APPENDIX A

AQUATIC RESOURCES DELINEATION REPORT

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Aquatic Resources Delineation Report

USMCA Mitigation of Contaminated Transboundary Flows Project

Prepared for:

United States Environmental Protection Agency
Office of Wastewater Management
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An ERG sister company
PG Environmental, LLC (Subcontractor to ERG)

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(Continued)

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ABBREVIATIONS, ACRONYMS, AND SYMBOLS

CBP	United States Customs and Border Protection
CCA	California Coastal Act
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
cfs	cubic feet per second
CWA	Clean Water Act
EPA	United States Environmental Protection Agency
ERG	Eastern Research Group, Inc.
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FFA	flood frequency analysis
GCSB	Goat Canyon Sediment Basin
GPS	Global Positioning System
HUC	Hydrologic Unit Code
USIBWC	United States Section of the International Boundary and Water Commission
ITP	South Bay International Wastewater Treatment Plant
LCP	Local Coastal Program
MLRA	Major Land Resource Area
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OHWM	ordinary high water mark
OHW	ordinary high water
PEM	Palustrine Emergent
PFO	Palustrine Forested
PG	PG Environmental
PSS	Palustrine Scrub-Shrub
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
TNW	Traditional Navigable Water
TRF	Tijuana River Floodway
UPL	Upland
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USMCA	United States–Mexico–Canada Agreement
WOTUS	waters of the U.S.

EXECUTIVE SUMMARY

This report presents the results of a delineation of aquatic resources, including wetlands and waters of the United States (WOTUS), wetlands and waters of the state, and wetlands in the coastal zone. The delineation was conducted on an approximately 336-acre area (Delineation Area) of land in San Diego County, California, which encompasses lands owned by the County of San Diego, the City of San Diego, and the U.S. International Boundary and Water Commission (USIBWC). The delineation was conducted by PG Environmental (PG) (under subcontract to Eastern Research Group, Inc. [ERG]) to assist the United States (U.S.) Environmental Protection Agency (EPA) in evaluating the environmental impacts of the United States–Mexico–Canada Agreement (USMCA) Mitigation of Contaminated Transboundary Flows Project (Project). Based on the field investigations and supporting desktop analyses, PG identified 11 non-wetland waters as defined by the ordinary high water mark (OHWM) (covering 122.09 acres and 12,431 linear feet), seven wetland features (8.56 acres), and 0.05 acres of other features in the Delineation Area. These features may be subject to several jurisdictions (and their authorities).

1. INTRODUCTION

PG Environmental (PG) conducted an aquatic resources survey (under subcontract to Eastern Research Group, Inc. [ERG]) to assist the United States (U.S.) Environmental Protection Agency (EPA) in evaluating the environmental impacts of the United States–Mexico–Canada Agreement (USMCA) Mitigation of Contaminated Transboundary Flows Project (Project), located in San Diego County, California (Figure 1-1). EPA is evaluating multiple project options to support a forthcoming analysis of the Project in accordance with the National Environmental Policy Act. To support the alternatives analysis and impact assessment, PG delineated aquatic resources on a combined 336 acres (Delineation Area, Figure 1-2 and Figure 1-3), situated north of the U.S.-Mexico border, within the Tijuana River Valley. This aquatic resource delineation report describes the location and setting of the Delineation Area, methods, and findings on the identification and mapping of wetlands and non-wetland waters principally subject to the following jurisdictions (and their authorities): U.S. Army Corps of Engineers (USACE) (Clean Water Act [CWA] Section 404); Regional Water Quality Control Board (RWQCB) (CWA Section 401 and the Porter-Cologne Water Quality Control Act); and California Coastal Commission (CCC) (California Coastal Act [CCA]). Aquatic resources subject to California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Section 1600 of the California Fish and Game Code were not mapped as part of the assessment, which does not preclude such resources from CDFW regulatory authority.

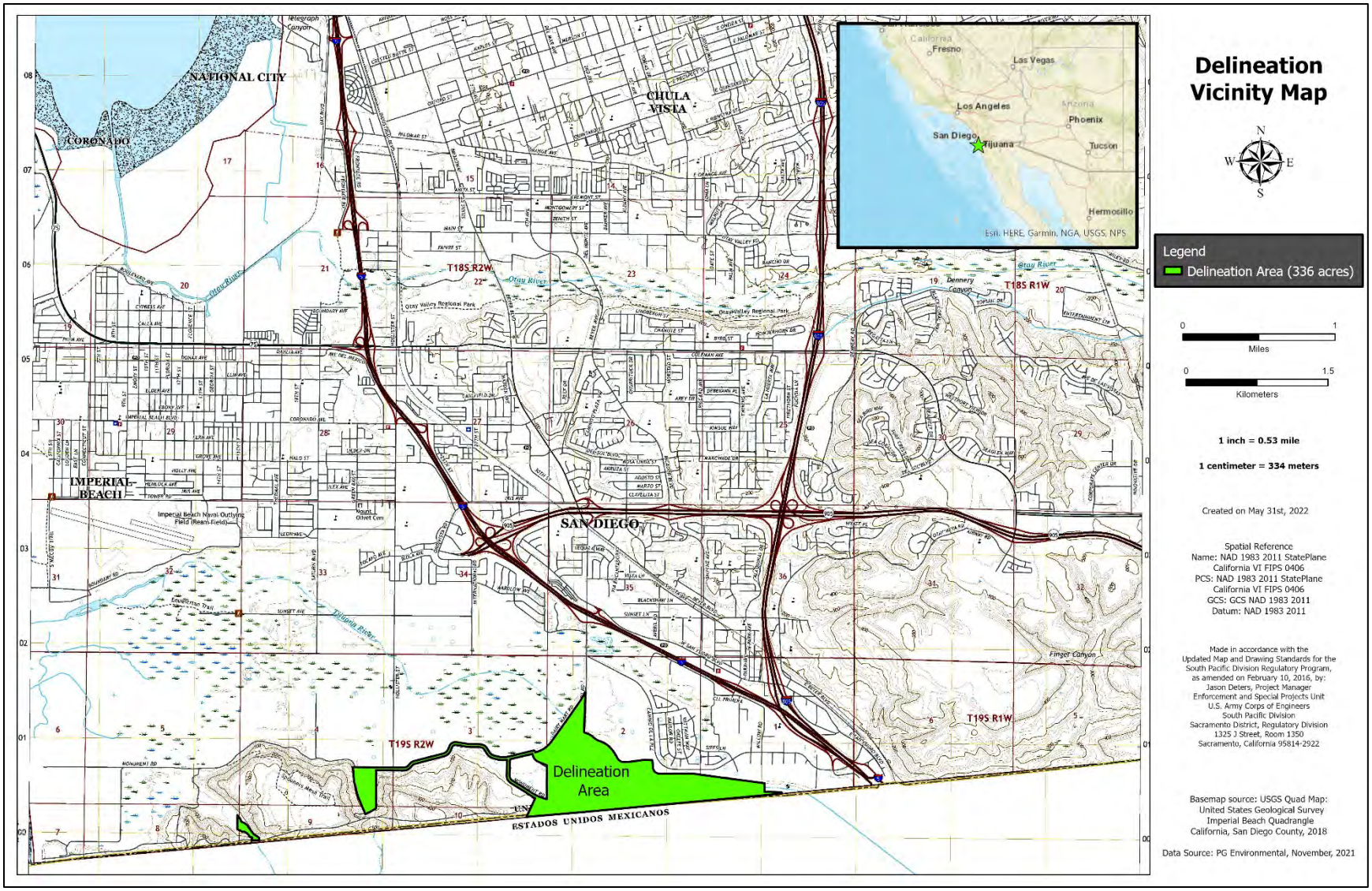

Figure 1-1. Delineation Area Vicinity

Figure 1-2. Delineation Area Site Map (East)

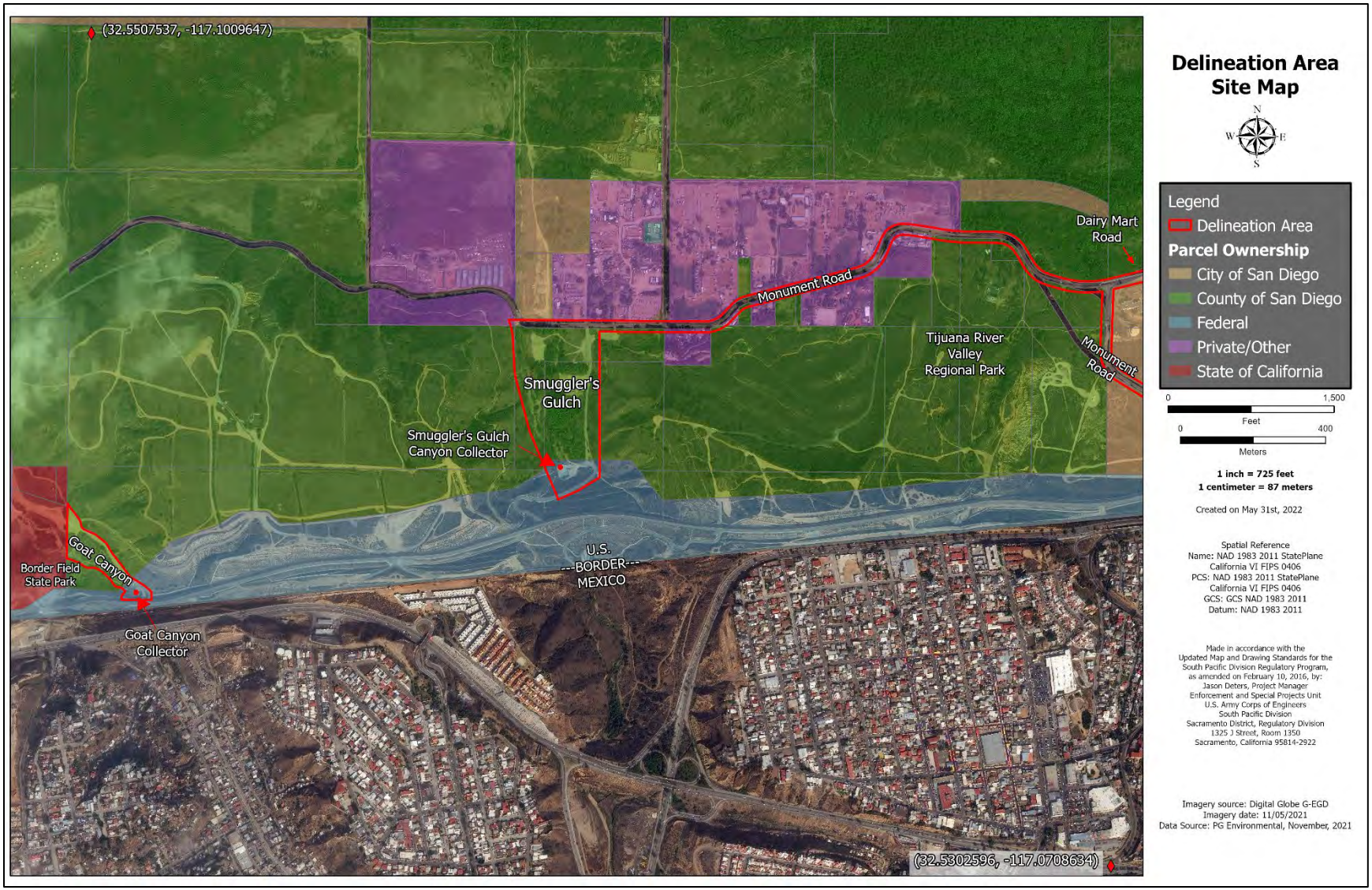

Figure 1-3. Delineation Area Site Map (West)

2. LOCATION AND SETTING

2.1 Location

The Delineation Area is located in Sections 2, 3, 4, 9, 10, 11 Township 19 South, Range 2 West in San Diego County, California (Figure 1-2), and ranges in elevation between 30 and 100 feet above sea level. The approximate center is located in UTM Zone 11S, NAD 83; 493031m E, 3600960m N; (Latitude: 32.545991, Longitude: -117.074225). The entirety of the Delineation Area falls within the U.S. Geological Survey (USGS) Imperial Beach, California Quadrangle (Figure 1-1). The Delineation Area falls under multiple land ownerships—including the County of San Diego, City of San Diego, and the U.S. International Boundary and Water Commission (USIBWC). Generally, the Delineation Area is located roughly 2 miles inland of the Pacific Ocean and encompasses the Tijuana River Floodway (TRF) and adjacent South Bay International Wastewater Treatment Plant (ITP), as well as areas adjacent to Dairy Mart Road, Monument Road, Smuggler's Gulch (north of Mexico), and the lower portion of Goat Canyon north of the U.S.-Mexico border (Figure 1-2).

The surrounding vicinity includes the Tijuana River Valley Regional Park and the Tijuana River Estuary to the north, the district of San Ysidro to the east, Spooners Mesa and Border Field State Park to the west, and the City of Tijuana, Mexico to the south. Portions of federally designated critical habitat for the federally listed endangered species least Bell's vireo (*Vireo belli pusillus*) overlap a portion of the Delineation Area and extends north into the Tijuana River Valley Regional Park.

2.2 Climate

The Delineation Area falls within the Southern California Coastal Plain—Major Land Resource Area (MLRA); the southern portion of this MLRA, near San Diego, contains narrow coastal plain between the Pacific Ocean and the Vallecito Mountains. This area is characterized by a semi-arid climate with warm, dry summers and cool winters. Elevations in the area range from sea level to 1,970 feet. Average precipitation in this area is 10 to 29 inches, with most rainfall occurring as low-or moderate-intensity Pacific frontal storms during winter. Temperature and rainfall patterns vary based on elevation, distance from the coast, and other factors. Average annual temperature is 55 to 66 degrees Fahrenheit (NRCS 2006). The normal average annual precipitation in the vicinity of the Delineation Area, as characterized by the Natural Resources Conservation Service (NRCS) Climate Analysis for Wetlands Tables (WETs), is 9.94 inches (NRCS 2021a). Average annual rainfall, as measured at the USIBWC facilities, between 2000 and 2020, is 8.93 inches. The San Diego County Water Authority[1] reports that current (2021) rainfall totals are below normal, following two years of above-normal rainfall totals (San Diego County Water Authority 2022). The Palmer Drought Severity Index[2] for the Delineation Area vicinity during October 2021 was rated as -1.0 and -2.0 or "abnormally dry" (Abatzoglou et al. 2022).

2.3 Watershed

The Delineation Area falls entirely within the Tijuana River Watershed (Hydrologic Unit Code [HUC] 8: 18070305), which drains over 1,750 square miles (1,120,000 acres) of land with

[1] See https://www.sdcwa.org/your-water/reservoirs-rainfall/rainfall/.

[2] See https://wrcc.dri.edu/wwdt/index.php?region=ca.

approximately 27 percent of the watershed in the U.S., and 73 percent in Mexico (USACE 2018a). The Tijuana River originates in Mexico, formed by its major tributaries the Río de las Palmas and the Cottonwood-Alamar system before crossing into the U.S. The watershed is bounded by the Laguna Mountains in the northeast, the Sierra Juárez Mountains in the south, and the Pacific Ocean to the west.

The U.S. portion of the Tijuana River was historically intermittent, characterized by prolonged dry periods of very low to zero surface water flows—particularly during the dry season—and flows mainly occurring during the rainy season, which begins as early as October and ends as late as April (Safran et al. 2017). Major storm events resulted in high and flashy flows that inundated much of the river valley, resulting in highly variable channel morphology and channel positions. The flashy nature of the river is also partially attributed to high infiltration rates in the sandy and porous riverbed, which precludes persisting surface flows.

Major alterations of flows in the watershed began during the late 1800s with the expansion of agricultural practices in the Tijuana River Valley that led to groundwater pumping for irrigation and in the early 1900s with the construction of dams and water storage reservoirs (Safran et al. 2017). Five dams regulate flow in the Tijuana River tributaries, including Barrett Dam and Morena Dam on Cottonwood Creek in the U.S. and Rodriguez Dam, Las Auras Dam, and El Carrizo Dam in Mexico., all of which control flows from approximately 73 percent of the watershed. The Rodriguez Dam in Mexico controls flows from approximately 56 percent of the watershed and provides the primary water supply for the City of Tijuana (Safran et al. 2017).

The volume and frequency of water flowing through the Tijuana River Valley has been and continues to be influenced by wastewater releases, in addition to agricultural and urban runoff. Following completion of the Tijuana River Flood Control Project in 1979, which channelized flows through 10 miles of concrete-lined levees extending from downstream of the Rodriguez Dam to the U.S.-Mexico border, portions of the Tijuana River became increasingly perennial from urban runoff and sewage releases. The Tijuana River hydrology became more intermittent during the early 1990s with the implementation of wastewater treatment and management, including construction of a diversion system upstream of the U.S.-Mexico border, which diverts river water during low flows to the Tijuana sewer system. Flow volumes and the downstream extent of flows are further driven by underlying geology, groundwater, surface vegetation, and climate. Low flows may be entirely infiltrated before reaching the Tijuana River Estuary, while at other times, an unconfined aquifer below the river valley may contribute to groundwater seepage into the Tijuana River, sustaining periods of flow even during periods of low rain (Parsons 2005).

2.4 Vegetation and Wetland Habitats

The landscape of the Delineation Area consists of a broad floodplain associated with the Tijuana River Valley, high mesas and deep canyons that support a mixture of native and non-native vegetation communities, and a moderate density of roads and development. Stillwater Sciences evaluated the vegetation community alliances within the Delineation Area during reconnaissance surveys conducted in April 2021. During this effort, Stillwater mapped areas where vegetation data were not previously available and updated existing vegetation mapping (i.e., Vegetation Classification and Mapping Program [VegCAMP] from 2016 and Vegetation Classification Manual for Western San Diego County from 2011). The Delineation Area primarily consists of vegetation alliances common to coastal southern California including chaparral, sage scrub, grasslands, and ruderal vegetation communities. Riparian and wetland habitats are confined to natural and human-influenced waterways, which include the Tijuana River and several unnamed tributaries and dry

washes. The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping program identifies riverine habitats associated with the Tijuana River and its tributaries (i.e., Smuggler's Gulch and Goat Canyon Creek) and wetland habitats associated with the Tijuana River, as shown in Figure 2-1 and Figure 2-2.

Figure 2-1. Tijuana River Floodplain NWI Data

Figure 2-2. Smuggler's Gulch and Goat Canyon NWI Data

2.5 Soils

The U.S. Department of Agriculture (USDA) NRCS mapped 11 soil series within the Delineation Area, as summarized below in Table 2-1 and shown in Figure 2-3, Figure 2-4, and Figure 2-5 (NRCS 2021b).

Table 2-1. NRCS Soil Map Units in the Delineation Area

Location	Soil Map Symbol	Map Unit Name	Slope Class	Drainage	Runoff
ITP and adjacent to Dairy Mart Road and Monument Road	VbB	Visalia gravelly sandy loam	2-5%	Well drained	Very low
	ChA	Chino fine sandy loam	0-2%	Moderately well drained	Medium
	OhC	Olivenhain cobbly loam	2-9%	Well drained	Very high
	OhE	Olivenhain cobbly loam	9-30%	Well drained	Very high
	OhF	Olivenhain cobbly loam	30-50%	Well drained	Very high
	VaA	Visalia sandy loam	0-2%	Well drained	Very low
Tijuana River main channel (upstream of Dairy Mart Road)	ChA	Chino fine sandy loam	0-2%	Moderately well drained	Medium
	CkA	Chino silt loam, saline	0-2%	Moderately well drained	Low
	TuB	Tujunga sand	0-5%	Somewhat excessively drained	Negligible
Smuggler's Gulch	Rm	Riverwash	0-4%	Excessively drained	Negligible
	VaA	Visalia sandy loam	0-2%	Well drained	Very low
	TeF	Terrace escarpments	N/A	N/A	N/A
Goat Canyon	Rm	Riverwash	0-4%	Excessively drained	Negligible
	CkA	Chino silt loam, saline	0-2%	Moderately well drained	Low
	TeF	Terrace escarpments	N/A	N/A	N/A

Source: NRCS, 2021b.

Figure 2-3. Tijuana River Floodplain Soil Data

Figure 2-4. Smuggler's Gulch and Monument Road Soil Data

Figure 2-5. Goat Canyon Soil Data

3. REGULATORY FRAMEWORK

3.1 U.S. Army Corps of Engineers

Section 404 of the CWA is a federal law administered by the USACE and the EPA to protect the physical, biological, and chemical integrity of waters of the U.S. (WOTUS). USACE is the primary Regulatory Program authority and enforces Section 404 of the CWA. Under Section 404, a permit is required for the discharge or dredge of fill material into WOTUS. The EPA and USACE (collectively the "agencies"), under order of the U.S. District Court for the District of Arizona vacating and remanding the Navigable Waters Protection Rule in the case of *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency* (2021), are currently interpreting the definition of WOTUS consistent with pre-2015 regulatory rulings until further notice. Under pre-2015 regulatory definition and practice, the statutes under the CWA that define the jurisdictional limits of federal wetlands and waters are interpreted by Supreme Court rulings *Solid Waste Agency of Northern Cook County v. USACE* (2001), *Rapanos v. United States* (2006), and *Carabell v. United States* (2006) (the latter two of which are jointly referred to as the *Rapanos* decision). Under these rulings, and as summarized in a guidance document, *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States and Carabell v. United States* (2008) which is commonly referred to as the 2008 Guidance (USACE and EPA 2008), the agencies assert jurisdiction over the following waters:

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

Further, the agencies will decide jurisdiction on a case-by-case basis to determine if they have a significant nexus with a TNW:

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

Wetlands are defined as "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that normally do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include marshes, swamps, bogs, and similar areas" (Environmental Laboratory 1987). "Adjacent" in the rulings means bordering, contiguous, or neighboring. Wetlands separated from other WOTUS by man-made dikes or barriers, natural river berms, or beach dunes are considered "adjacent wetlands."

Navigable waters of the U.S. are defined as "those Waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce" (33 CFR § 329.4). Navigable waters include the open ocean, tidal bays, salt marshes, and some large rivers and lakes. The upstream limit of a navigable river is the head of navigation as designated by USACE (33 CFR § 329.4).

Further, as outlined in the 2008 Guidance, USACE generally will not assert jurisdiction over the following features: swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow) and ditches (including roadside ditches) excavated wholly in and draining only uplands, as these features are generally not considered tributaries, or they do not have a significant nexus to a downstream navigable waters. In applying the significant nexus standard, the agencies may consider the flows and functions of a tributary together with the functions performed by adjacent wetlands adjacent to a tributary.

3.2 California Water Quality Control Boards

The Porter-Cologne Water Quality Control Act (Water Code, Section 13000 et seq.) charges the State Water Resources Control Board (SWRCB) and the nine RWQCBs with protecting water quality throughout California. The SWRCB and the RWQCBs, in conjunction with USACE, administer Section 401 of the CWA (33 United States Code 1341) in relation to permitting fill of federally jurisdictional waters. Additionally, beyond the federal jurisdiction delegated under the CWA, the SWRCB and the RWQCBs may exert regulatory authority over waters of the state, which are defined in Section 13050(e) of the Porter-Cologne Water Quality Control Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." This definition may include isolated wetlands and other waters that may be outside of federal jurisdiction, which may be subject to waste discharge requirements.

Under the *State Policy for Water Quality Control: State Wetland Definition and Procedures for the Discharges of Dredged or Fill Material to Waters of the State* (SWRCB Procedures) (SWRCB 2021), SWRCB defines a wetland as follows: *(1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.*

The following wetlands are considered "waters of the state":

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state, and
3. Artificial wetlands that meet the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the landscape; or
    c. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more purposes (wastewater treatment, sediment ponds, stormwater detention subject to regulation under municipal, construction, or industrial permitting programs, agricultural crop or stock watering, fire suppression, industrial processing/cooling, active surface mining.

The SWRCB Procedures describe a jurisdictional framework for aquatic features that meet the current, or any historic definition, of a wetland. The SWRCB relies on wetland area determinations that are verified by USACE following the methods described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and regional supplements. The methods described are accepted for delineation of wetlands but modified only to allow for the fact that the

lack of vegetation does not preclude the determination of an area meeting the definition of a wetland. Aquatic features that do not meet the definition of a wetland may still be regulated as a non-wetland water of the state (e.g., lakes, streams, and ocean waters) but the SWRCB Procedures do not include guidance for jurisdictional determinations for other waters of the state.

3.3 California Department of Fish and Wildlife

The CDFW is responsible for protecting and conserving fish and wildlife resources, and the habitats upon which they depend. Under Sections 1600-1607 of the Fish and Game Code, the Lake and Streambed Alteration Program reviews projects that would alter any river, stream, or lake. Under Fish and Game Code Section 1602, any person, state or local government, or public utility must notify CDFW prior to beginning any activity that would: 1) divert or obstruct natural flow of any river, stream, or lake, 2) change bed, channel, or bank of any river, stream, or lake, 3) use material from any river, stream, or lake, or 4) deposit or dispose of material into any river, stream, or lake. Areas within CDFW jurisdiction include riparian habitats associated with watercourses, where "riparian habitat" is not defined in the statute (Title 14, Section 1.72) but typically refers to vegetation associated with a stream channel. The limits of jurisdiction include ephemeral, intermittent, and perennial watercourses and include the outermost edge of riparian vegetation or the top of bank of streams or lakes, whichever is wider, Generally, CDFW jurisdiction is often extended to include areas that exhibit any one of the three wetland indicators (vegetation, soils, or hydrology).

3.4 California Coastal Commission

Waters that occur within the "coastal zone" are regulated under the CCA and the federal Coastal Zone Management Act of 1972 and are within the jurisdiction of the CCC. The CCC administers the Coastal Development Permit (CDP) program, for any portion of a proposed project located on tidelands, submerged lands, public trust lands, or lands located within the Coastal Zone where a Local Coastal Program (LCP) has not been certified. A key provision of the CCA is the requirement that local governments draft LCPs to guide coastal zone development, conservation, and planning. Once an LCP is approved by the CCC, the review authority for new development transfers from the CCC to the local authority, with the exception of certain geographic areas including submerged lands and public trust lands (County of San Diego 2018). The CCC also retains appellate authority over specified categories of development. The primary tool for implementing the LCP is the CDP. Development within the coastal zone generally may not commence until a CDP has been issued either by the CCC or—if the LCP has been approved—by the local authority. The entirety of the Delineation Area falls within the Coastal Zone and is within the City of San Diego LCP.

3.5 County of San Diego

The County of San Diego asserts jurisdiction over wetland areas based upon the County's Resource Protection Ordinance (RPO). Wetlands are defined under the RPO as lands having one or more of the following characteristics (San Diego County Code Section 86.602): 1) at least periodically, the land supports a predominance of hydrophytes (plants whose habitat is water or very wet places); 2) the substratum is predominantly undrained hydric soil; or 3) an ephemeral or perennial stream is present, whose substratum is predominantly non-soil and such lands contribute substantially to the biological functions or values of wetlands in the drainage system.

4. METHODS

4.1 Desktop Investigations

Prior to visiting the Delineation Area, PG reviewed USFWS NWI maps, USGS topographical maps, the National Hydrography Dataset, aerial imagery (Google Earth and Digital Globe), rainfall data, WETS Tables, streamflow data reported from the USIBWC, and prior studies and reports which include the following:

- Tijuana River Vegetation Control Draft Environmental Assessment (USBP 2017)
- Phase 1 Hydrology, Floodplain and Sediment Transport Report, Final (USACE 2018a)
- Tijuana River Valley Needs and Opportunities Assessment – Flood Technical Memorandum (HDR 2020)
- Environmental Impact Statement and Environmental Impact Report for the Goat Canyon Enhancement Project (SWIA 2001)
- Environmental Assessment for Rehabilitation of the Levee System in the Tijuana River Flood Control Project (IDEALS AGEISS 2016)
- Addendum to the Regional General Permit 53 Initial Study/Mitigated Negative Declaration (HELIX 2021)

The frequency and volume of flows within the Tijuana River are largely driven by upstream human controls and modifications within the Tijuana River watershed, including the construction and/or management of upstream dams, channelization, and flow diversions. These impacts, in addition to vegetation management practices within the Tijuana River floodplain influence the development and persistence of ordinary high water mark (OHWM) geomorphic and vegetation indicators. Further, the reliance on OHWM indicators for delineation of ephemeral and intermittent waters in arid systems can be problematic, as described by Lichvar et al. (2006) and Lichvar and McColley (2008) due to the transitory nature of indicators following different discharge events. A characteristic random distribution of OHWM indicators within the active floodplain of arid west channels is particularly evident in systems driven by flashy discharges; moderate (five- to 10-year, or larger) events may form the limits of the active floodplain, whereas smaller, more frequent events (one- to three-year events) are typically confined to the low-flow/bankful channel. Consequently, geomorphic ordinary high water (OHW) indicators may form across the active floodplain following more frequent, smaller events and then be removed following moderate events with new ones forming as water recedes (Lichvar et al. 2006).

Procedures for delineation of OHWM in the Arid West are 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* (OHWM Field Guide) (Lichvar and McColley 2008), which include preliminary delineation steps for gaged and un-gaged streams in the arid west. For gaged streams, the preliminary delineation process involves using a statistic software program to conduct a flood frequency analysis (FFA) and developing a stage discharge rating curve to correlate stage height to a specific discharge event. The statistically derived probabilities are then used to guide field delineation efforts by aligning the stage height associated with the most recently recorded discharge exceeding a five-year event. The USIBWC manages a stream gage in the Tijuana River in the U.S. (located near the U.S.-Mexico border), which records daily discharges within the floodplain. Streamflow data are available for the period 1962 through 2022, and flow stage data are available from 2000 through 2022. For the Tijuana River, the availability of long-term flow data from USIBWC and hydrologic modeling results from a USACE study. *Phase 1 Hydrology, Floodplain and Sediment Transport Report* (Phase 1 Hydrological Study) (2018) allowed PG to implement a

combined analysis using hydrologic modeling, review of aerial imagery, and field observations to delineate the lateral extents of waters in the Tijuana River floodplain.

As part of a Phase 1 Hydrological Study, USACE acquired annual peak flow data from USIBWC recorded from 1962 through 2015 (2008 through 2015 are corrected values) (USACE 2018a). USACE calculated discharge volumes using the statistical software, HEC-SSP, to implement a FFA using the Bulletin 17B procedures and generated inundation maps using a 1D-2D HEC-RAS model for two-year through 100-year flood events (USACE 2018a). PG used the same annual maximum peak flow values from the Phase 1 Hydrological Study period of record and incorporated annual peak flow data from the USIBWC gage for 2016 through 2021. Using the statistical software HEC-SSP (Version 2.3) developed by USACE (USACE 2021), PG performed an annual peak FFA following Bulletin 17B guidelines to determine discharge frequencies for two-, five-, 10-, and 20-year events (USGS 1982). PG compared the resulting discharge volumes by recurrence interval and the discharge frequency curve to the Phase 1 Hydrological Study findings and found that the computed probability flow for a two-, five-, 10-, and 20-year event were reasonably similar (Table 4-1).

Table 4-1. Computed Discharge Frequency Relationship for Tijuana River

n-Year Flood Event	Computed Probability Flow (cfs)	
	Phase 1 Hydrological Study [a]	PG Analysis
2-Year	1,070	1,315
5-Year	4,710	5,376
10-Year	10,300	10,952
20-Year	19,700	19,530
50-Year	41,100	37,101
100-Year	67,100	56,703

a – (USACE 2018).

In the absence of stage height data for the period of record, PG relied on flood inundation modeling from the 2018 USACE study to approximate stage height (by feet of inundation) for a five-year and 10-year discharge event. Using a five-year event inundation model as a baseline to support field delineation efforts, PG georeferenced the five-year inundation map and approximated the extents of the active floodplain on aerial imagery. PG also reviewed available aerial imagery from Google Earth and Digital Globe to identify imagery that was captured immediately following a two-year, five-year, or 10-year discharge event. Lastly, PG reviewed the USIBWC gage flow hydrographs from the past 10 years, which shows that cycles of alternating small discharge events (one- to two-year) and higher discharge events (five-, 10-, and 20-year) are occurring on more frequent intervals over the past 20 years.

There are no gages on Smuggler's Gulch or Goat Canyon Creek; therefore, PG relied on field indicators of an OHWM to delineate the limits of non-wetland waters at these locations, which is described in Section 4.3 (Basis of Jurisdiction).

4.2 Field Investigations

PG staff Esa Crumb, Zak Erikson, and Abraham Margo visited the Delineation Area on November 3 and 4, 2021 (2021 survey) to identify and delineate the limits of aquatic resources, including wetlands and non-wetland waters under federal, state, and/or local jurisdiction. During field investigations, PG collected information on site conditions and representative site photos

throughout the Delineation Area to characterize the range of aquatic resources, water infrastructure, vegetation communities, uplands, and soil features observed.

4.2.1 Wetland Determination

PG delineated wetlands following the guidance provided in the *Corps of Engineers Wetlands Delineation Manual* (USACE Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Regional Supplement) (USACE 2008). Potential wetlands as defined by the USACE Manual (1987) were evaluated using a three-parameter approach: dominance of hydrophytic vegetation, hydric soils, and wetland hydrology. The indicator status for vegetation was determined by the most current National Wetland Plant List (USACE 2018b) and using the nomenclature offered in the USDA NRCS PLANTS Database (NRCS 2021c). Vegetation communities were determined in areas present within the OHWM and/or bed and bank boundary, and the outer limits of adjacent riparian vegetation, following the classifications under Holland (1986) and Sawyer et al. (2009). Hydric soil determinations followed the guidance provided by the Regional Supplement (2008) and indicators described in *Field Indicators of Hydric Soils in the United States* (NRCS 2018).

Within the Tijuana River floodplain, PG collected wetland data points along three transect lines, following the protocol for delineation of areas greater than 5 acres in size (Environmental Laboratory 1987). Placement of transect lines were selected to be representative of the diversity of plant communities present within the river corridor that falls within the Delineation Area (Appendix A). A data point was recorded along a transect at each perceptible change in vegetation community type. Parameters including vegetation, soils, and hydrology were characterized and recorded onto data forms and the location was captured using a sub-meter global positioning system (GPS) unit. Additional wetland data points were collected for aquatic features in the Delineation Area to demonstrate presence or absence of wetland indicators and to assist with determination of wetland classification.

4.2.2 OHWM Determination

The limits of non-wetland waters were determined following the methods outlined in the OHWM Field Guide (as described above in Section 4.1 [Desktop Investigations]), which involved desktop investigations and statistical analyses to support the field delineation of waters within the Tijuana River floodplain and use of field indicators for other tributaries. The OHWM, defined by USACE as the "line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area." PG evaluated all linear water features for OHWM indicators to assist with delineation of the lateral extents of potential waters. Within the Tijuana River floodplain, PG staff walked the entirety of the floodplain and recorded OHWM indicators associated with the primary low-flow channel and floodplain onto OHWM datasheets at representative cross-sections. A similar approach was applied for the stream channels within Goat Canyon and Smuggler's Gulch—cross-sections were selected that best represented the overall characteristics of the channel and associated hydrogeomorphic indicators were recorded onto OHWM datasheets. Further, where indicators were apparent, PG recorded GPS points at the transition line between the low-flow channel, active floodplain, and low terrace for all linear aquatic features in the Delineation Area.

4.3 Basis of Jurisdiction

Federal jurisdictional status was evaluated following the 2008 Guidance issued under the pre-2015 regulatory definition and practice which include: 1) TNWs (i.e., (a)(1) waters) and their adjacent wetlands, 2) Relatively Permanent Non-Navigable Tributaries of Navigable Waters and Wetlands with a Continuous Surface Connection with Such Tributaries, and 3) Certain Adjacent Wetlands and Non-Navigable Tributaries that are not Relatively Permanent. In applying this guidance, PG evaluated the significant nexus of wetlands and non-wetland waters with TNWs, including identification of adjacent wetlands and characterization of flow and functions of a tributary and its effects on the chemical, physical, and biological integrity of downstream TNW. Other factors considered in this evaluation included documentation of volume, duration, and frequency of flows in a tributary and proximity to a TNW.

Waters of the state, under jurisdiction of the RWQCBs, were delineated considering the definitions offered under the Porter-Cologne Water Quality Control Act and the SWRCB Procedures, which include elements of the CWA Section 404(b)(1) guidelines. In the SWRCB Procedures, the RWQCBs direct that the methodologies used to determine federal jurisdiction (i.e., the USACE Manual [1987] and Regional Supplement [2008]) may be used to determine whether an area meets the state definition of a wetland. The methods can be modified to allow for the fact that lack of vegetation does not preclude the determination of area as meeting the definition of wetland.

Wetlands under potential jurisdiction of the CCC were delineated as defined in Section 30121 of the California Coastal Act and in CCC regulations at Title 14 Division 5.5 (15 California Code of Regulations § 13577). Wetlands are defined as "land where the water is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes." As such, the CCC's definition is based on the presence of two characteristics – wetland hydrology and either the presence of hydrophytic vegetation or formation of hydric soils. Further, CCC may assert jurisdiction based on the presence of one indicator unless there is evidence demonstrating that the indicator is not valid.

5. RESULTS

PG delineated seven wetland water features and 11 non-wetland water features within the Delineation Area, which are illustrated in Figure 5-1 and in the figures provided in Appendix A. Approximately 122.09 acres and 11,897 linear feet of non-wetland waters as determined by the OHWM extent were mapped within the Delineation Area. Approximately 8.56 acres of wetlands were delineated within the Delineation Area. Table 5-1 summarizes the wetlands and non-wetland water feature identified within the Delineation Area by Cowardin classification (Cowardin et al. 1979). For descriptive purposes – aquatic resource names are described in the table below based on the dominant water feature(s), which include the following categories: TRF, Smuggler's Gulch, Goat Canyon, unnamed tributaries to the Tijuana River, and other waters. Hydrologic data and figures are provided in Appendix B. Representative site photographs and their locations are provided in Appendix C. A total of 30 wetland data forms (Appendix D) and 11 OHWM forms (Appendix E) were completed to document the limits and characteristics of aquatic resources throughout the Delineation Area.

Table 5-1. Summary of Wetlands and Non-Wetland Waters in the Delineation Area

Name [a]	Cowardin Classification	Size (acres)	Length (linear feet)	Average Width (feet)	Jurisdiction
Wetland Waters					
PEM Wetland 1	Palustrine Emergent	1.00	N/A	N/A	USACE, state, CCC
PSS Wetland 2	Palustrine Scrub-Shrub	1.58	N/A	N/A	CCC
PFO Wetland 3	Palustrine Forested	2.56	N/A	N/A	CCC
PSS Wetland 4	Palustrine Scrub-Shrub	2.14	N/A	N/A	CCC
PEM Wetland 5	Palustrine Emergent	0.23	N/A	N/A	CCC
PSS Wetland 6	Palustrine Scrub-Shrub	0.07	N/A	N/A	CCC
SG Wetland	Palustrine Scrub-Shrub	0.98	N/A	N/A	USACE, state, CCC
Total Wetlands		**8.56**	**N/A**	**N/A**	
Non-Wetland Waters and Other Waters					
TRF	Riverine-Intermittent (R4)	117.85	7,899	444.8	USACE, state, CCC
Stewart's Drain	Riverine-Intermittent (R4)	1.63	609	177.3	USACE, state, CCC
SG Waters	Riverine-Intermittent (R4)	1.40	1,342	44.0	USACE, state, CCC
GC Main	Riverine-Intermittent (R4)	0.73	694	50.2	USACE, state, CCC
GC Trib 1	Riverine-Intermittent (R4)	0.01	32	3.0	USACE, state, CCC
MR Trib 1	Riverine-Intermittent (R4)	0.01	27	3.5	USACE, state, CCC
MR Trib 2	Riverine-Intermittent (R4)	0.01	26	7.5	USACE, state, CCC
Clearwater Swale 1	Riverine-Intermittent (R4)	0.08	213	15.8	USACE, state, CCC
Clearwater Ditch 1	Riverine-Intermittent (R4)	0.01	23	6.5	State, CCC
BS Ditch 1	Riverine-Intermittent (R4)	0.34	152	18.8	State, CCC
BS Ditch 2	Riverine-Intermittent (R4)	0.02	880	4.5	State, CCC
Total Waters		**122.09**	**11,897**		
Other Features					
Concrete channels	N/A	0.05	N/A	2	N/A
Total Other Features		**0.05**	**N/A**	**2**	

a – PEM = Palustrine emergent, PSS = Palustrine scrub-shrub, PFO = Palustrine forested, TRF = Tijuana River floodway, GC = Goat Canyon, SG = Smuggler's Gulch, MR = Monument Road, BS = border swale.

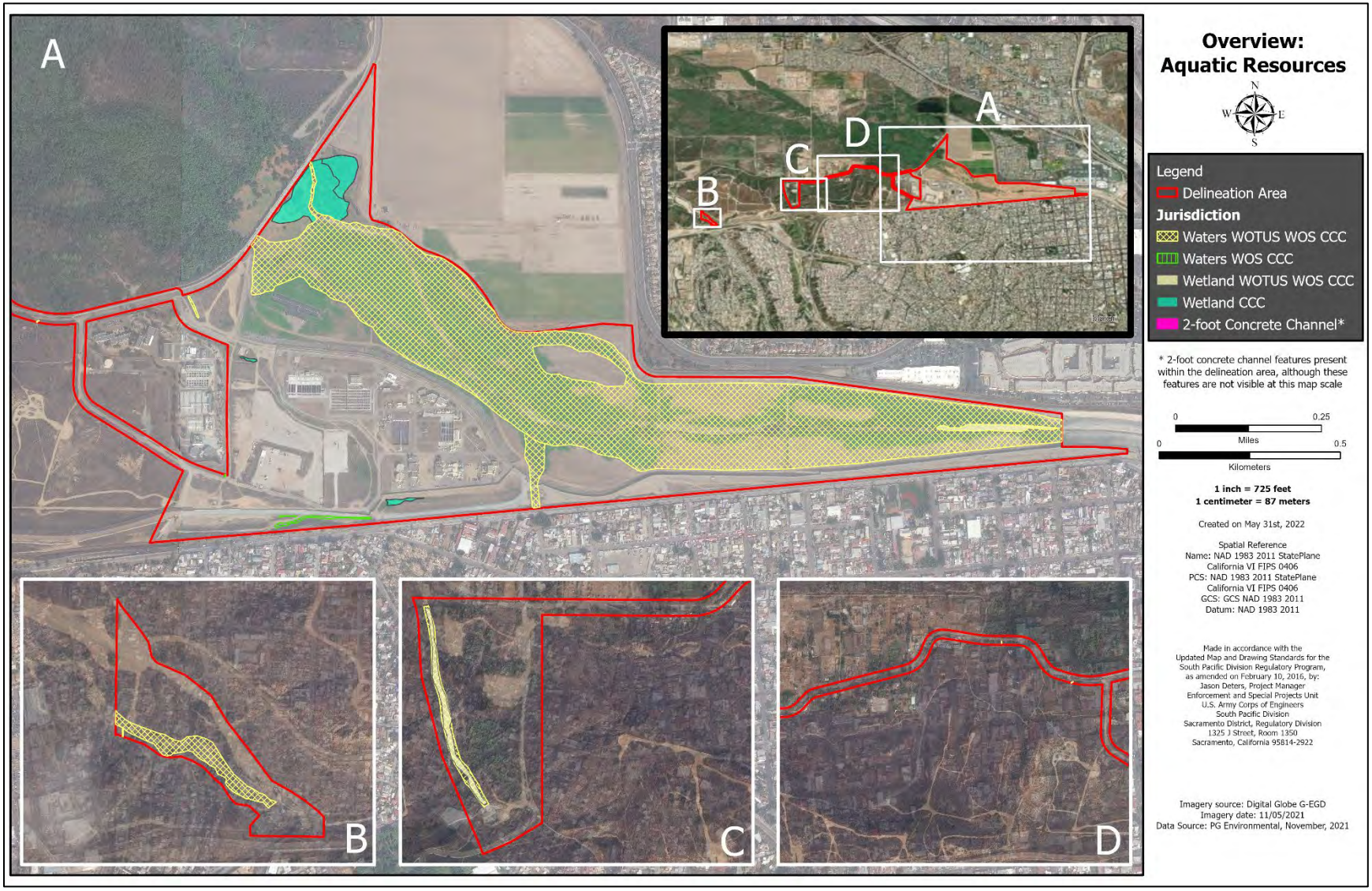

Figure 5-1. Aquatic Resources within the Delineation Area – Overview

5.1 Tijuana River Floodway

The Tijuana River segment of the Delineation Area encompasses the river and associated floodplain extending from the U.S.-Mexico Border and downstream to Dairy Mart Road and contained within flood control levees to the north and south. The entirely of the TRF within the Delineation Area is owned by the USIBWC and maintained by U.S. Customs and Border Protection (CBP). NWI mapping of this area identifies riverine intermittent (R4) habitats associated with the mainstem of the Tijuana River, and freshwater forested/scrub shrub and freshwater emergent wetlands mainly upstream of the Dairy Mart Road Bridge (Figure 2-1). These habitats were photograph interpreted using sub-meter true color imagery from 2005 (USFWS 2021). PG field staff field observations of aquatic resource characteristics and hydrologic data interpretation are described below.

5.1.1 Vegetation

Vegetation within the TRF is managed by CBP to preserve line of sight and improve visibility in accordance with a 1980 Memorandum of Understanding between CBP and USIBWC (CBP 2017). Vegetation clearing activities include mechanical removal methods such as disking, mowing, cutting of vegetation, and occasional use of heavy equipment to extract roots and non-native vegetation. Significant flood events within the TRF also contribute to surface disturbances – including vegetation clearing, scouring, and sediment deposition. Areas which undergo frequent vegetation clearing were dominated by non-native ruderal herbaceous/emergent species or were barren and devoid of vegetation cover at the time of the 2021 field survey. Vegetation clearing activities are restricted within an area immediately east of Dairy Mart Road, which is designated as critical habitat for least Bell's vireo. This area supports mature riparian forest and scrub-shrub communities, as described below.

The *Non-native grassland* community type dominates the floodplain terrace and areas that are managed for vegetation control. Dominant species include primarily annual ruderal species and non-native grasses including perennial rye grass (*Lolium perenne,* facultative [FAC]), Bermuda grass (*Cynodon dactylon,* facultative upland [FACU]), wild radish (*Raphanus sativas,* upland [UPL]), bull mallow (*Malva nicaeensis,* UPL), crown daisy (*Glebionis coronaria,* UPL), and sporadic occurrences of giant reed (*Arundo donax,* facultative wetland [FACW]) and castor bean (*Ricinus communis,* FACU). Generally, areas supporting this vegetation community type did not meet the hydrophytic vegetation indicators and lacked indicators of hydric soils. Perennial rye grass, a facultative species common to lowland areas with periodic flooding, disked fields, and uplands, was found throughout the floodplain. All other co-dominant species were common ruderal upland species of disturbed habitats in this region.

The *Coastal and Valley Freshwater Marsh* community type is confined to areas dominated by stands of giant reed (FACW) or other naturalized wetland plants and would be characterized as a palustrine emergent wetland by the Cowardin classification system (Cowardin et al. 1979). Areas supporting this vegetation community type are limited to a low terrace, situated below OHW, on the upstream end of the river (PEM Wetland 1, 1.00 acre). Soils at this location failed to meet hydric indicators (see transect [T] data point [DP] T1-DP3 in Appendix D). However, PG field staff delineated the wetland feature based on other characteristics including dominance of obligate and facultative wetland vegetation, primary hydrologic indicators, and geomorphic position (i.e., below OHW). Given the location of the wetland feature within the active/low-flow channel, wetland vegetation has likely established on recently deposited sediments that have not yet developed hydric soil indicators as discussed below in Section 5.1.4 (Difficult Wetland Situations in the Arid West). It is also likely that the extents of PEM Wetland 1 are temporal, as is true for other emergent

wetlands that may form within the active/low-flow channel of the Tijuana River within the Delineation Area.

The *Southern Willow Scrub* community type encompasses the riparian woodland east of Dairy Mart Road and adjacent to the main stem of the Tijuana River that is not actively managed for vegetation control. The dominant overstory cover consists of mature stands of Gooding's black willow (*Salix gooddingii,* FACW), with a sparse understory cover consisting mainly of mulefat (*Baccharis salicifolia,* FAC), giant reed (FACW), and castor bean (FACU). Debris, including trash and plant thatch, was dense throughout the understory which may preclude establishment of herbaceous cover. Soil evaluations yielded a lack of hydric indicators (see T3-DP3, T3-DP5 in Appendix D) and active primary hydrologic indicators were absent. This area may flood during a 10-year event based on inundation modeling and review of aerial imagery (see discussion below in Section 5.1.2 [Soils]). This area was classified as palustrine forested (PFO Wetland 3, 2.56 acres) by Cowardin classification based on dominant vegetation cover but was not identified as WOTUS and is discussed further in Section 5.1.4 (Difficult Wetland Situations in the Arid West). Based on dominance by wetland trees and shrubs, this feature is likely subject to CCC jurisdiction.

The *Mulefat Scrub* community type is limited to areas dominated by mulefat (FAC) and young black willow saplings (FACW) near Dairy Mart Road Bridge that are not actively managed for vegetation control. These areas were classified as palustrine scrub-shrub by Cowardin classification based on dominant vegetation cover (PSS Wetland 2, 1.58 acres and PSS Wetland 4, 2.14 acres) but were not identified as WOTUS due to lack of hydric soil and hydrologic indicators (see T3-DP2, T3-DP4, T3-DP7 in Appendix C). Based on dominance by wetland shrubs, these features are likely subject to CCC jurisdiction and may be subject to other jurisdictions (e.g., CDFW).

5.1.2 Soils

Soils within the TRF are mapped as Chino fine sandy loam and Chino silt loam, neither of which are rated as hydric soils by NRCS (NRCS 2021b). Soil evaluations along transects documented disturbed soils due to disking and included Entisols (i.e., soils with no diagnostic horizons) in depositional areas. Soil textures ranged from sands to loams, which are consistent with soil mapping of the area. Soil matrix colors were identified using Munsell Soil Color classifications and were typically 10YR 3/2 or 10YR 4/2 and lacked redoximorphic features (Appendix D).

5.1.3 Waters

The mainstem of the Tijuana River flows across the U.S.-Mexico border though a concrete-lined trapezoidal channel and levee system for approximately 1,100 feet and then transitions to an earthen-bottom channel with buried grouted riprap side slopes (extending roughly 0.9 miles from the border) that passes through two drop/check dam structures and ultimately into the natural earthen-bottom braided alluvial channel system within a wide floodplain. The TRF is entirely contained within levees to the north and south which were constructed by USACE in 1979 to contain a 100-year flood event. Under current flow management practices, the Tijuana River is considered ephemeral and the low-flow channel downstream of the U.S.-Mexico border is typically dry from late spring through early fall as dry-weather flows (consisting of mainly wastewater) are diverted before reaching the border for treatment. Generally, all dry-season flows upstream of the border are diverted in Tijuana, Mexico to the San Antonio de los Buenos Treatment Plant or to the ITP; however, planned and unplanned shutdowns of the diversion infrastructure result in releases of dry-season transboundary flows. During the wet season, flows in the river exceed the capacity of the diversion system and are allowed to cross the border into the U.S. and ultimately into the Tijuana River Valley (ERG 2021).

As discussed in Section 4 (Methods), PG performed a combined desktop and field investigation to support delineation of jurisdictional non-wetland waters in the TRF. This multi-step process involved evaluation of flow discharges reported by USIBWC for the period of record, review of available stage height data, conducting a FFA to determine discharges associated with a range of return periods, review of USACE inundation models and aerial imagery to correlate surface flooding with discharge events, and field investigations to identify OHWM indicators within the floodplain. The procedures outlined in the OHWM Field Guide include development of a stage-discharge rating curve; however, as discussed in Section 4 (Methods), stage data is unavailable for the entire period of record. Further, PG noted multiple instances of inconsistency in reported flow discharge volume and stage height (see Appendix B), which included cases of reported stage height of water that would result in overbank flows without an associated flow discharge and similar volumes of moderate flow discharges with inconsistent stage heights. Therefore, PG relied on the inundation model developed by USACE (2018a) to approximate the discharge-stage relationship for flows within the TRF. PG selected a five-year return interval as an anticipated baseline for evaluating the limits of the active floodplain, as suggested in the OHWM Field Guide and upon guidance from EPA Region 9 (Lichvar and McColley 2008; EPA personal communication, January 14, 2022).

PG's 2021 field investigations were conducted roughly one week following a rain event that resulted in 0.16 inches (4 mm) of rainfall (reported at San Ysidro) within a 24-hour period and corresponded with an USIBWC gage reported discharge of 580 cubic feet per second (cfs) which PG classified as a small (less than two-year) event. A larger rain event on October 4, 2021, resulted in a 5,721 cfs discharge, classified as a moderate (five-year) event. During the 2021 site visit, PG staff observed sporadic hydrologic indictors in the floodplain in addition to an incised and well-defined low-flow channel and a series of high-flow channels, which were generally indicative of a floodplain condition without a recent effective (floodplain defining) discharge (Lichvar and McColley 2008) (see Appendix B). Generally, the distribution of OHWM indicators did not entirely align with the 2018 USACE five-year inundation model. PG attributed this to several factors: the low magnitude of the recent discharge event resulted in development of primarily low-flow channel indicators and few floodplain indicators; rapid revegetation of the floodplain by weedy species which masked indicators from the most recent five-year event; and a trend of aggrading conditions from sediment deposits throughout the TRF (see Appendix B).

PG reviewed historic imagery to assist in identifying areas in the floodplain that are likely defined by moderate to large discharge events (e.g., evidence of surface and vegetation scour, high-flow channels, presence of inundation). Historic imagery illustrates that the location and distribution of high-flow channels are highly transient, which is typical of wide floodplain channel systems in the arid Southwest but also likely influenced by high rates of sedimentation within the TRF that promotes channel infilling and migration (see Appendix B). Though the locations of high-flow channels are predominantly transitory, understanding the geographic extents in which they form is useful in defining the limits of the active floodplain. PG looked for imagery that was captured immediately following a five- or 10-year event to discern locations and extents of surface inundation. In addition to this review, PG overlaid the 2021 site visit observation points onto the georeferenced USACE five-year inundation map and identified locations where hydrogeomorphic indicators of OHW (e.g., changes in vegetation cover/species, break in slope) and of the active floodplain (e.g., mudcracks, drift/debris, benches) aligned with inundation mapping.

Using this information, PG mapped the lateral limits of non-wetland waters in the TRF based on the modeled extent of inundation shown on the USACE five-year inundation map, which PG refined by excluding areas where field investigation documented clear indicators of a low terrace and/or OHWM transition. This includes the areas upstream of Dairy Mart Road Bridge, which currently

support mature riparian vegetation. Other areas were excluded based on vegetation characteristics, clear upland field indicators (e.g., active squirrel burrows), and lack of apparent inundation on aerial imagery following a five-year flood event. Supporting data and figures used for the hydrologic analyses for delineation of the OHWM in the TRF are provided in Appendix B. Based on these methods, PG staff delineated a total of 117.85 acres and 7,899 linear feet of USACE, state, and CCC non-wetland waters associated with the Tijuana River, as shown in figures in Appendix A. PG staff delineated 1.63 acres and 609 linear feet of non-wetland waters associated with Stewart's Drain, a stormwater outlet located near the center of the TRF and near the U.S.-Mexico border.

5.1.4 Difficult Wetland Situations in the Arid West

Wetlands in the arid west can be difficult to identify due to regionally specific natural phenomena such as variable climate conditions, alkali soils, seasonal hydrology and/or recent human activities or natural events. In such cases, it may be necessary to base a determination on other field characteristics and/or supplemental information. Several aspects of the TRF within the Delineation Area contribute to atypical situations including managed/altered hydrology, vegetation management, and frequent sediment depositional events. Due to extensive vegetation management and soil disturbances (e.g., tilling), it was not possible to map all depressional features on the floodplain that may support seasonal wetland vegetation during wetter years. Such features are likely temporal in nature and shift or disappear following large floods due to scouring or as a result of abnormally dry years. The riparian habitats in the TRF lacked hydric soil indicators, which may be due in part to the occurrence of Entisol soils influenced by frequent depositional events or water table fluctuations below the primary root zone. PG field staff evaluated the riparian areas associated with the Tijuana River and determined that these areas are dominated by mature phreatophytic trees and shrubs with an understory primarily consisting of facultative upland species littered by trash and debris. Further, these areas lacked active hydrologic indicators and did not show evidence of surface inundation or ponding on aerial imagery following a five-year flood event, and therefore PG did not characterize them as wetland WOTUS.

5.2 Smuggler's Gulch

Smuggler's Gulch is a steep-walled canyon that crosses the U.S.-Mexico border and conveys flows from a subwatershed of roughly 5.88 square miles (3,762 acres) via an ephemeral tributary to the Tijuana River (HDR 2020). A section of the tributary channel, extending from an USIBWC-managed canyon collector system located near the border and downstream/north to Monument Road, is included in the Delineation Area. This segment is primarily under management and ownership of San Diego County; however, a portion of the upstream channel below the canyon collector system is under federal ownership. The canyon collector system includes a detention basin, drain/inlet, and pump system that conveys dry-weather flows back to the ITP for treatment before being discharged through the South Bay Ocean Outfall. The section of the Smuggler's Gulch channel in the Delineation Area is routinely dredged by the County to remove sediment and trash following large rain events (Helix 2021). NWI mapping based on 2005 imagery identifies riverine intermittent (R4) habitats (Figure 2-2) associated with the Smuggler's Gulch drainage.

5.2.1 Vegetation

Vegetation communities associated with Smuggler's Gulch are influenced by the steep-walled canyon that constrains the floodplain and contribute to the near-vertical channel banks. Native-dominated riparian woodland/scrub-shrub communities occur in the channel bed and above the OHWM (i.e., top of bank) along the tributary channel. The dynamic nature of flows and sediment

transport into Smuggler's Gulch support development of in-channel wetland habitats which establish on alluvial deposits in the streambed.

Southern Willow Scrub and *Mulefat Scrub* community types occur at, above, and below the OHWM of the Smuggler's Gulch channel within the Delineation Area. On the upstream segment of the channel, mature riparian woodland and shrublands, consisting mainly of black willow (FACW) and mulefat (FAC), occur on high terraces and channel banks, and generally define the OHWM transition. Mature riparian plants occur sporadically on the downstream end of the channel, closer to Monument Road. Throughout the channel bottom, black willow and mulefat seedlings and small saplings along with herbaceous wetland plants occur in varying combined cover densities (5 to 40 percent) on alluvial deposits. It is likely that these habitats are supported primarily by surface flows that persist due to a restrictive surface layer of cobbles, gravels, and fine sediments contained in the streambed as opposed to being supported by groundwater. Though soils were not evaluated in the channel bed, the presence of hydrophytic vegetation and hydrologic indicators suggests that this habitat would meet the USACE definition of a wetland. However, annual maintenance and dredging activities along with floodwater scouring would cause these features to be temporal in extent and cover and thus it would be difficult to quantify the area. Based on field conditions at the time of the 2021 survey, PG mapped 0.98 acres of USACE, state, and CCC wetland waters (SG Wetland) that are located below the OHWM of the Smuggler's Gulch drainage (Appendix A). Mature riparian communities located above the OHWM that lacked wetland indicators may be subject to other jurisdictions (e.g., CDFW).

5.2.2 Soils

Soils underlying the Smuggler's Gulch drainage are mapped as Terrace escarpments (non-hydric), Riverwash (hydric), and Visalia sandy loam (hydric) (NRCS 2021b). Three wetland data points were collected along the Smuggler's Gulch drainage (see SG-DP1, SG-DP2, and SG-DP3 in Appendix D); however, soils were not evaluated within the streambed, which predominantly contained cobbles and gravels and transitions to finer materials at the channel toe. Soils were evaluated on a low terrace, adjacent to the active/low-flow channel, which consisted of dry sandy loams with a soil matrix color of 10YR 3/2 and lacked hydric soil indicators.

5.2.3 Waters

The Smuggler's Gulch drainage is an ephemeral tributary to the Tijuana River that originates in the highly urbanized subwatershed primarily located in Tijuana, Mexico (HDR 2020). Dry season flows are captured by a diversion structure associated with the canyon collector system located at the U.S.-Mexico border. During large storm events, flows typically will exceed the capacity of the collector system and flow north through the drainage channel. A 52-inch corrugated metal culvert conveys flows under Monument Road, which continue north to the confluence with the Tijuana River pilot channel within the Tijuana River Valley Regional Park, roughly 0.5 miles (0.8 kilometers) north of Monument Road. HDR (2020) modeled likely flow return intervals for the Smuggler's Gulch watershed, which estimated a two-year peak discharge of 1,572 cfs. Flows are mostly confined within the Smuggler's Gulch canyon north of the U.S.-Mexico border though large storm events routinely result in flows in the channel downstream of the canyon collector system, which eventually reach the Tijuana River confluence. PG delineated the OHWM of the Smuggler's Gulch channel within the Delineation Area, mapping a total of 1.40 acres of USACE and state non-wetland waters below the OHWM. A total of three OHWM data points (see Appendix E) were collected along the 1,342 linear feet of channel. Common geomorphic indicators used to discern OHW included break in slope, litter and drift deposits, exposed roots, and change in particle size

distribution. Vegetation indicators included increased vegetation thickness and maturation and presence of late-successional species. As described below, the low-flow channel and channel bed supports varying densities of pioneer tree and shrub seedlings and sporadic patches of facultative and facultative wetland herbaceous species. It is likely that the vegetation on the channel bottom fluctuates due to scouring events following big storm events and due to channel management and maintenance.

5.3 Goat Canyon

Goat Canyon Creek is an ephemeral tributary of the Tijuana River that originates in Tijuana, Mexico and that receives flows primarily as runoff from a subwatershed area spanning 4.59 square miles (2,941 acres). A short section (694 linear feet) of the channel was included in the Delineation Area, which extends from the canyon collector system on the U.S.-Mexico Border north to the southern boundary of Border Field State Park. This area is under management and ownership of San Diego County, with the exception of the area immediately adjacent and south of the canyon collector system which is under federal land ownership. Historically, Goat Canyon Creek flowed into the U.S. from Mexico where it then followed one of two flow paths—one northward into the Tijuana River Estuary, and a second flowing south and west along the base of coastal bluffs. Sedimentation has filled both historic paths resulting in flows continuing northwest through the Goat Canyon Sediment Basin (GCSB) complex managed by California State Parks and ultimately into wetland complexes associated with the Tijuana River Estuary. Dry weather flows are captured by the canyon collector system and are conveyed to the ITP. Wet-weather (e.g., storm-driven) flows continue through the channel to the GCSB which was constructed by State Parks in 2005 to reduce sediment and trash transport into the Tijuana River Estuary (HDR 2020). NWI mapping based on 2005 imagery identifies riverine intermittent (R4) habitats (Figure 2-2) associated with Goat Canyon Creek.

5.3.1 Vegetation

Under current conditions, Goat Canyon Creek receives significant flows only during large storm events. Some dry-weather transboundary flows exceed the canyon collector system capacity and reach the creek; however, the frequency of such events has not been formally documented. Mature riparian trees and shrubs occur at or above the OHWM along the channel and limited vegetation, mainly seedlings and/or saplings and ruderal/xeric herbaceous plants occur in the channel bed.

The Southern Willow Scrub community type occurs at or above the OHWM of the Goat Canyon Creek channel within the Delineation Area. The steep cutbanks of the channel limit riparian vegetation establishment; therefore, mature trees and shrubs, mainly consisting of black willow (FACW), mulefat (FAC), rosinbush (*Baccharis sarothroides*, FACU), castor bean (FACU), laurel sumac (*Malosma laurina,* UPL), and tree tobacco (*Nicotiana glauca,* FAC), occur sporadically and primarily on stable banks and lower terraces, and on alluvial deposits in the channel bed. Herbaceous species associated with the riparian communities include mainly ruderal weedy species such as stinkwort (*Dittrichia graveolens,* UPL), horseweed (*Erigeron canadensis,* FACU), and Russian thistle (*Salsola tragus,* FACU). Based on the lack of dominant cover by facultative or wetter species and absence of hydric soils and active hydrologic indicators, these habitats were not mapped as USACE wetlands; however, they may be subject to other jurisdictions (e.g., CDFW).

5.3.2 Soils

Soils underlying Goat Canyon Creek within the Delineation Area are mapped as Riverwash by NRCS, which is rated as hydric and is flanked by terrace escarpments (NRCS 2021b). PG field staff did not

excavate soil pits within the Goat Canyon Creek but generally observed that soils associated with the drainage consist of fine sands and mixed cobbles and gravels in the channel bed.

5.3.3 Waters

PG delineated waters associated with Goat Canyon Creek based on the limits of the OHWM using geomorphic indicators including change in slope, presence of bed and bank, exposed root hairs, and changes in bed material. Vegetative indicators included dominance by mature pioneer species and late-successional species. Within the Delineation Area downstream of the canyon collector system, Goat Canyon Creek is a wide single channel characterized by significant bank and channel erosion. In the absence of flow gage data, it is not possible to estimate recurrence intervals for this system. PG field staff did not observe evidence that high flows have exceeded the channel banks in recent periods, based on maturity of riparian vegetation adjacent to the channel and absence of debris above OHWM. Further, review of aerial imagery from the past 10 years indicates that the channel location and general extents have remained stable. PG evaluated an erosional feature located above/south of the left descending bank of the Goat Creek channel, which conveys runoff from a roughly 60-inch metal culvert located on the U.S.-Mexico border. The erosional feature exhibits signs of flows, including rills, sediment deposits, and sparse vegetation, but lacked a defined bed and bank. A short segment of incised channel on the downstream end of the debris flow area connects to Goat Canyon Creek and was mapped as USACE and state non-wetland waters based on presence of a bed and bank. PG delineated a total of 0.74 acre (726 linear feet) of USACE, state, and CCC waters within the Delineation Area (Appendix A). A total of three OHWM data points were collected along Goat Canyon Creek (Appendix E).

5.4 Other Waters

PG evaluated five unnamed tributaries that cross through the Delineation Area and exhibited characteristics of an OHWM and/or bed and bank (see figures in Appendix A). Further, PG mapped manmade features and other erosional features that may not be subject to USACE jurisdiction but are potentially subject to other (state and/or CCC) jurisdictions.

MR Trib 1 and MR Trib 2

The segment of MR Trib 1 within the Delineation Area is located on San Diego County owned lands and is part of an ephemeral tributary that conveys flows under Monument Road (Appendix A). The tributary originates on the hillslope south of Monument Road within a steep-sided and narrow valley and likely conveys overland flows from storm events. Based on review of aerial imagery, the segment of the tributary within the Delineation Area formed in the last two years; the prior channel alignment was directly west and may have moved due to natural phenomena or from human influences. PG delineated 0.01 acre (27 linear feet) of non-wetland waters, potentially subject to USACE, state, and CCC jurisdictions based on geomorphic OHWM indicators and bed and bank characteristics. The waters of the tributary are believed to flow over Monument Road and are conveyed to a black willow (FACW) dominated woodland that lacks hydric soils and was not characterized as USACE wetland waters; however, this area may be subject to other jurisdictions (e.g., CCC, CDFW).

The segment of MR Trib 2 within the Delineation Area is located on San Diego County-owned lands and is a narrow, ephemeral tributary that conveys flows under Monument Road, east of Tijuana River Valley Regional Park. Review of aerial imagery indicates that the tributary conveys stormflows from an outfall located to the south on the U.S.-Mexico border, which continue north and under Monument Road via a culvert and through a channel that appears to dissipate within

riparian woodlands/wetland communities associated with the Tijuana River to the north. Based on OHWM indicators, PG delineated 0.01 acre (26 linear feet) of non-wetland waters that may be subject to USACE, state, and CCC jurisdictions (Appendix A).

Clearwater Swale and Clearwater Ditch 1

Clearwater Swale is located on USIBWC-owned lands and is situated south of Dairy Mart Road and east and west of Clearwater Way (Appendix A). The ephemeral tributary conveys stormwater flows via USIBWC-managed stormwater infrastructure from south to north and under Dairy Mart Road, where they are ultimately conveyed into wetlands/habitats associated with the Tijuana River. Only a short segment of the tributary channel exhibited OHWM indicators, which included geomorphic indicators such as a break in slope and benching, and vegetative indicators such as change in vegetation community composition. PG delineated 0.08 acre (213 linear feet) of USACE and state non-wetland waters associated with the tributary. Upstream of Clearwater Way, the tributary lacks active hydrologic indicators and consists of a vegetated non-wetland swale. A portion of the swale is vegetated by primarily mulefat (FAC) and was characterized as a CCC wetland (PSS Wetland 6, 0.07 acre) based on presence of a single wetland indicator (vegetation) and an assumed indicator (hydrology).

Clearwater Ditch 1 is a short section of earthen channel adjacent to Monument Road on City of San Diego-owned lands. Based on field observations and review of aerial imagery, the channel segment dissipates a short distance downstream and does not appear to connect with upstream or downstream drainages. The ephemeral channel likely conveys stormwater which flows overland and infiltrates downstream. The channel exhibited characteristics of an OHWM (0.01 acre, 23 linear feet) but does not appear to connect to a downstream jurisdictional water and was not characterized as a USACE non-wetland waters; however, the feature may be subject to other jurisdictions (e.g., state, CCC).

BS Ditch 1 and BS Ditch 2

BS Ditch 1 is an ephemeral channel located on federally owned lands, which conveys stormwater and wastewater discharges from the Silva Drain canyon collector near the U.S.-Mexico border. Flows originating from Mexico pass through a double box concrete culvert which discharges into a steep gradient and incised channel, adjacent to a dirt access road. Flows appear to dissipate at the base of the hillslope and may enter a large swale feature ("border swale"). A second erosional feature connects with BS Ditch 2; flows within the erosional feature originate from a concrete outlet structure, and flow downhill as sheet flow before entering a narrow and incised channel. Segments of the channels that exhibited characteristics of an OHWM and/or bed and bank were mapped as non-wetland waters. Flows from the feature are captured by USIBWC stormwater infrastructure or are contained by the border swale, and do not appear to have a direct surface or subsurface connection to a USACE jurisdictional water. PG delineated 0.36 acre (1,032 linear feet) of non-wetland waters potentially subject to state and CCC jurisdictions.

Border Swale

PG evaluated an earthen swale located south of the ITP facilities and north of the U.S.-Mexico border, which captures flows from *BS Ditch 1,* multiple stormwater culverts, and surface runoff. The swale was likely constructed for the purposes of capturing stormwater and runoff and lacked indicators of persistent ponding or channel forms (such as bed and bank or OHWM). Vegetation within the swale feature consists primarily of weedy ruderal species, including Bermuda grass (FACU), perennial rye grass (FAC), white clover (*Trifolium repens,* FACU), bull mallow (UPL), and

redstem filaree (*Erodium cicutarium,* UPL). Three wetland data points were recorded within the swale (BS-DP1, BS-DP2, and BS-DP3). All three wetland parameters were identified at BS-DP3, within a low point on the west end of the swale. This area is dominated by perennial rye grass and was mapped as an isolated emergent wetland (PEM Wetland 5, 0.23 acre) potentially subject to state and CCC jurisdictions. The swale feature and associated wetlands were constructed wholly within uplands and do not connect to or convey flows to a USACE jurisdictional resource.

Manmade Features

Manmade features within the Delineation Area include several V-shaped concrete drainages that convey roadside and surface runoff from adjacent upland areas. These features were constructed entirely within uplands, drain only uplands, and lack indicators of soils, hydrology, or vegetation and were therefore classified as non-jurisdictional.

6. POTENTIAL JURISDICTIONAL RESOURCES

PG field staff mapped aquatic resources within the 336-acre Delineation Area on November 3 and 4, 2021. The results presented in this report are based on field conditions at the time of the survey and are supported by review of historic imagery. The findings here are assumed current as of the date of the report; however, due to intensive vegetation management practices within the Delineation Area and natural phenomena that contribute to temporal shifts, minor changes in the extents of aquatic resources are possible year to year. Large flood events or substantial changes in upstream water management or diversion practices may result in more significant alterations of aquatic resource locations and extents.

A summary of aquatic resources within the Delineation Area by potential agency jurisdiction is provided in Table 6-1 and shown in figures in Appendix A.

Table 6-1. Potentially Jurisdictional Resources in Delineation Area

Agency	Size (acres)	Length (linear feet)
Wetland Waters		
USACE, CWA Section 404/Section 401 waters of the U.S. [a]	1.98	N/A
RWQCB, waters of the state [b]	1.98	N/A
CCC	8.56	N/A
Non-Wetland Waters and Other Waters		
USACE, CWA Section 404/Section 401 waters of the U.S. [a]	121.72	10,842
RWQCB, waters of the state [b]	122.09	11,897
CCC	122.09	11,897

a – In the state of California, the SWRCB and RWQCBs have the authority to regulate discharges under CWA Section 401; however, only those waters defined as WOTUS under federal jurisdiction are regulated under the CWA Section 401.
b – Includes waters under federal jurisdiction (WOTUS) and other waters of the state.

6.1 Waters of the U.S.

Based on the findings of the aquatic resource delineation, which included field surveys and aerial photograph interpretation, PG delineated 1.98 acres of wetland waters and 121.72 acres (10,842 linear feet) of non-wetland waters potentially subject to USACE jurisdiction as WOTUS that would be subject to CWA Section 404 and Section 401 regulations. Potentially jurisdictional non-wetland WOTUS include the mainstem of the Tijuana River, the Smuggler's Gulch drainage, Goat Canyon Creek, and three unnamed tributaries (i.e., Monument Road [MR] Trib 1, MR Trib 2, and Clearwater Swale 1). All features delineated as potential WOTUS are perceived (based on field observations and/or aerial imagery interpretation) to have a surface connection to the Tijuana River Estuary, a TNW. Potential wetland WOTUS were restricted to a palustrine emergent wetland located below the OHWM of the Tijuana River and palustrine scrub-shrub wetlands located below the OHWM of the Smuggler's Gulch drainage; based on the location of the wetlands within a potential non-wetland WOTUS, the wetlands are believed to be WOTUS. In light of recent court decisions and agency actions vacating and remanding the Navigable Waters Protection Rule, the basis of USACE jurisdiction was determined following the pre-existing rules and guidance offered under the pre-2015 Clean Water Rule (e.g., *Rapanos* decision, and the 2008 Guidance) as promulgated by 33 CFR Part 328.

6.2 Waters of the State

Waters of the state include all areas delineated by PG as WOTUS. Additional areas mapped as potential waters of the state include isolated surface water features (other waters) that contained a bed and bank and/or OHWM but lack a surface connection to a TNW, jurisdictional tributary of a TNW, impoundment of a jurisdictional water, or wetland adjacent to a jurisdictional water. These additional potential other waters of the state would be subject to RWQCB jurisdiction under the Porter-Cologne Water Quality Act but may not be subject to CWA Section 401 regulations. PG delineated 1.98 acres of wetland waters and 122.09 acres (11,897 linear feet) of non-wetland waters that are potentially under the jurisdiction of the state.

6.3 California Coastal Commission Wetlands

The aquatic resources contained within the Delineation Area are within the limits of the City of San Diego LCP; in this report, wetlands were defined as "CCC" resources but permitting authority has been transferred to the City of San Diego. Potential CCC jurisdictional features (waters and wetlands) were determined based on a "one-parameter" definition of a wetland, meaning that resources exhibiting indicators of wetland vegetation, soils, or hydrology were characterized as a CCC "wetland." PG mapped a total of 130.65 acres of features potentially under CCC jurisdiction within the Delineation Area.

6.4 San Diego County Wetlands

County of San Diego Wetlands include those areas that meet the USACE definition of a "wetland" and are located on private lands. All wetlands and non-wetland waters delineated within the Delineation Area are located on county or federal lands, and thus would be excluded from county jurisdiction.

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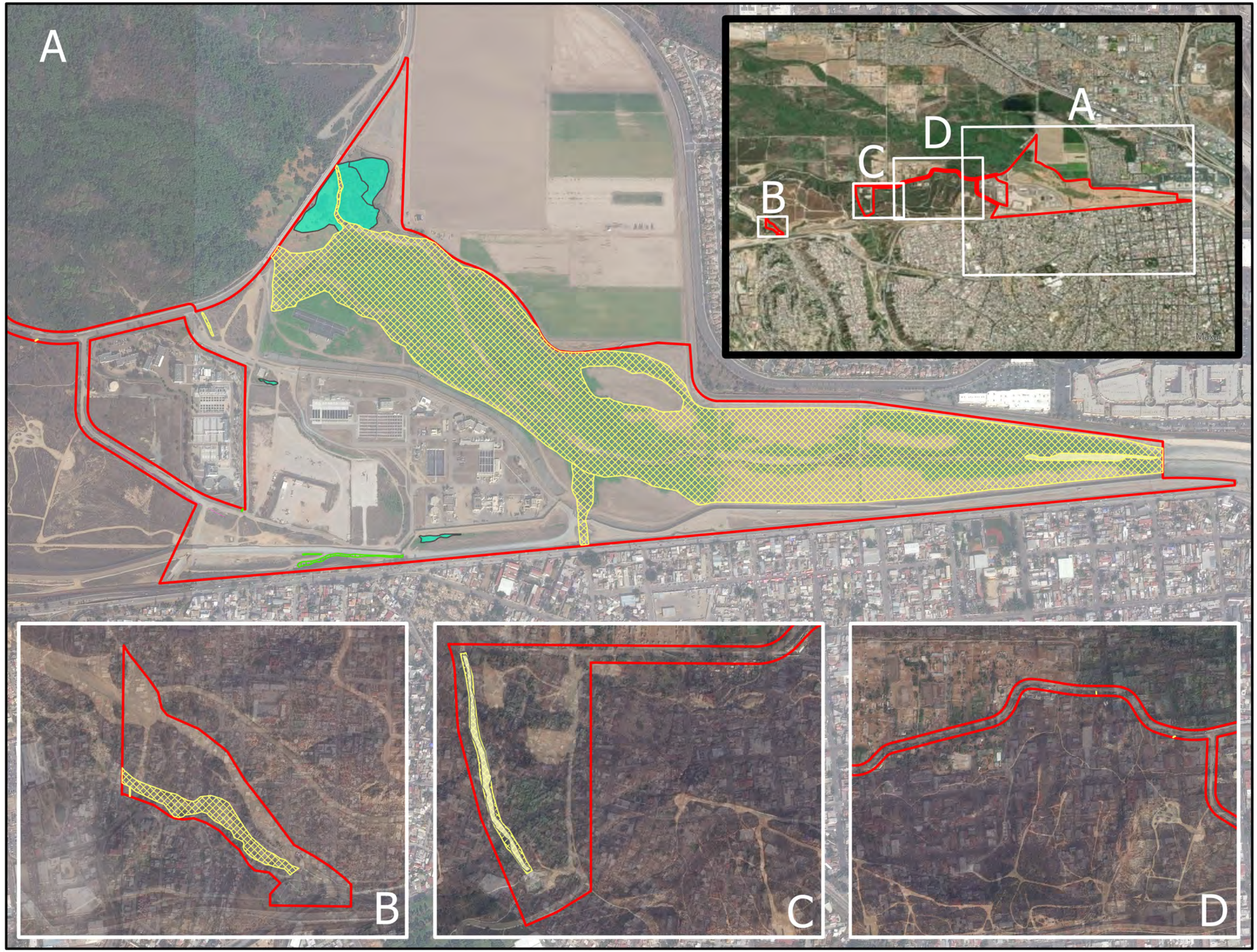
APPENDIX A: AQUATIC RESOURCES FIGURES

Overview: Aquatic Resources



N
W E
S

Legend

- Delineation Area

Jurisdiction

- Waters WOTUS WOS CCC
- Waters WOS CCC
- Wetland WOTUS WOS CCC
- Wetland CCC
- 2-foot Concrete Channel*

* 2-foot concrete channel features present within the delineation area, although these features are not visible at this map scale

0 0.25
Miles

0 0.5
Kilometers

1 inch = 725 feet
1 centimeter = 87 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane California VI FIPS 0406
PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
GCS: GCS NAD 1983 2011
Datum: NAD 1983 2011

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016, by:
Jason Deters, Project Manager
Enforcement and Special Projects Unit
U.S. Army Corps of Engineers
South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

Tijuana River Floodplain Aquatic Resources

N
W E
S

Legend
- Delineation Area
- Data Points

Jurisdiction
- Waters WOTUS WOS CCC
- Wetland WOTUS WOS CCC

0 300 600
Feet

0 150
Meters

1 inch = 277 feet

1 centimeter = 33 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane California VI FIPS 0406
PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
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Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

Tijuana River Floodplain Aquatic Resources

0 250 500
Feet
0 150
Meters

1 inch = 221 feet
1 centimeter = 27 meters

Created on May 31st, 2022

Spatial Reference
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PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
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Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

Tijuana River Floodplain Aquatic Resources

Waters Continue

PSS Wetland 2
(1.58 ac)

TRF T3 DP3
TRF T3 DP2
TRF T3 DP1

TRF T3 DP5

Transect 3
OHWM WIDTH:
5.27 m
17.29 feet

TRF T3 DP6

PSS Wetland 4
(2.14 ac)

TRF T3 DP7

PFO Wetland 3
(2.56 ac)

TRF T3 DP8

TRF (117.85 ac,
7898.78 linear ft)

Waters Continue

Transect 3
OHWM WIDTH:
105.20 m
345.14 feet

TRF T3 DP9

TRF T3 DP10

TRF T3 DP11
TRF T3 DP12

TRF T3 DP13

TRF T3 DP14

N
W E
S

Legend
- Delineation Area
- Data Points

Jurisdiction
- Waters WOTUS WOS CCC
- Wetland CCC

0 200
Feet
0 50
Meters

1 inch = 131 feet
1 centimeter = 16 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane California VI FIPS 0406
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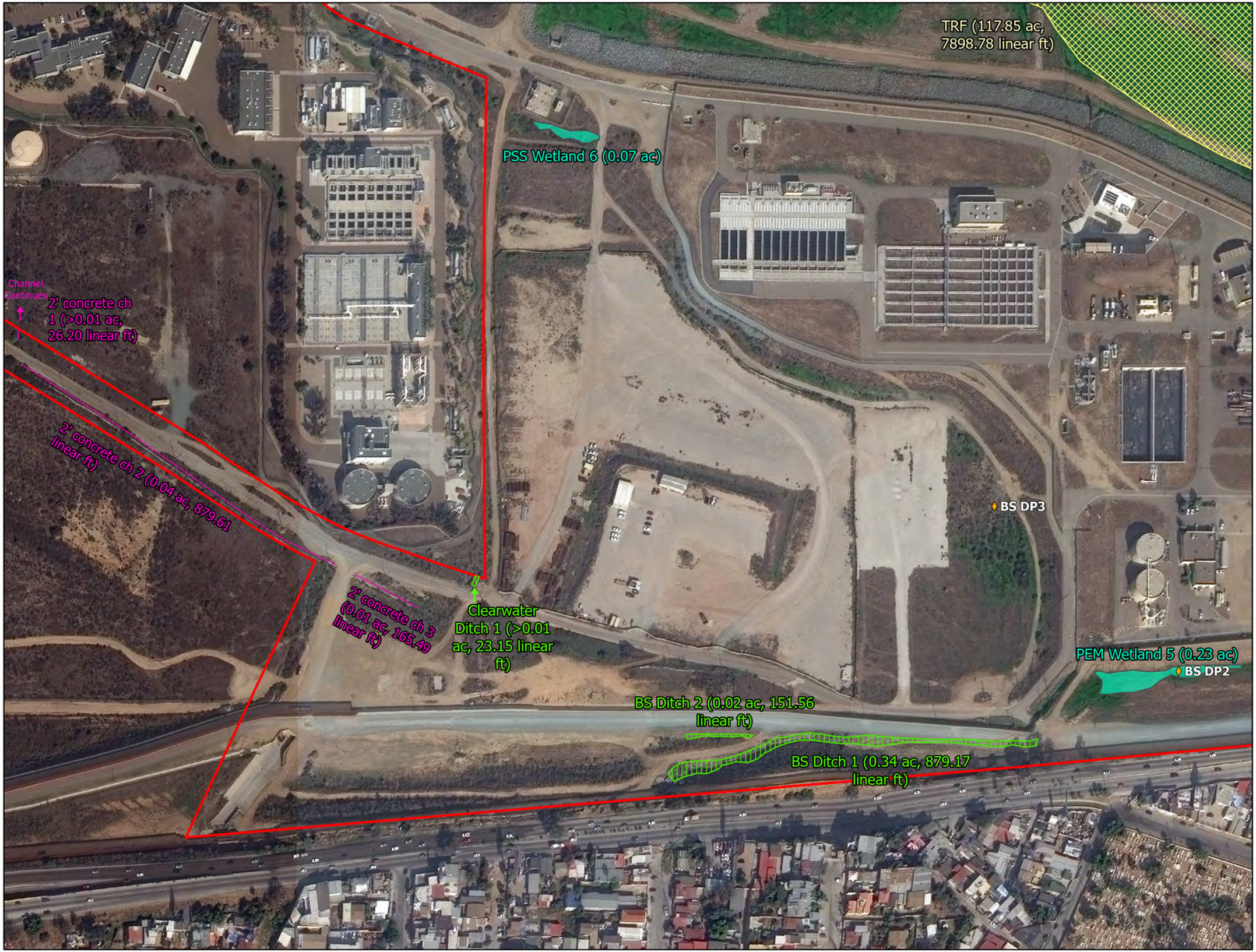
Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

Border Swale/ Clearwater Road Aquatic Resources



N
W E
S

Legend

- Delineation Area
- Data Points

Jurisdiction

- Waters WOTUS WOS CCC
- Waters WOS CCC
- Wetland CCC
- 2-foot Concrete Channel

0 400
Feet

0 150
Meters

1 inch = 208 feet
1 centimeter = 25 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane California VI FIPS 0406
PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
GCS: GCS NAD 1983 2011
Datum: NAD 1983 2011

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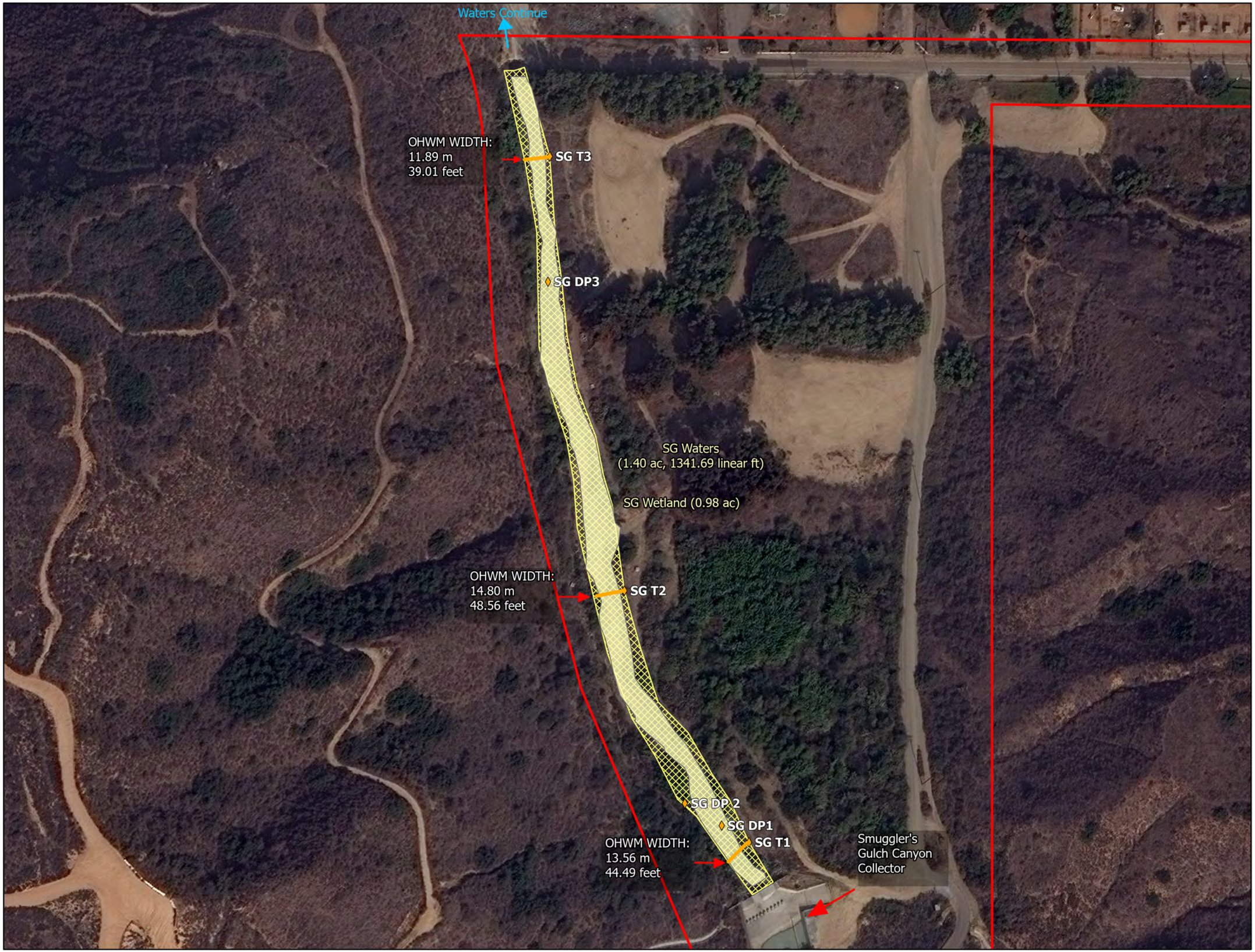
Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021



Smuggler's Gulch Aquatic Resources

N
W E
S

Legend
- Delineation Area
- Data Points

Jurisdiction
- Waters WOTUS WOS CCC
- Wetland WOTUS WOS CCC

0 300
Feet
0 80
Meters

1 inch = 136 feet
1 centimeter = 16 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane California VI FIPS 0406
PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
GCS: GCS NAD 1983 2011
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Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

Monument Road / Dairy Mart Road Aquatic Resources

Legend

- Delineation Area

Jurisdiction

- Waters WOTUS WOS CCC
- 2-foot Concrete Channel*

0 400
Feet

0 100
Meters

1 inch = 180 feet
1 centimeter = 22 meters

Created on May 31st, 2022

Spatial Reference
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PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
GCS: GCS NAD 1983 2011
Datum: NAD 1983 2011

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Sacramento, California 95814-2922

Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

Goat Canyon Aquatic Resources

N
W E
S

Legend
- Delineation Area
- Data Points

Jurisdiction
- Waters WOTUS WOS CCC

0 125
0 Feet 40
Meters

1 inch = 58 feet
1 centimeter = 7 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane
California VI FIPS 0406
PCS: NAD 1983 2011 StatePlane
California VI FIPS 0406
GCS: GCS NAD 1983 2011
Datum: NAD 1983 2011

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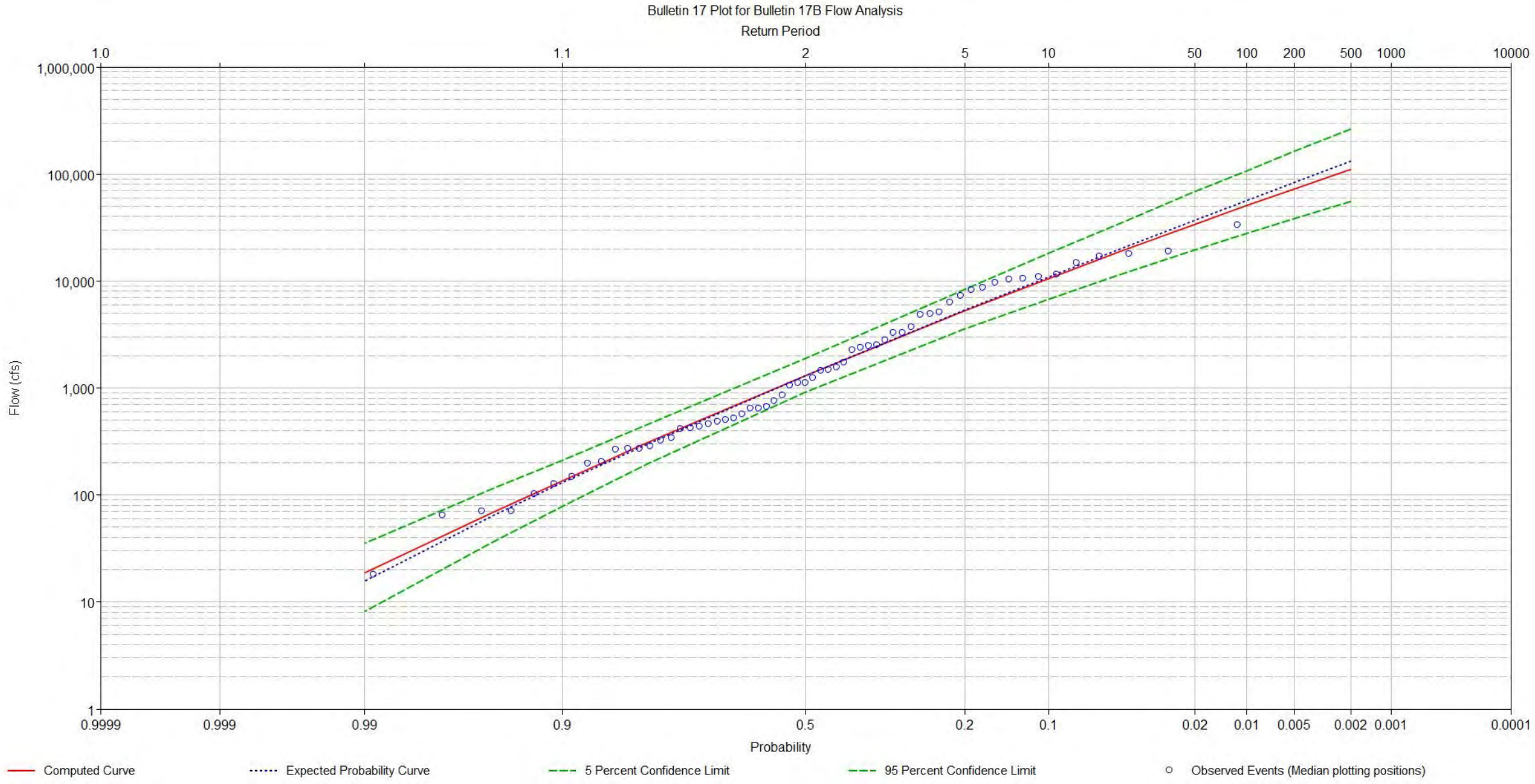
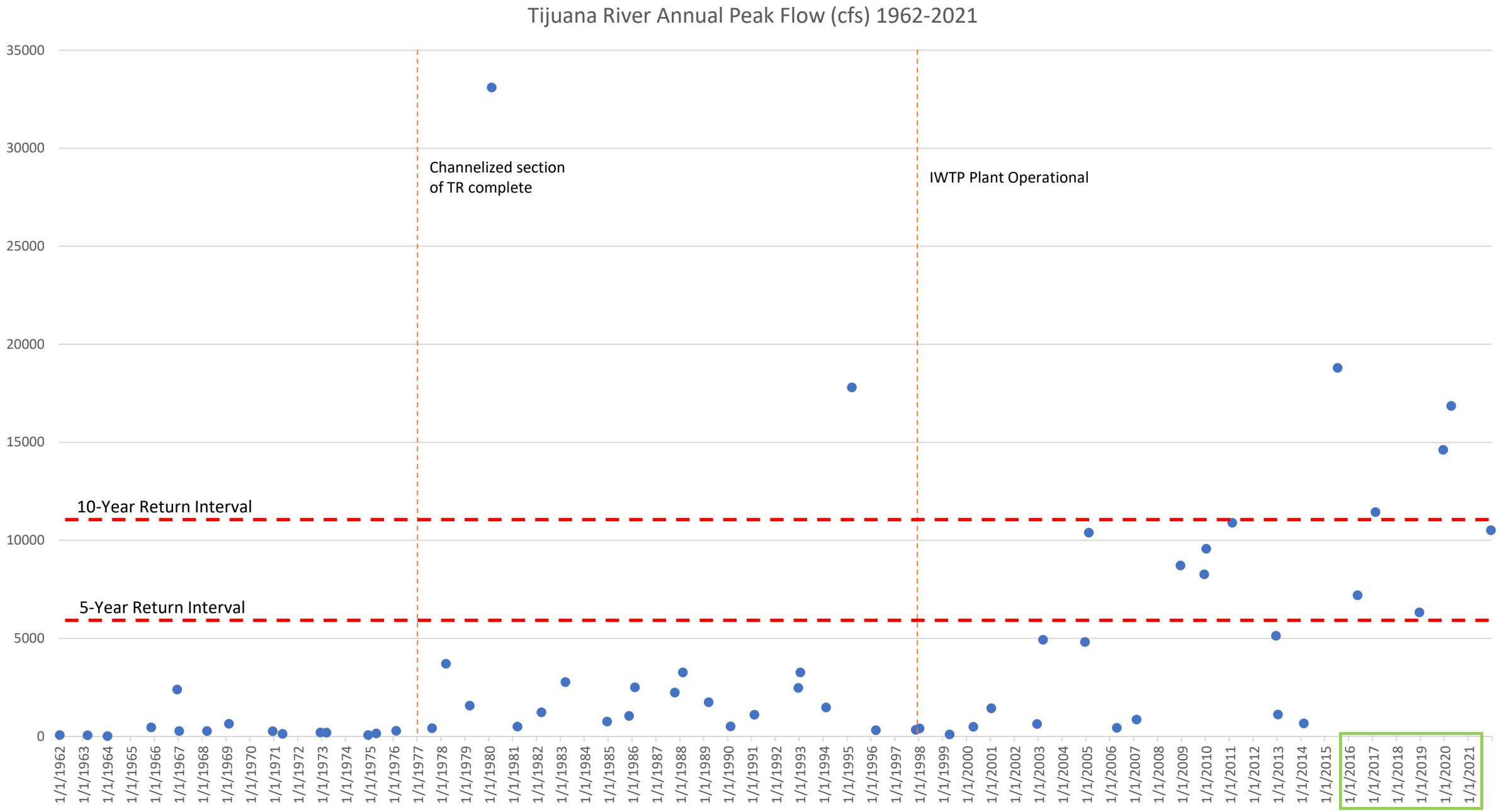
Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

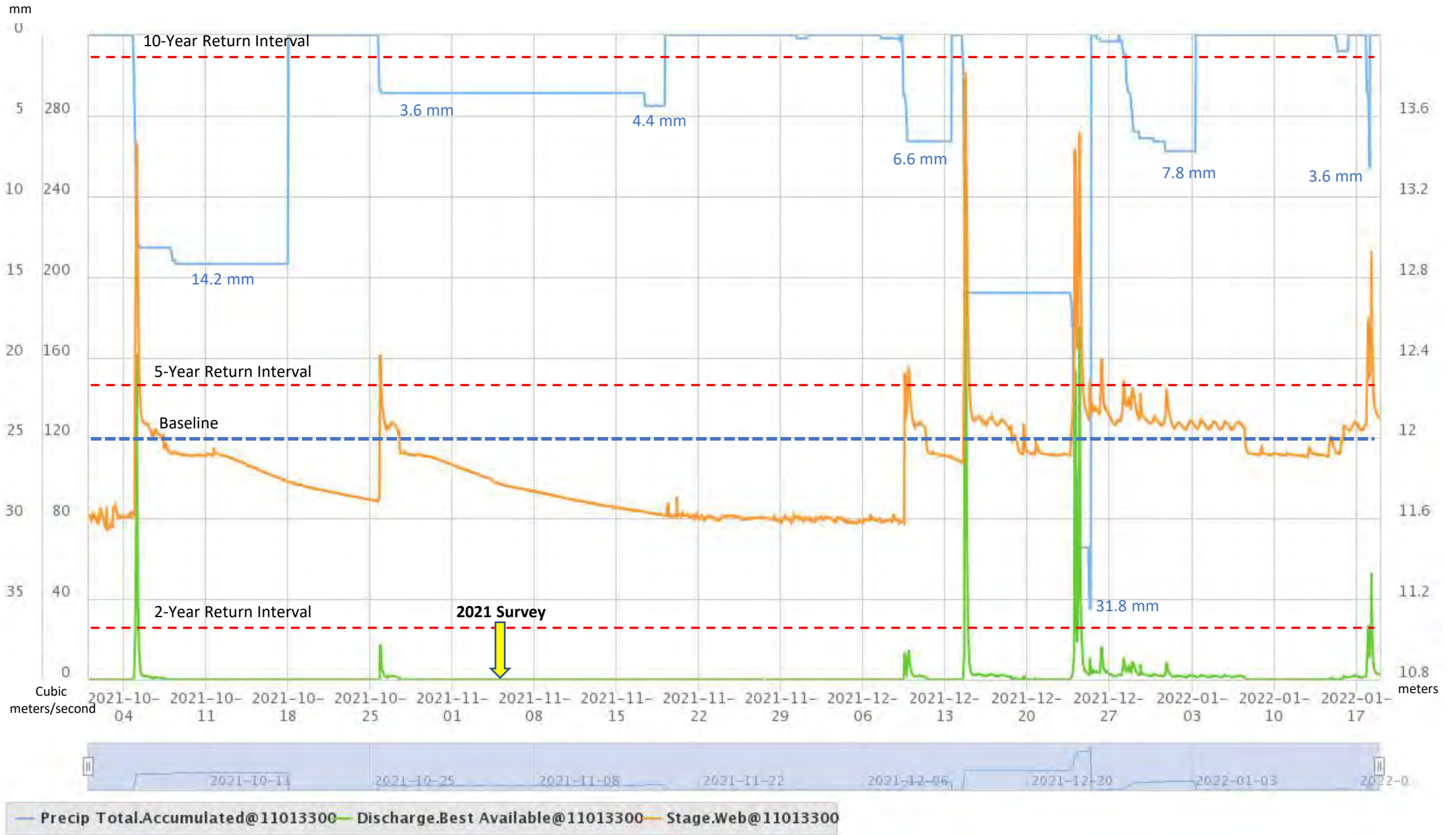
APPENDIX B: SUPPLEMENTAL HYDROLOGIC DATA AND FIGURES



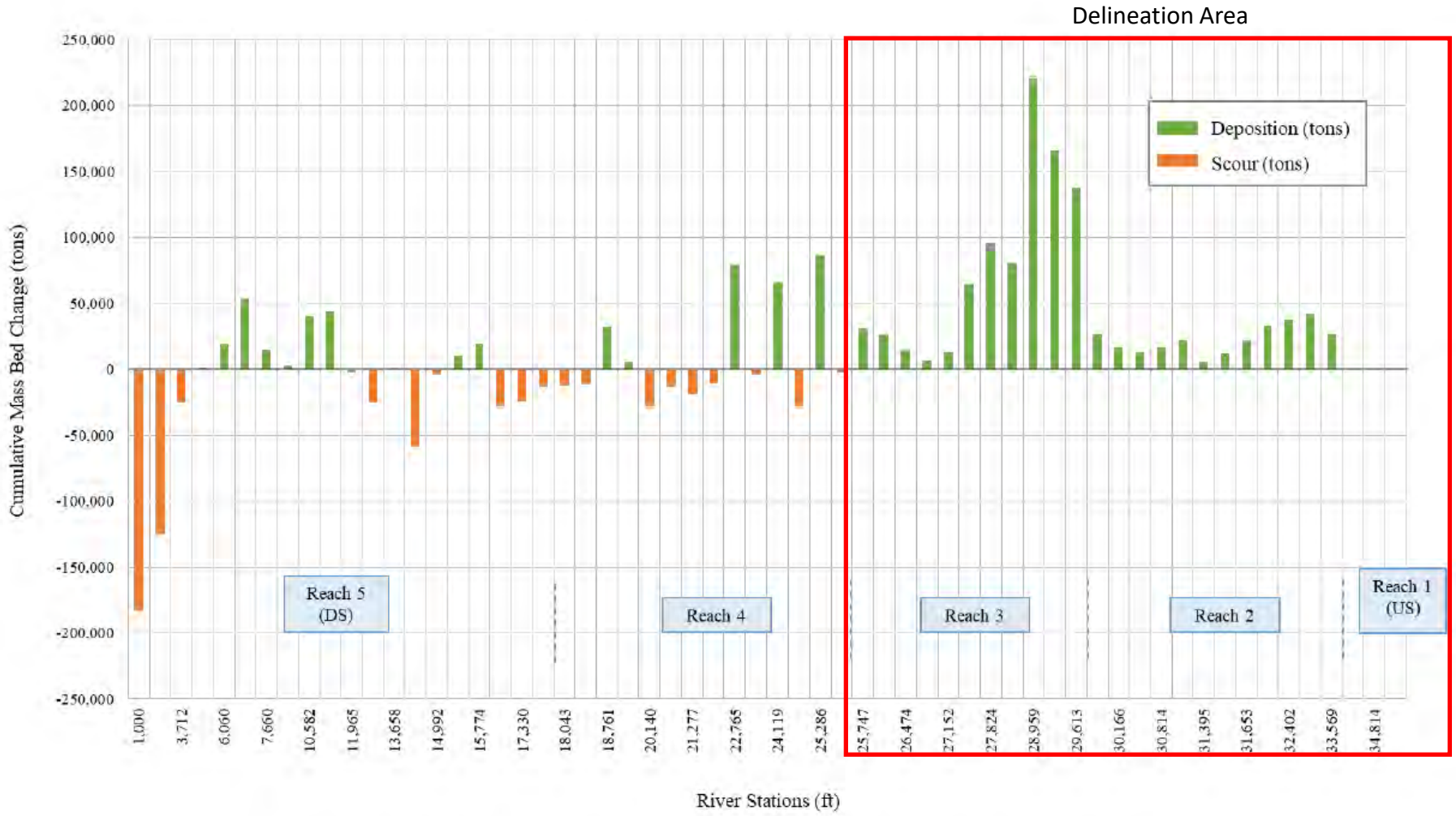
Discharge frequency curve of computed flows for period of record (1962 – 2021) produced by HEC-SSP in accordance with Bulletin 17B for the Tijuana River. Peak annual flow data acquired from USIBWC; 2008 through 2015 annual peak flows are based on corrected values reported by USIBWC.



Peak annual discharge values for period of record (1962-2021) from the USIBWC gage. Dates in green box include newly acquired data from USIBWC. Horizontal lines identify the positions of a 5- and 10-Year recurrence interval. The frequency of annual peak flows exceeding a 5-year return interval have increased in the last 20-years of recorded flows.

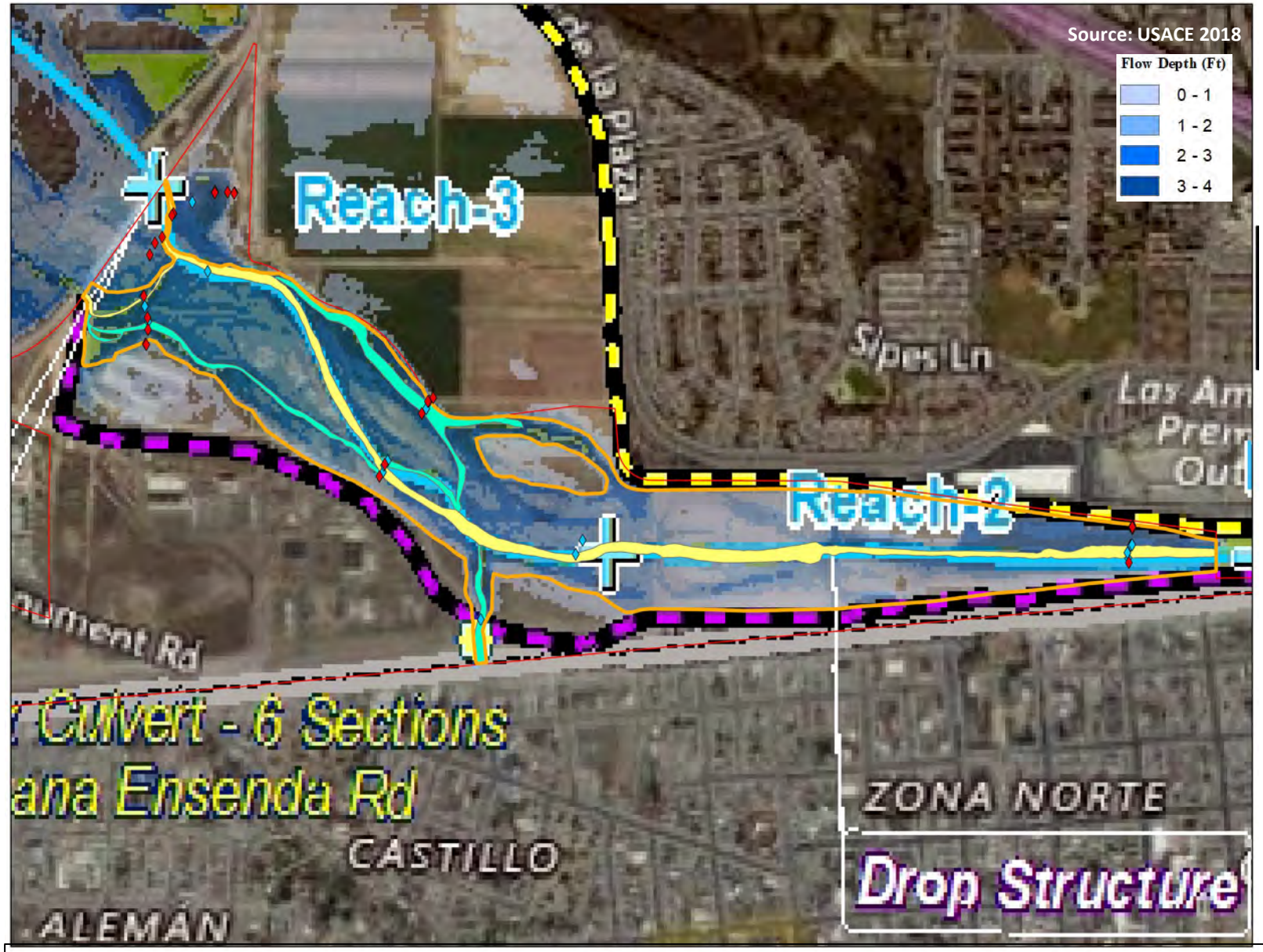


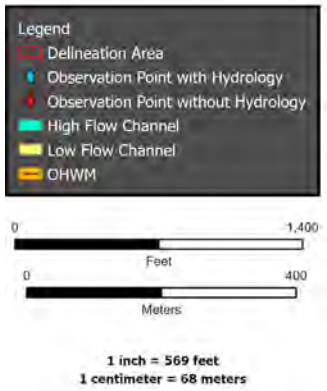
USIBWC gage reported flow discharge, stage height, and accumulated precipitation from October 2021 through January 18, 2022. Prior to the 2021 survey, a less than 2-year discharge event was reported one-week prior, which resulted in overbank flows. Additionally, a 5-year event was reported approximately 1-month prior. Horizontal Lines indicate flood intervals; baseline refers to stage height at approximate floodplain elevation.



Cumulative mass bed change along the reach in tons (100-year event)

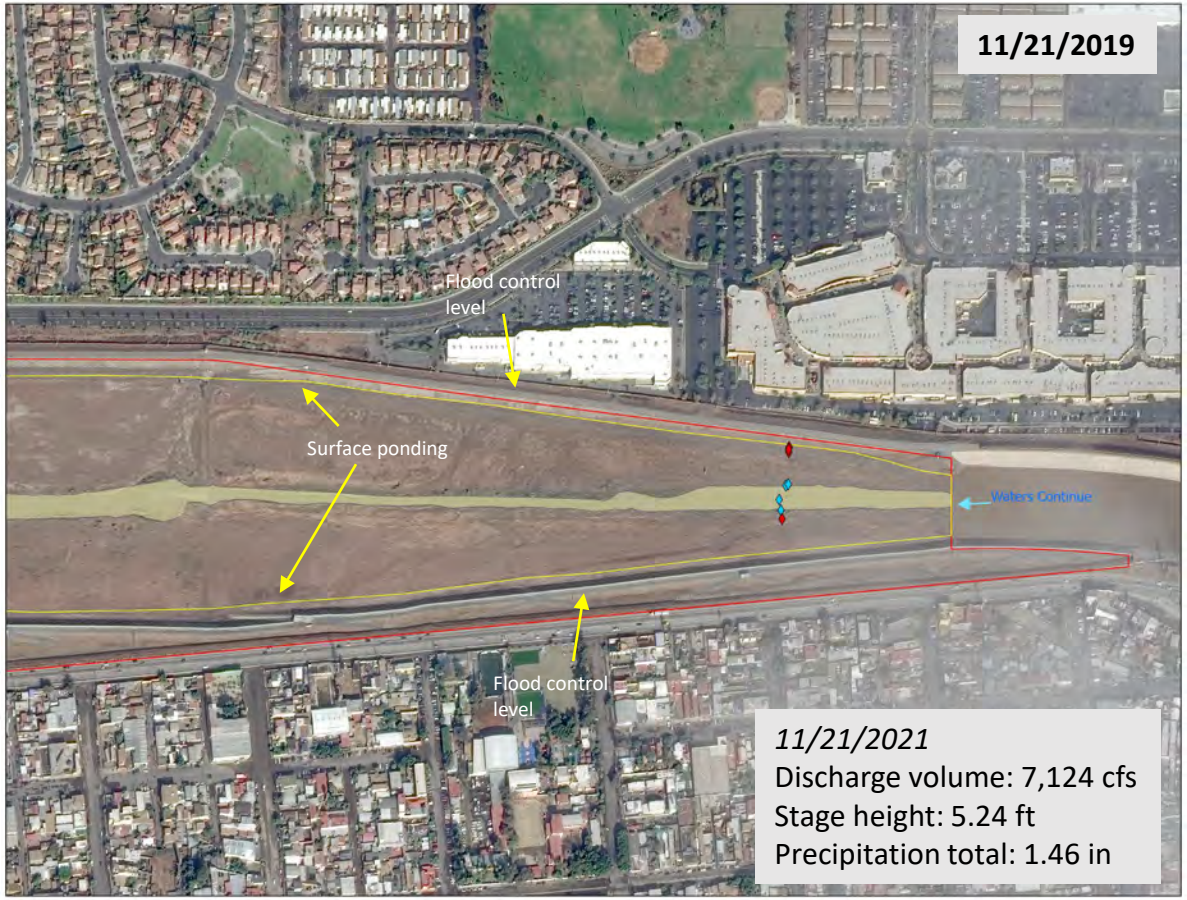
USACE completed a sediment transport simulation using HEC-RAS to model the characteristics of sediment flow in the river, including deposition and scour. The model output characterizes aggradating conditions within the Delineation Area – study reach (red box). Using a Yang's unit stream power equation, it was estimated that a 5-year event would result in a sediment flow capacity of 56,000 tons per day within Reach 3. Field observations and review of aerial imagery align with the model characteristics, which generally suggest that significant sediment transport and aggradating conditions result in rapid infilling and migration of high flow channels and over bank deposition.

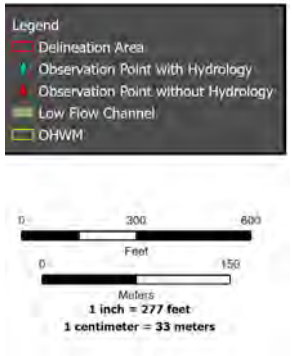




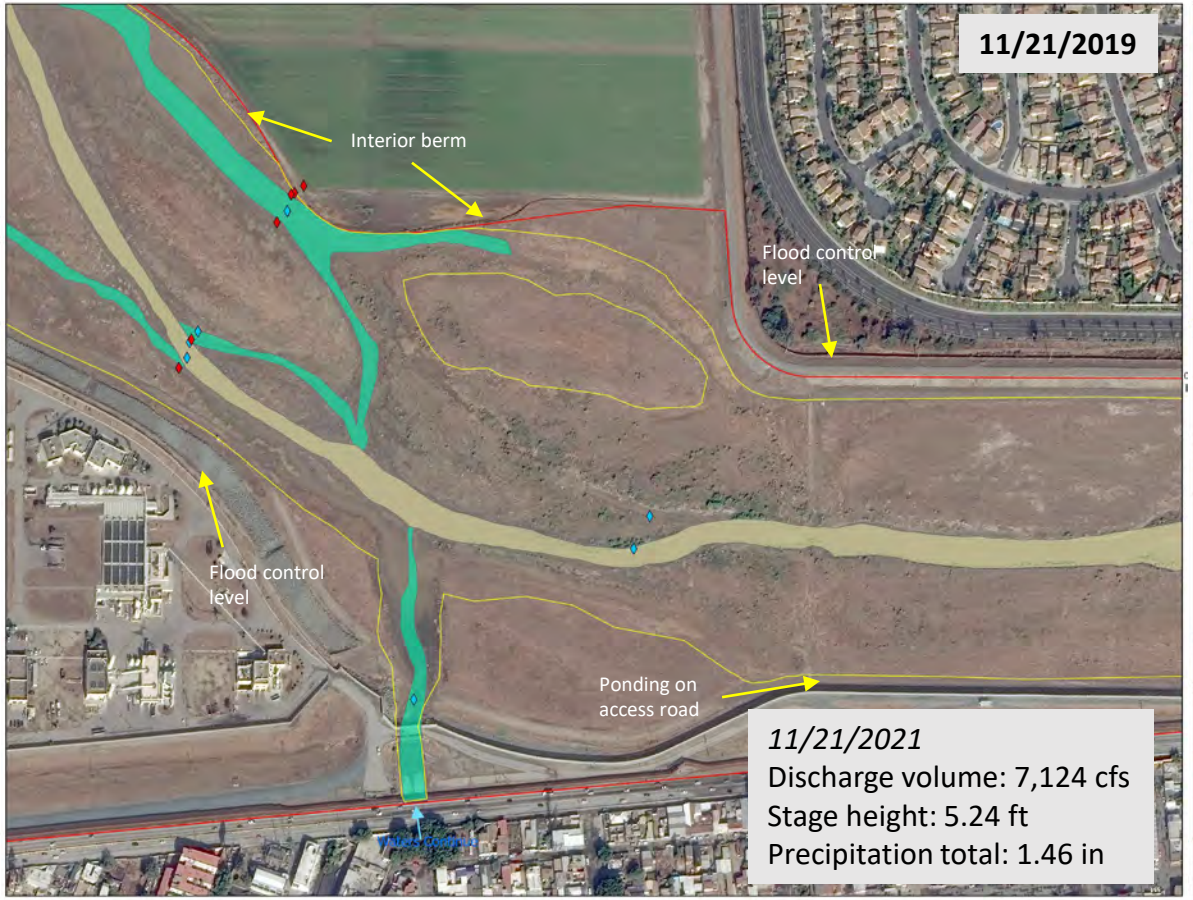
n-Year Flood Event	2018 USACE	2021 PG
	Computed Probability Flow (cfs)	
2-Year	1,070	1,315
5-Year	4,710	5,376
10-Year	10,300	10,952
20-Year	19,700	19,530
50-Year	41,100	37,101
100-Year	67,100	56,703

The figure above illustrates the USACE (2018a) 1D-2D HEC-RAS model output for a 5-year flood event illustrating potential inundation boundaries and flow depths and PG 2021 site visit field observation points. The model incorporates calculated discharge probability flow, surface roughness coefficients (Mannings n values) based on 2016 and 2018 field reconnaissance, flood hydrographs, and bridge modeling assumptions. The outer limits of the inundation boundaries for a 5-year event were used to guide the delineation of the lateral extents of waters.PG excluded areas from the limits of non-wetland waters where inundation is likely due to backwater conditions and where field observations from the 2021 survey indicated that the parameters of the inundation model did not accurately reflect surface inundation following a 5-year event.

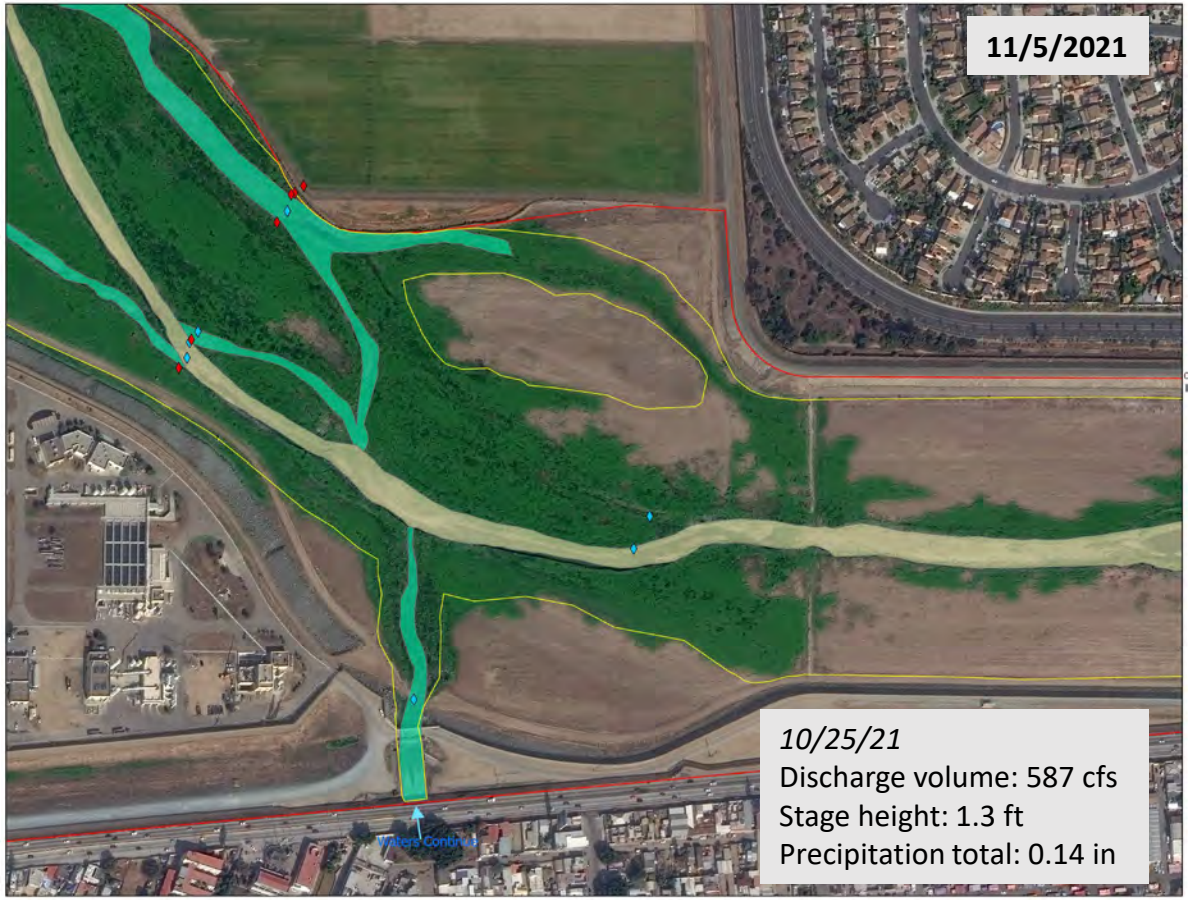




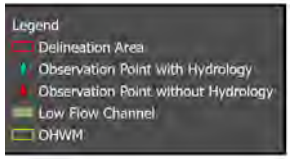
Correlation of floodplain inundation and discharge volume was completed through review of high-resolution Digital Globe imagery from 2018 through 2021. Aerial imagery was captured on 11/21/2021 following a 5- to 10-year flood event (7,124 cfs reported discharge by the USIBWC gage), as shown on the left. The image on the right was captured two days after the 2021 field survey and 10 days after a storm event that resulted in a reported discharge volume of 587 cfs.

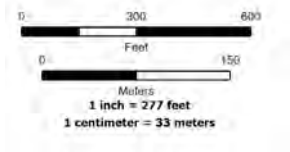


11/21/2021
Discharge volume: 7,124 cfs
Stage height: 5.24 ft
Precipitation total: 1.46 in

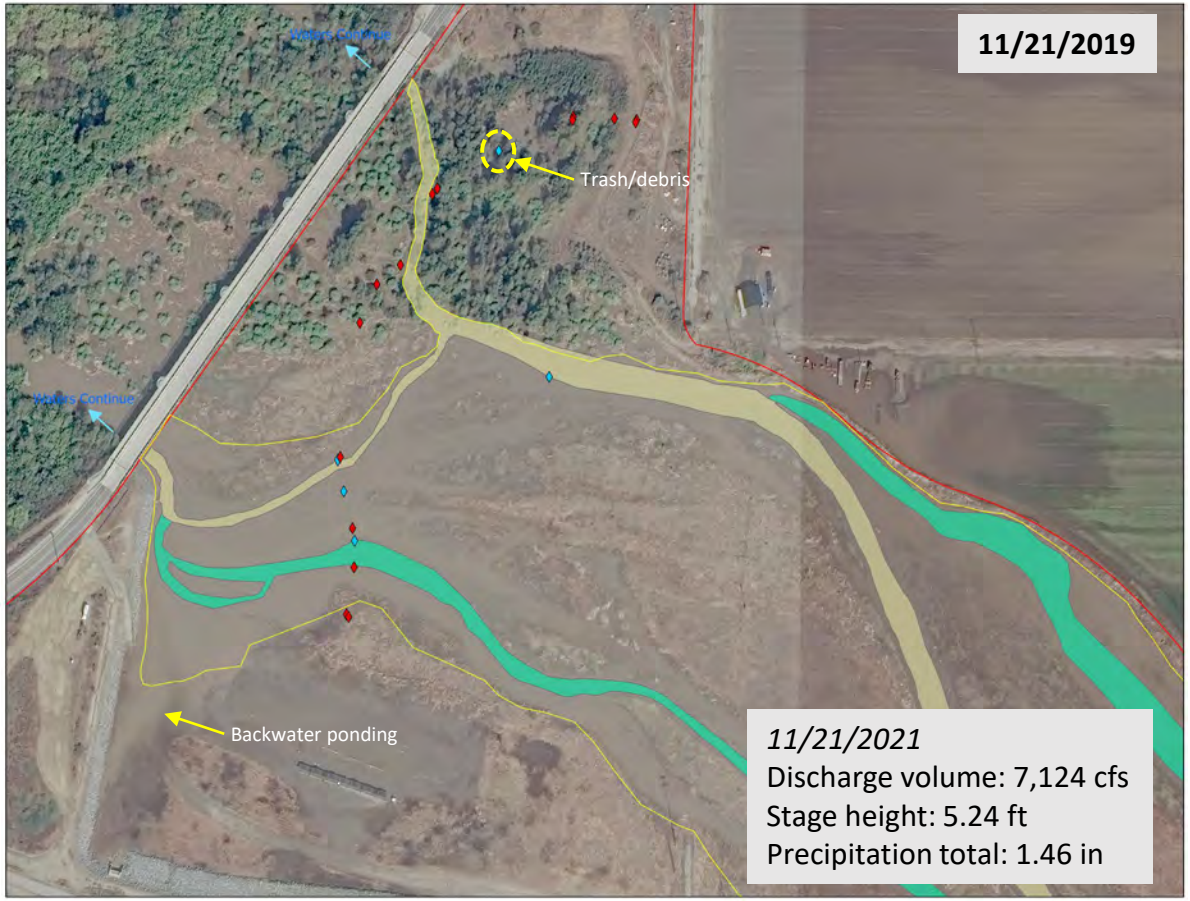


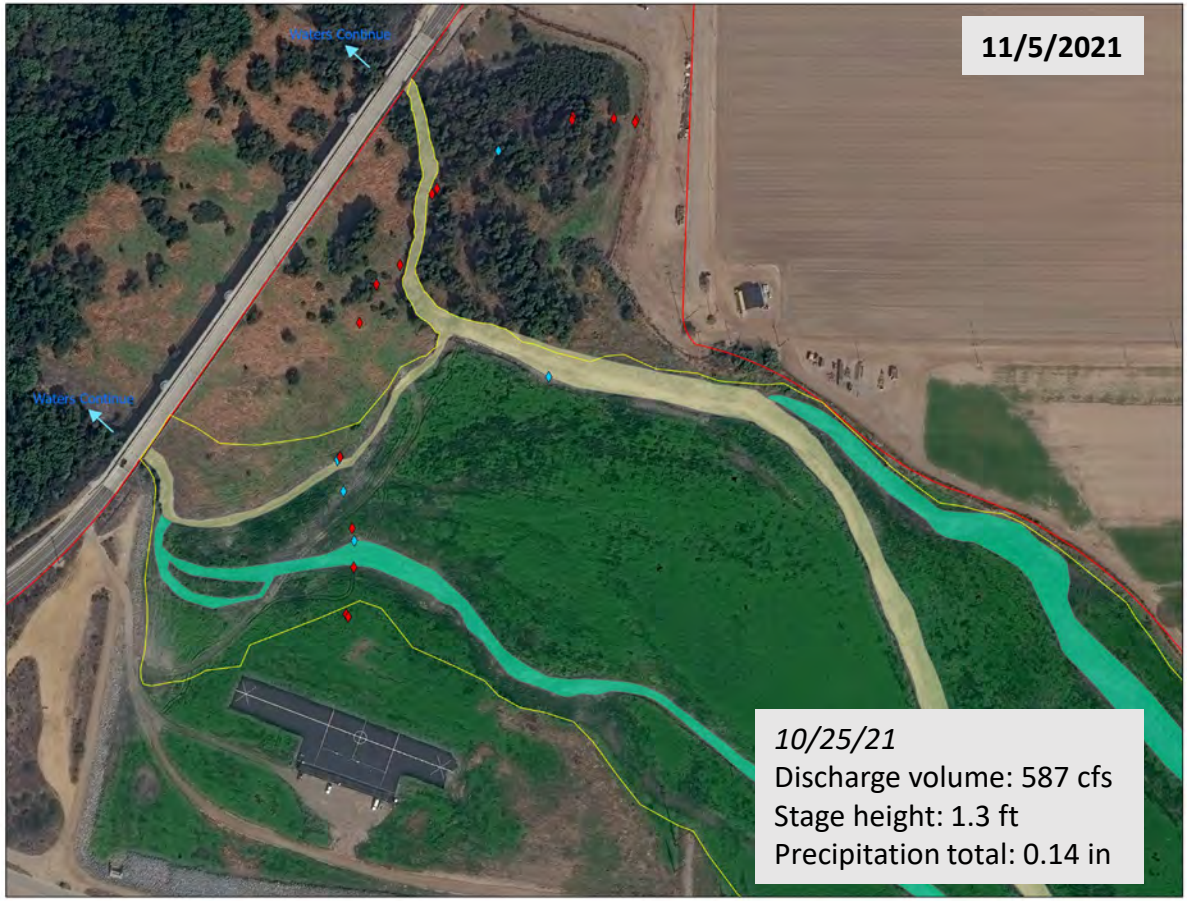
10/25/21
Discharge volume: 587 cfs
Stage height: 1.3 ft
Precipitation total: 0.14 in

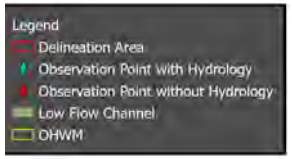


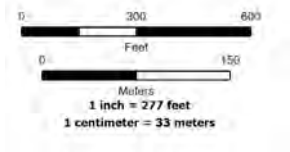


Correlation of floodplain inundation and discharge volume was completed through review of high-resolution Digital Globe imagery from 2018 through 2021. Aerial imagery was captured on 11/21/2021 following a 5- to 10-year flood event (7,124 cfs reported discharge by the USIBWC gage), as shown on the left. The image on the right was captured two days after the 2021 field survey and 10 days after a storm event that resulted in a reported discharge volume of 587 cfs.









Correlation of floodplain inundation and discharge volume was completed through review of high-resolution Digital Globe imagery from 2018 through 2021. Aerial imagery was captured on 11/21/2021 following a 5- to 10-year flood event (7,124 cfs reported discharge by the USIBWC gage), as shown on the left. The image on the right was captured two days after the 2021 field survey and 10 days after a storm event that resulted in a reported discharge volume of 587 cfs.

APPENDIX C: REPRESENTATIVE SITE PHOTOS

Tijuana River Floodplain Photo Points

N
W E
S

Legend
- Delineation Area
- Photo Points

0 1,000
Feet

0 250
Meters

1 inch = 453 feet
1 centimeter = 54 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane California VI FIPS 0406
PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
GCS: GCS NAD 1983 2011
Datum: NAD 1983 2011

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016, by:
Jason Deters, Project Manager
Enforcement and Special Projects Unit
U.S. Army Corps of Engineers
South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

Tijuana River Floodplain Photo Points

N
W E
S

Legend
- Delineation Area
- Photo Points

0 600
Feet

0 150
Meters

1 inch = 234 feet
1 centimeter = 28 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane California VI FIPS 0406
PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
GCS: GCS NAD 1983 2011
Datum: NAD 1983 2011

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016, by:
Jason Deters, Project Manager
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South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

Monument/ Dairy Mart Road Photo Points

N
W E
S

Legend
- Delineation Area
- Photo Points

0 600
Feet

0 150
Meters

1 inch = 243 feet
1 centimeter = 29 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane California VI FIPS 0406
PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
GCS: GCS NAD 1983 2011
Datum: NAD 1983 2011

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016, by:
Jason Deters, Project Manager
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South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

Smuggler's Gulch Photo Points

N
W E
S

Legend
Delineation Area
Photo Points

0 500
Feet

0 150
Meters

1 inch = 206 feet
1 centimeter = 25 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane California VI FIPS 0406
PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
GCS: GCS NAD 1983 2011
Datum: NAD 1983 2011

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016, by:
Jason Deters, Project Manager
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South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

Goat Canyon Photo Points

N
W E
S

Legend
Delineation Area
Photo Points

0 200
Feet

0 75
Meters

1 inch = 94 feet
1 centimeter = 11 meters

Created on May 31st, 2022

Spatial Reference
Name: NAD 1983 2011 StatePlane California VI FIPS 0406
PCS: NAD 1983 2011 StatePlane California VI FIPS 0406
GCS: GCS NAD 1983 2011
Datum: NAD 1983 2011

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016, by:
Jason Deters, Project Manager
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South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

Imagery source: Digital Globe G-EGD
Imagery date: 11/05/2021
Data Source: PG Environmental, November, 2021

APPENDIX D: ARID WEST REGION WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Border Swale City/County: San Diego County Sampling Date: 11/04/2021

Applicant/Owner: Federal/US Border Patrol State: CA Sampling Point: BS-DP1

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0.5

Subregion (LRR): C-19 Lat: 32.540527 Long: -117.058244 Datum: NAD83

Soil Map Unit Name: Chino Fine Sandy Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Outlet of two 3 foot concrete culverts, stormwater fed

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: 5 X 5)			
1. Cynodon dactylon	95	Y	FACU
2. Ricinus communis	2	N	FACU
3. Rumex crispus	5	N	FAC
4. Echinochloa crus-galli	1	N	FACW
5.			
6.			
7.			
8.			
	103 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: BS-DP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100					Loam	Roots
1-12	10YR 2/1	99	7.5YR 4/6	<1	RM	M	Loam	Faint redox 4%

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Very faint redox.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Border Swale City/County: San Diego County Sampling Date: 11/04/2021

Applicant/Owner: Federal/US Border Patrol State: CA Sampling Point: BS-DP2

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0.5

Subregion (LRR): C-19 Lat: 32.540244 Long: -117.061462 Datum: NAD83

Soil Map Unit Name: Chino Fine Sandy Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

West end of swale feature near outlet of two foot concrete culvert.

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. Lolium perenne	95	Y	FAC
2. Ricinus communis	3	N	FACU
3. Echinochloa crus-galli	1	N	FACW
4.			
5.			
6.			
7.			
8.			
	99 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 1 % 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:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: BS-DP2

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
0-6	10YR 3/2	96	7.5YR 4/4	4	RM	PL/M	Loam	Dry

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 6

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Border Swale / IBWC Property City/County: San Diego County Sampling Date: 11/04/2021

Applicant/Owner: Federal/US Border Patrol State: CA Sampling Point: BS-DP3

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South, Ra

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None 0 Slope (%): _____

Subregion (LRR): C-19 Lat: 32.541301 Long: -117.062876 Datum: NAD83

Soil Map Unit Name: Chino Fine Sandy Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Slight depressional area with restrictive layer/soils. Ponding on imagery.
Distrurbed

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: 5x5)			
1. Baccharis salicifolia	8	Y	FAC
2. Baccharis sarothroides	12	Y	FACU
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 x 5)			
1. Salsola tragus	5	N	FACU
2. Glebionis coronaria	10	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 65 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Sparsely vegetated

SOIL

Sampling Point: BS-DP3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Loam	Very compacted, dry

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

Likely only ponds after significant rain events, ponding visible on imagery

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Stewarts Drain City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: SD-DP1

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C-19 Lat: 32.540973 Long: -117.057673 Datum: NAD83

Soil Map Unit Name: Chino silt loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Near border/drain feature - downstream vegetated channel. Stormwater fed erosional feature

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 X 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 X 5)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 X 5)			
1. Rumex Crispus	15	Y	FAC
2. Echinochloa crus-galli	8	N	FACW
3. Malva	10	N	UPL
4. Amaranthus retroflexus	15	Y	FACU
5. Raphanus sativas	15	Y	UPL
6. Portulaca oleracea	10	N	FAC
7. Lolium perenne	30	Y	FAC
8.			
	103 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: SD-DP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	100					Loam	Moist

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

Surface water nearby, surface cracks nearby.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: _____ State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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: 5 X 5)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 X 5)			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: SG-DP1

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

No pit at this location due to cobble/gravel substrates, assumed due to surface water and dominance by salix saplings/seedlings.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: _____ State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: SG-DP2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Sandy Loa	Dry

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Roots/Rocks

Depth (inches): 6

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Smugglers Gulch City/County: San Diego County Sampling Date: 11/04/2021

Applicant/Owner: San Diego County State: CA Sampling Point: SB-DP3

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Channel/Bed/Low flow Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): C-19 Lat: 32.54268 Long: -117.088211 Datum: NAD83

Soil Map Unit Name: Terrace escarpments NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Low flow / Active channel

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 x 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 X 5)			
1. Baccharis salicifolia sapling	20	Y	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 x 5)			
1. Echinochloa crus-galli	10	Y	FACW
2. Raphanus sativus	2	N	FACU
3. Lolium perenne	5	N	FACU
4. Glebionis coronaria	2	N	UPL
5. Xanthium strumarium	3	N	FAC
6. Ricinus communis seedlings	5	N	FACU
7.			
8.			
	27 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 33 % Cover of Biotic Crust 0

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:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: SB-DP3

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

Soils are assumed based on indicators of wetland vegetation and hydrology, surface soils are cobbles/gravels

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

Pockets of saturation

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain - Transect 1 City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T1-DP1

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C-19 Lat: 32.542593 Long: -117.044021 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Constructed road bed in floodplain - very disturbed. Managed hydrology

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: 5 x 5)			
1. Malva Neglecta	3	Y	FACU
2. Raphanus sativus	3	Y	FACU
3. Lolium perenne	5	Y	FAC
4. Glebionis coronaria	1	N	UPL
5.			
6.			
7.			
8.			
	12 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 88 % 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: T1-DP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					Loam	Compacted road layer
2-12	1-YR 2/2	100					Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

P3 on compacted road in floodplain

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain - Transect 1 City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T1-DP2

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C-19 Lat: 32.542546 Long: -117.044024 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Disturbed floodplain - primarily early successional ruderal weeds

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: 5 X 5)			
1. Raphanus sativus	20	N	FACU
2. Glebionis coronaria	5	N	UPL
3. Malva nicaeensis	3	N	UPL
4. Lolium perenne	80	Y	FAC
5.			
6.			
7.			
8.			
	108 = 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:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: T1-DP2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/2	100					Sandy Lo	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): 14

Hydric Soil Present? Yes _____ No ✓

Remarks:

Highly disturbed/tilled

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T1-DP3

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): C-19 Lat: 32.542246 Long: -117.044053 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Floodplain terrace above low flow channel

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: 5 X 5)			
1. Rumex crispus	40	Y	FAC
2. Cyperus esculentus	5	N	FACW
3. Malva nicaeensis	5	N	UPL
4. Raphanus sativus	2	N	UPL
5. Echinochloa crus-galli	4	N	FACW
6. Arundo donax	2	N	FACW
7. Lolium perenne	35	Y	FAC
8.			
	93 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 7 % 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:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: T1-DP3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					Loam	Dry

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 12

Hydric Soil Present? Yes _____ No ✓

Remarks:

No indicators of redoximophic conditions - potentially due to recently deposited alluvial soils/sediments

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain - Transect 1 City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T1-DP4

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C-19 Lat: 32.542019 Long: -117.044105 Datum: NAD83

Soil Map Unit Name: Chino silt loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Top of bank, left descending above low flow channel

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: 5 X 5)			
1. Raphanus sativus	10	N	UPL
2. Malva nicaeensis	2	N	UPL
3. Lolium perenne	65	Y	FAC
4. Glebionis coronaria	5	N	UPL
5. Unk Herb	1	N	
6. Urtica dioica	2	N	FAC
7. Cynodon dactylon	5	N	FACU
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % 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:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: T1-DP4

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Same as DP2

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain - Transect 1 City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T1-DP5

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C-19 Lat: 32.54194 Long: -117.044092 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Barren area, managed vegetation, tilled

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: 5 X 5)			
1. Unk grass	21		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 79 % Cover of Biotic Crust _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

No cover by herbs, grass is mowed/desiccated

SOIL

Sampling Point: T1-DP5

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Same as DP1

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain - Transect 2 City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T2-DP1

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C-19 Lat: 32.544723 Long: -117.058814 Datum: NAD83

Soil Map Unit Name: Chino silt loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Edge of study area. Berm separates delineation area from adjacent sod area

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: 5 x 5)			
1. Arundo donax	8	Y	FACW
2. Raphanus sativus	12	Y	UPL
3. Sorghum halepense	15	Y	FACU
4. Lolium perenne	3	N	FAC
5.			
6.			
7.			
8.			
	38 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 62 % 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: T2-DP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100					Clay Loam	Dry, Granular
1-12	10YR 3/2	100					Clay Loam	Blocky

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain - Transect 2 City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T2-DP2

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain - Side Channel Local relief (concave, convex, none): Concave Slope (%): 0.5

Subregion (LRR): C-19 Lat: 32.544582 Long: -117.058877 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Small vegetated side channel - standing water upstream.

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: 5 X 5)			
1. Salix exigua	5	Y	FACW
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5 X 5)			
1. Persicaria amphibia	3	N	OBL
2. Schoenoplectus	2	N	OBL
3. Xanthium strumarium	10	N	FAC
4. Cynodon dactylon	55	Y	FACU
5. Amaranthus retroflexus	20	Y	FACU
6. Malva Neglecta	2	N	FACU
7. Lolium perenne	2	N	FAC
8. Knotweed	2	N	FAC
	96 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 4 % 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: T2-DP2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					Sandy Loam	Moist

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC _____ State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T2-DP3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100					Clay Loam	Dry, Granular
1-12	10YR 3/2	100					Clay Loam	Blocky

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

Same as DP1

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC _____ State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T2-DP4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					Sandy Loar	Moist

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

Same as T2-DP2

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T2-DP5

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): C-19 Lat: 32.543589 Long: -117.059739 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

High point between side channel swales low flow channel main channel

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: 5 x 5)			
1. Arundo donax	20	Y	FACW
2. Raphanus sativus	35	Y	FACU
3. Lolium perenne	15	N	FAC
4. Cynodon dactylon	5	N	FACU
5. Amaranthus retroflexus	1	N	FACU
6. Glebionis coronaria	3	N	UPL
7. Erodium cicutarium	1	N	UPL
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20 % 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: T2-DP5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 3/2	100					Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Same as DP1

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC _____ State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T2-DP6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					Sandy Loar	Moist

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

Same as DP2 - cobbles on surface

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T2-DP7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100					Clay Loam	Dry, Granular
1-12	10YR 3/2	100					lay Loam	Blocky

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

Same as DP1

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC _____ State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T3-DP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Loam	Dry
5-15	10YR 3/2	100					Sand	Dry

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

Debris

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC _____ State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T3-DP2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	100					Clay	Granular/moist
6-15	10YR 4/2	100					Clay	Moist

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain - Transect 3 City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T3-DP3

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C-19 Lat: 32.548412 Long: -117.06335 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Riparian woodland upstream of Dairy Mart Road bridge

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 x 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	80	Y	FACW
2.			
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5 X 5)			
1. Salix gooddingii (sapling)	3	Y	FACW
2.			
3.			
4.			
5.			
	3	= Total Cover	
Herb Stratum (Plot size: 5 x 5)			
1. Rumex crispus	25	Y	FAC
2. Hirschfeldia incana	2	N	UPL
3. Arundo donax	2	N	FACW
4. Echinochloa crus-galli	3	N	FACW
5.			
6.			
7.			
8.			
	32	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 65 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (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:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Dense Salix goodingii. Mature trees and some saplings

SOIL

Sampling Point: T3-DP3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100					Clay	Granular moist
1-15	10YR 3/2	100					Clay	Moist

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Same as DP2

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain - Transect 3 City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T3-DP4

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C-19 Lat: 32.548015 Long: -117.06422 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Low tree cover, high cover by ruderal wetland herbs

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: 5 X 5)			
1. Salix gooddingii	10	Y	FACW
2. Baccharis salicifolia	8	Y	FAC
3.			
4.			
5.			
	18 = Total Cover		
Herb Stratum (Plot size: 5 x 5)			
1. Arundo donax	25	Y	FACW
2. Ricinus communis	3	N	FACU
3. Xanthium strumarium	15	Y	FAC
4.			
5.			
6.			
7.			
8.			
	43 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 39 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (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:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Xanthium is senesced

SOIL

Sampling Point: T3-DP4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	100					Clay	Moist

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Same as DP3, moist clay

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain - Transect 3 City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T3-DP5

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C-19 Lat: 32.547597 Long: -117.064453 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Forested/riparian adjacent to active main low flow channel of Tijuana river.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 x 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	15	Y	FACW
2.			
3.			
4.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5 X 5)			
1. Salix gooddingii	10	Y	FACW
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5 x 5)			
1. Arundo donax	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. Ipomoea indica	10	Y	FAC
2.			
	10	= Total Cover	

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Arundo mostly senesced

SOIL

Sampling Point: T3-DP5

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
0-12	10YR 4/1	100	5YR 4/4	1	RM	PL	Loamy Cl	Moist
12-18	10YR 4/2	100					Loamy Sa	Moist

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Faint Redox in upper horizon

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T3-DP6

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C-19 Lat: 32.54749 Long: -117.064604 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

High terrace above mainstream/active channel if close

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: 5 x 5)			
1. Raphanus sativus	15	Y	FACU
2. Convolvulus arvensis	20	Y	UPL
3. Foeniculum vulgare	<1	N	UPL
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 65 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Mostly raphanus seedlings

SOIL

Sampling Point: T3-DP6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/3	100					Sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

0-5 dry, 5-18 moist

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain -Transect 3 City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T3-DP7

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C-19 Lat: 32.54749 Long: -117.064604 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Shrub with ruderal understory

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 x 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	3	Y	FACW
2.			
3.			
4.			
	3	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5 X 5)			
1. Baccharis salicifolia	30	Y	FAC
2. Salix gooddingii	3	N	FACW
3.			
4.			
5.			
	33	= Total Cover	
Herb Stratum (Plot size: 5 x 5)			
1. Raphanus sativus	20	Y	FACU
2. Cynodon dacylis	3	N	FACU
3. Lolium perenne	10	Y	FAC
4. Amaranthus retroflexus	2	N	FACU
5.			
6.			
7.			
8.			
	35	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 22 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Raphanus seedlings

SOIL

Sampling Point: T3-DP7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-17	10YR 4/3	100					Sand	
17-20	10YR 3/2	100					Loamy Cl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC _____ State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T3-DP8

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-17	10YR 4/3	100					Sand	
17-20	10YR 4/3	100					Loamy Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

same as DP7

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain - Transect 3 City/County: San Diego County Sampling Date: 11/31/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T3-DP9

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C-19 Lat: 32.546547 Long: -117.06483 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Above second (West) active channel, right descending bank.

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: 5 x 5)			
1. Rumex crispus	20	Y	FAC
2. Raphanus sativus	15	Y	FACU
3. Canoa sp.	5	N	
4. Lolium perenne	5	N	FAC
5.			
6.			
7.			
8.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 55 % 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: T3-DP9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	96					Sandy Loam	Moist
0-12	10YR 4/3	4					Sand	Sand Lense

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T3-DP10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	96					Sandy Loa	Moist
0-12	10YR 4/3	4					Sand	Sand Lense

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

Same as DP9

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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: 5 X 5)			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T3-DP11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	96					Sandy Loar	Moist
0-12	10YR 4/3	4					Sand	Sand Lense

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

same as DP10

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC _____ State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T3-DP12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	96					Sandy Loar	Moist
0-12	10YR 4/3	4					Sand	Sand Lense

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

same as DP10

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

wrack lines

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: USIBWC State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (% : _____

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **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.			
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: _____ A)

Total Number of Dominant Species Across All Strata: _____ B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: T3-DP13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	96					Sandy Loar	Moist
0-12	10YR 4/3	4					Sand	Sand Lense

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

same as DP10

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tijuana River Floodplain City/County: San Diego County Sampling Date: 11/03/2021

Applicant/Owner: USIBWC State: CA Sampling Point: T3-DP14

Investigator(s): Esa Crumb, Zak Erickson, Abe Margo Section, Township, Range: Sections 2, 3, 4, 9, 10, 11 Township 19 South,

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C-19 Lat: 32.545694 Long: -117.064783 Datum: NAD83

Soil Map Unit Name: Chino Silt Loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Similar to DP13 but higher cover by Raphanus sativas; active ground squirrel burrows observed near point

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: 5 x 5)			
1. Raphanus sativus	60	Y	UPL
2. Lolium perenne	20	N	FAC
3. Convolvulus arvensis	25	Y	UPL
4.			
5.			
6.			
7.			
8.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (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:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: T3-DP14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					Sandy Lo	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

same as DP10

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

APPENDIX E: ARID WEST ORDINARY HIGH WATER MARK DATA FORMS

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Tijuana River USMCA Project
Date: 11/4/2021
Time:
Project Number:
Town:
State: California
Stream: Goat Canyon Creek
Photo begin file#:
Photo end file#:
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Goat Canyon Creek, downstream of canyon collector

Projection: **Datum:** NAD83
Coordinates: 32.537162838, -117.099921609

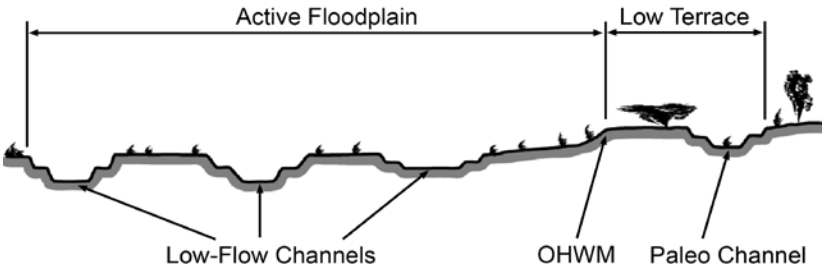
Potential anthropogenic influences on the channel system:
Managed hydrology (low flows diverted at canyon collector), significant trash/debris throughout channel bottom

Brief site description:
Goat Canyon Creek, downstream of canyon collector outlet/sediment pond

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

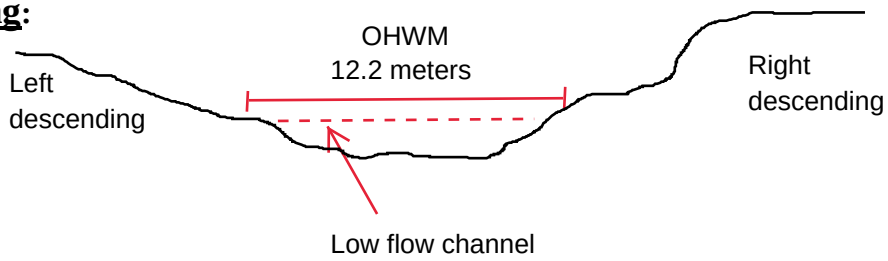


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** GC-T1-OHWM **Date:** 11/4/2021 **Time:**

Cross section drawing:



OHWM

GPS point: GC-Transect 1

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: late successional plants
- [ ] Other: _____

Comments:

OHWM defined by break in slope, transition to mature/riparian trees and/or upland species, and change in sediment texture

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [X] Low Terrace

GPS point: GC-Transect 1

Characteristics of the floodplain unit:

Average sediment texture: silts/gravels

Total veg cover: 50 % Tree: 0 % Shrub: 30 % Herb: 20 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [X] Mid (herbaceous, shrubs, saplings)
- [X] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: late successional vegetation
- [ ] Other: _____
- [ ] Other: _____

Comments:

Low terrace/transition to OHWM from low flow channel

Project ID: **Cross section ID:** GC-T1-OHWM **Date:** 11/4/2021 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: GC-Transect 1

Characteristics of the floodplain unit:

Average sediment texture: cobbles/gravels

Total veg cover: 5 % Tree: _____% Shrub: 5 % Herb: <1 %

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: sediment sorting
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low flow channel is dry, lots of debris/trash.

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

Project: Tijuana River USMCA Project
Date: 11/4/2021
Time:
Project Number:
Town:
State: California
Stream: Goat Canyon Creek
Photo begin file#:
Photo end file#:
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Goat Canyon Creek, mid-channel segment

Projection: **Datum:** NAD83
Coordinates: 32.537619511, -117.100403225

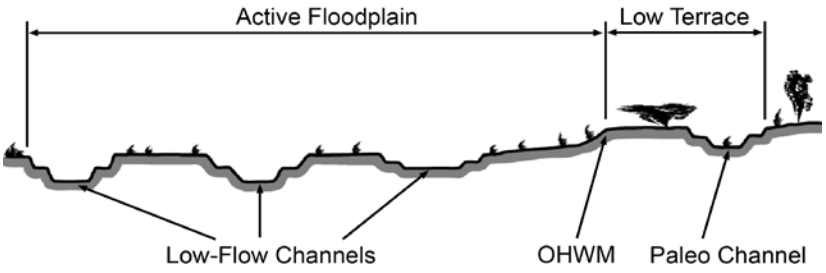
Potential anthropogenic influences on the channel system:
Managed hydrology (low flows diverted at canyon collector), significant trash/debris throughout channel bottom

Brief site description:
Goat Canyon Creek - mid channel segment in delineation area, wide channel floodplain area

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

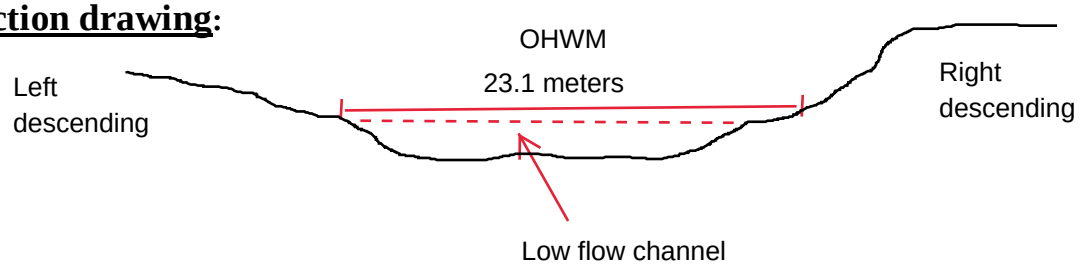


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** GC-T2-OHWM **Date:** 11/4/2021 **Time:**

Cross section drawing:



OHWM

GPS point: GC-Transect 2

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: late successional plants
- [ ] Other: _____

Comments:

OHWM defined by break in slope, transition to mature/riparian trees and/or upland species, and change in sediment texture

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [X] Low Terrace

GPS point: GC-Transect 2

Characteristics of the floodplain unit:

Average sediment texture: silts/gravels

Total veg cover: 60 % Tree: 10 % Shrub: 30 % Herb: 20 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [X] Mid (herbaceous, shrubs, saplings)
- [X] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: late successional vegetation
- [ ] Other: _____
- [ ] Other: _____

Comments:

Low terrace/transition to OHWM from low flow channel

Project ID: **Cross section ID:** GC-T2-OHWM **Date:** 11/4/2021 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: GC-Transect 2

Characteristics of the floodplain unit:

Average sediment texture: cobbles/gravels

Total veg cover: 2 % Tree: _____% Shrub: 1 % Herb: <1 %

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: sediment sorting
- ☐ Other: _____
- ☐ Other: _____

Comments:

Wide low flow channel, mostly devoid of vegetation, some trash/debris

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

Project: Tijuana River USMCA Project
Date: 11/4/2021
Time:
Project Number:
Town:
State: California
Stream: Goat Canyon Creek
Photo begin file#:
Photo end file#:
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Goat Canyon Creek, downstream segment

Projection: **Datum:** NAD83
Coordinates: 32.537820126, -117.101390029

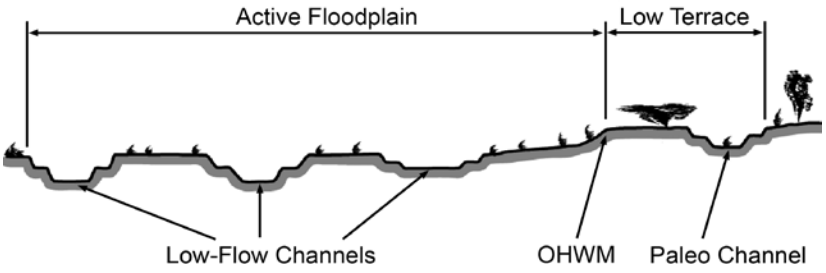
Potential anthropogenic influences on the channel system:
Managed hydrology (low flows diverted at canyon collector), significant trash/debris throughout channel bottom

Brief site description:
Goat Canyon Creek - downstream segment near access road crossing

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

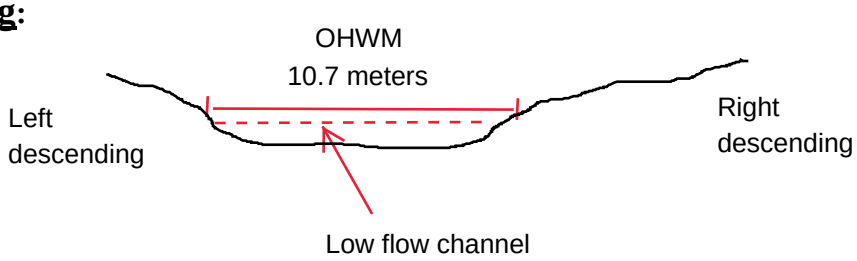


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** GC-T3-OHWM **Date:** 11/4/2021 **Time:**

Cross section drawing:



OHWM

GPS point: GC-Transect 3

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: late successional plants
- [ ] Other: _____

Comments:

OHWM defined by break in slope, transition to mature/riparian trees and/or upland species, and change in sediment texture

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [X] Low Terrace

GPS point: GC-Transect 3

Characteristics of the floodplain unit:

Average sediment texture: silts/gravels

Total veg cover: 50 % Tree: 30 % Shrub: 15 % Herb: 5 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [X] Mid (herbaceous, shrubs, saplings)
- [X] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: late successional vegetation
- [ ] Other: _____
- [ ] Other: _____

Comments:

Low terrace/transition to OHWM from low flow channel

Project ID: **Cross section ID:** GC-T3-OHWM **Date:** **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: GC-Transect 3

Characteristics of the floodplain unit:

Average sediment texture: cobbles/gravels

Total veg cover: <1 % Tree: _____% Shrub: 0 % Herb: <1 %

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: sediment sorting
- ☐ Other: _____
- ☐ Other: _____

Comments:

Narrower low flow channel, devoid of vegetation, some trash/debris.

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

Project: Tijuana River USMCA Project
Date: 11/4/2021
Time:
Project Number:
Town:
State: California
Stream: Smuggler's Gulch drainage
Photo begin file#:
Photo end file#:
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Smuggler's Gulch drainage downstream of canyon collector

Projection: **Datum:** NAD83
Coordinates: 32.540312067, -117.087184271

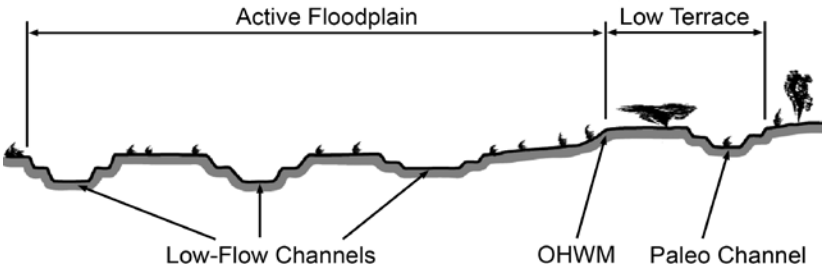
Potential anthropogenic influences on the channel system:
Managed hydrology (low flows diverted at canyon collector), channel dredging (sediment and vegetation removal in channel)

Brief site description:
Smuggler's Gulch drainage, downstream of canyon collector outlet

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

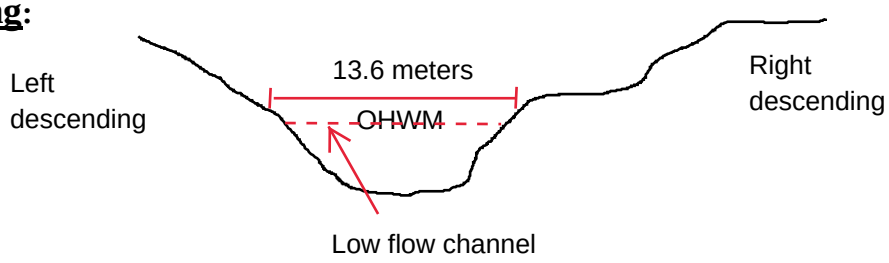


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** SG-T1-OHWM **Date:** 11/4/2021 **Time:**

Cross section drawing:



OHWM

GPS point: SG Transect 1

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: late successional plants
- [ ] Other: _____

Comments:

OHWM defined by break in slope, transition to mature/riparian trees and/or upland species, and change in sediment texture

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [X] Low Terrace

GPS point: Transect 1

Characteristics of the floodplain unit:

Average sediment texture: silts/gravels

Total veg cover: 60 % Tree: 35 % Shrub: 15 % Herb: 10 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [X] Mid (herbaceous, shrubs, saplings)
- [X] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: late successional vegetation
- [ ] Other: _____
- [ ] Other: _____

Comments:

Low terrace/transition to OHWM from low flow channel

Project ID: **Cross section ID:** SG-T1-OHWM **Date:** 11/4/2021 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: SG-Transect 1

Characteristics of the floodplain unit:

Average sediment texture: cobbles/gravels

Total veg cover: 40 % Tree: _____% Shrub: 40 % Herb: 10 %

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: early/mid successional vegetation
- ☒ Other: exposed roots
- ☒ Other: sediment sorting

Comments:

Low flow channel contains areas of ponding but no surface flows.

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

Project: Tijuana River USMCA Project
Date: 11/4/2021
Time:
Project Number:
Town:
State: California
Stream: Smuggler's Gulch drainage
Photo begin file#:
Photo end file#:
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Smuggler's Gulch drainage, mid-reach

Projection: **Datum:** NAD83
Coordinates: 32.541142150, -117.087738061

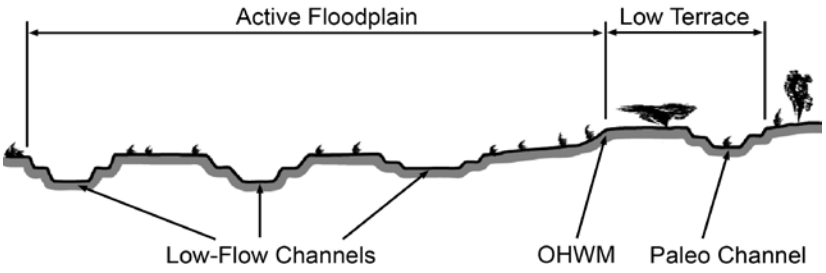
Potential anthropogenic influences on the channel system:
Managed hydrology (low flows diverted at canyon collector), channel dredging (sediment and vegetation removal in channel)

Brief site description:
Smuggler's Gulch drainage, mid-reach, upstream of access road.

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

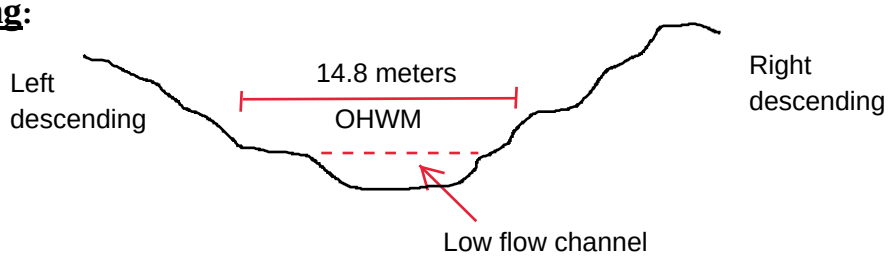


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** SG-T2-OHWM **Date:** 11/4/2021 **Time:**

Cross section drawing:



OHWM

GPS point: SG Transect 2

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: late successional plants
- [ ] Other: _____

Comments:

OHWM defined by break in slope, transition to riparian shrubs and/or upland species, and change in sediment texture

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [X] Low Terrace

GPS point: SG-Transect 2

Characteristics of the floodplain unit:

Average sediment texture: silts/gravels

Total veg cover: 60 % Tree: 10 % Shrub: 30 % Herb: 20 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [X] Mid (herbaceous, shrubs, saplings)
- [X] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: late successional vegetation
- [ ] Other: _____
- [ ] Other: _____

Comments:

Low terrace/transition to OHWM from low flow channel

Project ID: **Cross section ID:** SG-T2-OHWM **Date:** 11/4/2021 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: SG-Transect 2

Characteristics of the floodplain unit:

Average sediment texture: cobbles/gravels

Total veg cover: 35 % Tree: _____% Shrub: 25 % Herb: 10 %

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: early/mid-successional vegetation
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low flow channel supports early/mid successional vegetation including wetland shrubs, channel is dry.

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

Project: Tijuana River USMCA Project
Date: 11/4/2021
Time:
Project Number:
Town:
State: California
Stream: Smuggler's Gulch drainage
Photo begin file#:
Photo end file#:
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Smuggler's Gulch drainage, upstream of Monument Rd

Projection: **Datum:** NAD83
Coordinates: 32.543211369, -117.088207407

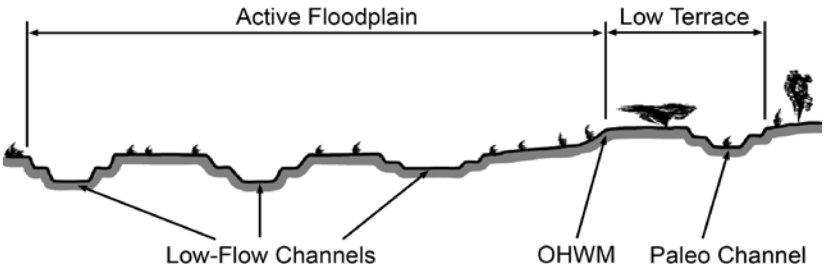
Potential anthropogenic influences on the channel system:
Managed hydrology (low flows diverted at canyon collector), channel dredging (sediment and vegetation removal in channel)

Brief site description:
Smuggler's Gulch drainage, upstream of Monument Road.

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

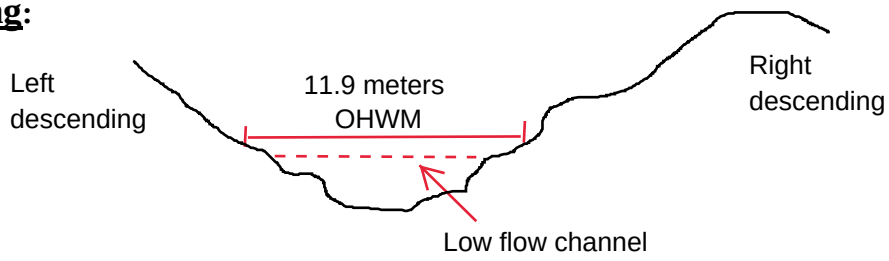


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** SG-T3-OHWM **Date:** 11/4/2021 **Time:**

Cross section drawing:



OHWM

GPS point: SG Transect 3

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: late successional plants
- [ ] Other: _____

Comments:

OHWM defined by break in slope, transition to riparian shrubs and/or upland species, and change in sediment texture

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [X] Low Terrace

GPS point: Transect 3

Characteristics of the floodplain unit:

Average sediment texture: silts/gravels

Total veg cover: 60 % Tree: 10 % Shrub: 30 % Herb: 20 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [X] Mid (herbaceous, shrubs, saplings)
- [X] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [ ] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: late successional vegetation
- [ ] Other: _____
- [ ] Other: _____

Comments:

Low terrace/transition to OHWM from low flow channel

Project ID: **Cross section ID:** SG-T3-OHWM **Date:** 11/4/2021 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: SG-Transect 3

Characteristics of the floodplain unit:

Average sediment texture: Cobbles/gravels

Total veg cover: 40 % Tree: _____% Shrub: 30 % Herb: 10 %

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: sediment sorting
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low flow channel supports early/mid successional wetland shrubs and scattered herbs, channel is dry.

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

Project: Tijuana River USMCA Project
Project Number:
Stream: Tijuana River
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Date: 11/3/2021
Town:
Photo begin file#:

Time:
State: California
Photo end file#:

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Tijuana River Floodplain downstream of Mexico border

Projection: **Datum:** NAD83
Coordinates: 32.542593, -117.044021

Potential anthropogenic influences on the channel system:
Managed hydrology (upstream diversions), managed vegetation (clearing), soil disturbances (tilling)

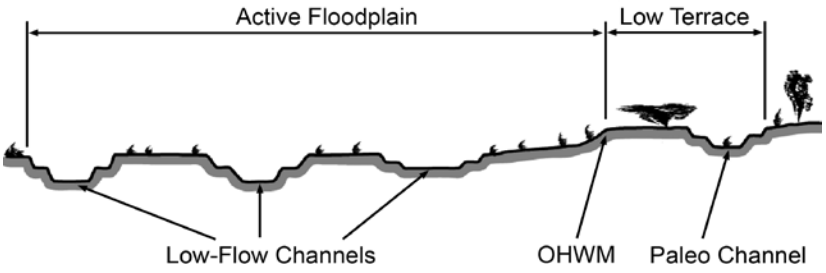
Brief site description:
Tijuana River floodplain, downstream of concrete floodway channel. Transect area underlain by riprap. Floodplain confined by levees to north and south.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☒ Other studies

- ☒ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☒ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

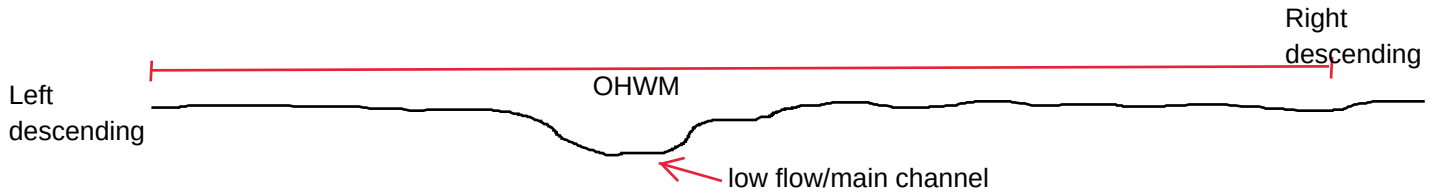


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** TRF-T1-OWHM **Date:** 11/3/2021 **Time:**

Cross section drawing:



OHWM

GPS point: Transect 1- DP3 and DP4

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: Inundation model and inundation on aerial imagery
- ☐ Other: _____

Comments:

OHWM defined by inundation model (USACE 2018) and evidence of inundation on imagery. In-field observations used to defined low flow channel and floodplain indicators.

Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: Transect 1 - DP3 and DP4

Characteristics of the floodplain unit:

Average sediment texture: coarse silt

Total veg cover: 5-10 % Tree: 0 % Shrub: 0 % Herb: 5-10 %

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:

Stable low flow channel visible on aerial imagery and observed in the field. Area underlain by riprap. Low bench below right descending bank.

Project ID: **Cross section ID:** TRF-T1-OWHM **Date:** 11/3/2021 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt loam

Total veg cover: 0-90 % Tree: 0 % Shrub: 0 % Herb: 0-90 %

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:

Trash and debris observed throughout floodplain.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt-loam (compacted)

Total veg cover: 0 % 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: Access road and levee walls define high terrace limits
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Tijuana River USMCA Project
Date: 11/3/2021
Time:
Project Number:
Town:
State: California
Stream: Tijuana River
Photo begin file#:
Photo end file#:
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Tijuana River Floodplain, middle of delineation area

Projection: **Datum:** NAD83
Coordinates: 32.544723, -117.058814

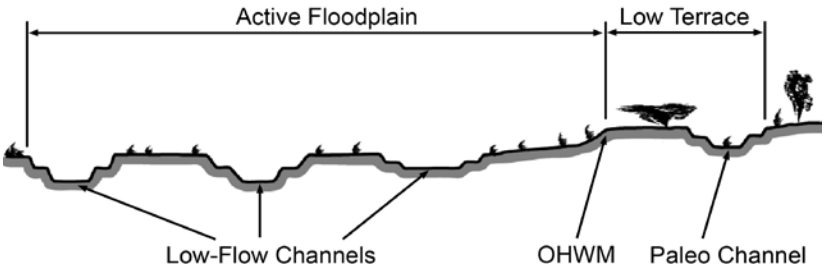
Potential anthropogenic influences on the channel system:
Managed hydrology (upstream diversions), managed vegetation (clearing), soil disturbances (tilling)

Brief site description:
Tijuana River floodplain - wider floodplain, earthen bottom, downstream of Stewart's Drain swale/channel confluence.

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

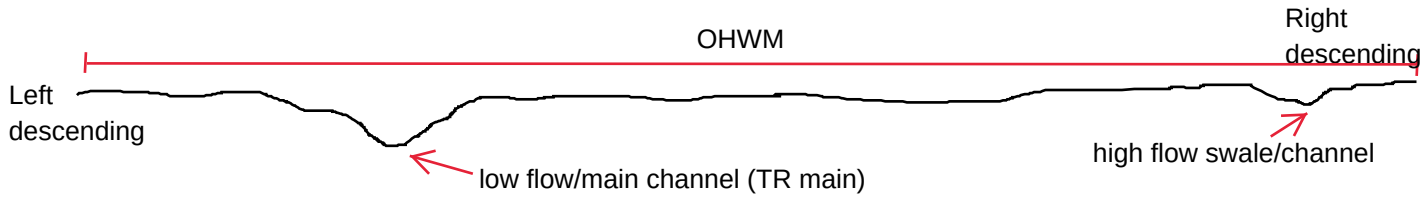


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** TRF-T2-OWHM **Date:** 11/3/2021 **Time:**

Cross section drawing:



OHWM

GPS point: Transect 2- DP5 and DP6

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: Toe of floodplain levee and berm
- ☐ Other: _____

Comments:

OHWM defined by floodplain levee to south and constructed berm to north

Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: Transect 1 - DP3 and DP4

Characteristics of the floodplain unit:

Average sediment texture: clay loam

Total veg cover: <5 % Tree: 0 % Shrub: 0 % Herb: <5 %

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:

Minimal vegetation in channel, dense algae cover.

Project ID: **Cross section ID:** TRF-T2-OWHM **Date:** 11/3/2021 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt loam

Total veg cover: 30-90 % Tree: 0 % Shrub: 0 % Herb: 30-90%

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:

Trash and debris observed throughout floodplain. Mostly ruderal, weedy vegetation on floodplain. Low berm on right descending bank separating active floodplain from adjacent sod field, constructed floodplain levee to south (left descending bank) defines limits of OWHM.

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

Project: Tijuana River USMCA Project
Project Number:
Stream: Tijuana River
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Date: 11/3/2021
Town:
Photo begin file#:

Time:
State: California
Photo end file#:

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Tijuana River Floodplain upstream of Dairy Mart bridge

Projection: **Datum:** NAD83
Coordinates: 32.548398, -117.062942

Potential anthropogenic influences on the channel system:
Managed hydrology (upstream diversions), managed vegetation (clearing), soil disturbances (tilling)

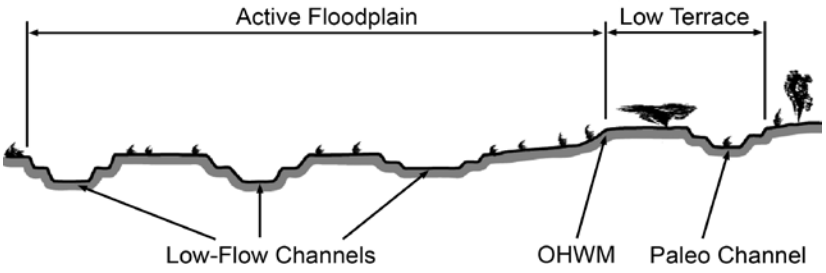
Brief site description:
Tijuana River floodplain - upstream of Dairy Mart Road. Riparian vegetation adjacent to main channel

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☒ Other studies

- ☒ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☒ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

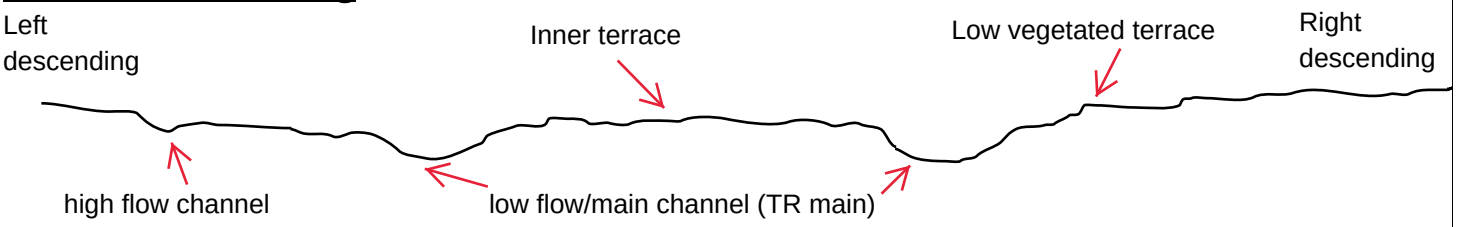


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** TRF-T3-OWHM **Date:** 11/3/2021 **Time:**

Cross section drawing:



OHWM

GPS point: Transect 3

Indicators:

- [ ] Change in average sediment texture
- [X] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: Bed and bank
- [ ] Other: _____

Comments:

OHWM defined by extents of inundation visible on imagery, floodplain indicators, and changes in vegetation

Floodplain unit: [X] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: Transect 3 - DP6

Characteristics of the floodplain unit:

Average sediment texture: silty loam

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [X] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

North channel/main stem branch. No vegetation in channel, overhanging canopy from adjacent trees/riparian areas

Project ID: **Cross section ID:** TRF-T3-OWHM **Date:** 11/3/2021 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt loam

Total veg cover: 5-10 % Tree: 0 % Shrub: 0 % Herb: 5-10 %

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:

South channel/branch. Minimal vegetation in channel. Herbaceous vegetation on channel banks, top of bank.

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 10-90 % Tree: 0-60 % Shrub: 0-70 % Herb: 10-90 %

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: inundation observed on aerial imagery
- ☐ Other: _____
- ☐ Other: _____

Comments:

Vegetation variable across Transect 3 - mature scrub-shrub and woodland riparian vegetation used to define inner and low terrace breaks, floodplain indicators observed across west segment of transect line and inundation observed on aerial imagery.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Tijuana River USMCA Project
Project Number:
Stream: Tijuana River
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Date: 11/3/2021
Town:
Photo begin file#:

Time:
State: California
Photo end file#:

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Tijuana River Floodplain, middle of delineation area

Projection: **Datum:** NAD83
Coordinates: 32.543194, -117.058009

Potential anthropogenic influences on the channel system:
Managed hydrology (upstream diversions), managed vegetation (clearing), soil disturbances (tilling)

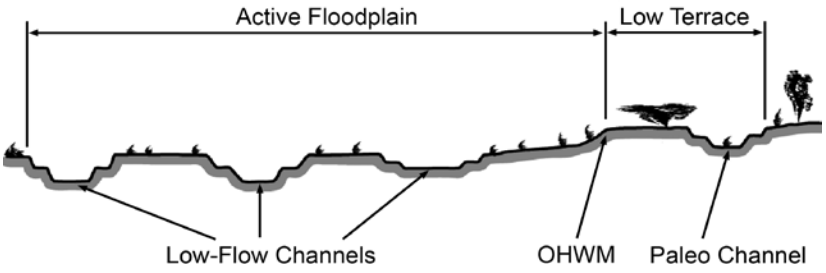
Brief site description:
Tijuana River floodplain - wider floodplain, earthen bottom, upstream of Stewart's Drain swale/channel confluence.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☒ Other studies

- ☒ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☒ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

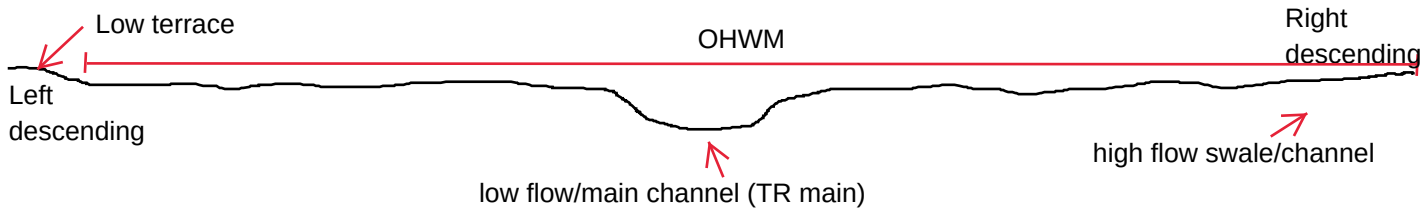


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** TRF-T4-OWHM **Date:** 11/3/2021 **Time:**

Cross section drawing:



OHWM

GPS point: Transect 4

Indicators:

- [ ] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: Toe of berm
- [ ] Other: _____

Comments:

OHWM defined by low terrace to south and constructed berm to north

Floodplain unit:

- [X] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: Transect 1 - DP3 and DP4

Characteristics of the floodplain unit:

Average sediment texture: clay loam

Total veg cover: <5 % Tree: 0 % Shrub: 0 % Herb: <5 %

Community successional stage:

- [ ] NA
- [X] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [X] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Minimal vegetation in channel

Project ID: **Cross section ID:** TRF-T4-OWHM **Date:** 11/3/2021 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt loam

Total veg cover: 30-90 % Tree: 0 % Shrub: 0 % Herb: 30-90%

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:

Trash and debris observed throughout floodplain. Mostly ruderal, weedy vegetation on floodplain. Low berm on right descending bank separating active floodplain from adjacent sod field. Transect downstream of inner check dam and within transition from riprap lined floodplain to native soil.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty-loam

Total veg cover: <5 % Tree: _____% Shrub: _____% Herb: <5 %

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:

High terrace to south defined by lack of inundation on aerial imagery, lower vegetation cover, and transition to access road.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Tijuana River USMCA Project
Project Number:
Stream: Tijuana River
Investigator(s): Esa Crumb, Zak Erikson, Abe Margo

Date: 11/3/2021
Town:
Photo begin file#:

Time:
State: California
Photo end file#:

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:
Tijuana River Floodplain, Stewart's Drain outlet channel

Projection: **Datum:** NAD83
Coordinates: 32.541309, -117.058009

Potential anthropogenic influences on the channel system:

Managed hydrology (upstream diversions), managed vegetation (clearing), soil disturbances (tilling) on floodplain; managed flows from Stewart's Drain

Brief site description:

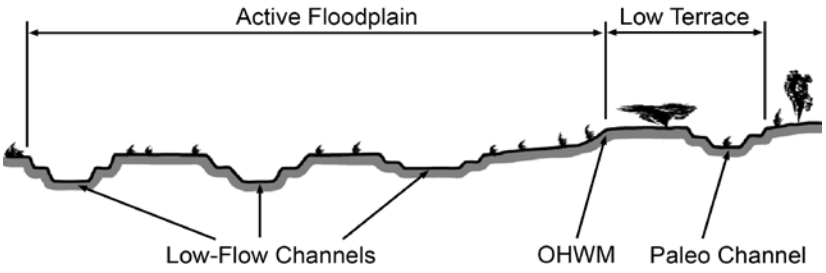
Outlet channel/swale from Stewart's Drain canyon collector

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☒ Other studies

- ☒ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☒ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

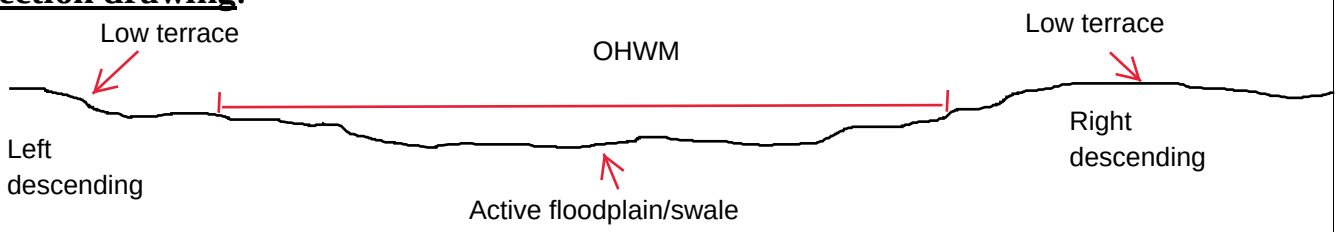


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Project ID: **Cross section ID:** TRF-T5-OWHM **Date:** 11/3/2021 **Time:**

Cross section drawing:



OHWM

GPS point: Transect 2- DP5 and DP6

Indicators:

- [ ] Change in average sediment texture
- [X] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: Access road
- [ ] Other: _____

Comments:

OHWM defined by low terrace and access road, and visible inundation on aerial imagery

Floodplain unit:

- [ ] Low-Flow Channel
- [X] Active Floodplain
- [ ] Low Terrace

GPS point: Transect 5 - SP-DP

Characteristics of the floodplain unit:

Average sediment texture: clay loam/silt loam

Total veg cover: 80 % Tree: 0 % Shrub: 0 % Herb: 80 %

Community successional stage:

- [ ] NA
- [X] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [X] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Inundation visible on aerial imagery
- [ ] Other: _____
- [ ] Other: _____

Comments:

No defined low flow channel

Project ID: **Cross section ID:** TRF-T5-OWHM **Date:** 11/3/2021 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt loam

Total veg cover: 0-20 % Tree: 0 % Shrub: 0 % Herb: 0-20 %

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: Access road to west
- ☐ Other: _____
- ☐ Other: _____

Comments:

Transition to west is an access road, transition to east is minor topographic transition and change in species cover

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: