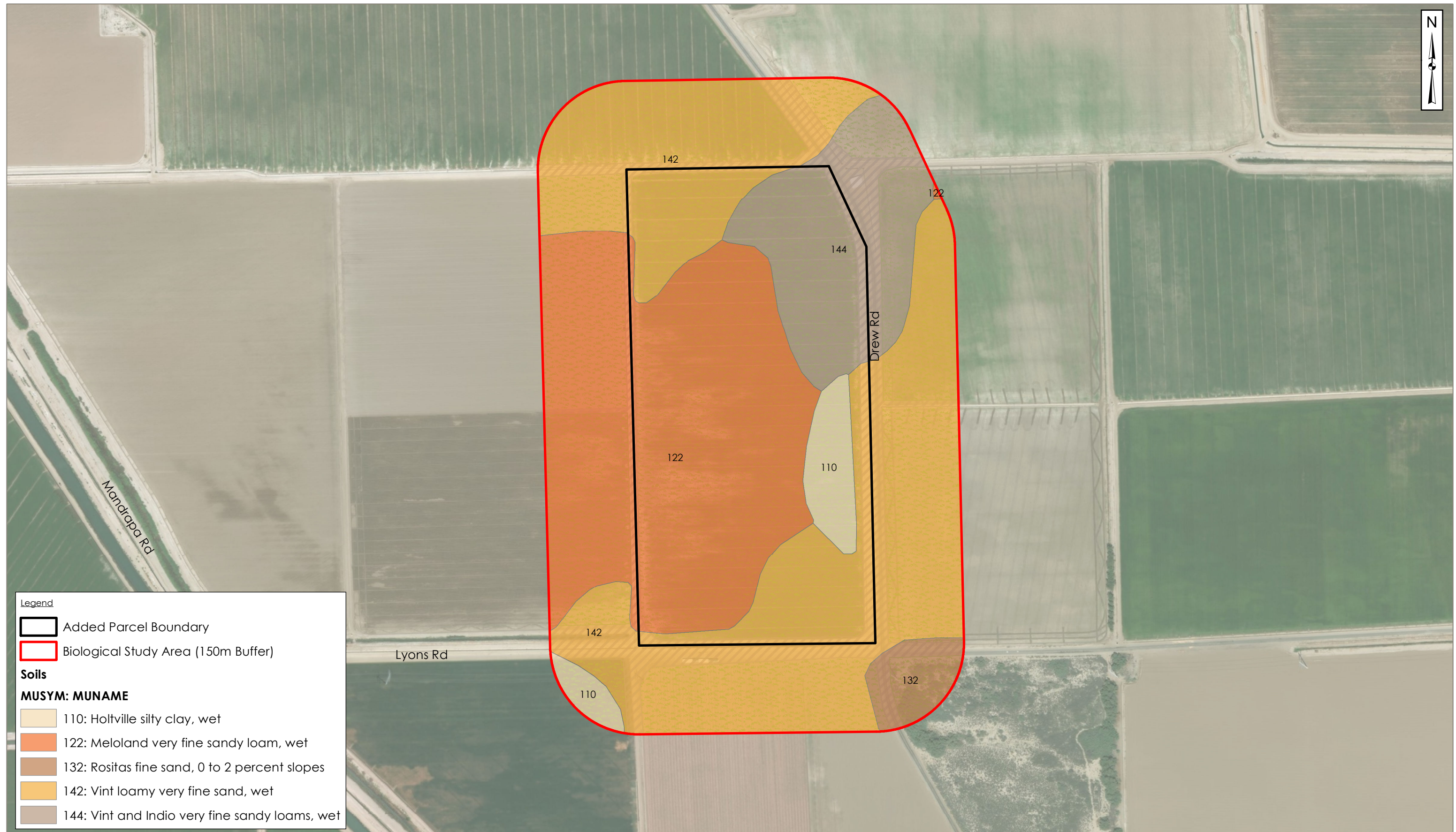
The Wormwood Lateral 4 canal joins Wormwood Lateral 3, which empties into the Westside Main Canal. The Westside Main Canal services agricultural lands along the western side of the Imperial Valley and empties directly into the Salton Sea. Additional IID-administered irrigation drainage features in the region also ultimately flow to the Salton Sea.

## 2.5 SOILS



Soils within the Added Parcel BSA were dominated by fine sandy to silty clay loam soils. Soil data from the Natural Resources Conservation Service (NRCS) using Web Soil Survey was used to determine potential soil types, including where hydric soils have historically occurred (Figure 4). Soils present within the Added Parcel BSA are not considered to be hydric soils. Characteristics of soils present on the site are summarized in Appendix C. Table 1 below summarizes the soils occurring within the Added Parcel BSA.

**Table 1. Soil Units Occurring within the Vega Added Parcel BSA**

Map Unit Name	Description	Acres Within BSA	% Total Within BSA
Vint laomy very fine sand, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 250 feet; parent material consists of alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; very low runoff; loamy very fine sand (0-10"), loamy fine sand (10-60")	66.4	43.1
Vint and Indio very fine sandy loams, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 300 feet; parent material consists of alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; very low runoff; very fine sandy loam (0-10"), loamy fine sand (10-40"), silty clay (40-60")	23.4	15.2
Meloland very fine sandy loam, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 200 feet; parent material consists of alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; low runoff; very fine sandy loam (0-12"), stratified loamy fine sand to silt loam (12-26"), clay (26-71")	57.0	37.0
Rositas fine sand, 0 to 2 percent slopes	A somewhat excessively drained soil that occurs on basin floors at elevations between -230 to 350 feet; parent material consists of alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; very low runoff; fine sand (0-9"), sand (9-60")	2.3	1.5








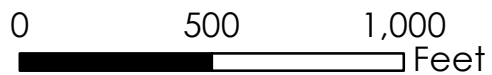
**Legend**

-  Added Parcel Boundary
-  Biological Study Area (150m Buffer)

**Soils**

**MUSYM: MUNAME**

-  110: Holtville silty clay, wet
-  122: Meloland very fine sandy loam, wet
-  132: Rositas fine sand, 0 to 2 percent slopes
-  142: Vint loamy very fine sand, wet
-  144: Vint and Indio very fine sandy loams, wet



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**Soils Map**

Figure:  
**4**

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GEOGRAPHIC INFORMATION SYSTEMS (GIS)

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## VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL WATERS/WETLANDS DELINEATION REPORT

Map Unit Name	Description	Acres Within BSA	% Total Within BSA
Holtville silty clay, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 200 feet; parent material consists of alluvium derived from mixed sources; low runoff; silty clay (0-17"), clay (17-24"), silt loam (24-35"), loamy very fine sand (35-60")	4.9	3.2
<b>Total</b>		154.0	100

### 3.0 REGULATORY BACKGROUND

Jurisdictional waters, wetlands, and riparian habitat are regulated by the USACE, RWQCB, and CDFW. The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (CWA); the CDFW regulates activities under California Fish and Game Code Sections 1600-1607; the LARWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act. Refer to Appendix E for additional details on regulatory authorities and background.

### 4.0 WATERS/WETLANDS DELINEATION

#### 4.1 DELINEATION METHODOLOGY

This section describes the methods employed by Stantec during the survey conducted to determine the extent of potentially jurisdictional wetlands and/or waters that occur within the Added Parcel BSA. Prior to conducting the field assessment, Stantec reviewed current and historic aerial photographs, detailed topographic maps, soil maps of the proposed Project area (NRCS 2017), and local and state hydric soil lists to evaluate the potential active channels and wetland features that occur within the BSA. During the field assessment, vegetation and hydrology were mapped using a Trimble Geo 7X global positioning system (GPS) and drawn on aerial photographs. Field maps were digitized using Global Information Technology (GIS) and total jurisdictional area for each jurisdiction was calculated.

##### **Federal Wetlands/Waters**

Jurisdictional non-wetland "waters of the U.S." are delineated based on the limits of the ordinary high water mark (OHWM) as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetative characteristics. Jurisdictional wetlands are delineated using a routine determination in accordance with the methods outlined in the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2011) based on three wetland parameters: dominant hydrophytic vegetation, wetland hydrology, and hydric soils. Tables 1 and 2 in Appendix D (Potential Geomorphic and Vegetative Indicators of Ordinary

## **VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL WATERS/WETLANDS DELINEATION REPORT**

High Water Marks for the Arid West) provide a list of key physical features for determining the OHWM identified by the arid west manual.

### **CDFW Jurisdictional Waters**

CDFW jurisdiction is delineated to the top of the banks of the channel and/or to the edge of the associated riparian canopy/riparian habitat, whichever is wider. Within the BSA, the CDFW jurisdictional boundary of the IID-administered irrigation canals is wider than the OHWM. Therefore, the total acreage of CDFW jurisdictional waters is greater than the combined acreage of federal jurisdictional waters.

#### **4.1.1 Wetland Vegetation**

Vegetation percent cover was estimated for plant species in each of the four strata (tree, sapling/shrub, herb, and woody vine). Plant species in each stratum was ranked based on canopy dominance (USACE 2008). Species that contributed to a cumulative coverage total of at least 50 percent and any species that comprised at least 20 percent of the total coverage for each stratum were recorded on the Field Data Sheets (50/20 rule). Wetland indicator status was assigned to each dominant species using the Region 0 List of Plant Species that Occur in Wetlands: 1996 National Summary (USFWS 1997), Wetland Plants of Specialized Habitats in the Arid West (USACE, 2007), and the Arid West Region of The National Wetland Plant List (USACE, 2012). If greater than 50 percent of the dominant species from all strata were Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation was considered to be met (refer to Appendix D, Table 3).

#### **4.1.2 Wetland Hydrology**

The presence of wetland hydrology is assessed by evaluating the presence of primary and secondary hydrology indicators (refer to Appendix D, Tables 4 and 5). These indicators are designed to determine whether an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially in the root zone (USACE, 1987 and 2008b). The Arid West Supplement includes two additional indicator groups that can be utilized during dry conditions or in areas where surface water/saturated soils are not present; these are Group B (evidence of recent inundation) and Group C (evidence of recent soil saturation) (USACE, 2008). The indicators are divided into two categories (primary and secondary indicators) and presence of one primary indicator from any of the groups is considered evidence of wetland hydrology. If only secondary indicators are present, two or more must be observed to conclude presence of wetland hydrology. Indicators are intended to be one-time observations of site conditions representing evidence of wetland hydrology when hydrophytic vegetation and hydric soils are present (USACE, 2008).

# VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL WATERS/WETLANDS DELINEATION REPORT

## 4.1.3 Wetland Soils

Soils data from the NRCS was referenced to determine if hydric soils have been previously documented and/or historically occurred in or near the Study Area. Based on this review hydric soils were not expected to occur within the Study Area. Appendix D, Tables 6 and 7, includes a complete list of hydric soils indicators.

## 4.2 RESULTS

Two types of jurisdictional features were documented within the Added Parcel BSA: USACE non-wetland waters and CDFW State Waters. All the drainage features within the Added Parcel BSA are man-made, constructed entirely within uplands, and used solely for agricultural irrigation. Head and tail ditches are typically dry and convey water only during periodic and infrequent irrigation events. They do not support riparian habitat and, as is the case with many tail ditches, are plowed under and re-created each time a field is replanted. Thus, they would not meet the definition of a Relatively Permanent Water (RPW) and would not be considered federally or state jurisdictional. The larger, IID-administered canals (supply) and drains (drainage), however, generally convey water year-round and ultimately flow into the Salton Sea, which is considered a Traditionally Navigable Water, and would likely be considered federally and state jurisdictional. Representative photographs are provided in Appendix B.

Table 2 summarizes the jurisdictional features present within the BSA and their acreages; Figure 5 depicts their location within the BSA. Appendix A contains the OHWM Data Forms completed during the assessment. According to the NRCS Hydric Soils List (NRCS 2014a and 2014b), there are no mapped hydric soils within the BSA.

**Table 2. Acreage of Jurisdictional Waters within the Vega Added Parcel BSA**

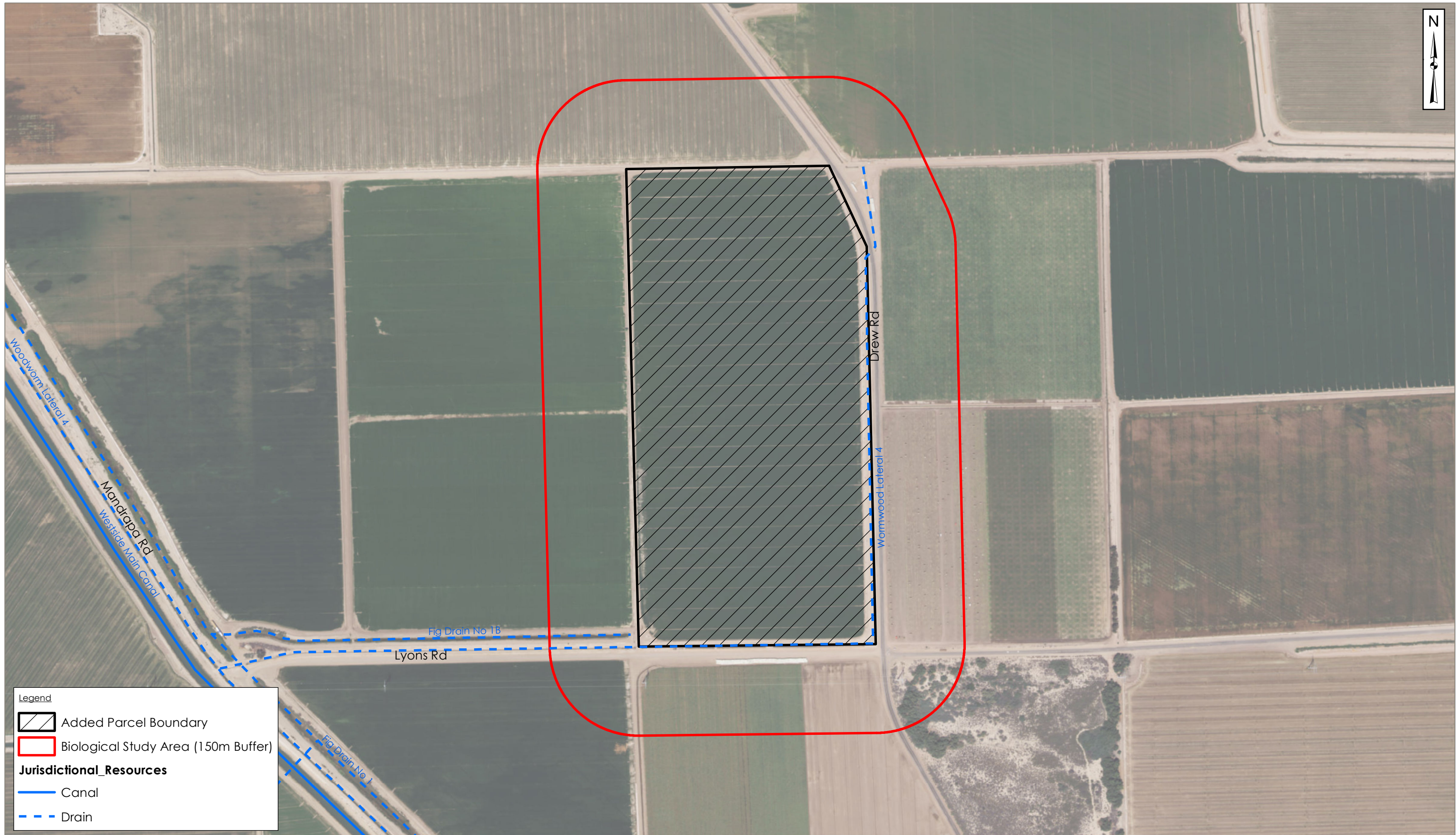
Feature ID	OHWM (feet)	Top of Bank (feet)	Distance	USACE/RWQCB Waters (acres)	CDFW Jurisdictional Waters (acres)
Wormwood Lateral 4	2	6	2,605	0.34	0.8
	5	10	1,900		
Fig Drain No. 1B	15	35	560	0.2	0.45
<b>TOTAL</b>			<b>5,065</b>	<b>0.54</b>	<b>1.25</b>

(a) Non-wetland waters of the U.S. and non-wetland waters of the state overlap; as such, jurisdictional acreages are not additive.



### Federal Wetlands

Based on Stantec's professional opinion following an assessment of hydrology, vegetation, and soils, there are no federal wetlands within the Added Parcel BSA. IID irrigation canals and drains do, however, meet the requirements for jurisdictional waters (see below).





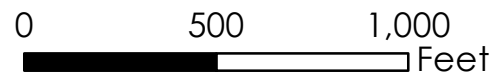


**Legend**

-  Added Parcel Boundary
-  Biological Study Area (150m Buffer)

**Jurisdictional\_Resources**

-  Canal
-  Drain



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 Vega SES LLC  
 604 Sutter Street  
 Folsom, CA 95630

**Jurisdictional Resources  
 Map**

Figure:  
**5**

Job Number: 185803957    Drawn By: Jason Trook    Checked By: Mayra Navarro    Approved By: Rocky Brown    Date: 11/21/2017

# VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL WATERS/WETLANDS DELINEATION REPORT

## **Federal Non-Wetland Waters**

Approximately 0.54 acres of the Added Parcel BSA meet the definition of “waters of the United States” as outlined in 33 CFR Part 328. This assessment is based on Stantec’s professional opinion following an assessment of hydrology and the limits of the OHWM. Because the potentially jurisdictional features in the Added Parcel BSA are man-made RPWs, the OHW zone was typically delineated using direct measure of OHWM indicators rather than the extent of the active floodplain because irrigation features with controlled flows do not support true active floodplains. Some of the key hydrology indicators (See Tables 1 and 2 in Appendix D for additional information) that were noted during the delineation included:

- D1 – Herbaceous marsh species
- D5 – Perennial herbs, hydromesic clonals
- F15/18 – Upland species

## **CDFW Waters**

Based on Stantec’s professional opinion following an assessment of hydrology, presence of bed and bank, and extent of riparian vegetation, approximately 1.25 acres of the Added Parcel BSA meet the definition of CDFW jurisdictional waters as outlined in Sections 1600-1616 of the CDFW Code.

## **5.0 SUMMARY AND CONCLUSIONS**

The Added Parcel BSA supports CDFW jurisdictional waters and USACE nonwetland waters. The IID irrigation drainages listed in Table 2 were actively flowing during the delineation and many supported riparian vegetation. These channels exhibited evidence of hydrology and a discernible OHWM and were mapped as jurisdictional non-wetland “waters of the United States” (0.54 acres). Using a combination of bed/bank delineation and field observations, 1.25 acres of CDFW jurisdictional waters were identified within the Added Parcel BSA.

The conclusions presented above represent Stantec’s professional opinion based on our knowledge and experience with the USACE and CDFW, including their regulatory guidance documents and manuals. However, the USACE and CDFW have final authority in determining the status and presence of jurisdictional wetlands/waters and the extent of their boundaries.

## VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL WATERS/WETLANDS DELINEATION REPORT

References  
January 30, 2018

### 6.0 REFERENCES

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# **APPENDICES**

**VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL  
WATERS/WETLANDS DELINEATION REPORT**

Appendix A OWHM Data Sheets  
January 30, 2018

**Appendix A OWHM DATA SHEETS**

## Arid West Ephemeral and Intermittent Streams OHWM Datasheet

<b>Project:</b> <i>Vega Solar - Added Parcel</i> <b>Project Number:</b> <b>Stream:</b> <i>Wormwood Lateral 4</i> <b>Investigator(s):</b> <i>RB</i>	<b>Date:</b> <i>10/23/2017</i> <b>Town:</b> <b>Photo begin file#:</b>	<b>Time:</b> <b>State:</b> <i>CA</i> <b>Photo end file#:</b>
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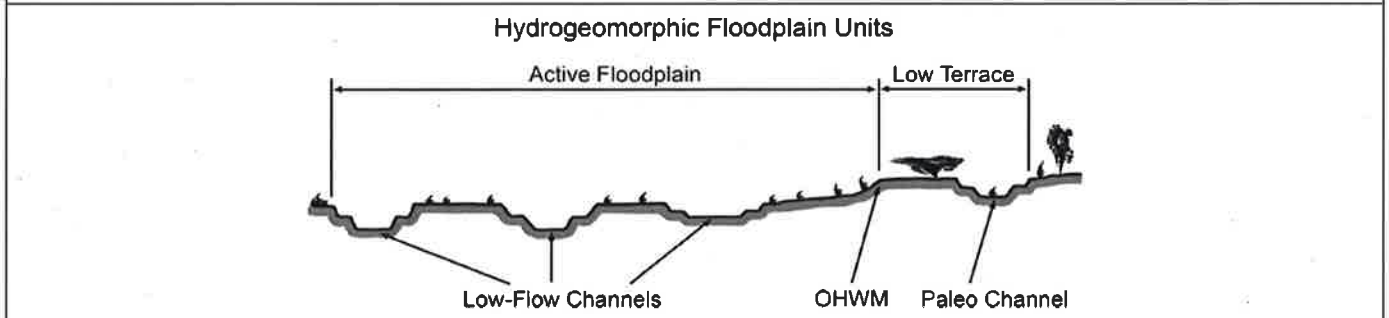
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Do normal circumstances exist on the site?  Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?	<b>Location Details:</b> <i>Vega Solar Added Parcel BSA (see report)</i> <b>Projection:</b> <b>Datum:</b> <b>Coordinates:</b>
--	---

**Potential anthropogenic influences on the channel system:**  
*Man-made canal; adjacent agricultural activities/unpaved roads*

**Brief site description:**  
*Concrete-lined v-ditch  
 OHWM = 2' / 5'*

**Checklist of resources (if available):**

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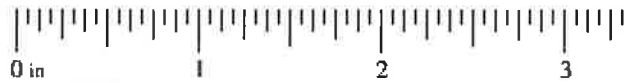
**Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**

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

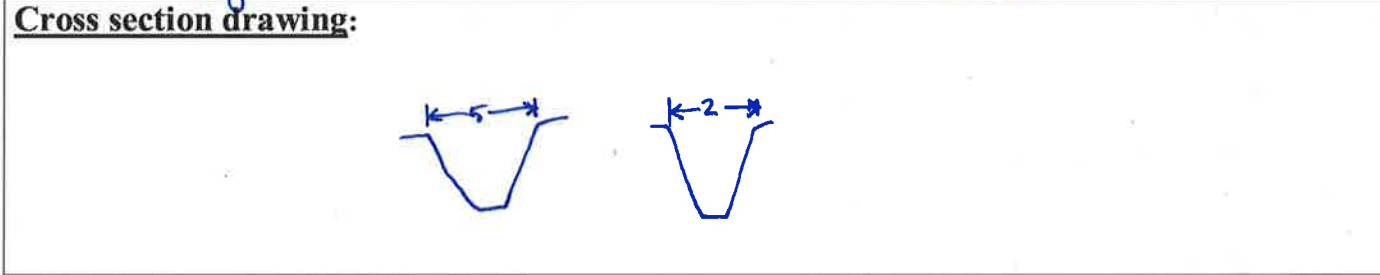
<input checked="" type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input checked="" type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

### Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class
10.08	256	Boulder
2.56	64	Cobble
0.157	4	Pebble
0.079	2.00	Granule
0.039	1.00	Very coarse sand
0.020	0.50	Coarse sand
1/2 0.0098	0.25	Medium sand
1/4 0.005	0.125	Fine sand
1/8 0.0025	0.0625	Very fine sand
1/16 0.0012	0.031	Coarse silt
1/32 0.00061	0.0156	Medium silt
1/64 0.00031	0.0078	Fine silt
1/128 0.00015	0.0039	Very fine silt
		Clay



Project ID: Vega <sup>Added Parcel</sup> Cross section ID: \_\_\_\_\_ Date: 10/27/17 Time: \_\_\_\_\_



**OHWM**

GPS point: see report

**Indicators:**

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

**Comments:**

Ag. drain constructed in uplands.

**Floodplain unit:**     Low-Flow Channel     Active Floodplain     Low Terrace

GPS point: \_\_\_\_\_

No floodplain

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_%    Tree: \_\_\_\_\_%    Shrub: \_\_\_\_\_%    Herb: \_\_\_\_\_%

Community successional stage:

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

**Indicators:**

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

**Comments:**



**Project ID:**

**Cross section ID:**

**Date:**

**Time:**

**Floodplain unit:**

Low-Flow Channel

Active Floodplain

Low Terrace

**GPS point:** \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_% Tree: \_\_\_\_\_% Shrub: \_\_\_\_\_% Herb: \_\_\_\_\_%

Community successional stage:

NA

Early (herbaceous & seedlings)

Mid (herbaceous, shrubs, saplings)

Late (herbaceous, shrubs, mature trees)

**Indicators:**

Mudcracks

Ripples

Drift and/or debris

Presence of bed and bank

Benches

Soil development

Surface relief

Other: \_\_\_\_\_

Other: \_\_\_\_\_

Other: \_\_\_\_\_

**Comments:**

**Floodplain unit:**

Low-Flow Channel

Active Floodplain

Low Terrace

**GPS point:** \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_% Tree: \_\_\_\_\_% Shrub: \_\_\_\_\_% Herb: \_\_\_\_\_%

Community successional stage:

NA

Early (herbaceous & seedlings)

Mid (herbaceous, shrubs, saplings)

Late (herbaceous, shrubs, mature trees)

**Indicators:**

Mudcracks

Ripples

Drift and/or debris

Presence of bed and bank

Benches

Soil development

Surface relief

Other: \_\_\_\_\_

Other: \_\_\_\_\_

Other: \_\_\_\_\_

**Comments:**

## Arid West Ephemeral and Intermittent Streams OHWM Datasheet

<b>Project:</b> Vega Solar - Added Parcel <b>Project Number:</b> <b>Stream:</b> Fig Drain No. 1B <b>Investigator(s):</b> RB	<b>Date:</b> 10/23/17 <b>Town:</b> <b>Photo begin file#:</b>	<b>Time:</b> <b>State:</b> CA <b>Photo end file#:</b>
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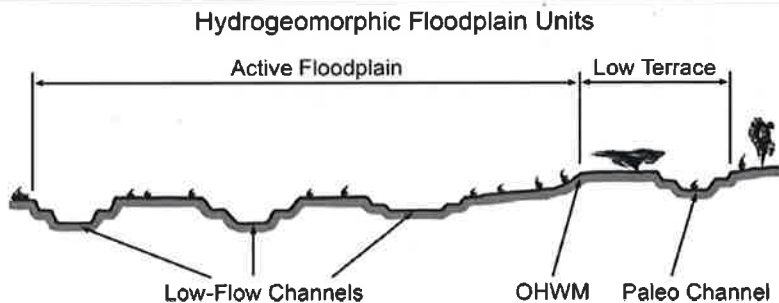
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Do normal circumstances exist on the site?  Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?	<b>Location Details:</b> Vega Solar Added Parcel BSA (see report) <b>Projection:</b> <b>Datum:</b> <b>Coordinates:</b>
--	--

**Potential anthropogenic influences on the channel system:**  
 Man-made earthen canal; adjacent agricultural activities/unpaved roads

**Brief site description:**  
 Earthen v-ditch - lg. ag. drain  
 OHWM = 15'

**Checklist of resources (if available):**

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

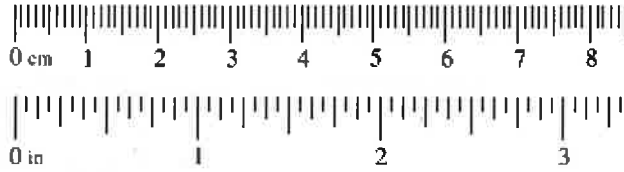


- Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
  2. Select a representative cross section across the channel.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

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

### Wentworth Size Classes

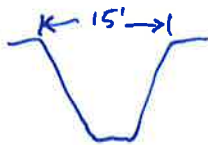
Inches (in)	Millimeters (mm)	Wentworth size class
10.08	256	Boulder
2.56	64	Cobble
0.157	4	Pebble
0.079	2.00	Granule
0.039	1.00	Very coarse sand
0.020	0.50	Coarse sand
1/2 0.0098	0.25	Medium sand
1/4 0.005	0.125	Fine sand
1/8 0.0025	0.0625	Very fine sand
1/16 0.0012	0.031	Coarse silt
1/32 0.00061	0.0156	Medium silt
1/64 0.00031	0.0078	Fine silt
1/128 0.00015	0.0039	Very fine silt
		Clay



Project ID: Vegan <sup>→ Added Parcel</sup> Cross section ID:

Date: 10/23/17 Time:

Cross section drawing:



OHWM

GPS point: see report

**Indicators:**

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

**Comments:**

Ag. drain constructed in uplands

Floodplain unit:  Low-Flow Channel  Active Floodplain  Low Terrace

GPS point: \_\_\_\_\_

No Floodplain

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_  
Total veg cover: \_\_\_\_\_% Tree: \_\_\_\_\_% Shrub: \_\_\_\_\_% Herb: \_\_\_\_\_%

**Community successional stage:**

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

**Indicators:**

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

**Comments:**

**Project ID:**

**Cross section ID:**

**Date:**

**Time:**

**Floodplain unit:**

Low-Flow Channel

Active Floodplain

Low Terrace

**GPS point:** \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_% Tree: \_\_\_\_\_% Shrub: \_\_\_\_\_% Herb: \_\_\_\_\_%

Community successional stage:

NA

Early (herbaceous & seedlings)

Mid (herbaceous, shrubs, saplings)

Late (herbaceous, shrubs, mature trees)

**Indicators:**

Mudcracks

Ripples

Drift and/or debris

Presence of bed and bank

Benches

Soil development

Surface relief

Other: \_\_\_\_\_

Other: \_\_\_\_\_

Other: \_\_\_\_\_

**Comments:**

**Floodplain unit:**

Low-Flow Channel

Active Floodplain

Low Terrace

**GPS point:** \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_% Tree: \_\_\_\_\_% Shrub: \_\_\_\_\_% Herb: \_\_\_\_\_%

Community successional stage:

NA

Early (herbaceous & seedlings)

Mid (herbaceous, shrubs, saplings)

Late (herbaceous, shrubs, mature trees)

**Indicators:**

Mudcracks

Ripples

Drift and/or debris

Presence of bed and bank

Benches

Soil development

Surface relief

Other: \_\_\_\_\_

Other: \_\_\_\_\_

Other: \_\_\_\_\_

**Comments:**

**VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL  
WATERS/WETLANDS DELINEATION REPORT**

Appendix B Photographic Log  
January 30, 2018

## **Appendix B**   **PHOTOGRAPHIC LOG**

**STANTEC CONSULTING SERVICES INC.  
PHOTOGRAPHIC RECORD**

**Client:** Vega SES LLC

**Job Number:** 185803957

**Site Name:** Vega SES LLC Solar Project –  
Added Parcel (APN 051-390-012)

**Photographer:** R. Brown

**Photo 1: October 23, 2017**



From northeast corner of Added Parcel site, looking south. Note concrete-lined head ditch along the left side of the photograph – a non-jurisdictional drainage.

**Photo 2: October 23, 2017**



From southeast corner of Added Parcel site, looking north. Note Wormwood Lateral 4 canal – generally carries water year round and would be considered a jurisdictional resource.

**STANTEC CONSULTING SERVICES INC.  
PHOTOGRAPHIC RECORD**

**Client:** Vega SES LLC

**Job Number:** 185803957

**Site Name:** Vega SES LLC Solar Project –  
Added Parcel (APN 051-390-012)

**Photographer:** R. Brown

**Photo 3: October 23, 2017**



From southeast corner of Added Parcel Site, looking west.

**Photo 4: October 23, 2017**



From southwest corner of site, looking west toward Fig Drain No. 1B. Note, concrete lined channel in the foreground is a head ditch that periodically conveys flow for irrigation – a non-jurisdictional drainage.



**VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL  
WATERS/WETLANDS DELINEATION REPORT**

Appendix C Historic Soils Information  
January 30, 2018

## **Appendix C** **HISTORIC SOILS INFORMATION**

## Imperial County, California, Imperial Valley Area

### 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  
*Natural 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 in profile:* 5 percent  
*Salinity, maximum in profile:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 10.0  
*Available water storage in profile:* Moderate (about 7.6 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 2w  
*Land capability classification (nonirrigated):* 7w  
*Hydrologic Soil Group:* D  
*Hydric soil rating:* No

**Minor Components**

**Glenbar**

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

**Imperial**

*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*

**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*

## Custom Soil Resource Report

*Natural 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 in profile:* 5 percent  
*Salinity, maximum in profile:* Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 13.0  
*Available water storage in profile:* Moderate (about 7.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* 3w  
*Land capability classification (nonirrigated):* 7w  
*Hydrologic Soil Group:* D  
*Hydric soil rating:* No

### Minor Components

#### 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

#### Glenbar

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

#### Vint

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

## 132—Rositas fine sand, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* h907  
*Elevation:* -230 to 350 feet  
*Mean annual precipitation:* 0 to 3 inches  
*Mean annual air temperature:* 70 to 75 degrees F  
*Frost-free period:* 300 to 350 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Rositas and similar soils:* 85 percent

*Minor components:* 15 percent

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

**Description of Rositas**

**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 9 inches:* fine sand

*H2 - 9 to 60 inches:* sand

**Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Somewhat excessively drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (5.95 to 19.98 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 5 percent

*Salinity, maximum in profile:* Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)

*Available water storage in profile:* Low (about 3.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3s

*Land capability classification (nonirrigated):* 7e

*Hydrologic Soil Group:* A

*Hydric soil rating:* No

**Minor Components**

**Niland**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

**Rositas**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

**Vint**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

**Antho**

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

**Holtville**

*Percent of map unit:* 1 percent  
*Hydric soil rating:* No

**Superstition**

*Percent of map unit:* 1 percent  
*Hydric soil rating:* No

**142—Vint loamy very fine sand, wet**

**Map Unit Setting**

*National map unit symbol:* h90k  
*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:* Prime farmland if irrigated and drained

**Map Unit Composition**

*Vint, wet, and similar soils:* 90 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 and/or eolian deposits derived from mixed

**Typical profile**

*H1 - 0 to 10 inches:* loamy very fine sand  
*H2 - 10 to 60 inches:* loamy fine sand

**Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Moderately well drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 5 percent  
*Salinity, maximum in profile:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)

## Custom Soil Resource Report

*Available water storage in profile:* Low (about 5.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* 2w

*Land capability classification (nonirrigated):* 7w

*Hydrologic Soil Group:* A

*Hydric soil rating:* No

### Minor Components

#### Indio

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Meloland

*Percent of map unit:* 5 percent

*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

## Custom Soil Resource Report

*Natural 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 in profile:* 5 percent  
*Salinity, maximum in profile:* Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 10.0  
*Available water storage in profile:* Moderate (about 6.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* 2w  
*Land capability classification (nonirrigated):* 7w  
*Hydrologic Soil Group:* B  
*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  
*Natural 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 in profile:* 5 percent  
*Salinity, maximum in profile:* Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 10.0  
*Available water storage in profile:* Moderate (about 8.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* 2w  
*Land capability classification (nonirrigated):* 7w  
*Hydrologic Soil Group:* B  
*Hydric soil rating:* No



**Minor Components**

**Rositas**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Meloland**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL WATERS/WETLANDS DELINEATION REPORT**

Appendix D Arid West Indicator Tables  
January 30, 2018

**Appendix D ARID WEST INDICATOR TABLES**

**Table 1. Potential Geomorphic Indicators of Ordinary High Water Marks for the Arid West**

(A) Below OHW	(B) At OHW	(C) Above OHW
1. In-stream dunes	1. Valley flat	1. Desert pavement
2. Crested ripples	2. Active floodplain	2. Rock varnish
3. Flaser bedding	3. Benches: low, mid, most prominent	3. Clast weathering
4. Harrow marks	4. Highest surface of channel bars	4. Salt splitting
5. Gravel sheets to rippled sands	5. Top of point bars	5. Carbonate etching
6. Meander bars	6. Break in bank slope	6. Depositional topography
7. Sand tongues	7. Upper limit of sand-sized particles	7. Caliche rubble
8. Muddy point bars	8. Change in particle size distribution	8. Soil development
9. Long gravel bars	9. Staining of rocks	9. Surface color/tone
10. Cobble bars behind obstructions	10. Exposed root hairs below intact soil layer	10. Drainage development
11. Scour holes downstream of obstructions	11. Silt deposits	11. Surface relief
12. Obstacle marks	12. Litter (organic debris, small twigs and leaves)	12. Surface rounding
13. Stepped-bed morphology in gravel	13. Drift (organic debris, larger than twigs)	
14. Narrow berms and levees		
15. Streaming lineations		
16. Desiccation/mud cracks		
17. Armored mud balls		
18. Knick Points		

**Table 2. Potential Vegetation Indicators of Ordinary High Water Marks for the Arid West**

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1. Herbaceous marsh species 2. Pioneer tree seedlings 3. Sparse, low vegetation 4. Annual herbs, hydromesic ruderals 5. Perennial herbs, hydromesic clonals	1. Annual herbs, hydromesic ruderals 2. Perennial herbs, hydromesic clonals 3. Pioneer tree seedlings 4. Pioneer tree saplings	1. Annual herbs, xeric ruderals 2. Perennial herbs, non-clonal 3. Perennial herbs, clonal and non-clonal co-dominant 4. Mature pioneer trees, no young trees 5. Mature pioneer trees w/upland species 6. Late-successional species
Mesoriparian Indicators	6. Pioneer tree seedlings 7. Sparse, low vegetation 8. Pioneer tree saplings 9. Xeroriparian species	5. Sparse, low vegetation annual herbs, hydromesic 6. ruderals 7. Perennial herbs, hydromesic clonals 8. Pioneer tree seedlings 9. Pioneer tree saplings 10. Xeroriparian species 11. Annual herbs, xeric ruderals	7. Xeroriparian species 8. Annual herbs, xeric ruderals 9. Perennial herbs, non-clonal 10. Perennial herbs, clonal and non-clonal codominant 11. Mature pioneer trees, no young trees 12. Mature pioneer trees, xeric understory 13. Mature pioneer trees w/upland species 14. Late-successional species 15. Upland species
Xeroriparian indicators	10. Sparse, low vegetation 11. Xeroriparian species 12. Annual herbs, xeric ruderals	12. Sparse, low vegetation 13. Xeroriparian species 14. Annual herbs, xeric ruderals	16. Annual herbs, xeric ruderals 17. Mature pioneer trees w/upland species 18. Upland species

**Table 3. Summary of Wetland Indicator Status**

Category		Probability
Obligate Wetland	OBL	Almost always occur in wetlands (estimated probability >99%)
Facultative Wetland	FACW	Usually occur in wetlands (estimated probability of 67–99%)
Facultative	FAC	Equally likely to occur in wetlands/non-wetlands (estimated probability of 34–66%)
Facultative Upland	FACU	Usually occur in non-wetlands (estimated probability 67–99%)
Obligate Upland	UPL	Almost always occur in non-wetlands (estimated probability >99%)
Non-Indicator	NI	No indicator status has been assigned

Source: Reed, 1988; USFWS, 1997; USACE, 2012.

**Table 4. Wetland Hydrology Indicators\***

Primary Indicators	Secondary Indicators
Watermarks	Oxidized Rhizospheres Associated with Living Roots
Water-Borne Sediment Deposits	FAC-Neutral Test
Drift Lines	Water-Stained Leaves
Drainage Patterns Within Wetlands	Local Soil Survey Data

\*Table adapted from 1987 USACE Manual and Related Guidance Documents.

**Table 5. Wetland Hydrology Indicators for the Arid West\***

	Primary Indicator (any one indicator is sufficient to make a determination that wetland hydrology is present)	Secondary Indicator (two or more indicators are required to make a determination that wetland hydrology is present)
<b>Group A – Observation of Surface Water or Saturated Soils</b>		
A1 – Surface Water	X	
A2 – High Water Table	X	
A3 – Saturation	X	
<b>Group B – Evidence of Recent Inundation</b>		
B1 – Water Marks	X (Non-riverine)	X (Riverine)
B2 – Sediment Deposits	X (Non-riverine)	X (Riverine)
B3 – Drift Deposits	X (Non-riverine)	X (Riverine)
B6 – Surface Soil Cracks	X	
B7 – Inundation Visible on Aerial Imagery	X	
B9 – Water-Stained Leaves	X	
B10 – Drainage	X	X
B11 – Salt Crust	X	
B12 – Biotic Crust	X	
B13 – Aquatic Invertebrates	X	

**Table 5. Wetland Hydrology Indicators for the Arid West\***

	<b>Primary Indicator (any one indicator is sufficient to make a determination that wetland hydrology is present)</b>	<b>Secondary Indicator (two or more indicators are required to make a determination that wetland hydrology is present)</b>
<b>Group C – Evidence of Current or Recent Soil Saturation</b>		
C1 – Hydrogen Sulfide Odor	X	
C2 – Dry-Season Water Table		X
C3 – Oxidized Rhizospheres along Living Roots	X	

\*Table adapted from Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0.

**Table 6. Field Indicators of Hydric Soil Conditions\*****1. Indicators of Historical Hydric Soil Conditions**

- a. Histosols
- b. Histic epipedons;
- c. Soil colors (e.g., gleyed or low-chroma colors, soils with bright mottles (Redoximorphic features) and/or depleted soil matrix
- d. High organic content in surface of sandy soils
- e. Organic streaking in sandy soils
- f. Iron and manganese concretions
- g. Soil listed on county hydric soils list

**2. Indicators of Current Hydric Soil Conditions**

- a. Aquic or peraquic moisture regime (inundation and/or soil saturation for \*7 continuous days)
- b. Reducing soil conditions (inundation and/or soil saturation for \*7 continuous days)
- c. Sulfidic material (rotten egg smell)

\*Table adapted from 1987 USACE Manual and Related Guidance Documents.

**Table 7. Hydric Soil Indicators for the Arid West\***

<b>Hydric Soil Indicators</b>	<b>Hydric Soil Indicators</b>	<b>Hydric Soil Indicators</b>	<b>Hydric Soil Indicators</b>
A1 – Histosol	S1 – Sandy Mucky Mineral	F1 – Loamy Mucky Mineral	A9 – 1 cm Muck
A2 – Histic Epipedon	S4 – Sandy Gleyed Matrix	F2 – Loamy Gleyed Matrix	A10 – 2 cm Muck
A3 – Black Histic	S5 – Sandy Redox	F3 – Depleted Matrix	F18 – Reduced Verti
A4 – Hydrogen Sulfide	S6 – Stripped Matrix	F6 – Redox Dark Surface	TF2 – Red Parent Material
A5 – Stratified Layers	—	F7 – Depleted Dark Surface	Other (See Section 5 of Regional Supplement, Version 2.0)
A9 – 1 cm Muck	—	F8 – Redox Depressions	—
A11 – Depleted Below Dark Surface	—	F9 – Vernal Pools	—
A12 – Thick Dark Surface	—	—	—

\* Table adapted from Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0. \*\* Indicators of hydrophytic vegetation and wetland hydrology must be present

**VEGA SES LLC SOLAR PROJECT – ADDED PARCEL (APN 051-390-012) PRELIMINARY JURISDICTIONAL  
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Appendix E Regulatory Background Information  
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**Appendix E REGULATORY BACKGROUND INFORMATION**

## **Regulatory Background Information**

### **Section 404 of the Clean Water Act (CWA)**

Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or certain types of excavation within “waters of the U.S.” (resulting in more than incidental fallback of material) 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). “Waters of the U.S.” are defined by the CWA as “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 in order to more clearly define “waters of the U.S.” Until the beginning of 2001, “waters of the U.S.” 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 “waters of the U.S.”

The jurisdictional extent of USACE regulation changed with the 2001 SWANCC (Solid Waste Agency of Northern Cook County) 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.

### **Section 401 of the CWA**

Section 401 of the CWA requires that any applicant for a Federal permit for activities that involve a discharge to ‘waters of the State,’ shall provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal Clean Water Act. Therefore, before the USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 Water Quality Certification from the RWQCB. Applications to the RWQCB must include a complete CEQA document (e.g., Initial Study/Mitigated Negative Declaration).

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

Section 1602 of the California Fish and Game Code 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 will 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 will determine if the proposed project may impact fish or wildlife resources. If the CDFW determines that a proposed project may substantially adversely affect existing fish or wildlife resources, a Lake or Streambed Alteration Agreement (SAA) will be required. A completed CEQA document must be submitted to CDFW before a SAA will be issued.