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): August 1, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Sacramento District, Eubanks Drive Commercial Development, SPK-2016-00710

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **California** County/parish/borough: **Solano** City: **Vacaville**
Center coordinates of site (lat/long in degree decimal format): Lat. **38.40999°**, Long. **-121.95311°**
Universal Transverse Mercator: **10 591401.04 4251824.34**
Name of nearest waterbody: **South Fork Gibson Canyon Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Cache Slough**
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: **August 1, 2017**
☒ Field Determination. Date(s): **February 9, 2017**

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 and are not** "*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: **60** linear feet, **16 feet** wide, and/or **.022** acres.
      Wetlands: **1.941** acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      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: **SW3 consists of a small, deep hole in the southwestern corner of the project site, and does not have a distinguishable surface or subsurface connection with the other wetlands on site or to South Branch Gibson Canyon Creek (see LiDAR and Wetland Flow Paths).**

[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.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

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: **NA**

Summarize rationale supporting determination:

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

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: **360.77 acres**
Drainage area: **773.44 acres**
Average annual rainfall: **24.47** inches
Average annual snowfall: **0.00** inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **15-20** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **10-15** 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: **The project waters do not cross or serve as a state boundary.**

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: **South Branch Gibson Canyon Creek flows to the main stem Gibson Canyon Creek (an intermittent RPW) for approximately 0.835 RM from the southeastern 'pandhandle' of the project site. Gibson Canyon Creek flows to Sweaney Creek (a perennial water) for approximately 5.077 RM. Sweaney Creek then flows to Cache Slough (a TNW) for approximately 10.52 RM. All distance measurements were made using the interactive USGS NHD viewer.**
Tributary stream order, if known: **1st order, headwater stream**

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☒ Manipulated (man-altered). Explain: **The relevant reach of South Branch Gibson Canyon Creek originates as a natural channel at approximate Latitude 38.40309, Longitude -121.99324, and an elevation of approximately 341 feet (via NHD). The channel meanders near the origin, but has been realigned and straightened through much of it's lower length, particularly in the segment nearest the proposed project site. The City of Vacaville directs nearby stormwater into the channel, which flows through a detention basin just west of the proposed project site. The channel also appears to receive inputs from the South Putah Canal just west of the project site. The portion of the channel within the project area consists of four large culverts underneath an access road. East of the project site, the stream flows through the Michael Remy Vernal Pool Preserve, which was created, preserved, and is managed as mitigation associated with Corps Permit # SPK-1999-00429. The relevant reach ends at it's confluence with the main stem Gibson Canyon Creek within the preserve, approximately 3.438 RM downstream of the origin, Latitude 38.408876, Longitude -121.940152, and at an elevation of approximately 94 feet.**

Tributary properties with respect to top of bank (estimate):
Average width: **16** feet
Average depth: **4-8 (variable)** feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

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

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **Banks appear stable near review area (used as flood control). Bank condition upstream is unkown.**
Presence of run/riffle/pool complexes. Explain: **Assumed not present. Pools and runs are evident in aerial imagery throughout the relevand reach, but riffles are not. If riffles are present, they would likely be located in the upper, higher-gradient and less-manipulated portion of the relevant reach.**
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: **6-10**
Describe flow regime: **South Branch Gibson Canyon Creek is an ungauged stream, depicted as ephemeral in the National Hydrography Dataset, and as an intermittent in USGS topographic maps. Review of aerial imagery (via Google Earth and Digital Globe) between April 2003 and February 2017 shows that standing water is difficult to observe and/or not consistently present within the upper 1.49 miles of the channel (approximately from the origin to Brown's Valley Road), indicating a mostly ephemeral system or very narrow channel. However, water does appear to be present seasonally within the lower 1.95 miles of the channel (approximately Brown's Valley Road to the confluence with Gibson Canyon Creek) from winter (December/January) to early spring (March/April), indicating that the tributary is best characterized hydrologically as a seasonal RPW.**
Other information on duration and volume: **Flow events/year were estimated using the USACE Antecedent Rainfall Calculator (data sourced from NOAA's Daily Global Historical Climatology Network), and is based on the assumption that higher rain events would result in flood flow pulses within the channel.**

[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.

Surface flow is: **Discrete and confined**. Characteristics: **The upper reach of the channel is more ephemeral in character and does not appear to receive enough water to frequently overtop its banks. The lower reach is utilized for flood control purposes by the City of Vacaville, and has clearly been straightened and channelized to contain flows for this purpose. FEMA flood maps do, however, identify portions of the channel to the east (near the confluence with the main stem Gibson Canyon Creek) and west (near the South Putah Canal) of the project site as flood areas (see FEMA Firm maps and California DWR Flood Maps).**

Subsurface flow: **Unknown**. Explain findings: **The channel is unlined and should therefore maintain landscape connectivity. However, subsurface flow has not been field-tested and is unconfirmed.**

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

☐ 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:

- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list):

☐ Mean High Water Mark indicated by:

- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: **Water quality parameters for South Branch Gibson Canyon Creek are unknown. However, water observed within the channel during the February 9, 2017, site visit was very turbid (see photos for reference) and clearly carried a high sediment load.**

Identify specific pollutants, if known: **Sediments and organic material, otherwise, unknown.**

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

☐ Riparian corridor. Characteristics (type, average width):

☒ Wetland fringe. Characteristics: **Much of South Branch Gibson Canyon Creek has been altered and channelized, but the portion just east of the project site supports vernal pool wetlands within the Michael Remy Vernal Pool Preserve (associated with Permit # SPK-1999-00429), which envelops the confluence of South Branch Gibson Canyon Creek and the main stem Gibson Canyon Creek.**

☒ Habitat for:

☒ Federally Listed species. Explain findings: **Monitoring reports for the Michael Remy Vernal Pool Preserve (prepared by the Center for Lands Management, or CLM), state that the vernal pool complexes within the preserve, and adjacent to South Branch Gibson Canyon Creek, support Federally-listed vernal pool fairy shrimp (Branchinecta lynchi), conservancy fairy shrimp (Branchinecta conservatio), and California tiger salamander (Ambystoma californiense).**

☐ Fish/spawn areas. Explain findings:

☒ Other environmentally-sensitive species. Explain findings: **Based on CLM monitoring reports, vernal pool complexes and associated uplands adjacent to South Branch Gibson Canyon Creek also support State special status species, including the plant, dwarf downingia (Downingia pusilla), and wildlife such as loggerhead shrike (Lanius ludovicianus), burrowing owl (Athene cunicularia), and Swainson's hawk (Buteo swainsoni).**

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[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.

☒ Aquatic/wildlife diversity. Explain findings: **As described above, the South Branch Gibson Canyon Creek contributes to sensitive aquatic habitat (vernal pools) and wildlife diversity in the area, and supports numerous species in addition to those that are Federally- or State-listed.**

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: **1.941** acres

Wetland type. Explain: **The project site contains both vernal pool and seasonal wetland complexes.**

Wetland quality. Explain: **Good. Based on geometry and location, the project wetlands were likely created through the grading/development of parcel, which occurred sometime prior to 1993 and after 1968 (based on historicaerials.com). It is unclear if vernal pool wetlands existed on-site prior to the initial site development, but swale systems are visible in the 1968 aerial. The wetlands, as they presently exist, are extensive, hold a substantial amount of water, and support sensitive vernal pool/wetland species.**

Project wetlands cross or serve as state boundaries. Explain: **Project wetlands do not cross or serve as state boundaries.**

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: **Wetlands primarily flow to non-TNW (South Branch Gibson Canyon Creek) during/following rain events and gradually contribute water until they dry down following the wet season.**

Surface flow is**: Overland sheetflow**

Characteristics: **Surface flow between similarly situated wetlands and South Branch Gibson Canyon Creek is a combination of discrete and confined conveyances and sheetflow (See Wetland Flow Paths figure perpared by USACE and dated July 28, 2017).**

Subsurface flow: **Unknown**. Explain findings: **Subsurface flow is likely, based on landscape gradient (see LiDAR) and soil characteristics (mainly Corning gravelly loam), but unconfirmed via dye or other test.**

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

☐ Directly abutting

☒ Not directly abutting

☒ Discrete wetland hydrologic connection. Explain: **SW2 flows east across the project site to SW1 through a discrete "notch" excavated through the berm that otherwise separates surface flow between the two wetlands. VP9 flows north and east through SW2 to SW1 following the same flow path. SW1 flows south and east and forms a complex (surface and subsurface) with wetlands (unmapped) on the east side of the property boundary. These wetlands continue to flow south across the project site, and form a complex with SW4. SW4 forms part of a small ditch on the eastern side of the project site boundary (partially outside of the review area and partially-unmapped), which carries both discrete and non-discrete flows further south across the project site to VP8. VP3 flows east across the project site (surface and subsurface) to VP4, which flows east to VP5. VP5 flows south and east towards SW4 and the unmapped ditch, continuing southward to VP6 and VP8. VP6 flows south to VP7. VP7 flows east to VP8. VP8 flows south and east and conveys water via a discrete ditch outside of the eastern project boundary (unmapped) to South Branch Gibson Canyon Creek. VP2 drains west to VP1. VP1 spills into the storm drain system on Eubanks Drive, which then flows to South Branch Gibson Canyon Creek. Flow paths are visible in aerial imagery, LiDAR, and in mapped photo logs of the project site. No flow path is evident between SW3 and other project waters, and given it's size (approximately 0.002 acres) and landscape position, subsurface flow between SW3 and other project waters is unlikely to be significant.**

☒ Ecological connection. Explain: **Project wetlands serve to filter sediments and pollutants, provide nutrients, and attenuate wet season flood flows and storm events to South Branch Gibson Canyon Creek, and ultimately Cache Slough, the nearest TNW. Project wetlands are also suitable habitat for Federally-listed vernal pool species (vernal pool fairy shrimp, conservancy fairy shrimp, and California Tiger Salamander). Although these species have not been reported within the project area (based on surveys conducted by the applicant's consultant), they are known to occur within the Michael Remy Vernal Pool Preserve, which is <0.5 miles downstream of the project area, and directly supported by South Branch Gibson Canyon Creek.**

☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW
Project wetlands are **15-20** river miles from TNW.
Project waters are **10-15** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **500-year or greater** 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: **At the time of the Corps' February 9, 2017, site visit, water in project wetlands was relatively clear (slightly tea-colored due to dissolved organic carbon) and did not contain a significant amount of suspended sediments. Specific water quality parameters are otherwise unknown for this site.**
Identify specific pollutants, if known: **Specific pollutants are unknown.**

(iii) Biological Characteristics. Wetland supports (check all that apply):
☐ Riparian buffer. Characteristics (type, average width):
☒ Vegetation type/percent cover. Explain: **Typically 50% or more hydrophytic vegetation, including vernal pool species dwarf woolly-marbles (Psilocarphus brevissimus var. brevissimus), Great Valley popcornflower (Plagiobothrys stipitatus var. micranthus), among others.**
☒ Habitat for:
☒ Federally Listed species. Explain findings: **Project wetlands are suitable habitat for Federally-listed vernal pool fairy shirmp, conservancy fairy shrimp, and California Tiger Salamander, which are known to occur <0.5 miles downstream fo the project site at the Micheal Remy Vernal Pool Preserve. Project wetlands are also suitable habitat for vernal pool tadpole shrimp, although they are not confirmed to occupy the project area.**
☐ Fish/spawn areas. Explain findings:
☒ Other environmentally-sensitive species. Explain findings: **Based on CLM monitoring reports, nearby vernal pool complexes and associated uplands within the Michael Remy Vernal Pool Preserve also support State special status species, including the plant, dwarf downingia, and wildlife such as loggerhead shrike, burrowing owl, and Swainson's hawk.**
☒ Aquatic/wildlife diversity. Explain findings: **Project wetlands consist of sensitive aquatic habitat (mainly vernal pools) which contribute significantly to aquatic/wildlife diversity in the area, and support numerous species in addition to those that are Federally- or State-listed.**

3. Characteristics of all wetlands adjacent to the tributary (if any)
All wetland(s) being considered in the cumulative analysis: **12**
Approximately **1.941** 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)
VP1	**(N)**	**0.523**	**VP7**	**(N)**	**0.066**
VP2	**(N)**	**0.080**	**VP8**	**(N)**	**0.151**
VP3	**(N)**	**0.166**	**VP9**	**(N)**	**0.014**
VP4	**(N)**	**0.072**	**SW1**	**(N)**	**0.274**
VP5	**(N)**	**0.016**	**SW2**	**(N)**	**0.418**
VP6	**(N)**	**0.156**	**SW4**	**(N)**	**0.005**

Summarize overall biological, chemical and physical functions being performed: **Project wetlands have the capacity to retain sediments, attenuate flood flows, and transfer nutrients and organic carbon downstream to Cache Slough (the nearest TNW) via South Branch Gibson Canyon Creek. Project wetlands also serve as habitat for endangered species and other sensitive plants/wildlife dependent on vernal pool complexes and associated uplands.**

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: **Project wetlands have the capacity to retain sediments, attenuate flood flows, and transfer nutrients and organic carbon downstream to Cache Slough (the nearest TNW) via South Branch Gibson Canyon Creek. Project wetlands also serve as habitat for endangered species and other sensitive species within the review area. The tributary, in combination with its adjacent wetlands, therefore, has significant relationships to the physical, chemical, and/or biological integrity of Cache Slough.**

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: **South Branch Gibson Canyon Creek is an ungauged stream, depicted as ephemeral in the National Hydrography Dataset, and as an intermittent in USGS topographic maps. Review of aerial imagery (via Google Earth and Digital Globe) between April 2003 and February 2017 shows that standing water is difficult to observe and/or not consistently present within the upper 1.49 miles of the channel (approximately from the origin to Brown's Valley Road), indicating a mostly ephemeral system or very narrow channel. However, water does appear to be present seasonally within the lower 1.95 miles of the channel (approximately Brown's Valley Road to the confluence with Gibson Canyon Creek) from winter (December/January) to early spring (March/April), indicating that the tributary is best characterized hydrologically as a seasonal RPW.**

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☒ Tributary waters: **60** linear feet **16 feet** 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.

[8]See Footnote # 3.

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: **1.941** 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:
☐ 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.

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[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.*

☒ 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: **0.002** 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: **0.002** 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: **Figure 4. Jurisdictional Delineation Map, prepared by Sycamore Environmental Consultants, Inc. and dated April 6, 2017.**
☒ 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-ALLENDALE**
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **Figure 3. Soils Map, prepared by Sycamore Environmental Consultants, Inc. and dated 8 June 2016.**
☐ National wetlands inventory map(s). Cite name:
☐ State/Local wetland inventory map(s):
☒ FEMA/FIRM maps: **Flood Insurance Rate Map, Solano County, California Panel 162 of 730, prepared by Federal Emergeny Management Agency and Revised August 2, 2012.**
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **Google Earth imagery dated April 5, 2003; December 31, 2004; Decmber 30, 2005; March 21, 2007; February 7, 2008; February 26, 2008; March 17, 2010; April 24, 2010; November 1, 2010; May 6, 2011; January 26, 2013; Abril 16, 2013; April 1, 2015; and March 16, 2016. Digital Globe imagery dated December 12, 2011; November 7, 2015; February 29, 2016; March 2, 2016; March 18, 2016; February 14, 2017; and February 26, 2017.**
  or ☒ Other (Name & Date): **Appendix B, Photographs, of the Jurisdictional Delineation Report for Eubanks Drive Commercial Development, City of Vacaville, CA report prepared by Sycamore Environmental Consultants, Inc., and dated June 13, 2016. Mapped Photo Log for Eubanks Drive Commercial Development, SPK-2016-00710, prepared by USACE and dated July 12, 2017 (2 documents, 1 with Solano County LiDAR overlay and 1 without).**
☐ Previous determination(s). File no. and date of response letter:
☐ Applicable/supporting case law:
☐ Applicable/supporting scientific literature:
☒ Other information (please specify): **StreamStats Basin Characteristics and StreamStats Flow Estimates. California Department of Water Resources Best Abailable Maps Floodplain Information. USACE Antecedent Rainfall Calculator. July 5, 2017, email and attachements from Sycamore Environmental Consultants, Inc., providing additional information regarding flowpaths and drainage to South Branch Gibson Canyon Creek. South Branch Gibson Canyon Creek Flow Route to nearest TNW figure (dated July 18, 2017, and prepared by USACE). Relevant Reach of South Branch Gibson Canyon Creek and Proposed Project Area figure (dated July 17, 2017, and prepared by USACE). Wetland Delineation and LiDAR Overlay figure (dated July 14, 2017, and prepared by USACE). Wetland Flow Paths figure (dated July 28, 2017, and prepared by USACE).**

B. ADDITIONAL COMMENTS TO SUPPORT JD:

SW3 is a small hole (0.002 acre) in the southwestern corner of the project site. While SW3 has the potential to support endangered species, there is no apparent surface or subsurface hydrologic connection with South Branch Gibson Canyon Creek, nor does it appear to connect hydrologically with the remaining similarly-situated wetlands on site. SW3 lacks a significant nexus, chemically and biologically, with the downstream TNW (Cache Slough).