Wildomar Crossings Project

Jurisdictional Delineation Report

December 19, 2017
Wildomar Crossings Project
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I. INTRODUCTION

At the request of Mann Property Company, HELIX Environmental Planning, Inc. (HELIX) has prepared this report to document the results of a formal jurisdictional delineation for the proposed Wildomar Crossings Project (project) located in the City of Wildomar, Riverside County, California. The delineation was conducted to delineate, map, and quantify areas on the project site with the potential to fall under the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) as waters of the U.S. pursuant to Section 404 of the Clean Water Act (33 USC 1344); Regional Water Quality Control Board (RWQCB) as waters of the State pursuant to Section 404 of the Clean Water Act and State Porter-Cologne Water Quality Control Act; and California Department of Fish and Wildlife (CDFW) as jurisdictional streambed and riparian habitat pursuant to Sections 1600 et seq. of the California Fish and Game Code (CFG Code).

The information documented in this report is necessary to evaluate jurisdictional impacts and permit requirements associated with construction of the project. This report presents HELIX’s best efforts to quantify the extent of potential agency jurisdiction within the project site using the current regulations, written policies, and regulatory guidance. The jurisdictional boundaries provided here are subject to verification by the USACE, RWQCB, and CDFW.

The approximately 4.4-acre project site is located at the northwest corner of Clinton Keith Road and Stable Lanes Road in the City of Wildomar, Riverside County, California (Figure 1). The site is situated on the U.S. Geological Survey (USGS) 7.5-minute Wildomar and Murrieta quadrangle maps in Section 1, Township 7 South, Range 4 West (Figure 2). Vegetation communities within the project site are shown on Figure 3. Potential USACE and RWQCB jurisdiction is shown on Figure 4 and potential CDFW jurisdiction is shown on Figure 5.

Data presented in this report includes information from a November 27, 2017 site meeting with representatives from the U.S. Fish and Wildlife Service (USFWS), CDFW, and City of Wildomar (City).

II. METHODS

Prior to beginning fieldwork, aerial photographs (1"=100' scale), and topographic maps (1"=100' scale) were reviewed to determine the location of potential jurisdictional areas that may be affected by the proposed project. Data were collected in areas that were suspected to be jurisdictional habitats by HELIX biologist Rob Hogenauer on August 29, 2016. This visit updates previous field conducted by Mr. Hogenauer and HELIX biologist W. Larry Sward in 2009. The delineation results for potential CDFW jurisdiction were further discussed and verified in the field on November 27, 2017 with the USFWS, CDFW, and City. Data were collected in areas that were suspected to support potential jurisdictional resources. Sampling points were taken within representative uplands and wetlands, and mapping of drainage features was performed in the field based on the ordinary high water mark (OHWM) and surface indications of hydrology.
Potential USACE wetland boundaries were determined using the three criteria (vegetation, hydrology, and soils) established for wetland delineations, as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and since updated in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). The USACE non-wetland boundaries were further determined using methods suggested by the USACE in A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States (USACE 2008b). The same methods were used to determine potential RWQCB jurisdiction in the form of waters of the State.

The results presented here are also discussed in light of court decisions (i.e., Rapanos v. United States, Carabell v. United States, and Solid Waste Agency of Northern Cook County [SWANCC] v. USACE), as outlined and applied by the USACE (USACE 2007a; Grumbles and Woodley 2007), USACE and Environmental Protection Agency (EPA; 2007), and EPA and USACE (2007). These publications explain that the EPA and USACE will assert jurisdiction over traditional navigable waters (TNW) and tributaries to TNWs that are relatively permanent water bodies (RPWs), which have year-round or continuous seasonal flow. For water bodies that are not RPWs, a significant nexus evaluation must be conducted to determine whether the non-RPW is jurisdictional. An overview of USACE wetlands and jurisdictional waters of the U.S. definitions is presented in Appendix A.

Plants were identified according to Baldwin et al. (2012); common names were augmented using Calflora (2016). Wetland affiliations of plant species follow the National Wetland Plant List (Lichvar et al. 2016) and the Wetland Plants of Specialized Habitats in the Arid West (USACE 2007b). Vegetation was mapped using a community-based system (Holland 1986).

Soils information (Figure 4) was taken from the Natural Resource Conservation Services’ (NRCS) Web Soil Survey (2016). Soil samples were evaluated for hydric soil indicators. Soil chromas were identified according to Munsell’s Soil Color Charts (Kollmorgen 1994).

Each sampling point was inspected for primary (i.e., inundation, saturation, water marks, drift lines, sediment deposits, and drainage patterns in wetlands) and secondary (e.g., oxidized root channels, water-stained leaves, and FAC-neutral test) wetland hydrology indicators. Areas were determined to be non-wetland waters of the U.S. if there was evidence of regular surface flow (e.g., bed and bank) but the vegetation or soils criterion was not met. Jurisdictional limits for these areas were defined by the OHWM, which is defined in 33 CFR Section 329.11 as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas.” The USACE has issued further guidance on the OHWM (Riley 2005; USACE 2008b), which also has been used for this delineation.

Potential CDFW jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Streambeds within CDFW jurisdiction were delineated based on the definition of streambed as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life.
Project Vicinity Map (USGS Topography)

WILDOMAR CROSSINGS

Figure 2
Vegetation Communities

- Coast Live Oak Woodland
- Southern Willow Scrub
- Riversidean Sage Scrub
- Riversidean Sage Scrub Disturbed
- Eucalyptus Woodland
- Non-native Grassland
- Non-native Grassland Rumex crispus Dominated (Upland, Disked)
- Developed

Figure 3

WILDOMAR CROSSINGS
USACE/RWQCB Jurisdiction

WILDOMAR CROSSINGS

Figure 4
CDFW Jurisdiction and Riparian/Riverine Areas

WILDOMAR CROSSINGS

Figure 5
This includes watercourses having a surface or subsurface flow that supports riparian vegetation” (Title 14, Section 1.72). Definitions of CDFW jurisdictional areas are presented in Appendix B. Four sampling points were taken within the study area during the delineation. Standard data forms are included as Appendix C. Photos were taken of the sampling points and are included as Appendix D.

III. RESULTS

A. SITE DESCRIPTION

The approximately 4.4-acre project site is located at the northwest corner of Clinton Keith Road and Stable Lanes Road in the City of Wildomar, Riverside County, California (Figure 1). The site is situated on the U.S. Geological Survey (USGS) 7.5-minute Wildomar and Murrieta quadrangle maps in Section 1, Township 7 South, Range 4 West (Figure 2). The project site is within the Santa Margarita watershed.

The site comprises two parcels (Assessor Parcel Nos. 380-120-003 and -004), as well as a road right-of-way, and is bordered by a mix of rural residential and undeveloped land, with a major road and commercial development located nearby to the northeast (Figure 3).

Non-native grassland covers most of the project site. Other habitats on site include southern willow scrub, coast live oak woodland, Riversidean sage scrub (including disturbed), and eucalyptus woodland. The site is made up of slightly rolling terrain with elevations ranging from approximately 1,260 to 1,280 feet above mean sea level (AMSL).

The National Wetlands Inventory (NWI) shows a single unnamed tributary to Murrieta Creek that crosses the southern corner of the site (U.S. Fish and Wildlife Service 2015). The NWI classifies this as Riverine (Intermittent streambed, seasonally flooded). This streambed flows from east to west crossing the southern corner of the property and empties into Murrieta Creek approximately 0.4 mile to the southwest.

A culvert crosses under Stable Lanes Road from north to south. Stable Lanes Road was recently improved, along with the culvert that crosses on to the northern portion of the site. During the site visits in 2009 and 2016, field evidence that surface flows discharging from this culvert were not visible across the project site. A review of aerial photographs and a site visit in November 2017 indicate that, although no OHWM was present, there are indicators that suggest a sheet flow connection from the Stable Lanes Road culvert to the streambed at the southern corner of the site. The recent development located adjacent to the eastern side of the project site and paving of Stable Lanes Road have created impermeable surfaces that have increased the runoff that concentrates and collects at the Stable Lanes culvert. Therefore, although no strong field indicators are present, a hydrologic connection in the form of sheet flows during less frequent storm events.

Three soil types are mapped within the project site: Ramona and Buren loams (RnE3; 5 to 25 percent, slopes, severely eroded), San Timoteo loam (SmE2; 8 to 25 percent slopes, eroded), and Hanford coarse sandy loam (HcC; 2 to 8 percent slopes; NRCS 2016). The Ramona and Buren loams are an undifferentiated group of soils on convex, rolling, dissected terraces;
about 50 percent of which is Ramona loam and 35 percent is Buren loam, with a mix of severely eroded Ramona and Buren soils making up the remaining 15 percent. The Ramona series consists of well-drained soils on alluvial fans and terraces developed in alluvium made up of granitic materials. The Buren series consists of moderately well-drained soils on terraces and alluvial fans developed in alluvium from mixed sources and are underlain by a weakly cemented pan. The San Timoteo series consist of well-drained soils on dissected uplands developed on calcareous marine sediment and weak sandstone. The Hanford series consists of well-drained and somewhat excessively drained soils on alluvial fans. These soils developed in alluvium made up of granitic materials. None of the three soil types mapped in the project site are listed as having potential to contain inclusions of hydric soils (NRCS 2014b).

Wetlands support hydrophytic plant species and have wetland hydrology. Typical plant species in the wetlands on site include arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), and mule fat (*Baccharis salicifolia*).

The project site currently comprises six vegetation communities/land uses: southern willow scrub, coast live oak woodland, Riversidean sage scrub, non-native grassland (including *Rumex* dominated), Eucalyptus woodland, and developed (Table 1; Figure 3).

<table>
<thead>
<tr>
<th>VEGETATION COMMUNITIES*</th>
<th>ACRES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riparian/Wetland</td>
<td></td>
</tr>
<tr>
<td>Southern Willow Scrub</td>
<td>0.08</td>
</tr>
<tr>
<td>Coast live oak woodland</td>
<td>0.03</td>
</tr>
<tr>
<td>Eucalyptus woodland (associated with stream)</td>
<td>0.07</td>
</tr>
<tr>
<td>Developed-rip/rap</td>
<td>0.02</td>
</tr>
<tr>
<td>Subtotal Riparian/Wetland</td>
<td>0.2</td>
</tr>
<tr>
<td>Upland</td>
<td></td>
</tr>
<tr>
<td>Riversidean sage scrub</td>
<td>0.2</td>
</tr>
<tr>
<td>Riversidean sage scrub - disturbed</td>
<td>0.7</td>
</tr>
<tr>
<td>Eucalyptus Woodland</td>
<td>0.1</td>
</tr>
<tr>
<td>Non-native grassland (including <em>Rumex</em>-dominated)</td>
<td>2.0</td>
</tr>
<tr>
<td>Developed land</td>
<td>1.2</td>
</tr>
<tr>
<td>Subtotal Upland</td>
<td>4.2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4.4</td>
</tr>
</tbody>
</table>

* Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, totals reflects rounding

B. WETLAND SAMPLING POINTS

The following is a summary of the three wetland delineation sampling points taken within the project site. The locations of the sampling points are illustrated on Figure 4. Thirteen plant species were observed in the sampling points (Table 2)
Table 2
PLANT SPECIES OBSERVED AT SAMPLING POINTS

<table>
<thead>
<tr>
<th>SCIENTIFIC NAME</th>
<th>COMMON NAME</th>
<th>WETLAND INDICATOR STATUS†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baccharis salicifolia</td>
<td>mule fat</td>
<td>FACW</td>
</tr>
<tr>
<td>Bromus madritensis</td>
<td>Foxtail chess</td>
<td>UPL</td>
</tr>
<tr>
<td>Centaurea melitensis</td>
<td>Tocalote</td>
<td>UPL</td>
</tr>
<tr>
<td>Deinandra paniculata</td>
<td>paniculate tarplant</td>
<td>FACU</td>
</tr>
<tr>
<td>Erigeron canadensis</td>
<td>horseweed</td>
<td>FAC</td>
</tr>
<tr>
<td>Eriogonum fasciculatum</td>
<td>California buckwheat</td>
<td>UPL</td>
</tr>
<tr>
<td>Helianthus annuus</td>
<td>western sunflower</td>
<td>FAC</td>
</tr>
<tr>
<td>Hirschfeldia incana</td>
<td>Short-pod mustard</td>
<td>UPL</td>
</tr>
<tr>
<td>Populus fremontii ssp. fremontii</td>
<td>Fremont cottonwood</td>
<td>FACW</td>
</tr>
<tr>
<td>Rumex crispus</td>
<td>curly dock</td>
<td>FACW</td>
</tr>
<tr>
<td>Salix laevigata</td>
<td>red willow</td>
<td>FACW</td>
</tr>
<tr>
<td>Salix lasiolepis</td>
<td>arroyo willow</td>
<td>FACW</td>
</tr>
<tr>
<td>Schismus barbatus</td>
<td>Mediterranean bunch grass</td>
<td>UPL</td>
</tr>
</tbody>
</table>

†FACW=facultative wetland species, FAC=facultative species, FACU=facultative upland species, UPL=upland species. Please also see Appendix A.

**Sampling Point 1.** This sampling point was located a few feet from the edge of the rip-rap that was installed as part of the recently constructed culvert associated with the improvement of Stable Lanes Road. Two non-wetland species (annual sunflower [Helianthus annuus] and horseweed [Erigeron canadensis]) were the dominant species at this point. Although a single species often associated with wetlands (curly dock [Rumex crispus, FACW]) was present, it was not the dominant species, and as a result, the point did not meet the wetland vegetation criterion. A soil pit dug to 15 inches did not have hydric soil indicators. No wetland hydrology indicators were present. As a result, the area represented by the sampling point did not support wetland conditions. No OHWM or sign of surface hydrology was present in 2016. During a site visit on November 27, 2017 signs of flow were observed at this location that quickly dissipated to sheet flow. No riparian habitat was present. The recent development adjacent to the eastern side of the property along with the paving of Stable Lanes Road have resulted in increase runoff entering the site. Therefore, the area is USACE, RWQCB, and CDFW jurisdictional as sheet flow, intermittent OHWM.

The rip-rap that is associated with the culvert outlet adjacent to this sampling point is considered potential CDFW unvegetated streambed.

**Sampling Point 2.** This sampling point was located in the drainage in the southern portion of the site (Figures 4 and 5). The vegetation is southern willow scrub. Two wetland species (red willow and arroyo willow) were dominant, which met the wetland vegetation criterion. A soil pit dug to 16 inches revealed one hydric soil indicator (redox dark surface [F6]). The sampling point had two secondary wetland hydrology indicators (drift deposits [B3] and FAC-neutral test (D5)), which satisfied the wetland hydrology criterion. Therefore, the area is USACE, RWQCB, and CDFW jurisdictional.
**Sampling Point 3.** This sampling point was located west of the Sampling Point 4 and north of the southern willow scrub of Sampling Point 2 (Figures 4 and 5) in an area mapped as non-native grassland. Data was collected at this point as a comparison to the *Rumex*-dominated non-native grassland of Sampling Point 4 (below). The sampling point was dominated by upland species and did not meet the wetland vegetation criterion. A soil pit dug to 16 inches did not reveal any hydric soil indicators. The sampling point did not have any primary or secondary wetland hydrology indicators, and therefore, did not satisfy the wetland hydrology criterion. As a result, the area represented by the sampling point did not support wetland conditions. No OHWM or sign of surface hydrology was present. No streambed or riparian habitat was present. Therefore, the area is USACE, RWQCB, or CDFW jurisdictional.

**Sampling Point 4.** This sampling point was located in a low point on site mapped as *Rumex*-dominated non-native grassland (Figure 4). A single FACW species (curly dock) was dominant, which met the wetland vegetation criterion. A soil pit dug to 13 inches also did not have any obvious hydric soil indicators. Soils at this sampling point are regarded as a problem area. This conclusion is based on the presence of small pieces of concrete roof tiles and other non-soil in the soil pit. Additionally, larger pieces of concrete are located a few feet south of this sampling point. The sampling point had one secondary wetland hydrology indicator (saturation visible on aerial imagery [B9]). As a result, the area represented by the sampling point did not support wetland conditions. No OHWM or sign of surface hydrology was present in 2016. No streambed or riparian habitat was present. The 2017 visit showed that adjacent to this area were signs of sheet flow connecting the Stable Lanes Road culvert to the streambed to the south. Therefore, the area adjacent is USACE, RWQCB, and CDFW jurisdictional as sheet flow with no OHWM.

### C. SUMMARY OF POTENTIAL JURISDICTIONAL WATERS AND WETLANDS

1. **Potential USACE/RWQCB Jurisdiction**

The delineation revealed that a total of 0.03 acre of waters of the U.S./State occur on the property made up of 0.01 acre wetland waters of the U.S./State (southern willow scrub) and 0.02 acre of non-wetland waters of the U.S./State (Table 3; Figure 4).

<table>
<thead>
<tr>
<th>Table 3</th>
<th>U.S. ARMY CORPS OF ENGINEERS (USACE)/REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) JURISDICTIONAL AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USACE/RWQCB JURISDICTION</strong></td>
<td><strong>ACRE</strong></td>
</tr>
<tr>
<td>Wetland Waters of the U.S./State</td>
<td></td>
</tr>
<tr>
<td>Southern willow scrub</td>
<td>0.01</td>
</tr>
<tr>
<td>Non-Wetland Waters of the U.S./State</td>
<td></td>
</tr>
<tr>
<td>Streambed</td>
<td>0.02</td>
</tr>
<tr>
<td>Sheetflow</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>0.05</strong></td>
</tr>
</tbody>
</table>

*acres are rounded to nearest 0.01 acre.
2 Potential CDFW Jurisdiction

Potential CDFW jurisdiction on the site consists of 0.08-acre southern willow scrub, 0.03-acre coast live oak woodland, 0.07-acre eucalyptus woodland, 0.02-acre sheet flow, and 0.02 acre developed/rip-rap (Table 4, Figure 5).

<table>
<thead>
<tr>
<th>CDFW JURISDICTION</th>
<th>ACRE*</th>
<th>LINEAR FEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern willow scrub</td>
<td>0.08</td>
<td>64</td>
</tr>
<tr>
<td>Coast live oak woodland</td>
<td>0.03</td>
<td>26</td>
</tr>
<tr>
<td>Eucalyptus woodland</td>
<td>0.07</td>
<td>105</td>
</tr>
<tr>
<td>Developed/rip-rap</td>
<td>0.02</td>
<td>25</td>
</tr>
<tr>
<td>Drainage Pattern, Sheet flow</td>
<td>0.02</td>
<td>248</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.22</td>
<td>468</td>
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</table>

*acres are rounded to nearest 0.01 acre.

As summarized in Table 4 above, a total of 0.18 acre of riparian habitat, 0.04 acre unvegetated streambed/sheet flow occur on site.

IV. CONCLUSION

A. FEDERAL PERMITTING

The proposed project could potentially impact waters of the U.S. if project improvements are required to extend to the southeast corner of the property. Temporary and permanent fills and discharges (impacts) within waters of the U.S. are regulated by USACE under Section 404 of the Clean Water Act (33 USC 401 et seq.; 33 USC 1344; USC 1413; and Department of Defense, Department of the Army Corps of Engineers 33 CFR Part 323). Impacts of the project would require a Clean Water Act Section 404 permit from the Los Angeles District USACE. Based on the existing acreage of potential USACE jurisdiction, impacts of the project would be expected to qualify for a Nationwide Permit (NWP) as opposed to a Standard Individual Permit.

B. STATE PERMITTING

The USACE jurisdictional areas addressed in this report would also be subject to 401 Certification by the RWQCB. The proposed project could potentially impact waters of the State. A Clean Water Act Section 401 Water Quality Certification administered by the State Water Resources Control Board (SWRCB) or RWQCB also must be issued prior to any 404 Permit. Submittal of Request for Water Quality Certification to the San Diego RWQCB would be
required prior to impacts to the waters. Applicants are allowed to submit this request prior to certification of the California Environmental Quality Act (CEQA) document; however, the RWQCB will not issue a 401 Certification until a certified CEQA document is provided. There are no isolated waters or wetlands under RWQCB jurisdiction within the study area that would be subject to the State Porter-Cologne Water Quality Control Act only.

The CDFW regulates temporary and permanent alterations or impacts to streambeds or lakes under CFG Code 1602. The CDFW requires a Notification of Lake or Streambed Alteration (Notification) be submitted for projects that will divert or obstruct the natural flow of water; change the bed, channel, or bank of any stream; use any material from a streambed; or result in destruction of riparian habitat. The CDFW can act on the Notification by issuing a Streambed Alteration Agreement (SAA), which is a contract between the applicant and CDFW stating what activities can occur in the riparian zone and stream course (California Association of Resource Conservation Districts 2002). Notification would be required prior to impacts to the Inland Deserts CDFW. Applicants are allowed to submit a Notification application prior to certification of the CEQA document; however, CDFW will not issue a 1602 permit until a certified CEQA document is provided.
V. REFERENCES


USACE (cont.)


Appendix A

FEDERAL JURISDICTIONAL INFORMATION
Appendix A
FEDERAL JURISDICTIONAL INFORMATION

Wetlands and “Waters of the U.S.” Definitions

Wetlands. The U.S. Army Corps of Engineers (USACE; Federal Register 1982) and the Environmental Protection Agency (Federal Register 1980) jointly define wetlands as “[t]hose areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Environmental Laboratory 1987).

Waters of the U.S. The official definition of “Waters of the U.S.” and their limits of jurisdiction (as they may apply) are defined by the USACE’ Regulatory Program Regulations (Section 328.3, paragraphs [a] 1-3 and [e], and Section 328.4, paragraphs [c] 1 and 2) as follows:

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

Non-tidal Waters of the U.S. The limits of jurisdiction in non-tidal waters: In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or when adjacent wetlands are present, the jurisdiction extends to the limit of the adjacent wetlands.

The term ordinary high water mark (OHWM) means that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation (scouring), the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.
Waters of the U.S. must exhibit an OHWM or other evidence of surface flow created by hydrologic physical changes. These physical changes include (Riley 2005):

- Natural line impressed on the bank
- Shelving
- Changes in the character of soil
- Destruction of terrestrial vegetation
- Presence of litter and debris
- Wracking
- Vegetation matted down, bent, or absent
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Multiple observed flow events
- Bed and banks
- Water staining
- Change in plant community

Further guidance on identifying the OHWM in the Arid Southwest (Lichvar and McColley 2008). This publication provided geomorphic and vegetation OHWM indicators specific to the Arid Southwest.

Jurisdictional areas also must be connected to Waters of the U.S. (Guzy and Anderson 2001; U.S. Supreme Court 2001).

As a consequence of the U.S. Supreme Court decision in Rapanos v. United States, a memorandum was developed regarding Clean Water Act jurisdiction (Grumbles and Woodley 2007). The memorandum states that the EPA and the USACE will assert jurisdiction over traditional navigable waters (TNW), wetlands adjacent to TNW, tributaries to TNWs that are a relatively permanent water body (RPW), and wetlands adjacent to TNW. An RPW has year round flow or continuous seasonal flow (i.e., typically for three months or longer). Jurisdiction over other waters (i.e., non TNW and RPW) will be based on a fact specific analysis to determine if they have a significant nexus to a TNW.

Pursuant to the USACE Instructional Guidebook (USACE and EPA 2007), the significant nexus evaluation will cover the subject reach of the stream (upstream and downstream) as well as its adjacent wetlands (Illustrations 2 through 6, USACE and EPA 2007). The evaluation will include the flow characteristics, annual precipitation, ability to provide habitat for aquatic species, ability to retain floodwaters and filter pollutants, proximity of the subject reach to a TNW, drainage area, and the watershed.

**Wetland Criteria**

Wetland boundaries are determined using three mandatory criteria (hydrophytic vegetation, wetland hydrology, and hydric soil) established for wetland delineations and described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). Following is a brief discussion of the three criteria and how they are evaluated.
Vegetation

“Hydrophytic vegetation is defined herein as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present” (Environmental Laboratory 1987).

The wetland indicator status (obligate upland, facultative upland, facultative, facultative wetland, obligate wetland, or no indicator status) of the dominant plant species of all vegetative layers is determined. Species considered to be hydrophytic include the classifications of facultative, facultative wetland, and obligate wetland as defined in the current list of wetland plants of the Arid Southwest (Lichvar, et. al. 2014; Table A-1). The percent of dominant wetland plant species is calculated. The hydrophytic vegetation criterion is considered to be met if it meets the “Dominance Test,” “Prevalence Index,” or the vegetation has morphological adaptations for prolonged inundation.

<table>
<thead>
<tr>
<th>INDICATOR CATEGORIES</th>
<th>ABBREVIATION</th>
<th>QUALITATIVE DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligate</td>
<td>OBL</td>
<td>Almost always occur in wetlands</td>
</tr>
<tr>
<td>Facultative Wetland</td>
<td>FACW</td>
<td>Usually occur in wetlands but may occur in non-wetlands</td>
</tr>
<tr>
<td>Facultative</td>
<td>FAC</td>
<td>Occur in wetlands and non-wetlands</td>
</tr>
<tr>
<td>Facultative Upland</td>
<td>FACU</td>
<td>Usually occur in non-wetlands but may occur in wetlands</td>
</tr>
<tr>
<td>Upland</td>
<td>UPL</td>
<td>Almost never occur in wetlands</td>
</tr>
</tbody>
</table>

Hydrology

“The term ‘wetland hydrology’ encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic reducing conditions, respectively” (Environmental Laboratory 1987).

Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5 percent of the growing season during a normal rainfall year (approximately 18 days for most of low-lying southern California). Hydrology criteria are evaluated based on the characteristics listed below (USACE 2008). Where positive indicators of wetland hydrology are present, the limit of the OHWM (or the limit of adjacent wetlands) is noted and mapped. Evidence of wetland hydrology is met by the presence of a single primary indicator or two secondary indicators.
Primary
- surface water (A1)
- high water table (A2)
- saturation (A3)
- water marks (B1; non-riverine)
- sediment deposits (B2; non-riverine)
- drift deposits (B3; non-riverine)
- 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)

Secondary
- watermarks (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)

In the absence of all other hydrologic indicators and in the absence of significant modifications of an area’s hydrologic function, positive hydric soil characteristics are assumed to indicate positive wetland hydrology. This assumption applies unless the site visit was done during the wet season of a normal or wetter-than-normal year. Under those circumstances, wetland hydrology would not be present.

Soils

The USACE and Environmental Protection Agency, in their administration of Section 404 of the Clean Water Act, rely on the National Technical Committee for Hydric Soils (NTCHS) for a definition of hydric soils. According to the NTCHS “A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.” (Federal Register 1994)

Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation. Soil matrix and mottle colors are identified at each sampling plot using a Munsell soil color chart (Kollmorgen 1994). Generally, an 18-inch or deeper pit is excavated with a shovel at each sampling plot unless refusal occurs above 18 inches.

Soils in each area are closely examined for hydric soil indicators, including the characteristics listed below. Hydric soil indicators are presented in three groups. Indicators for “All Soils” (A) are used in any soil regardless of texture, indicators for “Sandy Soils” (S) area used in soil layers with USDA textures of loamy fine sand or coarser, and indicators for “Loamy and Clayey Soils” (F) are used with soil layers of loamy very fine sand and finer (USACE 2008).
Hydric soils may be assumed to be present in plant communities that have complete dominance of obligate or facultative wetland species. In some cases, there is only inundation during the growing season and determination must be made by direct observation during that season, recorded hydrologic data, testimony of reliable persons, and/or indication on aerial photographs.

**Non-wetland Waters of the U.S.**

The non-wetland Waters of the U.S. designation is met when an area has periodic surface flows but lacks sufficient indicators to meet the hydrophytic vegetation and/or hydric soils criteria. For purposes of delineation and jurisdictional designation, the non-wetland Waters of the U.S. boundary in non-tidal areas is the OHWM as described in the Section 404 regulations (33 CFR Part 328).

**USGS Mapping**

The USGS Quad maps are one of the resources used to aid in the identification and mapping of jurisdictional areas. Their primary uses include understanding the subregional landscape position of a site, major topographical features, and a project’s position in the watershed.

In our experience the designation of watercourse as a blue-line stream (intermittent or perennial) on USGS maps has been unreliable and typically overstates the hydrology of most streams. This has also been the experience of others, including the late Luna Leopold. Leopold was a hydrologist with USGS from 1952 to 1972, Professor in the Department of Geology and Geophysics, and Department of Landscape Architecture, University of California, Berkeley from 1972 to 1986, and Professor Emeritus from 1987 until his death in 2006. In regard to USGS maps, Dr. Leopold wrote “I tried to devise a way of defining hydrologic criteria for the channels shown on topographic maps and developed some promising procedures. None were acceptable to the topographers, however. I learned that the blue lines on a map are drawn by nonprofessional, low-salaried personnel. In actual fact, they are drawn to fit a rather personalized aesthetic.” (1994)
REFERENCES


Riley, D.T. 2005. Ordinary High Water Mark. RGL No. 05-05. 4pp


Appendix B
STATE JURISDICTIONAL INFORMATION

California Department of Fish and Wildlife Regulations

The California Department of Fish and Wildlife (CDFW; Department) regulates alterations or impacts to streambeds or lakes (wetlands) under Fish and Game Code Sections 1600 through 1616 for any private, state, or local government or public utility-initiated projects. The Fish and Game Code Section 1602 requires any entity to notify the Department before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers and streams as well as lakes in the state.

In order to notify the Department, a person, state, or local governmental agency or public utility must submit a complete notification package and fee to the Department regional office that serves the county where the activity will take place. A fee schedule is included in the notification package materials. Under the Permit Streamlining Act (Government Code Sections 65920 et seq.), the Department has 30 days to determine whether the package is complete. If the requestor is not notified within 30 days, the application is automatically deemed to be complete.

Once the notification package is deemed to be complete, the Department will determine whether the applicant will need a Lake or Streambed Alteration Agreement (SAA) for the activity, which will be required if the activity could substantially adversely affect an existing fish and wildlife resource. If an SAA is required, the Department will conduct an on-site inspection, if necessary, and submit a draft SAA that will include measures to protect fish and wildlife resources while conducting the project. If the applicant is applying for a regular SAA (less than five years), the Department will submit a draft SAA within 60 calendar days after notification is deemed complete. The 60-day time period does not apply to notifications for long-term SAAs (greater than 5 years).

After the applicant receives the SAA, the applicant has 30 calendar days to notify the Department whether the measures in the draft SAA are acceptable. If the applicant agrees with the measures included in the draft SAA, the applicant will need to sign the SAA and submit it to the Department. If the applicant disagrees with any measures in the draft SAA, the applicant must notify the Department in writing and specify the measures that are not acceptable. Upon written request, the Department will meet with the applicant within 14 calendar days of receiving the request to resolve the disagreement. If the applicant fails to respond in writing within 90 calendar days of receiving the draft SAA, the Department may withdraw that SAA. The time periods described above may be extended at any time by mutual agreement.

After the Department receives the signed draft SAA, the Department will make it final by signing the SAA; however, the Department will not sign the SAA until it both receives the notification fee and ensures that the SAA complies with the California Environmental Quality
Act (Public Resources Code Section 21000 et seq.). After the applicant receives the final agreement, the applicant may begin the project the agreement covers, provided that the applicant has obtained any other necessary federal, state and/or local authorizations.

**Water Resource Control Board Regulations**

**Section 401 Water Quality Certification**

Whenever a project requires a federal Clean Water Act (CWA) Section 404 permit or a Rivers and Harbors Act Section 10 permit, it must first obtain a CWA Section 401 Water Quality Certification. The Regional Water Quality Control Board (RWQCB) administers the 401 Certification program. Federal CWA Section 401 requires that every applicant for a Section 404 permit must request a Water Quality Certification that the proposed activity will not violate state and federal water quality standards.

**Porter-Cologne Water Quality Control Act**

The State Water Resource Control Board (SWRCB) and the RWQCB regulate the discharge of waste to waters of the State via the 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne) as described in the California Water Code (SWRCB 2008). The California Water Code is the State’s version of the Federal CWA. Waste, according to the California Water Code, includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. State waters that are not federal waters may be regulated under Porter-Cologne. A Report of Waste Discharge must be filed with the RWQCB for projects that result in discharge of waste into waters of the State. The RWQCB will issue Waste Discharge Requirements (WDRs) or a waiver. The WDRs are the Porter-Cologne version of a CWA 401 Water Quality Certification.

**REFERENCES**


California Department of Fish and Wildlife (CDFW). Fish and Game Code Sections 1600 through 1616.

Date unknown. Streambed/Lake Alteration Notification Guidelines.
Appendix C

DATA FORMS
**WETLAND DETERMINATION DATA FORM – Arid West Region**

**Project Site:** Wildomar Crossings  
**City/County:** Wildomar/Riverside County  
**Sampling Date:** 8/29/16  
**Applicant/Owner:** Mann Property Company  
**Investigator(s):** Rob Hogenauer  
**Landform (hilislope, terrace, etc.):**  
**Subregion (LRR):** Mediterranean California - C  
**Soil Map Unit Name:** HCc, Hanford coarse sandy loam, 2-8% slope  
**Sampling Point:** 1  
**State:** CA  
**Section, Township, Range:** S1, T7S, R4W  
**Datum:**  
**Lat:** 33.5933  
**Long:** -117.2494  
**Slope (%):** 2  

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

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☑</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐ No ☑</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐ No ☑</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐ No ☑</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**VEGETATION – Use scientific names of plants.**

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: r=30')</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

50% = ______ 20% = ______ = Total Cover

**Sapling/Shrub Stratum (Plot size: r=15')**

| 1.                               |                  |                   |                  |
| 2.                               |                  |                   |                  |
| 3.                               |                  |                   |                  |
| 4.                               |                  |                   |                  |
| 5.                               |                  |                   |                  |

50% = ______ 20% = ______ = Total Cover

**Herb Stratum (Plot size: 5'x3'')**

| 1. Eriogonum fasciculatum | 1 | no | UPL |
| 2. Helianthus annuus     | 6 | yes | FACU |
| 3. Eriogon canadensis    | 10| yes | FACU |
| 4. Rumex crispus         | 2 | no | FAC |
| 5. Hirschfeldia incana   | 2 | no | UPL |
| 6. Sechium barbatus      | 1 | no | UPL |
| 7.                       |    |    |     |
| 8.                       |    |    |     |

50% = ______ 20% = ______ = Total Cover

**Woody Vine Stratum (Plot size: ______)**

| 1.                               |                  |                   |                  |
| 2.                               |                  |                   |                  |

50% = ______ 20% = ______ = Total Cover

**Remarks:** Hydrophytic vegetation is not present. Dominant species are rated FACU. Prevalence index is 4.09. Area is highly disturbed from recent construction.

**Dominance Test Worksheet:**

<table>
<thead>
<tr>
<th>Number of Dominant Species That Are OBL, FACW, or FAC: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Dominant Species Across All Strata: 2</td>
</tr>
<tr>
<td>Percent of Dominant Species That Are OBL, FACW, or FAC: 0</td>
</tr>
</tbody>
</table>

**Prevalence Index worksheet:**

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL species 0</td>
<td>x1 = 0</td>
</tr>
<tr>
<td>FACW species 0</td>
<td>x2 = 0</td>
</tr>
<tr>
<td>FAC species 2</td>
<td>x3 = 6</td>
</tr>
<tr>
<td>FACU species 16</td>
<td>x4 = 64</td>
</tr>
<tr>
<td>UPL species 4</td>
<td>x5 = 20</td>
</tr>
</tbody>
</table>

Column Totals: 22 (A) 90 (B)

**Prevalence Index = B/A = 4.09**

**Hydrophytic Vegetation Indicators:**

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is <3.01
- [ ] 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.
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (Moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>10YR 3/3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSa</td>
<td>fine sandy mix</td>
</tr>
<tr>
<td>3-7</td>
<td>10YR 3/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>7-15</td>
<td>10YR 3/3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sal</td>
<td>coarse grit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Redox Depressions (F8)
- Vernal Pools (F9)

Restrictive Layer (if present):
- Type: __________
- Depth (inches): __________

Hydric Soils Present?: Yes ☐ No ☑

Remarks: Soil recently disturbed. Possible fill from construction.

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)
- Dritt 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)
- Clayfish 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: FAC neutral test 0:0, Site recently disturbed, no wetland hydrology indicators present.
WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Wildomar Crossings  City/County: Wildomar/Riverside County  Sampling Date: 8/29/16
Applicant/Owner: Mann Property Company  State: CA  Sampling Point: 2
Investigator(s): Rob Hogenauer  Section, Township, Range: S1, T7S, R4W
Landform (hillside, terrace, etc.):  Local relief (concave, convex, none): none  Slope (%): 35
Subregion (LRR): Mediterranean California - C  Datum: 
Soil Map Unit Name: HeC, Hanford coarse sandy loam, 2-8% slope  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 ☐  Is the Sampled Area within a Wetland?  Yes ☐  No ☐
Hydric Soil Present?  Yes ☐  No ☐
Wetland Hydrology Present?  Yes ☐  No ☐

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10’ x 20’)

<table>
<thead>
<tr>
<th>#</th>
<th>Species</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Salix laevigata</td>
<td>35</td>
<td>yes</td>
<td>FACW</td>
</tr>
<tr>
<td>2</td>
<td>Salix lasiolepis</td>
<td>35</td>
<td>yes</td>
<td>FACW</td>
</tr>
</tbody>
</table>

50% = 35, 20% = 14 70 = Total Cover

Prevalence Index worksheet:

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL species</td>
<td>x1 = 0</td>
</tr>
<tr>
<td>FACW species</td>
<td>x2 = 140</td>
</tr>
<tr>
<td>FAC species</td>
<td>x3 = 18</td>
</tr>
<tr>
<td>FACU species</td>
<td>x4 = 0</td>
</tr>
</tbody>
</table>

Column Totals: 76 (A) 158 (B)

Prevalence Index = B/A = 2.01

Hydrophytic Vegetation Indicators:

☐  Dominance Test is >50%
☐  Prevalence Index is <3.0^1
☐  Morphological Adaptations^2 (Provide supporting data in Remarks or on a separate sheet)
☐  Problematic Hydrophytic Vegetation^3 (Explain)

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

Hydrophytic Vegetation Present?  Yes ☐  No ☐

Remarks: Sample point located in southern willow scrub habitat, with mature trees, but lacking an understory.

US Army Corps of Engineers  Arid West – Version 2.0
SOIL

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (Moist)</th>
<th>%</th>
<th>Type¹</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>10YR 3/3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSa</td>
<td>Coarse sand grains</td>
</tr>
<tr>
<td>1-3</td>
<td>10YR 3/3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSa</td>
<td>Fine sand grains</td>
</tr>
<tr>
<td>3-16</td>
<td>10YR 3/1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SaCL</td>
<td></td>
</tr>
</tbody>
</table>

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

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

- Histosol (A1)
- Historic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR C)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

Indicators for Problematic Hydric Soils¹:

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)

Restrictive Layer (if present):

Type: 
Depth (Inches): 
Hydric Soils Present? Yes ☒ No

Remarks: Adjacent soils include large chunks of concrete. Area is potential fill. Hydric soils indicators present.

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)
- Dritt Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

Secondary Indicators (2 or more required)

- 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)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): ______
Water Table Present? Yes ☒ No ☐ Depth (inches): ______
Inundation 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: Hydric hydrology indicators present. FAC neutral test 3:0

US Army Corps of Engineers Arid West – Version 2.0
**WETLAND DETERMINATION DATA FORM – Arid West Region**

**Project Site:** Wildomar Crossings  
**City/County:** Wildomar/Riverside County  
**Sampling Date:** 8/29/16

**Applicant/Owner:** Mann Property Company  
**State:** CA  
**Section, Township, Range:** S1, T7S, R4W

**Landform (hillslope, terrace, etc.):** Valley  
**Local relief (concave, convex, none):** none  
**Slope (%):** 35

**Subregion (LRR):** Mediterranean  
**California - C**  
**Lat:** 33.5929  
**Long:** -117.2500  
**Datum:**

**Soil Map Unit Name:** RinE3; Ramona and Buren loams, 5-25% slopes, severely eroded  
**NWI classification:** n/a

**Are climatic / hydrologic conditions on the site typical for this time of year?** Yes 
**Are Vegetation, Soil, or Hydrology significantly disturbed?** Are “Normal Circumstances” present? Yes

**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.**

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes</th>
<th>No</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:** Location is routinely disked and sign of recent disk evident.

**VEGETATION – Use scientific names of plants.**

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 20’ x 20’)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 0% 20% = 0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 10’ x 10’)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Schismus barbatus</td>
<td>5</td>
<td>yes</td>
<td>UPL</td>
</tr>
<tr>
<td>2. Hirschfeldia incana</td>
<td>2</td>
<td>yes</td>
<td>UPL</td>
</tr>
<tr>
<td>3. Centaurea melitensis</td>
<td>1</td>
<td>no</td>
<td>UPL</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6.</td>
<td></td>
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<td></td>
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<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 0% 20% = 0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 5’x5’)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Schismus barbatus</td>
<td>5</td>
<td>yes</td>
<td>UPL</td>
</tr>
<tr>
<td>2. Hirschfeldia incana</td>
<td>2</td>
<td>yes</td>
<td>UPL</td>
</tr>
<tr>
<td>3. Centaurea melitensis</td>
<td>1</td>
<td>no</td>
<td>UPL</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
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<tr>
<td>6.</td>
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<td></td>
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<tr>
<td>7.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 20% 1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: _____)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 0% 20% = 0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:** Sample point located in non-native grassland that occurs adjacent to southern willow scrub. Upland vegetation present.

**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 0 x1 = 0
  - FACW species 0 x2 = 0
  - FAC species 0 x3 = 0
  - FACU species 0 x4 = 0
  - UPL species 8 x5 = 40
  - Column Totals: 8 (A) 40 (B)

**Prevalence Index = B/A = 5**

**Hydrophytic Vegetation Indicators:**

- Dominance Test is >50%
- Prevalence Index is <3.01
- Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation (Explain)

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

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (Moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SaCL</td>
<td></td>
</tr>
<tr>
<td>8-16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CL</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

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:
- Histosol (A1)
- Histic Eppedon (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 Gleyed Matrix (F1)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

### Indicators for Problematic Hydric Soils
- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

### Restrictive Layer (if present):
- Type: 
- Depth (Inches): 
- Remarks: No hydric soils present

## 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)
  - Dript 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 ☒

### Remarks:
- No wetland hydrology indicators present.
**WETLAND DETERMINATION DATA FORM – Arid West Region**

**Project Site:** Wildomar Crossings  
**City/County:** Wildomar/Riverside County  
**Applicant/Owner:** Mann Property Company  
**Investigator(s):** Rob Hogenauer  
**Landform (hillslope, terrace, etc.):**  
**Subregion (LRR):** Mediterranean California - C  
**Soil Map Unit Name:** HcC; Hanford coarse sandy loam, 2-8% slope  
**Vegetation – Use scientific names of plants.**

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size:20’x20’)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
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<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 100, 20% = 20</td>
<td></td>
<td></td>
<td>Total Cover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size:15’x15’)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
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<tr>
<td>3.</td>
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<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 100, 20% = 20</td>
<td></td>
<td></td>
<td>Total Cover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size:5’x5’)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>Rumex crispus</em> 40 yes FAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. <em>Erigeron canadensis</em> 6 no FACU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. <em>Helianthus annuus</em> 10 no FACU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. <em>Deinandra paniculata</em> 4 no FACU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. <em>Bromus madritensis</em> 10 no UPL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7.</td>
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<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 100, 20% = 20</td>
<td></td>
<td></td>
<td>Total Cover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size:______)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 100, 20% = 20</td>
<td></td>
<td></td>
<td>Total Cover</td>
</tr>
</tbody>
</table>

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

**Remarks:** Vegetation is disturbed from recent disking. Cover was estimated using the vegetation remains observed during visit. Vegetation has one dominant species that is FAC, therefore passes dominance test. Vegetation fails prevalence index B/A is 3.33.

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

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

| Is the Sampled Area within a Wetland? | Yes | No |

**Hydrophytic Vegetation Indicators:**
- Yes ☑ No ☐ Prevalence Index is ≥3.0
- Morphological Adaptations: Provide supporting data in Remarks or on a separate sheet.
- Problematic Hydrophytic Vegetation: Explain.

**Hydrophytic Vegetation Present?** Yes ☑ No ☐

**Is the Sampled Area within a Wetland?** Yes ☑ No ☐

**Remarks:** Location is routinely disked and sign of recent disking evident.

**US Army Corps of Engineers Arid West – Version 2.0**
### SOIL

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

<table>
<thead>
<tr>
<th>Depth</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (Moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>10YR 3/3</td>
<td></td>
<td></td>
<td></td>
<td>CL</td>
<td>CL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-13</td>
<td>10YR 4/3</td>
<td></td>
<td></td>
<td></td>
<td>CL</td>
<td>CL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

- Histosol (A1)
- Histic Eppedon (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)

#### Indicators for Problematic Hydric Soils:

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (F2)
- Other (Explain in Remarks)

#### Restrictive Layer (if present):

- Type: 
- Depth (inches): 

#### 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)

#### Secondary Indicators (2 or more required)

- 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)
- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- 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? Yes ☐ No ☑ Depth (inches): 

#### Wetland Hydrology Present? Yes ☐ No ☑

### Remarks:
Wetland hydrology not observed. Saturation visible on one aerial image following heavy rains. No evidence of long term saturation.
Appendix D

SAMPLING POINT PHOTOS
Photo 1. View looking northeast showing the outlet of the recently constructed culvert that goes under the recently improved Stable Lanes Road. The photos show the lack of riparian vegetation. Eucalyptus trees are visible to right. Photo taken 8/16/16.

Photo 2. View from Stable Lanes Road looking northeast, offsite. Photo shows unvegetated ephemeral drainage on offsite end of culvert. Eucalyptus trees are visible along the drainage. Photo taken 8/29/16.
Photo 3. View of property from northern corner of property along Stable Lanes Road looking south. Eucalyptus trees are visible near center of property. Fence at Stable Lanes culvert outlet is visible to left. Southern willow scrub and eucalyptus woodland are visible in the distance. Photo taken 8/16/16.

Photo 4. View to south of corrugated metal pipe from under Clinton Keith Road. There are two 6 foot diameter pipes that convey flows under Clinton Keith Road. A cottonwood (Populus fremontii) that forms the edge of the southern willow scrub is visible adjacent to the pipe. Photo taken 8/29/16.
Photo 5. View looking southwest of an erosional feature that occurs adjacent to the southern willow scrub. Photo taken 8/29/16.

Photo 6. Closeup view of the concrete chunks in the soil at the erosional feature. Photo taken 8/29/16.
Photo 7. View of sample point 1, non-jurisdictional. Point is adjacent to rip/rip. Photo taken 8/29/16.

Photo 8. View of sample point 2 in southern willow scrub. Photo taken 8/29/16.
Photo 9. View of sample point 3 in non native grassland. Photo taken 8/29/16.

Photo 10. View of sample point 4 located in rumex dominated non-native grassland. Photo taken 8/29/16.