APPENDIX H

Jurisdictional Delineation Report

Coachella Valley Stormwater Chanel Improvement Project
Phase I Of Alternative 5

City Of Coachella And Community Of Thermal
Riverside County, California

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26 January 2016

Amec Foster Wheeler Project No. 322520070

JURISDICTIONAL DELINEATION REPORT

COACHELLA VALLEY STORMWATER CHANNEL IMPROVEMENT PROJECT
PHASE I OF ALTERNATIVE 5

CITY OF COACHELLA AND COMMUNITY OF THERMAL
RIVERSIDE COUNTY, CALIFORNIA

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ACRONYMS AND ABBREVIATIONS

Amec Foster Wheeler	Amec Foster Wheeler Environment and Infrastructure, Inc.
BMSL	below mean sea level
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CVSC	Coachella Valley Stormwater Channel
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
GIS	Geographic Information System
IP	Individual Permit
MSHCP	Multiple Species Habitat Conservation Plan
NEPA	National Environmental Policy Act
NL	not listed
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OBL	obligate
OHWM	ordinary high water mark
Rapanos	Rapanos v. U.S. and Carabell v. U.S.
RPW	relatively permanent waterway
RWQCB	Regional Water Quality Control Board
SWANCC	Solid Waste Agency of Northern Cook County v. USACE
TNW	traditionally navigable waterway
UPL	upland
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture, Natural Resources Conservation Service
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
WSC	Waters of the State of California
WUS	Waters of the United States

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1.0 INTRODUCTION

The Coachella Valley Water District is proposing to undertake the Coachella Valley Stormwater Channel Improvement Project (proposed project). Terra Nova Planning and Research, Inc. retained Amec Foster Wheeler Environment and Infrastructure, Inc. (Amec Foster Wheeler) to determine the potential for impacts to jurisdictional waters from the development of the proposed project.

This report presents regulatory framework, methods, and results of a delineation of jurisdictional waters, wetlands, and associated riparian habitat potentially impacted by the development of the proposed project. The purpose of the delineation is to determine the extent of state and federal jurisdiction within the project area potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Porter Cologne Water Quality Control Act, and California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code.

1.1 Project Description

The proposed project entails Phase I of Alternative 5 of the Coachella Valley Stormwater Channel Improvement Project and may include the following:

1. Construction of concrete-lined channel/levee banks and a fully concrete-lined channel from Airport Boulevard to the Thermal Drop Structure, near Avenue 58,
2. Modification of the existing Thermal Drop Structure, and
3. Improvement of the levees (construct above-grade concrete barriers) upstream of Airport Boulevard to the vicinity of Avenue 54.

1.2 Project Location

The study area encompasses 281 acres and is located in the city of Coachella and on lands in the unincorporated community of Thermal, Riverside County, California (Figure 1). It is located along the Coachella Valley Stormwater Channel (CVSC) from just north of 54th Avenue south to 58th Avenue. It is generally bound by Highway 86 to the east and Highway 111 to the west. Specifically, it is located within Sections 10, 15, and 22 of Township 6 South, Range 8 East, as shown on the Indio, California, United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 2). The geographic coordinates near the middle of the site are 33.64209° North latitude and 116.13661° West longitude.

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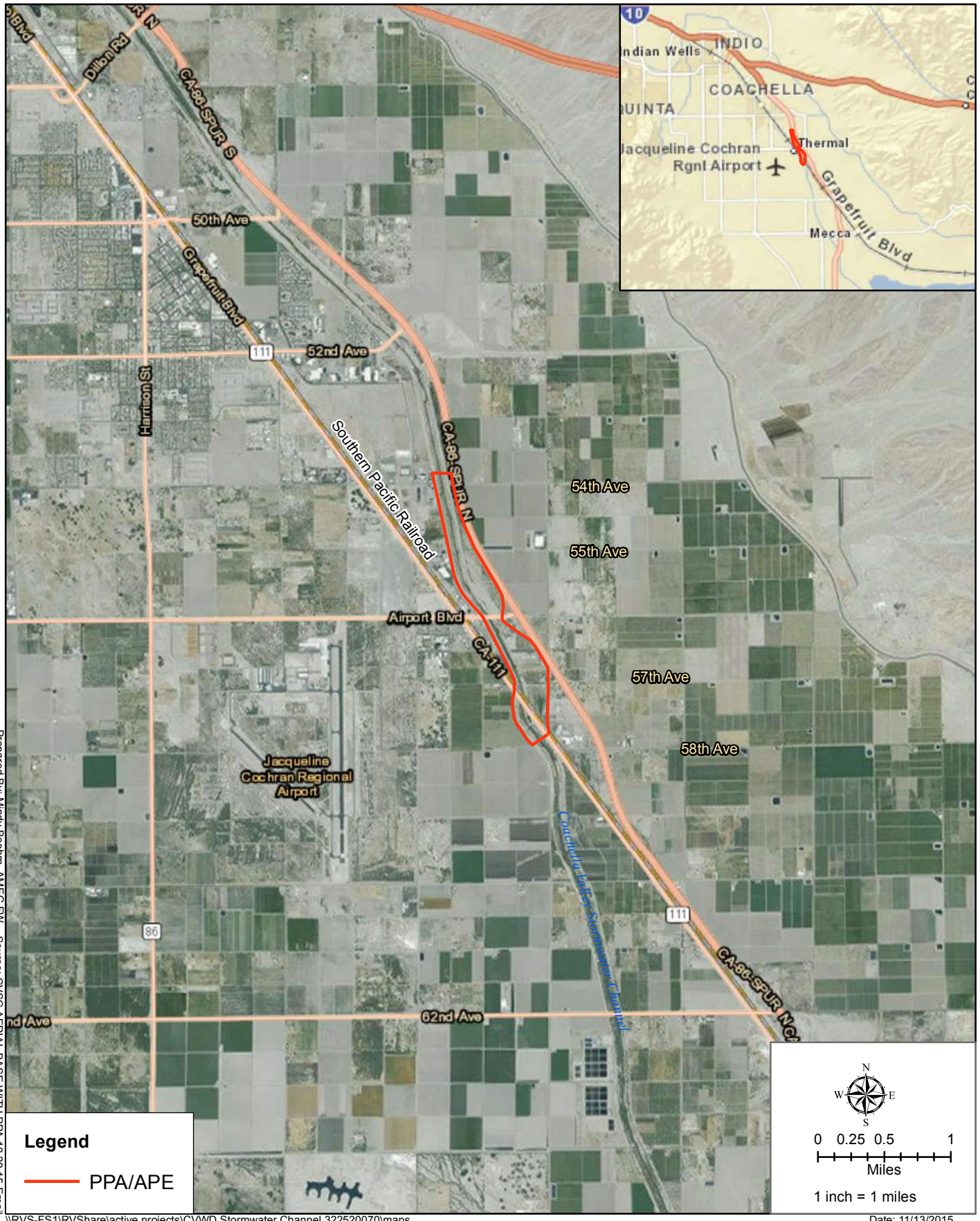

Prepared By: Mindy Beohm, AMEC FW Source: CVSC AERIAL BASE WITH PPA 10.29.15 Email

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Vicinity & Location
Coachella Valley Stormwater Channel Improvement Project - Phase 1

FIGURE
1

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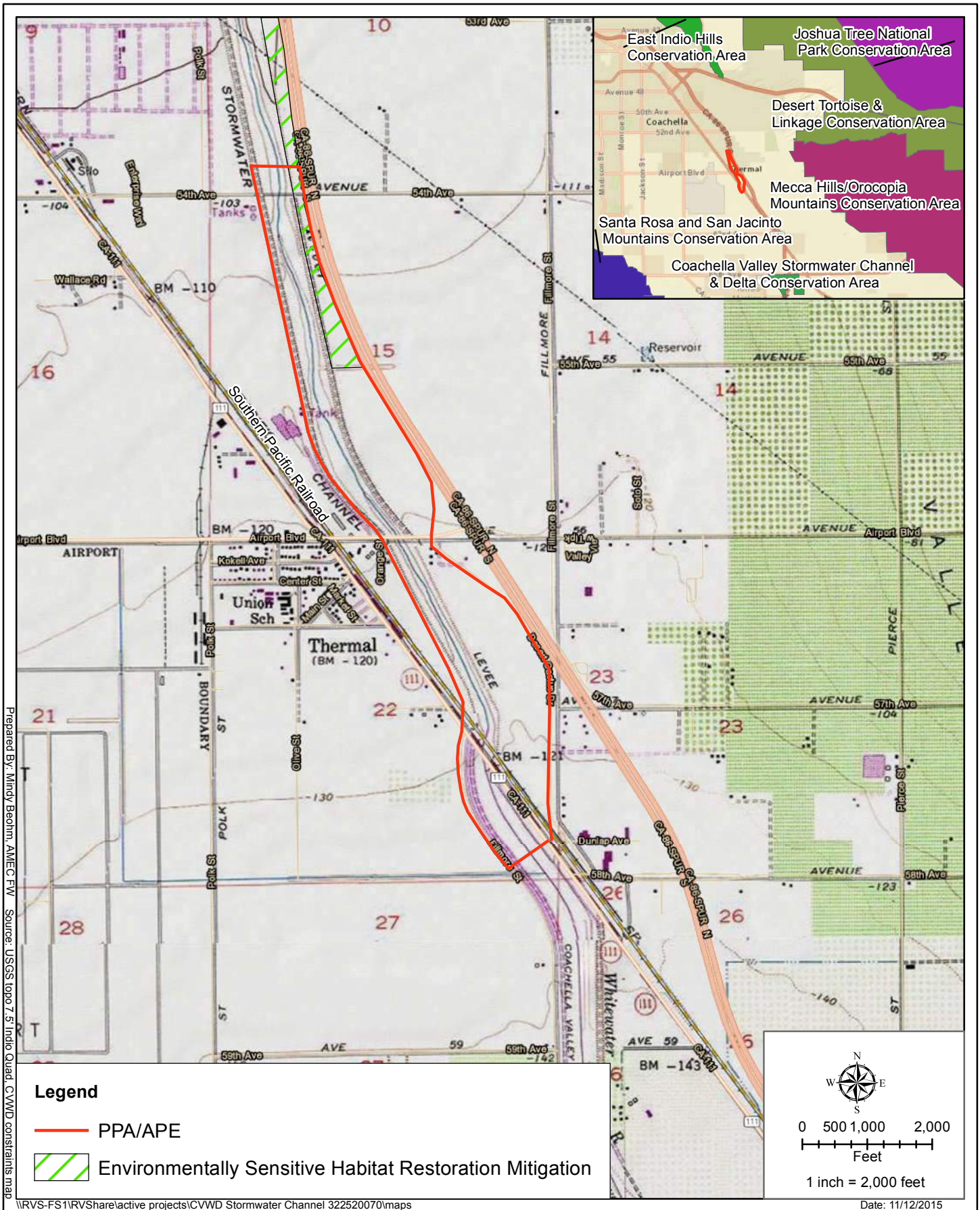

Prepared By: Mindy Beohm, AMEC FW Source: USGS topo 7.5' Indio Quad, CVWD constraints map

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Site Topography & Relationship to Conservation Areas
Coachella Valley Stormwater Channel Improvement Project - Phase 1

FIGURE 2

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2.0 ENVIRONMENTAL SETTING

2.1 Existing Conditions

The study area occurs along a channelized portion of the CVSC. It exhibits an earthen bottom and gently-sloping earthen banks. There is a vertically-incised low flow channel in the middle containing flowing water. The area of streambed adjacent to the low-flow channel and the banks have been recently scraped of all vegetation as part of channel maintenance. The low-flow channel is densely vegetated with willow riparian forest and freshwater marsh.

Surrounding land uses includes a patchwork of commercial buildings and single-family rural residential dwellings, agriculture, and undeveloped lands, some of which have been previously disturbed.

Elevations within the study area range from approximately 100 feet below mean sea level (BMSL) at the northern end of the study area where the CVSC enters the site, to 130 feet BMSL at the southern end where the CVSC exits the site.

2.2 Hydrology

The average rainfall for the area is 2.96 inches per year and the average snowfall is 0 inches per year (Western Regional Climate Center, 2015). Weather data was recorded at the Jacqueline Cochran Regional Airport, approximately 1.5 miles west of the project site.

Runoff from the site and upstream hydrology flows through the study area for 2.2 miles. After exiting the study area, the CVSC flows south for 10 miles before reaching the Salton Sea.

2.3 Vegetation

The study area is dominated by arrow-weed scrub, coastal and valley freshwater marsh, desert saltbush scrub, mesquite hummocks, Sonoran cottonwood-willow riparian forest, tamarisk scrub, salt grass flats, and developed areas consisting of agricultural areas, rural residences and urban development. Vegetation nomenclature follows The Jepson Manual, Vascular Plants of California, 2nd Edition (Baldwin, 2012). When The Jepson Manual does not list a common name, common name nomenclature follows the United States Department of Agriculture, Natural Resources Conservation Service (USDA) Plants Database (USDA, 2016a).

2.4 Soils

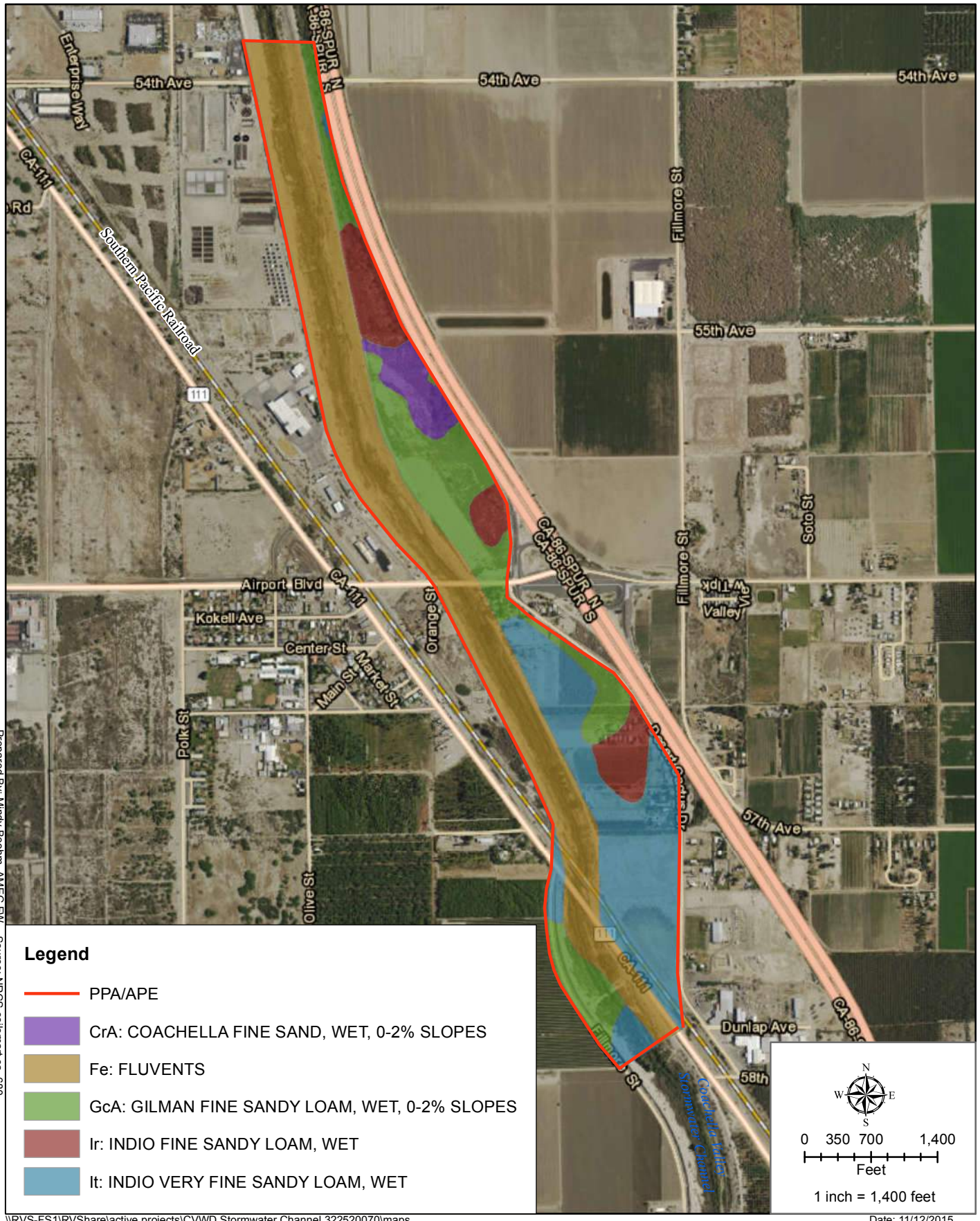
The USDA online Web Soil Survey (based on the *Riverside County, Coachella Valley Area, California, Soil Survey*) (Soil Survey Staff, 2016) was reviewed to determine the soil types mapped as occurring within the study area. Soils within the study area occur on alluvial fans and floodplains. These moderately well drained soils developed in alluvium. The study area crosses five different soil types (Figure 3) including:

- Coachella fine sand, wet (CrA) – This moderately well drained soil occurs on alluvial fans with 0 to 2 percent slopes. It is composed of fine sand in the top 11 inches and stratified sand to loamy fine sand below. The parent material is composed of alluvium derived from igneous rock.
- Fluvents (Fe) – This nearly level soil occurs in the Whitewater River Channel. It generally occurs in floodplains between 0 to 2 percent and the parent material is composed of alluvium. The top 30 inches is composed of sand with gravelly sand below. A majority of the on-site watercourse occurs in this soil type. This is the only on-site soil type found on the National List of Hydric Soils (USDA, 2016b).
- Gilman fine sandy loam, wet (GcA) – This moderately well drained soil occurs on alluvial fans with 0 to 2 percent slopes. It is composed of fine sandy loam on the surface and stratified loamy sand to silty clay loam below and the parent material is composed of alluvium.
- Indio fine sandy loam, wet (Ir) – This moderately well drained soil occurs on alluvial fans with 0 to 2 percent slopes. It is composed of fine sandy loam on the surface and very fine sandy loam below and the parent material is composed of alluvium.
- Indio very fine sandy loam, wet (It) – This moderately well drained soil occurs on alluvial fans with 0 to 2 percent slopes. It is composed of very fine sandy loam and the parent material is composed of alluvium.

2.5 National Wetlands Inventory

The United States Fish and Wildlife Service (USFWS) is the principal Federal agency that provides information to the public on the extent and status of the Nation's wetlands. The USFWS has developed a series of maps, known as the National Wetlands Inventory (NWI) to show wetlands and deepwater habitat. This geospatial information is used by Federal, State, and local agencies, academic institutions, and private industry for management, research, policy development, education, and planning activities. The NWI program was neither designed nor intended to produce legal or regulatory products; therefore, wetlands identified by the NWI program are not the same as wetlands defined by the USACE.

The NWI Mapper (USFWS, 2016) was accessed online to review mapped wetlands within the project study area. No NWI wetlands were identified. The nearest NWI wetland is located approximately 350 feet north of the northern end of the study area within the low-flow channel of the CVSC and is classified as a palustrine, unconsolidated bottom, permanently flooded, excavated wetland (PUBHx).



Prepared By: Mindy Beohm, AMEC FW Source: NRCS soilsmart ca 680

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Date: 11/12/2015

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Soils Map
Coachella Valley Stormwater Channel Improvement Project - Phase 1

FIGURE 3

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3.0 REGULATORY FRAMEWORK

3.1 U.S. Army Corps of Engineers

The USACE regulates the discharge of dredged or fill material in waters of the United States (WUS) pursuant to Section 404 of the CWA.

3.1.1 Waters of the U.S.

CWA regulations (33 CFR 328.3(a)) define WUS as follows:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as WUS under the definition;
5. Tributaries of WUS;
6. The territorial seas;
7. Wetlands adjacent to WUS (other than waters that are themselves wetlands).

The USACE delineates non-wetland waters in the Arid West Region by identifying the ordinary high water mark (OHWM) in ephemeral and intermittent channels (USACE, 2008a). The OHWM is defined in 33 CFR 328.3(e) as:

> "…that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses 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."

Identification of OHWM involves assessments of stream geomorphology and vegetation response to the dominant stream discharge. Determining whether any non-wetland water is a jurisdictional WUS involves further assessment in accordance with the regulations, case law, and clarifying guidance as discussed below.

3.1.2 Wetlands and Other Special Aquatic Sites

Wetlands are defined 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. Wetlands generally include swamps, marshes, bogs, and similar areas."

Special aquatic sites are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. Special aquatic sites include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes. They are defined in 40 CFR 230 Subpart E.

3.1.3 Supreme Court Decisions

3.1.3.1 Solid Waste Agency of Northern Cook County

On January 9, 2001, the Supreme Court of the United States issued a decision on Solid Waste Agency of Northern Cook County v. USACE, et al. (SWANCC) with respect to whether the USACE could assert jurisdiction over isolated waters. The ruling stated that the USACE does not have jurisdiction over "non-navigable, isolated, intrastate" waters.

3.1.3.2 Rapanos/Carabell

In the 2006 Supreme Court cases of Rapanos v. United States and Carabell v. United States (herein referred to as Rapanos), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the Court. In light of the Rapanos decision, the USACE will assert jurisdiction over a traditional navigable waterway (TNW), wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are a relatively permanent waterway (RPW) where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a "significant nexus" with a TNW: non-navigable tributaries that are not RPWs, wetlands adjacent to non-navigable tributaries that are not RPWs, and wetlands adjacent to but that do not directly abut a non-navigable RPW.

A significant nexus determination includes an assessment of flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary. This assessment is to indicate whether they significantly affect the chemical, physical and biological integrity of downstream TNWs. Analysis of potentially jurisdictional streams includes

consideration of hydrologic and ecologic factors. The consideration of hydrological factors includes volume, duration, and frequency of flow, proximity to traditional navigable waters, size of watershed, average annual rainfall, and average annual winter snow pack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

3.2 Regional Water Quality Control Board

The RWQCB regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters. Through the Porter Cologne Water Quality Control Act, the RWQCB asserts jurisdiction over Waters of the State of California (WSC) which is generally the same as WUS, but may also include isolated waterbodies. The Porter Cologne Act defines WSC as “surface water or ground water, including saline waters, within the boundaries of the state”.

3.3 California Department of Fish and Wildlife

The CDFW regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states:

> “An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake (CDFW, 2015).”

Evaluation of CDFW jurisdiction followed guidance in the Fish and Game Code and *A Review of Stream Processes and Forms in Dryland Watersheds*. In general, under 1602 of the Fish and Game Code, CDFW jurisdiction extends to the maximum extent or expression of a stream on the landscape (CDFW, 2010). It has been the practice of CDFW to define a stream as “a body of water that flows perennially or episodically and that is defined by the area in a channel which water currently flows, or has flowed over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators” (Brady and Vyverberg, 2013). Thus, a channel is not defined by a specific flow event, nor by the path of surface water as this path might vary seasonally. Rather, it is CDFW’s practice to define the channel based on the topography or elevations of land that confine the water to a definite course when the waters of a creek rise to their highest point.

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4.0 METHODS

Prior to conducting delineation fieldwork, the following literature and materials were reviewed:

- Aerial photographs of the project site at a scale of 1:4800 with 1-foot elevation contours to determine the potential locations of jurisdictional waters or wetlands;
- USGS topographic map (Figure 2) to determine the presence of any "blue line" drainages or other mapped water features;
- USDA soil mapping data (Figure 3); and
- USFWS NWI maps to identify areas mapped as wetland features.

Field surveys of the study area were conducted by Amec Foster Wheeler biologist Scot Chandler on 18 December 2015. Surveys consisted of walking the entire study area and identifying potentially jurisdictional water features. Visual observations of vegetation types and changes in hydrology were used to locate areas for evaluation. Weather conditions during delineation fieldwork were conducive for surveying with generally clear skies.

USACE regulated WUS, including wetlands, and RWQCB WSC, were delineated according to the methods outlined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE, 2008a). The extent of WUS was determined based on indicators of an OHWM. The OHWM width was measured at points wherever clear changes in width occurred.

Federally regulated wetlands were identified based on the *Wetlands Delineation Manual* (USACE, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2008b). Additional data was recorded to determine if an area fulfilled the wetland criteria parameters. Three criteria must be fulfilled in order to classify an area as a wetland under the jurisdiction of the USACE: 1) a predominance of hydrophytic vegetation, 2) the presence of hydric soils, and 3) the presence of wetland hydrology. Details of these criteria are described below:

- **Hydrophytic Vegetation.** The hydrophytic vegetation criterion is satisfied at a location if greater than 50% of all the dominant species present within the vegetation unit have a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) (USACE, 2008b). An OBL indicator status refers to plants that almost always occur in wetlands. A FACW indicator status refers to plants that usually occur in wetlands, but may occur in non-wetlands. A FAC indicator status refers to plants that occur in wetlands and non-wetlands. Other wetland indicator statuses include facultative upland (FACU) which refers to plants that usually occur in non-wetlands, but may occur in wetlands, upland (UPL) for species that almost never occur in wetlands, and NL for plants that are not listed on the National Wetland Plant List. The wetland indicator status used for this report follows the 2013 National Wetland Plant List (Arid West Region) (Lichvar, 2014).

- **Hydric Soils**. The hydric soil criterion is satisfied at a location if soils in the area can be inferred or observed to have a high groundwater table, if there is evidence of prolonged soil saturation, or if there are any indicators suggesting a long-term reducing environment in the upper part of the soil profile. Reducing conditions are most easily assessed using soil color. Soil colors were evaluated using the Munsell Soil Color Charts (Gretag/Macbeth, 2000).
- **Wetland Hydrology.** The wetland hydrology criterion is satisfied at a location based upon conclusions inferred from field observations that indicate 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 the root zone (USACE, 1987 and 2008b).

Areas meeting all three parameters were designated as USACE wetlands. Site photographs and wetland delineation data sheets are included as Appendix A and Appendix B, respectively.

CDFW jurisdiction was delineated by measuring the elevations of land that confine a stream to a definite course when its waters rise to their highest level and to the extent of associated riparian vegetation.

To determine jurisdictional boundaries, the surveyor walked the length of the drainage within the project area and recorded the centerline with a Trimble GeoXH global positioning system. The width of the drainage was determined by the OHWM and bankfull width measurements at locations where transitions were apparent. Other data recorded included bank height and morphology, substrate type, and all vegetation within the streambed and riparian vegetation adjacent to the streambed. Upon completion of fieldwork, all data collected in the field were incorporated into a Geographic Information System (GIS) along with basemap data. The GIS was then used to quantify the extent of jurisdictional waters.

Upstream and downstream connectivity of waterways was reviewed in the field and on aerial photographs and topographic maps to determine jurisdictional status according to the CWA, SWANCC, and Rapanos. Ephemeral washes with a physical connection to the Salton Sea were determined to be potential WUS as well as WSC and CDFW streambeds.

5.0 RESULTS

The study area contains one jurisdictional drainage identified as the CVSC. The Jurisdictional Delineation Map (Figure 4a and 4b) identifies all on-site jurisdictional drainages and includes the photo point locations and direction the photo was taken. Table 1 includes a list of waterways identified in the project area, their jurisdictional status and area of jurisdiction, Cowardin classification, and length of waterway within the project study area.

The USACE, in combination with the Environmental Protection Agency (EPA), when necessary, reserves the ultimate authority in making the final jurisdictional determination of WUS and the RWQCB reserves the ultimate authority in making the final jurisdictional determination of WSC. Additionally, CDFW has ultimate discretion in the determination of their jurisdiction.

Table 1
Summary of Jurisdictional Areas

Drainage ID	Wetland WUS (acres)	Non-Wetland WUS (acres)	WSC (acres)	CDFW Jurisdiction (acres)	Length (feet)	Latitude/ Longitude	Cowardin Class	Class of Aquatic Resource
Coachella Valley Stormwater Channel	3.6	71.2	74.8	114.5	11,574	33.64208/ -116.13715	PUBHx	non-section10 wetland

WUS – Waters of the United States
WSC – Waters of the State of California
CDFW – California Department of Fish and Wildlife
PUBHx – palustrine, unconsolidated bottom, permanently flooded, excavated based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).

5.1 Coachella Valley Stormwater Channel

The CVSC is shown on Figure 4a and 4b and in Appendix A, Photos 1 through 8. The CVSC enters the study area through the northern boundary and flows for approximately 11,574 feet before exiting the site through the southern boundary. The entire on-site extent of the CVSC has been channelized. There is a meandering low-flow channel in the middle exhibiting flowing water. The entire low-flow channel contains USACE wetlands. The banks of the low-flow channel were vertically-incised and approximately 5 feet deep. On either side of the low-flow channel is nearly level streambed that was recently mowed. Adjacent to the streambed are steeply-sloping manicured banks that average 100 feet wide on either side and are approximately 20 feet deep. USACE jurisdiction included the entire channel bottom and CDFW jurisdiction was mapped to the top of the bank.

Prior to delineation fieldwork, the entire streambed and banks had been mowed with the exception of the low-flow channel. The only vegetation observed on the banks and upper streambed was saltgrass (*Distichlis spicata*, FAC). The low-flow channel was densely vegetated with Goodding's black willow (*Salix gooddingii*, FACW), *saltcedar (*Tamarix*

* denotes non-native species

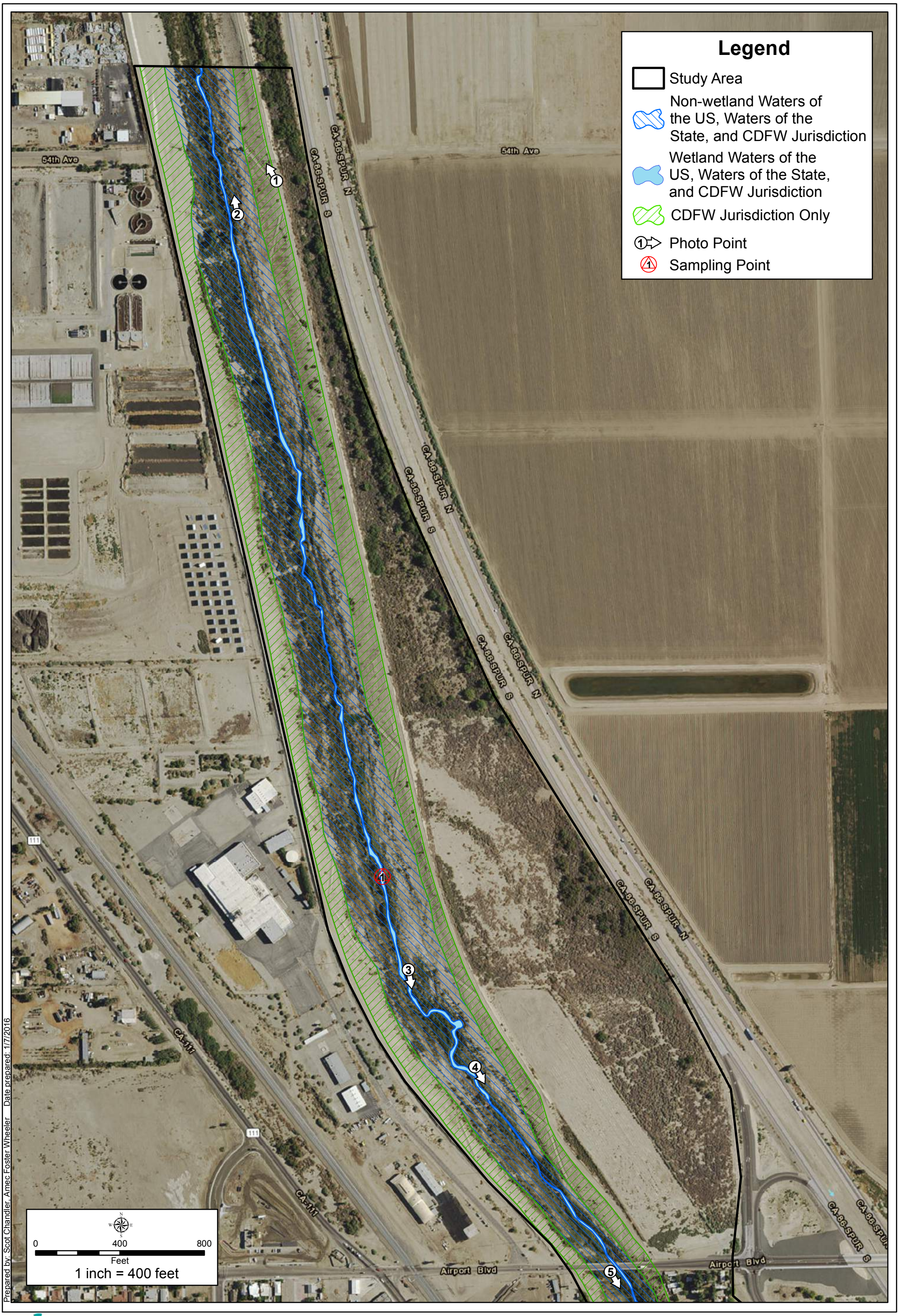
ramosissima, NL), cattail (*Typha* sp., OBL), and *giant reed (*Arundo donax*, FACW). Non-dominant vegetation included big saltbush (*Atriplex lentiformis*, FAC). The area south of Highway 111 was also dominated by floating marshpennywort (*Hydrocotyle ranunculoides*, OBL) and arrow-weed (*Pluchea sericea*, FACW).

The presence of USACE wetlands was investigated by recording the soil and hydrology characteristics and vegetation at two sampling points within the low-flow channel of the CVSC. The sampling point locations are shown on Figures 4a and 4b and the Wetland Determination Data Forms are included in Appendix B. Both sampling points exhibited wetland characteristics. Hydrophytic vegetation is present in the form of Gooding's black willow, cattails, and giant reed. Wetland hydrology is supplied by perennial waters within this portion of the CVSC likely emanating from wastewater treatment plants and agricultural runoff. Hydric soils, however, were not present (10Y 3/1). This is likely due to a problematic hydric soils situation due to the presence of alkaline soils. In accordance with Section 5 of the Arid West Supplement, in cases of problematic hydric soils, soils that do not meet any of the standard indicators are still determined to meet the hydric soil definition if additional requirements are met. The procedure for identifying problematic hydric soils was only used when indicators of both hydrophytic vegetation and wetland hydrology was present but hydric soil indicators were not evident. Due to the alkalinity of the soil and the position of the low-flow channel in the landscape, which likely collects or concentrates water, the soils were considered a problematic hydric soil and therefore considered hydric.

5.2 Jurisdictional Determination

The subject reach of the CVSC is an intermittent stream that likely flows for more than 3 months per year. Therefore, the USACE will likely classify the CVSC as an RPW. The CVSC flows into the Salton Sea approximately 10 miles from the study area and exhibits both physical surface channel connectivity and hydrologic connectivity with the Salton Sea. The Salton Sea is classified as a TNW as a result of a Supreme Court decision (Colvin v. United States). Therefore, the USACE will likely consider the CVSC to be jurisdictional under the CWA.

The USACE is ultimately responsible for jurisdictional determinations, and this report has been prepared to provide the necessary information to assist the USACE with that determination. An Approved Jurisdictional Determination could be requested of the USACE to provide an analysis to determine if the CVSC has a "significant nexus" to the Salton Sea, and is therefore a jurisdictional WUS. Otherwise the project proponent can request a Preliminary Jurisdictional Determination in which the USACE assumes jurisdiction over the CVSC, and process permits accordingly.



Prepared by: Scot Chandler, Amec Foster Wheeler Date prepared: 1/7/2016

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Jurisdictional Delineation Map (North)

Coachella Valley Stormwater Channel Improvement Project

FIGURE 4A

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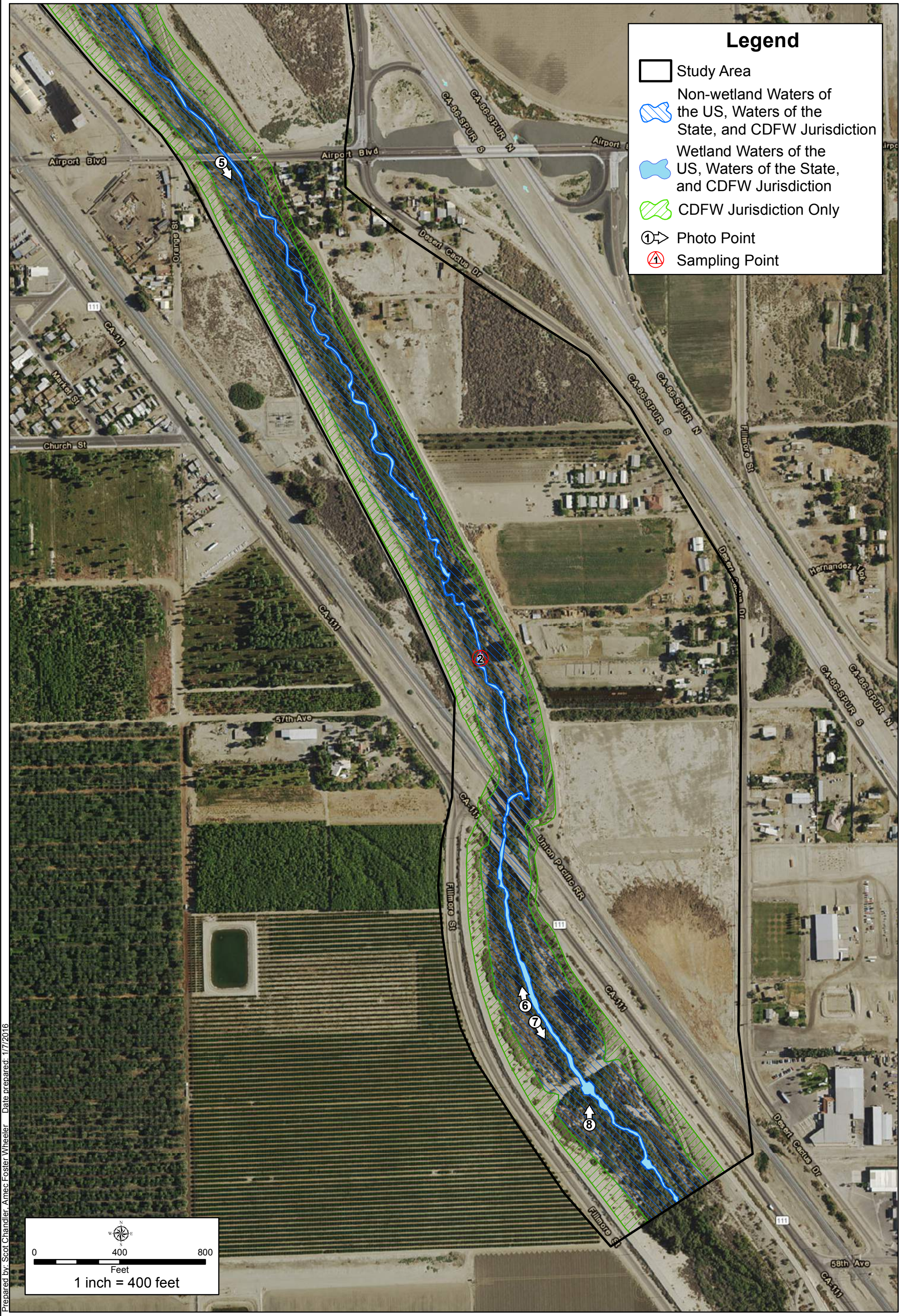

Prepared by: Scot Chandler, Amec Foster Wheeler Date prepared: 1/7/2016

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Jurisdictional Delineation Map (South)

Coachella Valley Stormwater Channel Improvement Project

FIGURE 4B

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6.0 IMPACTS TO JURISDICTIONAL AREAS

The Phase I, Alternative 5 plan was overlaid on the jurisdictional delineation boundary using GIS to determine the extent of impacts to jurisdictional areas. The channel may be concrete lined and all jurisdictional waters within the study area could be permanently impacted.

6.1 Permitting Requirements

The channel improvement project is likely to result in permanent impacts to a jurisdictional drainage and therefore, authorizations from the USACE, RWQCB, and CDFW will, in all likelihood, be required as described below.

6.1.1 U.S. Army Corps of Engineers

The two most common types of permits issued by USACE under Section 404 of the CWA to authorize the discharge of dredged or fill material into WUS are: a nation-wide permit (NWP) or an individual permit (IP).

Nationwide Permit
NWPs are general permits for specific categories of activities that result in minimal impacts to aquatic resources.

NWP 43 can be used for stormwater management facilities. This NWP authorizes the construction of new stormwater management facilities including stormwater detention and retention basins, water control structures, outfall structures, emergency spillways, and low impact development integrated management features such as vegetated filter strips and grassed swales. The discharge must not cause the loss of greater than ½ acre WUS, including the loss of no more than 300 linear feet of streambed , unless for intermittent and ephemeral streambeds the district engineer waives the 300 linear feet limit by making a written determination concluding that the discharge will result in minimal adverse effects. The permittee must submit a pre-construction notification to the USACE district engineer prior to commencing the activity. The proposed project may qualify under NWP 43 if the district engineer waives the 300 foot limit and the ½ acre limit.

Individual Permit
For project impacts that do not meet the provisions of an existing NWP, the USACE would require an IP. An IP requires detailed analysis and compliance with the USACE formal review process. This process includes preparation of an alternatives analysis as required by EPA Section 404(b)(1) Guidelines and the National Environmental Policy Act (NEPA), and requires compliance with NEPA's environmental review process. This process provides opportunities for public notice and comment.

The USACE must comply with the federal Endangered Species Act and Section 106 of the National Historic Preservation Act when issuing a NWP or IP.

6.1.2 Regional Water Quality Control Board

The project area is within the jurisdiction of the Colorado River RWQCB (Region 7). Under Section 401 of the CWA, the RWQCB must certify that the discharge of dredged or fill material into WUS does not violate state water quality standards.

The RWQCB also regulates impacts to WSC under the Porter Cologne Water Quality Control Act through issuance of a Construction General Permit, State General Waste Discharge Order, or Waste Discharge Requirements, depending upon the level of impact and the properties of the waterway.

The project proponent would need to obtain a Water Quality Certification. In addition to the formal application materials and fee (based on area of impact), a copy of the appropriate California Environmental Quality Act (CEQA) documentation must be included with the application.

6.1.3 California Department of Fish and Wildlife

A 1602 Streambed Alteration Agreement is required for all activities that alter streams and lakes and their associated riparian habitat. Therefore, the project proponent would need to obtain a Streambed Alteration Agreement. In addition to the formal application materials and fee (based on cost of the project), a copy of the appropriate CEQA documentation must be included with the application.

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APPENDIX A

SITE PHOTOGRAPHS

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Photo 1 – View of the Whitewater River facing upstream near the north end of the study area.

Photo 2 – View of the wetland area within the low flow channel of the Whitewater River.

Photo 3 – Downstream-facing perspective of the wetland area in the low flow channel of the Whitewater River.

Photo 4 – View of the Whitewater River north of the Airport Boulevard Bridge.

Photo 5 – View of the Whitewater River facing downstream taken from the Airport Boulevard Bridge.

Photo 6 – Upstream-facing perspective of previously burned area within the Whitewater River channel.

Photo 7 – Downstream-facing perspective taken south of the Highway 111 crossing.

Photo 8 – View of the Thermal drop structure.

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APPENDIX B

WETLAND DETERMINATION DATA FORMS

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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: CV Stormwater Channel City/County: Coachella/Riverside Sampling Date: 18 Dec 2015
Applicant/Owner: Coachella Valley Water District State: CA Sampling Point: SP1
Investigator(s): Scot Chandler Section, Township, Range: 15/T6S/R8E
Landform (hillslope, terrace, etc.): Low flow channel Local relief (concave, convex, none): none Slope (%): 2%
Subregion (LRR): LRR D Lat: 33.64726 Long: -116.14064 Datum: Nad 83
Soil Map Unit Name: Fluvents (FE) NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil Yes, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	100	Yes	FACW
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

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

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Hydrophytic vegetation criteria met.

SOIL

Sampling Point: SP1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10Y 3/1		none				Silt	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Dense roots throughout.

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Hard to dig due to dense roots. Problematic soils occur due to high alkalinity. Therefore soil is hydric due to wetland veg & hydrology and landscape position that collects water.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1-3'

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

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

Remarks: Wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: CV Stormwater Channel City/County: Coachella / Riverside Sampling Date: 18 Dec 2015
Applicant/Owner: Coachella Valley Water District State: CA Sampling Point: SP2
Investigator(s): Scot Chandler Section, Township, Range: Sec 22 / T6S / R8E
Landform (hillslope, terrace, etc.): Low flow Channel Local relief (concave, convex, none): None Slope (%): 2 1%
Subregion (LRR): LLR D Lat: 33.63560 Long: -116.13335 Datum: NAD 83
Soil Map Unit Name: Fluvents (FE) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil Yes, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Typha sp.	50	Yes	OBL
2. Arundo donax	50	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

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

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Hydrophytic vegetation present.

SOIL Sampling Point: SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10Y 3/1		none				Silt	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Problematic soils occur due to high alkalinity. Soil is considered hydric due to presence of wetland veg and hydrology and landscape position that collects water.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes X No ~~X~~ Depth (inches): 1-3'

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

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

Remarks:

wetland hydrology present.