**APPROVED JURISDICTIONAL DETERMINATION FORM**
**U.S. Army Corps of Engineers**

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

**SECTION I: BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): April 27, 2017**

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Sacramento District, YOL016 Safety Improvement (03-0C470), SPK-2010-00101**

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:**
State: **California** County/parish/borough: **Yolo** City: **near Madison**
Center coordinates of site (lat/long in degree decimal format): Lat. **38.680758°**, Long. **-121.959536°**
Universal Transverse Mercator: **10 591151.77 4281743.08**
Name of nearest waterbody: **South Fork Willow Slough**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Sacramento River**
Name of watershed or Hydrologic Unit Code (HUC): **Lower Sacramento, 18020163**
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form:

**D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**
☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): **June 24, 2016**

**SECTION II: SUMMARY OF FINDINGS**

**A. RHA SECTION 10 DETERMINATION OF JURISDICTION.**

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:

**B. CWA SECTION 404 DETERMINATION OF JURISDICTION.**

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

**1. Waters of the U.S.**
**a. Indicate presence of waters of U.S. in review area (check all that apply): [1]**
☐ TNWs, including territorial seas
☐ Wetlands adjacent to TNWs
☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
☐ Non-RPWs that flow directly or indirectly into TNWs
☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☐ Impoundments of jurisdictional waters
☐ Isolated (interstate or intrastate) waters, including isolated wetlands

**b. Identify (estimate) size of waters of the U.S. in the review area:**
Non-wetland waters: linear feet, wide, and/or **0.64** acres.
Wetlands: acres.

**c. Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
Elevation of established OHWM (if known):

**2. Non-regulated waters/wetlands (check if applicable):[3]**
☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

**SECTION III: CWA ANALYSIS**

**A. TNWs AND WETLANDS ADJACENT TO TNWs**

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

**The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below**.

1. **TNW**
   Identify TNW:

   Summarize rationale supporting determination:

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent":

**B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):**

**This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.**

**The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.**

**A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.**

**If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.**

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   **(i) General Area Conditions:**
   Watershed size: **83 acres**
   Drainage area: **83 acres**
   Average annual rainfall: **21.8** inches
   Average annual snowfall: **0** inches

   **(ii) Physical Characteristics:**
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **6** tributaries before entering TNW.

   Project waters are **30 (or more)** river miles from TNW.
   Project waters are **1 (or less)** river miles from RPW.
   Project waters are **25-30** aerial (straight) miles from TNW.
   Project waters are **1 (or less)** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain:

   Identify flow route to TNW[5]: **AGDI6 flows to South Fork Willow Slough (SFWS) in the review area, SFWS flows out of the review area to Willow Slough, which then flows to the Willow Slough By-Pass, which flows to the Toedrain, which flows to the Sacramento River Deep Water Ship Channel, which flows through Cache Slough into the Sacramento River, a TNW.**
   Tributary stream order, if known: **1**

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

**Tributary** is: ☐ Natural
☐ Artificial (man-made). Explain:
☒ Manipulated (man-altered). Explain: **The tributary runs in a relatively straight path between agricultural fields and State Route 16. The tributary receives stormwater from SR 16 and storm and irrigation water from the agricultural fields to the north through at least three drainage pipes.**

**Tributary** properties with respect to top of bank (estimate):
Average width: **10** feet
Average depth: **5** feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

| | | |
|---|---|---|
| ☒ Silts | ☒ Sands | ☐ Concrete |
| ☐ Cobbles | ☒ Gravel | ☐ Muck |
| ☐ Bedrock | ☐ Vegetation. Type/% cover: | |
| ☒ Other. Explain: **clay** | | |

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **The tributary appears to be stable in the project area.**
Presence of run/riffle/pool complexes. Explain:
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): **2** %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: **intermittent**
Other information on duration and volume: **Flow data is not available, but the tributary was observed flowing into South Fork Willow Slough during the June 24, 2016 site visit and is visibly flowing on the following Google Earth images: March 17, 2010, August 8, 2011, August 25, 2011, January, 26, 2013, April 16, 2013, June 1, 2013 and May 26, 2014. According to available precipitation data, there had been no rain for more than 30 days prior to the June 24, 2016 visit and the May 26, 2014 Google Earth image. Additionally there was no recorded precipitation for more than 11 days prior to the March 17, 2010 and April 16, 2013 Google Earth images.**

Surface flow is: **Discrete and confined.** Characteristics: **Flow in the tributary was observed to be approximately 10' wide and 3-4' deep where it flowed into the South Fork Willow Slough during the June 24, 2016 site visit.**

Subsurface flow: **Unknown**. Explain findings:
☐ Dye (or other) test performed:

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

| | |
|---|---|
| ☐ clear, natural line impressed on the bank | ☒ the presence of litter and debris |
| ☐ changes in the character of soil | ☒ destruction of terrestrial vegetation |
| ☐ shelving | ☐ the presence of wrack line |
| ☒ vegetation matted down, bent, or absent | ☐ sediment sorting |
| ☐ leaf litter disturbed or washed away | ☐ scour |
| ☐ sediment deposition | ☐ multiple observed or predicted flow events |
| ☐ water staining | ☒ abrupt change in plant community |

☒ other (list): **field observation of flow during June 24, 2016 site visit**
☐ Discontinuous OHWM.[7] Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

| | |
|---|---|
| ☐ High Tide Line indicated by: | ☐ Mean High Water Mark indicated by: |
| ☐ oil or scum line along shore objects | ☐ survey to available datum; |

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

☐ fine shell or debris deposits (foreshore) ☐ physical markings;
☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.
☐ tidal gauges
☐ other (list):

**(iii) Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: **Water color is brown, tributary runs between agricultural fields and along a state highway. The tributary receives run-off from the highway and agricultural fields and would carry related pollutants.**

Identify specific pollutants, if known:

**(iv) Biological Characteristics. Channel supports (check all that apply):**

☒ Riparian corridor. Characteristics (type, average width): **mostly herbaceous with a few shrubs, 20' wide**
☐ Wetland fringe. Characteristics:
☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
- ☐ Fish/spawn areas. Explain findings:
- ☐ Other environmentally-sensitive species. Explain findings:
- ☒ Aquatic/wildlife diversity. Explain findings: **tributary and herbaceous vegetation provides habitat for birds, reptiles, amphibians, and mammals.**

**2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

**(i) Physical Characteristics:**

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain:
Wetland quality. Explain:
Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain:

Surface flow is**: Pick List**
Characteristics:

Subsurface flow: **Pick List**. Explain findings:
☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain:
- ☐ Ecological connection. Explain:
- ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

**(ii) Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

**(iii) Biological Characteristics. Wetland supports (check all that apply):**

☐ Riparian buffer. Characteristics (type, average width):
☐ Vegetation type/percent cover. Explain:
☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
- ☐ Fish/spawn areas. Explain findings:
- ☐ Other environmentally-sensitive species. Explain findings:

☐ Aquatic/wildlife diversity. Explain findings:

**3. Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

| Directly abuts? (Y/N) | Size (in acres) | Directly abuts? (Y/N) | Size (in acres) |
|---|---|---|---|

Summarize overall biological, chemical and physical functions being performed:

## C. SIGNIFICANT NEXUS DETERMINATION

**A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.**

**Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:**

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

**Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:**

**1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

**2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

**3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

## D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

**1. TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

☐ TNWs: linear feet, wide, Or acres.

☐ Wetlands adjacent to TNWs: acres.

**2. RPWs that flow directly or indirectly into TNWs.**

☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:

☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: **Google Earth aerials show the tributary may flow at any time throughout the year, but primarily from late spring to late summer. The channel recieves irrigation overflow from the fields to the north, which appears to keep it flowing until late summer in most years.**

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **3,240** linear feet **10** wide.
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters:

**3. Non-RPWs[8] that flow directly or indirectly into TNWs.**

☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
- ☐ Tributary waters: linear feet, wide.
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters:

**4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

**5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

**6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

**7. Impoundments of jurisdictional waters.[9]**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
- ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
- ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

**E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]**

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain:

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
**[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ Other factors. Explain:

**Identify water body and summarize rationale supporting determination:**

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet, wide.
☐ Other non-wetland waters: acres.
Identify type(s) of waters:
☐ Wetlands: acres.

**F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):**
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, wide.
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource:
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, wide.
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource:
☐ Wetlands: acres.

## SECTION IV: DATA SOURCES.

**A. SUPPORTING DATA. Data reviewed for JD (check all that apply -** checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☒ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps:
☐ Corps navigable waters' study:
☒ U.S. Geological Survey Hydrologic Atlas:
☒ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **1:24K; CA-MADISON**
☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
☐ National wetlands inventory map(s). Cite name:
☐ State/Local wetland inventory map(s):
☐ FEMA/FIRM maps:
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **Google Earth 6/24/07, 2/7/08, 5/8/08, 5/24/09, 7/22/09, 9/23/09, 3/17/10, 4/24/10, 5/22/10, 9/11/10, 10/11/10, 11/1/10, 8/8/11, 8/25/11, 8/31/11, 5/9/12, 8/23/12, 8/29/12, 9/1/12, 12/30/12, 1/26/13, 4/16/13, 6/1/13, 5/26/14, 8/23/14, 4/1/15, 3/16/16 and 8/13/16**
or ☐ Other (Name & Date):
☒ Previous determination(s). File no. and date of response letter: **SPK-2010-00101, 9/20/16**
☐ Applicable/supporting case law:
☐ Applicable/supporting scientific literature:
☒ Other information (please specify): **New and Additional Information for AGDI-6A, AGDI-6b AJD for SR Yolo 16, SPK-2010-00101; NOAA Regional Climate Centers climatological data for February 2010, March 2010, January 2013, April 2013, May, 2013, April 2014, May 2014, May 2016, June 2016, and August-December 2016. LiDAR imagery.**

**B. ADDITIONAL COMMENTS TO SUPPORT JD:**

**Historical aerials that show the site prior to AGDI-6 or the adjacent highway and agricultural fields being installed were not available. The project proponent (Caltrans) provided 1952 and 1954 aerials, which showed the highway, agricultural fields and subject tributary present. The 1952 aerial and several Google Earth aerials (February 7, 2008; May 8, 2008; May 22, 2010; April 1, 2015 and March 16, 2016) show saturated soil signatures in the agricultural fields to the north of AGDI-6. The signatures move around from year to year, likely due to ongoing agricultural operations which re-level the fields. The 1952 historic aerial shows the agricultural field to the north with contours like those used historically for rice production, which indicates the soils have good water retention capacity. According to the soil survey, the soil present, Capay silty clay, has a hydric inclusion that is present on basin floors, which is the landscape position of the agricultural fields and AGDI-6. In consideration of the apparent soil properties and the saturated signatures, we determined that under normal circumstances portions of these field would support wetland habitats. These fields drain into AGDI-6, therefore AGDI-6 drains areas that would meet wetland criteria under normal circumstances.**

**Caltrans' May 25, 2010 wetland delineation of the project area states that AGDI-6 (then AGDI-19) meets all wetland criteria and drains to South Fork Willow Slough. Based on the June 24, 2016 site visit which observed flow from AGDI-6 into South Fork Willow Slough and several Google Earth images (e.g. March 17, 2010, August 8, 2011, August 25, 2011, January, 26, 2013, April 16, 2013, June 1, 2013 and May 26, 2014) which showed AGDI-6 flowing, we concluded that AGDI-6 is an intermittent stream as it was observed flowing several days after precipitation events. Of the 29 available Google Earth images with adequate resolution to determine if AGDI-6 was flowing or not, 17 of the images showed AGDI-6 to be flowing. The images showing AGDI-6 flowing were predominantely taken between late spring and late summer, but included images from every month. The May 26, 2014 Google Earth aerial and our June 24, 2016 site visit observed flow more than 30 days after rainfall, and the March 17, 2010 and April 16, 2013 Google Earth aerials showed AGDI-6 flowing 17 and 11 days, respectively, after rainfall. Additionally, according to Caltrans' May 25, 2010 wetland delineation, AGDI-6 has hydrology persistent enough to sustain a wetland plant community. In addition to stormwater run-off from State Route 16 and the fields to the north, the hydrology of AGDI-6 is supplemented by irrigation water that is applied to the agricultural fields to the north and which drains into AGDI-6 through drain pipes. This irrigation supplement is likely why the tributary was observed flowing in summer aerials, but as irrigation is typically not provided in the Spring or Winter, we consider the flows observed in the January through April aerials to be a result of stormwater run-off or sub-surface flow. We have no evidence that the tributary is receiving sub-surface flow, but cannot rule it out due to the duration for which the tributary has been observed to flow after rain events. In consideration of the timing of the observed flow events, we have determined that in a typical year AGDI-6 appears to flow continously during the later portion of the wet season and again during the summer season, when it is supplemented by irrigation water. Based on these observations of flow we determine that AGDI-6 is a is a relatively permanent water (RPW).**

**We have reviewed Caltrans'"New and Additional Information for AGDI-6A, AGDI-6b AJD for SR Yolo 16, SPK-2010-00101" and have the following response:**

**The photos provided in item 1 appear to be Google Earth "Street View" images from along SR 16, which are dated "June 2016". We have reviewed these images but cannot concur with Caltrans' interpretation that the images show AGDI-6 becoming progressively drier as it approaches South Fork Willow Slough and that the water does not reach South Fork Willow Slough. The point of view of the images seems to move further from the ditch as it progresses to the east toward South Fork Willow Slough so that the the field of view changes from the bottom of AGDI-6 to the far bank. Because of this angle change and the increasing amount of vegetative cover near South Fork Willow Slough, we are unable to concur that AGDI-6 becomes drier toward South Fork Willow Slough. Furthermore, due to the vagueness of the date we cannot confirm when the photos were taken in respect to recent precipitation. Additonally LiDAR imagery and the CAD mapping provided in item #4 show that AGDI-6 decreases in elevation from west to east, with it being lowest at its confluence with South Fork Willow Slough. Substantial flow (10'w x 3-4'h) was also observed from AGDI-6 into South Fork Willow Slough during the June 24, 2016 site visit. Regarding Caltrans' second point in item 1 that water in the ditch is coming from irrigation of the agricultural fields to the north, we concur the ditch receives irrigation water from the fields to the north in addition to stormwater run-off from those same fields and State Route 16.**

**The OHWM for AGDI-6 was mapped by Caltrans. During the June 24, 2016 site visit, Caltrans and Corps staff observed AGDI-6 flowing into South Fork Willow Slough and estimated a 10' wide OHWM for AGDI-6 at the confluence, which Caltrans applied to the entiretly of AGDI-6. The photos provided, which were dated October 6, 2016, November 17, 2016, and December 17, 2016 are of various locations along AGDI-6. The October 6, 2016 photo was taken more than 60 days after any substantial rain (0.03" on October 4, 2016, but no precipitation earlier in October or any in September or August) according to NOAA climatological data for the area. The November 17, 2016 image was taken 16 days after any rainfall. The December 27, 2016 image was taken within 3 days of precipitation, but, according to WETS, it and the other photos were taken during normal periods of precipitation, not during periods of record rain as indicated in the letter. The photos are too dark to see the bottom of the channel, but they do clearly show a shift in the vegetation from AGDI-6 to the surrounding areas.**

**In conclusion, we have determined AGDI-6 drains areas that would be wetlands under normal circumstances and that AGDI-6 is a RPW that is a tributary of the Sacramento River, a traditional navigable water (TNW).**