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): 29 November 2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Galveston District, SWG-2016-00127, Union Pacific Rail Road, Wetlands D to H

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Texas County/Parish: Brazoria City: Angleton
Center coordinates of site (lat/long in degree decimal format, NAD-83): Lat. see attached table° N, Long. see attached table° W;
Universal Transverse Mercator: UTM: 15, see attached table N., see attached table E.,NAD: 83
Name of nearest water body: Bastrop Bayou
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Bastrop Bayou
Name of watershed or Hydrologic Unit Code (HUC): Austin-Oyster - 12040205
☒ 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: 3 November 2016
☒ Field Determination. Date(s): 11 August 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: width (ft) and/or acres
      Wetlands: **Approximately 1.24** 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:

[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:

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, fill out Section III.D.2 and 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 water body[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the water body 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: **401,106 acres**
Drainage area: **Pick List**
Average annual rainfall: **57.24** inches
Average annual snowfall: **0.2** inches

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

Project waters are **1 (or less)** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **1 (or less)** 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: **N/A**

Identify flow route to TNW[5]: **Bastrop Bayou (RPW) flows directly into Bastrop Bayou (TNW)**
Tributary stream order, if known: **3**

[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: **Portions of Bastrop Bayou have been channelized and rerouted.**

Tributary properties with respect to top of bank (estimate):
Average width: **50** feet
Average depth: **2-3** feet
Average side slopes: **2:1**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover: **3**	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **Fairly stable. Upper extent of reach appears to function as flood control while lower reach remains unmodified with scrub shrub or tree canopy buffer, on both sides in most areas.**
Presence of run/riffle/pool complexes. Explain: **N/A**
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): **1-2** %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime:
Other information on duration and volume: **Tributary is relatively permanent and appears to have perennial flow in the lower reach and intermittent in the upper reach.**
Surface flow is: **Confined**. Characteristics:
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):	

☐ 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;
☐ 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 is generally discolored, carries agricultural runoff and suspended sediments.**
Identify specific pollutants, if known: **Pollutants are unknown.**

[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 water body'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.

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

☒ Riparian corridor. Characteristics (type, average width): **100 average width. Riparian corridor is predominantly herbacious vegetation in the upper reach and scrub/shrub or forested vegetation community in the lower reach.**

☐ 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:

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: **See attached table** acres

Wetland type. Explain: **Palustrine**

Wetland quality. Explain: **There are 5 wetlands within the project boundary associated with this Significant Nexus Test of adjacent wetlands of Bastrop Bayou (see attached table). The wetlands contain a predominance of FAC, FACW, and OBL vegetation. These wetlands within the project site are mapped outside/above the 100-year floodplain of Bastrop Bayou; however, a more thorough review of offsite data, including LiDAR data and FEMA 100-year floodplain elevation cross sections, revealed that these wetlands are actually within or below the anticipated 100-year floodplain elevations of Bastrop Bayou.**

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow** . Explain:

Surface flow is**: Overland sheetflow**

Characteristics: **The wetlands within the project site are mapped outside/above the 100-year floodplain of Bastrop Bayou; however, a more thorough review of offsite data, including LiDAR data and FEMA 100-year floodplain elevation cross sections revealed that the wetlands are actually within or below the anticipated 100-year floodplain elevations of Bastrop Bayou.**

Subsurface flow: **Unknown**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

☐ Directly abutting

☒ Not directly abutting

☒ Discrete wetland hydrologic connection. Explain: **The wetlands within the project site are mapped outside/above the 100-year floodplain of Bastrop Bayou; however, a more thorough review of offsite data, including LiDAR data and FEMA 100-year floodplain elevation cross sections revealed that these wetlands are actually within or below of anticipated 100-year floodplain elevations of Bastrop Bayou.**

☐ Ecological connection. Explain:

☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **5-10** river miles from TNW.

Project waters are **2-5** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **100 - 500-year** 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: **No surface hydrology was exhibited within the wetlands**

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: **herbaceous , 100 percent cover**

☐ 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: **30 (or more)**

Approximately (**103.4**) 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)
See attached table	**see attached table**		**see attached table**

Summarize overall biological, chemical and physical functions being performed:

Bastrop Bayou for this significant nexus evaluation is a 2nd order stream and is a relatively permanent water. The relevant reach is approximately 8 miles long. The relevant reach of Bastrop Bayou extends from the intersection of Highway 288 and Highway 35 in Angleton, Texas to approximately 1.25-mile northwest of the intersection of Farm to Market Road 2004 and Old Angleton Clute Road, the northern extent of the TNW (Bastrop Bayou). The project site is surrounded by farm fields/pasture and residential/commercial development.

There are 5 herbaceous wetlands (see attached table), totaling approximately 1.24-acre, on the project site associated with the relevant reach of Bastrop Bayou. Some of these wetlands within the project site are mapped outside/above the 100-year floodplain of Bastrop Bayou; however, a more thorough review of offsite data, including LiDAR data and FEMA 100-year floodplain elevation cross sections, revealed that these wetlands are actually within or below the anticipated 100-year floodplain elevations of Bastrop Bayou. Additional wetlands are located within the project site but are included in the significant nexus evaluation for Bastrop Bayou, which is documented on a separate Approved Jurisdictional Determination form. In addition to the project site wetlands, there are 25 adjacent wetlands along the relevant reach that total approximately 102.16 acres, based on the NWI and FEMA Flood Insurance Rate Maps. The majority of the wetlands are forested. Of the 103.4 acres of wetlands being evaluated along this relevant reach, zero acres are abutting the relevant reach of Bastrop Bayou. These wetlands are located from 0 to 7 miles from the nearest TNW (Bastrop Bayou). The relevant reach of Bastrop Bayou flows directly into the TNW portion of Bastrop Bayou, which is/was used for irrigation of agricultural crops as well as for flood management.

A search of the Texas Commission on Environmental Quality 303(d) list of impaired waters revealed that the tributary within this reach is not impaired. In addition, a search within EPA MyWaters dataset did not indicate any impairment within this reach as well. Therefore, based on our analysis, the Corps did not find sufficient evidence/data to support the statement that these waters (within this reach) provide more than speculative or insubstantial effect upon the chemical integrity of the downstream TNW.

The retention of water and retardation of overbank flooding associated with the 103.4 acres of adjacent wetlands and located within the relevant reach of Bastrop Bayou has effect upon the physical attributes of the downstream TNW. These wetlands provide floodplain storage and have a direct effect upon the velocity and flow of waters into the downstream TNW. Increased and intense flow results in increased flooding and scouring, resulting in loss of property and the physical attributes of the TNW. The effects of removing approximately 103.4 acres of neighboring wetlands would increase the velocity and flow into the downstream TNW, resulting in more than a speculative or insubstantial effect upon the physical attributes of the downstream TNW. Therefore, the aquatic resources within this relevant reach provide more than speculative or insubstantial effects that are inseperably bound to maintain the physical integrity of the downstream TNW.

There are no known aquatic biological species found in this reach (the tributary and the adjacent wetlands) that require these aquatic resources to fulfill their lifecycle requirements. It is noted that the tributary within this reach (Bastrop Bayou) has a direct surface hydrologic connection with the downstream TNW (Bastrop Bayou). None of the wetlands are abutting but they are neighboring and as such the majority of the time they lack any potential surface hydrologic connection. These neighboring wetlands typically aid in provinding detritus as a food source to aquatic species in the TNW. However, there is not sufficient evidence to identify a species that requires both the aquatic resources within this reach and the waters of the TNW to fulfill life cycle requirements.

In conclusion, we have determined that there is sufficient evidence to support the statement that the aquatic resources within this approximate 8-mile relevant reach of Bastrop Bayou and its 103.4 acres of adjacent wetlands provide a significant nexus (more than speculative or insubstanial effect) to the chemical, physical and/or biological integrity of the downstream TNW (Bastrop Bayou). In conclusion, it is our opinion that this relevant reach of Bastrop Bayou and its adjacent wetlands are waters of the United States subject to Section 404 of the Clean Water Act.

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: **This relevant reach of Bastrop Bayou is a 2nd order stream and a relatively permanent water. Bastrop Bayou flows directly into the downstream TNW portion of Bastrop Bayou. There are approximately 103.4 acres of neighboring wetlands, most of which are forested. The system retains flood waters and reduces overbank flooding downstream, thereby decreasing the velocity and amount of water flowing downstream into Bastrop Bayou. Retaining flood waters also reduces scouring and the loss of property as well as preserving the physical attributes of the downstream TNW. Based on this information, we determined that this relevant reach of Bastrop Bayou and its adjacent wetlands provide more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of the downstream TNW (Bastrop Bayou).**

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 width (ft), 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: **The lower portion of the reach of Bastrop Bayou has water visible in all Google Earth aerial photos where the creek is visible (not covered by tree canopy).**
   - ☒ 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: **The upper portion of the reach (closest to the project site) has periods of low to now flow and periods of continual flow (as seen in Google Earth aerials, specifically in the January to March timeframe).**

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

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

☐ Water body 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 width (ft).
- ☐ 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: Approximately 1.24 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 width (ft)
☐ 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 width (ft).
☐ 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, width (ft).
☐ 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: **Olsson Associates**
☐ 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: **Site visit 11 August 2016**
☐ Corps navigable waters' study:
☒ U.S. Geological Survey Hydrologic Atlas: **Austin - Oyster -- 12040205**
☐ USGS NHD data
☒ USGS 8 and 12 digit HUC maps
☐ Galveston District's Approved List of Navigable Waters
☒ U.S. Geological Survey map(s). Cite scale & quad name: **1:24,000 Thompsons, Juliff, Otey, Rosharon, East Columbia, Angleton, Brazoria, and Lake Jackson, Texas Quadrangle Map.**
☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
☒ National wetlands inventory map(s). Cite name: **USFWS NWI Google Earth**
☐ State/Local wetland inventory map(s):
☒ FEMA/FIRM maps: **Brazoria County Texas 48039C0440H and 48039C0445H**
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **2010 to 2015 Google Earth**
or ☐ Other (Name & Date): **2009, 2015 Infrared; 2006 TWDB LiDAR Data**
☐ Previous determination(s). File no. and date of response letter:
☐ Applicable/supporting case law:
☐ Applicable/supporting scientific literature:
☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD: Bastrop Bayou for this significant nexus evaluation is a 2nd order stream and is a relatively permanent water. The relevant reach is approximately 8 miles long. The relevant reach of Bastrop Bayou extends from the intersection of Highway 288 and Highway 35 in Angleton, Texas to approximately 1.25-mile northwest of the intersection of Farm to Market Road 2004 and Old Angleton Clute Road, the northern extent of the TNW (Bastrop Bayou). The project site is surrounded by farm fields/pasture and residential/commercial development.

There are 5 herbaceous wetlands (see attached table), totaling approximately 1.24-acre, on the project site associated with the relevant reach of Bastrop Bayou. Some of these wetlands within the project site are mapped outside/above the 100-year floodplain of Bastrop Bayou; however, a more thorough review of offsite data, including LiDAR data and FEMA 100-year floodplain elevation cross sections, revealed that these wetlands are actually within or below the anticipated 100-year floodplain elevations of Bastrop Bayou. Additional wetlands are located within the project site but are included in the significant nexus evaluation for Bastrop Bayou, which is documented on a separate Approved Jurisdictional Determination form. In addition to the project site wetlands, there are 25 adjacent wetlands along the relevant reach that total approximately 102.16 acres, based on the NWI and FEMA Flood Insurance Rate Maps. The majority of the wetlands are forested. Of the 103.4 acres of wetlands being evaluated along this relevant reach, zero acres are abutting the relevant reach of Bastrop Bayou. These wetlands are located from 0 to 7 miles from the nearest TNW (Bastrop Bayou). The relevant reach of Bastrop Bayou flows directly into the TNW portion of Bastrop Bayou, which is/was used for irrigation of agricultural crops as well as for flood management.

A search of the Texas Commission on Environmental Quality 303(d) list of impaired waters revealed that the tributary within this reach is not impaired. In addition, a search within EPA MyWaters dataset did not indicate any impairment within this reach as well. Therefore, based on our analysis, the Corps did not find sufficient evidence/data to support the statement that these waters (within this reach) provide more than speculative or insubstantial effect upon the chemical integrity of the downstream TNW.

The retention of water and retardation of overbank flooding associated with the 103.4 acres of adjacent wetlands and located within the relevant reach of Bastrop Bayou has effect upon the physical attributes of the downstream TNW. These wetlands provide floodplain storage and have a direct effect upon the velocity and flow of waters into the downstream TNW. Increased and intense flow results in increased flooding and scouring, resulting in loss of property and the physical attributes of the TNW. The effects of removing approximately 103.4 acres of neighboring wetlands would increase the velocity and flow into the downstream TNW, resulting in more than a speculative or insubstantial effect upon the physical attributes of the downstream TNW. Therefore, the aquatic resources within this relevant reach provide more than speculative or insubstantial effects that are inseperably bound to maintain the physical integrity of the downstream TNW.

There are no known aquatic biological species found in this reach (the tributary and the adjacent wetlands) that require these aquatic resources to fulfill their lifecycle requirements. It is noted that the tributary within this reach (Bastrop Bayou) has a direct surface hydrologic connection with the downstream TNW (Bastrop Bayou). None of the wetlands are abutting but they are neighboring and as such the majority of the time they lack any potential surface hydrologic connection. These neighboring wetlands typically aid in provinding detritus as a food source to aquatic species in the TNW. However, there is not sufficient evidence to identify a species that requires both the aquatic resources within this reach and the waters of the TNW to fulfill life cycle requirements.

In conclusion, we have determined that there is sufficient evidence to support the statement that the aquatic resources within this approximate 8-mile relevant reach of Bastrop Bayou and its 103.4 acres of adjacent wetlands provide a significant nexus (more than speculative or insubstanial effect) to the chemical, physical and/or biological integrity of the downstream TNW (Bastrop Bayou). In conclusion, it is our opinion that this relevant reach of Bastrop Bayou and its adjacent wetlands are waters of the United States subject to Section 404 of the Clean Water Act.

SWG-2016-00127

Union Pacific Rail Road

Significant Nexus Test Adjacent Wetlands (Bastrop Bayou)

Wetland	Approximate Acreage	Type	Abutting	Latitude	Longitude
D*	0.01	Freshwater Forested/Shrub Wetland	No	29.14535795	-95.45114007
E*	0.01	Freshwater Emergent Wetland	No	29.14482222	-95.44934072
F*	0.03	Freshwater Emergent Wetland	No	29.14485697	-95.44885885
G*	0.58	Freshwater Emergent Wetland	No	29.14549907	-95.44809849
H*	0.61	Freshwater Emergent Wetland	No	29.14669758	-95.44814801
1	0.68	Freshwater Forested/Shrub Wetland	No	29.10052323	-95.44123547
2	2.41	Freshwater Emergent Wetland	No	29.12677009	-95.45326098
3	0.42	Freshwater Forested/Shrub Wetland	No	29.09514776	-95.44090828
4	1.73	Freshwater Forested/Shrub Wetland	No	29.11080726	-95.44969587
5	0.38	Freshwater Forested/Shrub Wetland	No	29.08553045	-95.44330263
6	1.56	Freshwater Forested/Shrub Wetland	No	29.08916716	-95.43897681
7	0.20	Freshwater Forested/Shrub Wetland	No	29.09913887	-95.44097878
8	3.88	Freshwater Forested/Shrub Wetland	No	29.10096066	-95.44563291
9	0.65	Freshwater Forested/Shrub Wetland	No	29.09337366	-95.43923228
10	28.14	Freshwater Forested/Shrub Wetland	No	29.08930159	-95.44765572
11	27.76	Freshwater Forested/Shrub Wetland	No	29.08729727	-95.44530302
12	3.59	Freshwater Forested/Shrub Wetland	No	29.08863375	-95.45041821
13	2.76	Freshwater Forested/Shrub Wetland	No	29.1273722	-95.45366364
14	0.20	Freshwater Pond	No	29.14189289	-95.44704968
15	2.65	Freshwater Forested/Shrub Wetland	No	29.09267467	-95.44749867
16	0.46	Freshwater Forested/Shrub Wetland	No	29.09082643	-95.43553347
17	0.10	Other	No	29.09019751	-95.43037142
18	0.30	Freshwater Forested/Shrub Wetland	No	29.0852472	-95.43669248
19	19.05	Freshwater Forested/Shrub Wetland	No	29.08755845	-95.43282312
20	0.24	Freshwater Pond	No	29.09039753	-95.43300016
21	1.63	Freshwater Forested/Shrub Wetland	No	29.0876937	-95.43702346
22	0.40	Freshwater Forested/Shrub Wetland	No	29.09828774	-95.43564053
23	0.39	Freshwater Forested/Shrub Wetland	No	29.08549587	-95.43593303
24	0.36	Freshwater Forested/Shrub Wetland	No	29.08583834	-95.43715824
25	2.22	Freshwater Pond	No	29.144320	-95.447357

Total: 103.4

PEM:	3.6	Abutting:	0.0
PFO/PSS:	97.0	Non-Abutting:	103.4
Other:	2.7		

*Proposed Project Area Wetlands

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): 29 November 2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Galveston District, SWG-2016-00127, Union Pacific Rail Road, Wetlands A1 A2, B1 to B5, C1 to C9

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Texas County/Parish: Brazoria City: Angleton
Center coordinates of site (lat/long in degree decimal format, NAD-83): Lat. see attached table° N, Long. see attached table° W;
Universal Transverse Mercator: UTM: 15, see attached table N., see attached table E.,NAD: 83
Name of nearest water body: Oyster Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Oyster Creek
Name of watershed or Hydrologic Unit Code (HUC): Austin-Oyster - 12040205
☒ 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: 3 November 2016
☒ Field Determination. Date(s): 11 August 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: width (ft) and/or acres
      Wetlands: **Approximately 0.60** 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:

[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:

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, fill out Section III.D.2 and 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 water body[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the water body 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: **401,106 acres**
Drainage area: **Pick List**
Average annual rainfall: **57.24** inches
Average annual snowfall: **0.2** inches

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

Project waters are **1 (or less)** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **Pick List** 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: **N/A**

Identify flow route to TNW[5]: **Oyster Creek (RPW) flows directly into Oyster Creek (TNW)**
Tributary stream order, if known: **3**

[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: **Oyster Creek has been channelized and rerouted, specifically in the upper extent of the tributary.**

Tributary properties with respect to top of bank (estimate):
Average width: **50** feet
Average depth: **2-3** feet
Average side slopes: **2:1**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/% cover: **30-60% Canopy**	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **Fairly stable. Tributary has riparian buffer, consisting of scrub shrub or tree canopy, on both sides in most areas.**
Presence of run/riffle/pool complexes. Explain: **N/A**
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): **1-2** %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime:
Other information on duration and volume: **Tributary is relatively permanent and appears to have perennial flow.**
Surface flow is: **Confined**. Characteristics:
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):	

☐ 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;
☐ 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: **Oyster Creek within the relevant reach is listed on the Texas 303(d) List for bacteria and depressed dissolved oxygen.**
Identify specific pollutants, if known: **Pollutants are unknown**

[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 water body'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.

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

☒ Riparian corridor. Characteristics (type, average width): **100 average width. Riparian corridor is predominantly scrub/shrub or forested vegetation community.**

☐ 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:

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: **See attached table** acres

Wetland type. Explain: **Palustrine**

Wetland quality. Explain: **There are 16 wetlands with the project boundary associated with this Significant Nexus Test of adjacent wetlands of Oyster Creek (see attached table). The wetlands contain a predominance of FAC, FACW, and OBL vegetation. Based upon elevation data (LiDAR) and review of FEMA floodplain map, theswe wetlands are located within the 100-year floodplain of Oyster Creek.**

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow** . Explain:

Surface flow is**: Overland sheetflow**

Characteristics: **The wetlands are located within the anticipated high flow of Oyster Creek (i.e. the 100-year floodplain of Oyster Creek.**

Subsurface flow: **Unknown**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

☐ Directly abutting

☒ Not directly abutting

☒ Discrete wetland hydrologic connection. Explain: **The wetlands are located within the anticipated high flow of Oyster Creek (i.e. the 100-year floodplain of Oyster Creek).**

☐ Ecological connection. Explain:

☒ Separated by berm/barrier. Explain: **The wetlands appear to be seperated by a berm (County Road 290) located north of the wetlands. However, based upon a 11 August 2016 site visit and review of LiDAR data, culverts are located beneath County Road 290 that allow a hydrologic exchange between the north side of County Road 290 and south side of County Road 290 (Oyster Creek 100-year floodplain located immediately north of County Road 290.**

(d) Proximity (Relationship) to TNW

Project wetlands are **5-10** river miles from TNW.

Project waters are **2-5** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **100 - 500-year** 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: **The wetlands are located around the fringe of multiple ponded areas under the railroad bridges. Water color was slightly brown.**

Identify specific pollutants, if known: **Pollutants unknown.**

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

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

☒ Vegetation type/percent cover. Explain: **forested and/or herbaceous , 100 percent cover**

☐ 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: **30 (or more)**
Approximately (**5,764**) 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)
See attached table	**see attached table**	**see attached table**	

Summarize overall biological, chemical and physical functions being performed:

Oyster Creek for this significant nexus evaluation is a third order stream and is a relatively permanent water. The relevant reach is approximately 46.5 miles long. The relevant reach of Oyster Creek extends from approximately 4 miles northwest of the Village of Rosharon to approximately 2.3 miles northwest of the intersection of Nolan Ryan Expressway and Farm to Market Road 2004, the northern extent of the TNW (Oyster Creek). The project site is surrounded by farm fields/pasture and residential/commercial development.

There are 15 herbaceous wetlands and 1 forested wetland (see attached table), totaling approximately 0.60-acre, on the project site associated with the relevant reach of Oyster Creek. These wetlands within the project site are mapped outside/above the 100-year floodplain of Oyster Creek; however, a more thorough review of offsite data, including LiDAR data and FEMA 100-year floodplain elevation cross section revealed that these wetlands are actually within or below the anticipated 100-year floodplain elevations. Additional wetlands are located within the project site but are included in the significant nexus evaluation for Bastrop Bayou, which is documented on a separate Approved Jurisdictional Determination form. In addition to the project site wetlands, there are 410 adjacent wetlands along the relevant reach that total approximately 5,764 acres, based on the NWI and FEMA Flood Insurance Rate Maps. The majority of the wetlands are forested. Of the 5,764 acres of wetlands being evaluated along this relevant reach, approximately 34 acres are abutting the relevant reach of Oyster Creek. These wetlands are located from 5 to 41 miles from the nearest TNW (Oyster Creek). The relevant reach of Oyster Creek flows directly into the TNW portion of Oyster Creek, which is used for irrigation of agricultural crops as well as flood management.

Based on our analysis, the Corps did find evidence/data to support the statement that these waters (the relevant reach of Oyster Creek as well as all similarly situated adjacent wetlands with this reach) provide more than a speculative or insubstantial effect upon the chemical integrity of the downstream TNW. There is a direct surface hydrologic connection between this approximate 46.5-mile relevant reach of Oyster Creek and the nearest TNW, Oyster Creek. The approximate 5,764 acres of adjacent wetlands provide important chemical sequestration impact/effect upon the waters as they flow through the adjacent wetlands and connect to the downstream TNW. This aids in the reduction and/or elimination of bacteria, thermal and chemical pollutants flowing into the TNW portion of Oyster Creek. The adjacent wetlands are situated in a rural area that is heavily farmed. These wetlands sequester sediment and pollutants from agricultural runoff and prevent them from entering the TNW. This is especially important as Oyster Creek is listed as a 303(d) impaired water for bacteria and depressed dissolved oxygen. Therefore, the aquatic resources within this relevant reach provide more than speculative or insubtantial effects that are inseperably bound to the chemical integrity of the downstream TNW.

The retention of water and retardation of overbank flooding associated with the 5,764 acres of adjacent wetlands and located within the relevant reach of Oyster Creek has effect upon the physical attributes of the downstream TNW. These wetlands provide floodplain storage and have a direct effect upon the velocity and flow of waters into the downstream TNW. Increased and intense flow results in increased flooding and scouring, resulting in loss of property and the physical attributes of the TNW. The effects of removing approximately 5,764 acres of abutting and neighboring wetlands would increase the velocity and flow into the downstream TNW, resulting in more than a speculative or insubstantial effect upon the physical attributes of the downstream TNW. Therefore, the aquatic resources within this relevant reach provide more than speculative or insubstantial effects that are inseperably bound to maintain the physical integrity of the downstream TNW.

There are no known species found in this review area that require the aquatic resources of Oyster Creek and adjacent wetlands and the waters of the TNW to fulfill their life cycle requirements. Oyster Creek has a direct hydrologic conection with the TNW; as such, it is more likely to have aquatic organisms that require both features (TNW and waters in this

reach). It is highly feasible that species of fishes and/or invertebrates utilize Oyster Creek for portions of their life cycles; but there is insufficient evidence to identify specific species that requires both the aquatic resources within this relevant reach of Oyster Creek and the waters of the TNW to fulfill life cycle requirements. The abutting and neighboring wetlands aid in providing species habitat, shelter from predators, and detritus and nutrients as a food source. Therefore, it is the Corps' conclusion, that the aquatic resources within this relevant reach of Oyster Creek, although speculative, provide more than an important effect on the biological integrity of the downstream TNW.

In conclusion, we have determined that there is sufficient evidence to support the statement that the aquatic resources within this approximate 46.5-mile relevant reach of Oyster Creek and its 5,764 acres of adjacent wetlands provide a significant nexus (more than speculative or insubstanial effect) to the chemical, physical and/or biological integrity of the downstream TNW (Oyster Creek). In conclusion, it is our opinion that this relevant reach of Oyster Creek and its adjacent wetlands are waters of the United States subject to Section 404 of the Clean Water Act.

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: **This relevant reach of Oyster Creek is a third order stream and a relatively permanent water. Oyster Creek flows directly into the downstream TNW portion of Oyster Creek. There are approximately 5,764 acres of abutting and neighboring wetlands, most of which are forested. The relevant reach of Oyster Creek and its adjacent wetlands provide importation filtration to aid in the reduction and/or elimination of bacteria as well as thermal and chemical polutants. The system also retains flood waters and reduces overbank flooding downstream, thereby decreasing the velocity and amount of water flowing downstream into Oyster Creek. Retaining flood waters also reduces scouring and the loss of property as well as preserving the physical attributes of the downstream TNW. Based on this information, we determined that this relevant reach of Oyster Creek and its adjacent wetlands provide more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of the downstream TNW (Oyster Creek).**

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 width (ft), 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: **Oyster Creek has water visible in all Google Earth aerial photos where the creek is visible (not covered by tree canopy).**
   ☐ 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:

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

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Water body 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 width (ft).
   ☐ 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: Approximately 0.60 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]

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

☐ 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 width (ft)
☐ 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 width (ft).
☐ 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, width (ft).
☐ 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: **Olsson Associates**
☐ 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: **Site visit 11 August 2016**
☐ Corps navigable waters' study:
☒ U.S. Geological Survey Hydrologic Atlas: **Austin - Oyster -- 12040205**
☐ USGS NHD data
☒ USGS 8 and 12 digit HUC maps
☐ Galveston District's Approved List of Navigable Waters
☒ U.S. Geological Survey map(s). Cite scale & quad name: **1:24,000 Thompsons, Juliff, Otey, Rosharon, East Columbia, Angleton, Brazoria, and Lake Jackson, Texas Quadrangle Map.**
☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
☒ National wetlands inventory map(s). Cite name: **USFWS NWI Google Earth**
☐ State/Local wetland inventory map(s):

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[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.*

☒ FEMA/FIRM maps: **Brazoria County Texas 48039C0440H and 48039C0445H**
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **2010 to 2015 Google Earth**
or ☐ Other (Name & Date): **2009, 2015 Infrared; 2006 TWDB LiDAR Data**
☐ Previous determination(s). File no. and date of response letter:
☐ Applicable/supporting case law:
☐ Applicable/supporting scientific literature:
☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD: Oyster Creek for this significant nexus evaluation is a third order stream and is a relatively permanent water. The relevant reach is approximately 46.5 miles long. The relevant reach of Oyster Creek extends from approximately 4 miles northwest of the Village of Rosharon to approximately 2.3 miles northwest of the intersection of Nolan Ryan Expressway and Farm to Market Road 2004, the northern extent of the TNW (Oyster Creek). The project site is surrounded by farm fields/pasture and residential/commercial development.

There are 15 herbaceous wetlands and 1 forested wetland (see attached table), totaling approximately 0.60-acre, on the project site associated with the relevant reach of Oyster Creek. These wetlands within the project site are mapped outside/above the 100-year floodplain of Oyster Creek; however, a more thorough review of offsite data, including LiDAR data and FEMA 100-year floodplain elevation cross section revealed that these wetlands are actually within or below the anticipated 100-year floodplain elevations. Additional wetlands are located within the project site but are included in the significant nexus evaluation for Bastrop Bayou, which is documented on a separate Approved Jurisdictional Determination form. In addition to the project site wetlands, there are 410 adjacent wetlands along the relevant reach that total approximately 5,764 acres, based on the NWI and FEMA Flood Insurance Rate Maps. The majority of the wetlands are forested. Of the 5,764 acres of wetlands being evaluated along this relevant reach, approximately 34 acres are abutting the relevant reach of Oyster Creek. These wetlands are located from 5 to 41 miles from the nearest TNW (Oyster Creek). The relevant reach of Oyster Creek flows directly into the TNW portion of Oyster Creek, which is used for irrigation of agricultural crops as well as flood management.

Based on our analysis, the Corps did find evidence/data to support the statement that these waters (the relevant reach of Oyster Creek as well as all similarly situated adjacent wetlands with this reach) provide more than a speculative or insubstantial effect upon the chemical integrity of the downstream TNW. There is a direct surface hydrologic connection between this approximate 46.5-mile relevant reach of Oyster Creek and the nearest TNW, Oyster Creek. The approximate 5,764 acres of adjacent wetlands provide important chemical sequestration impact/effect upon the waters as they flow through the adjacent wetlands and connect to the downstream TNW. This aids in the reduction and/or elimination of bacteria, thermal and chemical pollutants flowing into the TNW portion of Oyster Creek. The adjacent wetlands are situated in a rural area that is heavily farmed. These wetlands sequester sediment and pollutants from agricultural runoff and prevent them from entering the TNW. This is especially important as Oyster Creek is listed as a 303(d) impaired water for bacteria and depressed dissolved oxygen. Therefore, the aquatic resources within this relevant reach provide more than speculative or insubtantial effects that are inseperably bound to the chemical integrity of the downstream TNW.

The retention of water and retardation of overbank flooding associated with the 5,764 acres of adjacent wetlands and located within the relevant reach of Oyster Creek has effect upon the physical attributes of the downstream TNW. These wetlands provide floodplain storage and have a direct effect upon the velocity and flow of waters into the downstream TNW. Increased and intense flow results in increased flooding and scouring, resulting in loss of property and the physical attributes of the TNW. The effects of removing approximately 5,764 acres of abutting and neighboring wetlands would increase the velocity and flow into the downstream TNW, resulting in more than a speculative or insubstantial effect upon the physical attributes of the downstream TNW. Therefore, the aquatic resources within this relevant reach provide more than speculative or insubstantial effects that are inseperably bound to maintain the physical integrity of the downstream TNW.

There are no known species found in this review area that require the aquatic resources of Oyster Creek and adjacent wetlands and the waters of the TNW to fulfill their life cycle requirements. Oyster Creek has a direct hydrologic conection with the TNW; as such, it is more likely to have aquatic organisms that require both features (TNW and waters in this reach). It is highly feasible that species of fishes and/or invertebrates utilize Oyster Creek for portions of their life cycles; but there is insufficient evidence to identify specific species that requires both the aquatic resources within this relevant reach of Oyster Creek and the waters of the TNW to fulfill life cycle requirements. The abutting and neighboring wetlands aid in providing species habitat, shelter from predators, and detritus and nutrients as a food source. Therefore, it is the Corps' conclusion, that the aquatic resources within this relevant reach of Oyster Creek, although speculative, provide more than an important effect on the biological integrity of the downstream TNW.

In conclusion, we have determined that there is sufficient evidence to support the statement that the aquatic resources within this approximate 46.5-mile relevant reach of Oyster Creek and its 5,764 acres of adjacent wetlands provide a significant nexus (more than speculative or insubstanial effect) to the chemical, physical and/or biological integrity of the downstream TNW (Oyster Creek). In conclusion, it is our opinion that this relevant reach of Oyster Creek and its adjacent wetlands are waters of the United States subject to Section 404 of the Clean Water Act.

SWG-2016-00127

Union Pacific Rail Road

Significant Nexus Test Adjacent Wetlands (Oyster Creek)

Wetland	Approximate Acreage	Type	Abutting	Latitude	Longitude
A1*	0.0539	Freshwater Emergent Wetland	No	29.136096	-95.466581
A2*	0.1667	Freshwater Emergent Wetland	No	29.136107	-95.466240
B1*	0.0034	Freshwater Forested/Shrub Wetland	No	29.138905	-95.461709
B2*	0.2445	Freshwater Emergent Wetland	No	29.139242	-95.461468
B3*	0.0173	Freshwater Emergent Wetland	No	29.139198	-95.461866
B4*	0.0014	Freshwater Emergent Wetland	No	29.139089	-95.461583
B5*	0.0273	Freshwater Emergent Wetland	No	29.139152	-95.461647
C1*	0.0306	Freshwater Emergent Wetland	No	29.143446	-95.454796
C2*	0.0017	Freshwater Emergent Wetland	No	29.143668	-95.455060
C3*	0.0001	Freshwater Emergent Wetland	No	29.143702	-95.455002
C4*	0.0008	Freshwater Emergent Wetland	No	29.143707	-95.454982
C5*	0.0003	Freshwater Emergent Wetland	No	29.143735	-95.454933
C6*	0.0340	Freshwater Emergent Wetland	No	29.143815	-95.454567
C7*	0.0073	Freshwater Emergent Wetland	No	29.143698	-95.454345
C8*	0.0007	Freshwater Emergent Wetland	No	29.144211	-95.453587
C9*	0.0004	Freshwater Emergent Wetland	No	29.144237	-95.453566
1	1.06	Freshwater Emergent Wetland	No	29.189484	-95.502062
2	2.92	Freshwater Emergent Wetland	No	29.174455	-95.494718
3	1.61	Freshwater Forested/Shrub Wetland	No	29.163035	-95.471681
4	7.75	Freshwater Forested/Shrub Wetland	No	29.182427	-95.469888
5	5.09	Freshwater Forested/Shrub Wetland	No	29.186150	-95.503794
6	0.92	Freshwater Forested/Shrub Wetland	No	29.175917	-95.492073
7	6.71	Freshwater Emergent Wetland	No	29.194802	-95.504337
8	3.57	Freshwater Pond	No	29.162396	-95.479007
9	6.19	Freshwater Emergent Wetland	No	29.174550	-95.493785
10	2.89	Freshwater Emergent Wetland	No	29.173443	-95.492514
11	4.29	Freshwater Forested/Shrub Wetland	No	29.173223	-95.484825
12	0.85	Freshwater Forested/Shrub Wetland	No	29.129602	-95.480953
13	2.82	Freshwater Forested/Shrub Wetland	No	29.179994	-95.492029
14	1.08	Freshwater Forested/Shrub Wetland	No	29.132148	-95.479618
15	3.92	Freshwater Forested/Shrub Wetland	No	29.174008	-95.480475
16	1.21	Freshwater Pond	No	29.155386	-95.466403
17	3.38	Freshwater Forested/Shrub Wetland	No	29.175773	-95.488472
18	1.16	Freshwater Emergent Wetland	No	29.151228	-95.471940
19	2.88	Freshwater Forested/Shrub Wetland	No	29.186495	-95.478472
20	4.66	Freshwater Emergent Wetland	No	29.196701	-95.486386
21	26.47	Freshwater Emergent Wetland	No	29.190439	-95.499256
22	1.84	Freshwater Emergent Wetland	No	29.185398	-95.501306

23	0.50	Freshwater Emergent Wetland	No	29.130179	-95.483965
24	4.23	Freshwater Forested/Shrub Wetland	No	29.194368	-95.497022
25	0.53	Freshwater Pond	No	29.163235	-95.480922
26	2.20	Freshwater Emergent Wetland	No	29.175145	-95.488967
27	8.53	Freshwater Emergent Wetland	No	29.171594	-95.490382
28	6.39	Freshwater Forested/Shrub Wetland	No	29.172241	-95.490136
29	1.00	Freshwater Emergent Wetland	No	29.150646	-95.486868
30	27.90	Freshwater Forested/Shrub Wetland	No	29.173807	-95.488802
31	1.44	Freshwater Emergent Wetland	No	29.189506	-95.497770
32	7.56	Freshwater Forested/Shrub Wetland	No	29.161426	-95.490904
33	12.44	Freshwater Forested/Shrub Wetland	No	29.186603	-95.500713
34	0.33	Freshwater Emergent Wetland	No	29.143393	-95.481202
35	1.90	Freshwater Emergent Wetland	No	29.194853	-95.480330
36	6.87	Freshwater Emergent Wetland	No	29.186298	-95.502513
37	0.23	Freshwater Emergent Wetland	No	29.145903	-95.488409
38	0.49	Freshwater Emergent Wetland	No	29.188372	-95.507672
39	9.76	Freshwater Pond	No	29.163106	-95.480948
40	20.06	Freshwater Forested/Shrub Wetland	No	29.163325	-95.463419
41	26.61	Freshwater Forested/Shrub Wetland	No	29.160871	-95.473069
42	9.29	Freshwater Forested/Shrub Wetland	No	29.162568	-95.479446
43	0.30	Freshwater Emergent Wetland	No	29.157157	-95.461035
44	2.09	Freshwater Emergent Wetland	No	29.189822	-95.509765
45	5.87	Freshwater Emergent Wetland	No	29.129930	-95.480838
46	17.75	Freshwater Forested/Shrub Wetland	No	29.165760	-95.480116
47	3.75	Freshwater Forested/Shrub Wetland	No	29.153549	-95.465904
48	0.87	Freshwater Pond	No	29.191471	-95.471723
49	7.73	Freshwater Forested/Shrub Wetland	No	29.173920	-95.473868
50	0.88	Freshwater Emergent Wetland	No	29.149636	-95.487690
51	19.96	Freshwater Emergent Wetland	No	29.133725	-95.482436
52	254.30	Freshwater Forested/Shrub Wetland	No	29.143910	-95.470255
53	1.75	Freshwater Forested/Shrub Wetland	No	29.196841	-95.488027
54	0.27	Freshwater Emergent Wetland	No	29.199917	-95.512370
55	2.51	Freshwater Emergent Wetland	No	29.177823	-95.494371
56	0.45	Freshwater Forested/Shrub Wetland	No	29.175061	-95.486390
57	7.90	Freshwater Forested/Shrub Wetland	No	29.163184	-95.467481
58	1.63	Freshwater Pond	No	29.136320	-95.473834
59	0.60	Freshwater Emergent Wetland	No	29.156565	-95.461426
60	2.81	Freshwater Forested/Shrub Wetland	No	29.137455	-95.475328
61	13.50	Freshwater Forested/Shrub Wetland	No	29.131652	-95.481660
62	13.73	Other	No	29.146784	-95.489959
63	3.83	Freshwater Pond	No	29.163149	-95.485630
64	0.98	Freshwater Forested/Shrub Wetland	No	29.194556	-95.480281
65	41.08	Freshwater Forested/Shrub Wetland	No	29.198425	-95.479198
66	1.17	Freshwater Emergent Wetland	No	29.172328	-95.492752
67	0.27	Freshwater Pond	No	29.162540	-95.477359
68	114.35	Freshwater Forested/Shrub Wetland	No	29.181651	-95.486262

69	0.91	Freshwater Emergent Wetland	No	29.190341	-95.500535
70	18.72	Freshwater Forested/Shrub Wetland	No	29.196333	-95.499055
71	21.08	Freshwater Forested/Shrub Wetland	No	29.169316	-95.468452
72	0.92	Other	No	29.130681	-95.488316
73	0.29	Freshwater Pond	No	29.128917	-95.480594
74	0.96	Freshwater Forested/Shrub Wetland	No	29.167626	-95.480867
75	11.67	Freshwater Forested/Shrub Wetland	No	29.176730	-95.489751
76	4.31	Freshwater Forested/Shrub Wetland	No	29.135390	-95.480655
77	3.45	Freshwater Emergent Wetland	No	29.199175	-95.495984
78	1.01	Freshwater Forested/Shrub Wetland	No	29.201581	-95.514111
79	0.43	Freshwater Forested/Shrub Wetland	No	29.199698	-95.482438
80	2.37	Freshwater Forested/Shrub Wetland	No	29.129151	-95.482948
81	10.73	Freshwater Emergent Wetland	No	29.175087	-95.493178
82	19.43	Freshwater Forested/Shrub Wetland	No	29.130159	-95.485246
83	1.52	Freshwater Emergent Wetland	No	29.323251	-95.575031
84	4.10	Freshwater Forested/Shrub Wetland	No	29.229037	-95.510545
85	0.13	Freshwater Emergent Wetland	No	29.239197	-95.516931
86	0.27	Freshwater Emergent Wetland	No	29.355524	-95.481227
87	4.23	Freshwater Emergent Wetland	Yes	29.278109	-95.549389
88	6.13	Freshwater Forested/Shrub Wetland	No	29.252566	-95.511514
89	0.53	Freshwater Emergent Wetland	No	29.328505	-95.517284
90	2.18	Freshwater Emergent Wetland	No	29.323604	-95.544468
91	19.44	Freshwater Emergent Wetland	No	29.254331	-95.525368
92	0.10	Freshwater Emergent Wetland	No	29.370228	-95.541030
93	34.81	Freshwater Forested/Shrub Wetland	No	29.219573	-95.513724
94	1.58	Freshwater Emergent Wetland	Yes	29.278409	-95.549339
95	0.10	Freshwater Emergent Wetland	No	29.313469	-95.505572
96	9.06	Freshwater Emergent Wetland	No	29.331478	-95.541349
97	9.84	Freshwater Forested/Shrub Wetland	No	29.280261	-95.568082
98	1.30	Freshwater Emergent Wetland	No	29.239806	-95.517312
99	3.67	Freshwater Forested/Shrub Wetland	No	29.248150	-95.517346
100	0.63	Freshwater Forested/Shrub Wetland	No	29.209319	-95.507811
101	0.70	Freshwater Forested/Shrub Wetland	No	29.251249	-95.520107
102	0.61	Freshwater Forested/Shrub Wetland	No	29.325571	-95.582076
103	1.65	Freshwater Forested/Shrub Wetland	No	29.226994	-95.493398
104	293.89	Freshwater Forested/Shrub Wetland	No	29.368498	-95.505793
105	0.89	Freshwater Emergent Wetland	No	29.274527	-95.491089
106	2.68	Freshwater Forested/Shrub Wetland	No	29.230664	-95.497182
107	2.91	Freshwater Emergent Wetland	No	29.382983	-95.496169
108	7.54	Freshwater Emergent Wetland	No	29.238202	-95.515763
109	17.06	Freshwater Forested/Shrub Wetland	No	29.276670	-95.506126
110	0.10	Freshwater Emergent Wetland	No	29.285679	-95.564059
111	2.82	Freshwater Emergent Wetland	Yes	29.277013	-95.544725
112	15.30	Freshwater Forested/Shrub Wetland	No	29.354539	-95.504559
113	3.48	Freshwater Emergent Wetland	No	29.305511	-95.479074
114	0.37	Freshwater Emergent Wetland	No	29.210689	-95.501223

115	4.39	Freshwater Emergent Wetland	No	29.255842	-95.527497
116	4.81	Freshwater Forested/Shrub Wetland	No	29.377608	-95.513428
117	12.52	Freshwater Forested/Shrub Wetland	No	29.327177	-95.475856
118	0.16	Freshwater Emergent Wetland	No	29.261510	-95.521569
119	5.20	Freshwater Forested/Shrub Wetland	No	29.275533	-95.501578
120	1.77	Freshwater Emergent Wetland	No	29.343350	-95.555632
121	23.66	Freshwater Forested/Shrub Wetland	No	29.366978	-95.545573
122	2.70	Freshwater Forested/Shrub Wetland	No	29.371817	-95.572107
123	3.14	Freshwater Forested/Shrub Wetland	No	29.271740	-95.511327
124	0.58	Freshwater Forested/Shrub Wetland	No	29.242084	-95.520239
125	37.26	Freshwater Forested/Shrub Wetland	No	29.256542	-95.511818
126	0.54	Freshwater Emergent Wetland	No	29.315656	-95.573443
127	3.88	Freshwater Emergent Wetland	No	29.237188	-95.515671
128	5.55	Freshwater Forested/Shrub Wetland	No	29.322088	-95.567742
129	0.68	Freshwater Emergent Wetland	Yes	29.269966	-95.533217
130	0.53	Freshwater Pond	No	29.375329	-95.530627
131	0.10	Freshwater Emergent Wetland	No	29.390811	-95.500760
132	2.67	Freshwater Forested/Shrub Wetland	No	29.274525	-95.491874
133	33.24	Freshwater Forested/Shrub Wetland	No	29.218331	-95.517000
134	0.58	Freshwater Forested/Shrub Wetland	No	29.349342	-95.537079
135	0.10	Freshwater Emergent Wetland	No	29.317880	-95.497762
136	4.61	Freshwater Forested/Shrub Wetland	No	29.225513	-95.500762
137	0.52	Freshwater Forested/Shrub Wetland	No	29.345824	-95.529053
138	29.81	Freshwater Forested/Shrub Wetland	No	29.282353	-95.508036
139	2.11	Freshwater Forested/Shrub Wetland	No	29.210078	-95.509487
140	0.29	Freshwater Pond	No	29.300773	-95.546369
141	4.02	Freshwater Forested/Shrub Wetland	No	29.285384	-95.499018
142	1.01	Freshwater Forested/Shrub Wetland	No	29.295352	-95.489747
143	0.19	Freshwater Emergent Wetland	No	29.244840	-95.523299
144	2.85	Freshwater Forested/Shrub Wetland	No	29.293834	-95.586038
145	1.85	Freshwater Forested/Shrub Wetland	No	29.226944	-95.511189
146	0.15	Freshwater Emergent Wetland	No	29.318219	-95.478252
147	3.74	Freshwater Forested/Shrub Wetland	No	29.381128	-95.533730
148	6.22	Freshwater Pond	No	29.355812	-95.530313
149	3.39	Freshwater Forested/Shrub Wetland	No	29.210829	-95.508557
150	0.36	Freshwater Pond	No	29.380405	-95.532650
151	18.42	Freshwater Forested/Shrub Wetland	No	29.293356	-95.484904
152	0.81	Freshwater Emergent Wetland	No	29.269644	-95.489042
153	0.84	Freshwater Emergent Wetland	No	29.323098	-95.559577
154	1.32	Freshwater Forested/Shrub Wetland	No	29.227072	-95.500255
155	0.10	Freshwater Emergent Wetland	No	29.309949	-95.576073
156	1.28	Freshwater Emergent Wetland	No	29.215889	-95.497834
157	2.54	Freshwater Emergent Wetland	No	29.216655	-95.515262
158	1.04	Freshwater Forested/Shrub Wetland	No	29.371953	-95.532790
159	0.44	Freshwater Emergent Wetland	No	29.302387	-95.477881
160	0.81	Freshwater Emergent Wetland	No	29.206103	-95.493255

161	0.22	Freshwater Emergent Wetland	No	29.344173	-95.520761
162	1.25	Freshwater Forested/Shrub Wetland	No	29.276010	-95.558735
163	0.53	Freshwater Pond	No	29.384538	-95.553374
164	20.90	Freshwater Forested/Shrub Wetland	No	29.230828	-95.516742
165	9.21	Freshwater Forested/Shrub Wetland	No	29.374636	-95.568059
166	1.68	Freshwater Emergent Wetland	No	29.360909	-95.543202
167	4.14	Freshwater Forested/Shrub Wetland	No	29.295382	-95.493330
168	0.57	Freshwater Forested/Shrub Wetland	No	29.213423	-95.487150
169	34.36	Freshwater Forested/Shrub Wetland	No	29.357759	-95.499088
170	1.97	Freshwater Emergent Wetland	No	29.329467	-95.472833
171	1.28	Freshwater Forested/Shrub Wetland	No	29.204116	-95.502041
172	0.10	Freshwater Emergent Wetland	No	29.239056	-95.512161
173	1.00	Freshwater Emergent Wetland	No	29.354620	-95.514298
174	19.02	Freshwater Forested/Shrub Wetland	No	29.247411	-95.525402
175	2.03	Freshwater Emergent Wetland	No	29.220664	-95.517073
176	2.51	Freshwater Forested/Shrub Wetland	Yes	29.230879	-95.513298
177	3.18	Freshwater Emergent Wetland	No	29.226824	-95.520842
178	0.63	Freshwater Emergent Wetland	No	29.259955	-95.555837
179	0.39	Freshwater Emergent Wetland	No	29.378767	-95.532869
180	2.91	Freshwater Forested/Shrub Wetland	No	29.252385	-95.481365
181	1.04	Freshwater Emergent Wetland	No	29.267768	-95.556835
182	429.09	Freshwater Forested/Shrub Wetland	No	29.215731	-95.498157
183	0.63	Freshwater Emergent Wetland	No	29.304271	-95.480939
184	24.99	Freshwater Forested/Shrub Wetland	No	29.349305	-95.488077
185	51.62	Freshwater Emergent Wetland	No	29.218466	-95.491430
186	4.62	Freshwater Emergent Wetland	Yes	29.276884	-95.546463
187	30.09	Freshwater Forested/Shrub Wetland	No	29.226340	-95.505824
188	4.55	Freshwater Emergent Wetland	No	29.227107	-95.512272
189	1.10	Freshwater Emergent Wetland	No	29.254561	-95.514626
190	1.90	Freshwater Forested/Shrub Wetland	No	29.349671	-95.535633
191	1.03	Freshwater Emergent Wetland	No	29.222139	-95.493304
192	3.67	Freshwater Forested/Shrub Wetland	No	29.256724	-95.518680
193	0.10	Freshwater Emergent Wetland	No	29.310380	-95.497482
194	2.65	Freshwater Forested/Shrub Wetland	No	29.351537	-95.482723
195	0.10	Freshwater Emergent Wetland	No	29.347719	-95.571046
196	62.39	Freshwater Forested/Shrub Wetland	No	29.364848	-95.548194
197	0.66	Freshwater Forested/Shrub Wetland	No	29.283672	-95.486697
198	2.58	Freshwater Forested/Shrub Wetland	No	29.247350	-95.513764
199	0.44	Freshwater Forested/Shrub Wetland	No	29.348191	-95.537703
200	0.17	Freshwater Pond	No	29.375496	-95.529087
201	54.98	Freshwater Forested/Shrub Wetland	No	29.349390	-95.545853
202	2.11	Freshwater Forested/Shrub Wetland	No	29.273950	-95.512624
203	0.34	Freshwater Emergent Wetland	No	29.380413	-95.495421
204	39.12	Freshwater Forested/Shrub Wetland	No	29.346678	-95.563814
205	0.10	Freshwater Emergent Wetland	No	29.305926	-95.502194
206	0.36	Freshwater Emergent Wetland	No	29.332418	-95.540986

207	0.69	Freshwater Emergent Wetland	No	29.355011	-95.522629
208	110.38	Freshwater Forested/Shrub Wetland	No	29.376864	-95.523258
209	1.10	Freshwater Emergent Wetland	No	29.257087	-95.502499
210	13.52	Freshwater Forested/Shrub Wetland	No	29.239621	-95.481892
211	7.42	Freshwater Forested/Shrub Wetland	No	29.377964	-95.532186
212	0.26	Freshwater Emergent Wetland	No	29.331863	-95.521426
213	1.02	Freshwater Emergent Wetland	No	29.349603	-95.536195
214	2.85	Freshwater Emergent Wetland	No	29.223717	-95.520538
215	1.30	Freshwater Emergent Wetland	No	29.259216	-95.529101
216	0.10	Freshwater Emergent Wetland	No	29.211568	-95.479559
217	2.67	Freshwater Emergent Wetland	No	29.385228	-95.534802
218	45.86	Freshwater Emergent Wetland	No	29.249225	-95.466365
219	0.10	Freshwater Emergent Wetland	No	29.312858	-95.506083
220	3.54	Freshwater Emergent Wetland	No	29.369358	-95.565685
221	0.27	Freshwater Emergent Wetland	No	29.346421	-95.571597
222	2.42	Freshwater Forested/Shrub Wetland	No	29.319519	-95.499200
223	4.73	Freshwater Forested/Shrub Wetland	No	29.247892	-95.514110
224	0.27	Freshwater Emergent Wetland	No	29.372184	-95.491295
225	26.95	Freshwater Forested/Shrub Wetland	No	29.282036	-95.503443
226	8.01	Freshwater Emergent Wetland	No	29.242355	-95.475817
227	8.68	Freshwater Forested/Shrub Wetland	No	29.213278	-95.477707
228	96.45	Freshwater Forested/Shrub Wetland	No	29.306110	-95.466883
229	0.33	Freshwater Emergent Wetland	No	29.370469	-95.489833
230	8.58	Freshwater Forested/Shrub Wetland	No	29.360965	-95.486760
231	6.02	Freshwater Forested/Shrub Wetland	No	29.289151	-95.484588
232	0.18	Freshwater Forested/Shrub Wetland	No	29.345202	-95.530062
233	0.52	Freshwater Emergent Wetland	No	29.360207	-95.526025
234	3.84	Freshwater Forested/Shrub Wetland	No	29.247790	-95.497538
235	3.63	Freshwater Forested/Shrub Wetland	No	29.337176	-95.572295
236	0.36	Freshwater Emergent Wetland	No	29.318810	-95.572797
237	0.23	Freshwater Pond	No	29.334767	-95.542664
238	0.74	Freshwater Forested/Shrub Wetland	No	29.226099	-95.498410
239	0.41	Freshwater Emergent Wetland	No	29.343339	-95.530057
240	1.17	Freshwater Emergent Wetland	No	29.232498	-95.498736
241	0.82	Freshwater Emergent Wetland	No	29.243949	-95.521776
242	10.87	Freshwater Forested/Shrub Wetland	No	29.278457	-95.503646
243	2.24	Freshwater Emergent Wetland	No	29.357090	-95.520714
244	4.30	Freshwater Emergent Wetland	No	29.355685	-95.529427
245	2.46	Freshwater Emergent Wetland	No	29.204590	-95.497502
246	50.71	Freshwater Forested/Shrub Wetland	No	29.266169	-95.509320
247	3.34	Freshwater Forested/Shrub Wetland	No	29.346900	-95.535895
248	116.93	Freshwater Forested/Shrub Wetland	No	29.205941	-95.494556
249	28.55	Freshwater Forested/Shrub Wetland	No	29.356992	-95.543418
250	8.34	Freshwater Pond	No	29.377814	-95.525245
251	0.07	Freshwater Emergent Wetland	No	29.318582	-95.478428
252	0.42	Freshwater Emergent Wetland	No	29.316083	-95.488896

253	1.52	Freshwater Forested/Shrub Wetland	No	29.210105	-95.507607
254	56.91	Freshwater Forested/Shrub Wetland	No	29.352205	-95.558884
255	3.80	Freshwater Forested/Shrub Wetland	No	29.326110	-95.496088
256	0.24	Freshwater Pond	No	29.272971	-95.488909
257	0.77	Freshwater Emergent Wetland	No	29.348464	-95.572370
258	1.57	Freshwater Forested/Shrub Wetland	No	29.210766	-95.512275
259	27.16	Freshwater Forested/Shrub Wetland	No	29.278182	-95.494341
260	0.89	Freshwater Emergent Wetland	No	29.357809	-95.503463
261	9.98	Freshwater Forested/Shrub Wetland	No	29.247964	-95.494682
262	19.65	Freshwater Forested/Shrub Wetland	No	29.372400	-95.556283
263	0.31	Freshwater Forested/Shrub Wetland	No	29.347294	-95.528644
264	0.65	Freshwater Pond	No	29.366105	-95.533169
265	1.38	Freshwater Forested/Shrub Wetland	No	29.240253	-95.516305
266	23.80	Freshwater Forested/Shrub Wetland	No	29.255708	-95.525975
267	3.22	Freshwater Emergent Wetland	No	29.223495	-95.519284
268	8.73	Freshwater Emergent Wetland	Yes	29.273328	-95.538217
269	0.82	Freshwater Emergent Wetland	No	29.260934	-95.512203
270	0.19	Freshwater Forested/Shrub Wetland	No	29.345199	-95.529355
271	0.31	Freshwater Emergent Wetland	No	29.306158	-95.496180
272	1.60	Freshwater Forested/Shrub Wetland	No	29.240889	-95.517525
273	48.79	Freshwater Forested/Shrub Wetland	No	29.249802	-95.521270
274	0.41	Freshwater Emergent Wetland	No	29.247213	-95.470612
275	1.28	Freshwater Forested/Shrub Wetland	No	29.226798	-95.498786
276	0.34	Freshwater Emergent Wetland	No	29.239469	-95.519319
277	6.56	Freshwater Forested/Shrub Wetland	No	29.231234	-95.502674
278	10.30	Freshwater Forested/Shrub Wetland	No	29.358508	-95.547278
279	3.08	Freshwater Emergent Wetland	No	29.216594	-95.516835
280	0.19	Freshwater Pond	No	29.361930	-95.536040
281	0.30	Freshwater Emergent Wetland	No	29.242428	-95.520546
282	1.83	Freshwater Forested/Shrub Wetland	No	29.324500	-95.580155
283	0.92	Freshwater Emergent Wetland	No	29.237644	-95.482510
284	117.69	Freshwater Forested/Shrub Wetland	No	29.244746	-95.505126
285	0.09	Freshwater Pond	No	29.273783	-95.513320
286	0.41	Freshwater Forested/Shrub Wetland	No	29.204011	-95.500719
287	1.77	Freshwater Emergent Wetland	No	29.211354	-95.497997
288	0.33	Freshwater Forested/Shrub Wetland	No	29.346109	-95.530133
289	5.13	Freshwater Forested/Shrub Wetland	No	29.264514	-95.484349
290	0.37	Freshwater Pond	No	29.367272	-95.533777
291	2.89	Freshwater Forested/Shrub Wetland	No	29.371512	-95.568316
292	0.20	Freshwater Emergent Wetland	No	29.360755	-95.556497
293	0.17	Freshwater Pond	No	29.357300	-95.483439
294	1.79	Freshwater Emergent Wetland	No	29.340367	-95.521478
295	4.25	Freshwater Emergent Wetland	No	29.293457	-95.542384
296	128.58	Freshwater Forested/Shrub Wetland	No	29.333890	-95.480028
297	0.95	Freshwater Emergent Wetland	No	29.245862	-95.525832
298	1.90	Freshwater Forested/Shrub Wetland	No	29.325096	-95.581088

299	3.10	Freshwater Emergent Wetland	No	29.386961	-95.506587
300	5.74	Freshwater Emergent Wetland	No	29.352551	-95.535793
301	0.66	Freshwater Forested/Shrub Wetland	No	29.260561	-95.511342
302	6.11	Freshwater Pond	No	29.364805	-95.531481
303	2.29	Freshwater Forested/Shrub Wetland	No	29.286971	-95.501174
304	0.35	Freshwater Emergent Wetland	Yes	29.269640	-95.534111
305	4.13	Freshwater Emergent Wetland	No	29.280563	-95.551888
306	0.53	Freshwater Emergent Wetland	No	29.269306	-95.517147
307	0.39	Freshwater Emergent Wetland	No	29.289470	-95.568229
308	10.43	Freshwater Emergent Wetland	No	29.211159	-95.483903
309	0.59	Freshwater Emergent Wetland	No	29.372607	-95.491837
310	0.18	Freshwater Emergent Wetland	No	29.358958	-95.527075
311	2.59	Freshwater Emergent Wetland	No	29.217030	-95.499452
312	2.65	Freshwater Emergent Wetland	No	29.241496	-95.517137
313	0.10	Freshwater Emergent Wetland	No	29.357524	-95.549256
314	3.49	Freshwater Forested/Shrub Wetland	No	29.228406	-95.499338
315	2.40	Freshwater Forested/Shrub Wetland	No	29.346669	-95.529417
316	0.19	Freshwater Emergent Wetland	No	29.284451	-95.564234
317	109.81	Freshwater Forested/Shrub Wetland	No	29.379498	-95.544460
318	0.10	Freshwater Emergent Wetland	No	29.396164	-95.543712
319	0.37	Freshwater Forested/Shrub Wetland	Yes	29.322404	-95.535667
320	2.25	Freshwater Emergent Wetland	No	29.227491	-95.519017
321	2.78	Freshwater Emergent Wetland	No	29.387228	-95.540884
322	0.77	Freshwater Emergent Wetland	No	29.261160	-95.522691
323	18.10	Freshwater Forested/Shrub Wetland	No	29.257139	-95.502133
324	0.87	Freshwater Forested/Shrub Wetland	No	29.273414	-95.492802
325	36.51	Freshwater Forested/Shrub Wetland	No	29.347209	-95.555371
326	0.71	Freshwater Forested/Shrub Wetland	No	29.249221	-95.526089
327	4.07	Freshwater Emergent Wetland	No	29.339382	-95.542731
328	0.40	Freshwater Pond	No	29.290357	-95.566191
329	0.49	Freshwater Emergent Wetland	No	29.358219	-95.563969
330	3.51	Freshwater Forested/Shrub Wetland	No	29.323940	-95.578781
331	186.74	Freshwater Forested/Shrub Wetland	No	29.367388	-95.532606
332	1.67	Freshwater Emergent Wetland	No	29.284825	-95.554465
333	1.14	Freshwater Emergent Wetland	No	29.361097	-95.499360
334	0.95	Freshwater Emergent Wetland	No	29.280614	-95.547501
335	4.58	Freshwater Emergent Wetland	No	29.383693	-95.504202
336	0.60	Freshwater Forested/Shrub Wetland	No	29.215970	-95.476603
337	1.91	Freshwater Emergent Wetland	No	29.337959	-95.545151
338	449.88	Freshwater Forested/Shrub Wetland	No	29.288309	-95.498340
339	5.53	Freshwater Emergent Wetland	No	29.355674	-95.505700
340	0.15	Freshwater Emergent Wetland	No	29.348438	-95.524781
341	1.78	Freshwater Emergent Wetland	No	29.254610	-95.521667
342	111.77	Freshwater Forested/Shrub Wetland	No	29.360655	-95.506088
343	0.15	Freshwater Pond	No	29.223423	-95.522529
344	16.79	Freshwater Forested/Shrub Wetland	No	29.368685	-95.549134

345	4.27	Freshwater Forested/Shrub Wetland	No	29.283080	-95.498859
346	0.16	Freshwater Emergent Wetland	No	29.355893	-95.507657
347	6.76	Freshwater Forested/Shrub Wetland	No	29.374625	-95.560560
348	0.19	Freshwater Emergent Wetland	No	29.266236	-95.555801
349	6.51	Freshwater Forested/Shrub Wetland	No	29.241162	-95.477048
350	46.79	Freshwater Forested/Shrub Wetland	No	29.225854	-95.516227
351	0.39	Other	No	29.341195	-95.558126
352	10.11	Freshwater Emergent Wetland	No	29.217476	-95.503171
353	0.10	Freshwater Emergent Wetland	No	29.357687	-95.549095
354	0.54	Freshwater Forested/Shrub Wetland	No	29.362212	-95.526662
355	5.36	Freshwater Forested/Shrub Wetland	No	29.278910	-95.490600
356	0.49	Freshwater Emergent Wetland	No	29.285951	-95.576702
357	4.70	Freshwater Forested/Shrub Wetland	No	29.363934	-95.535279
358	1.06	Freshwater Emergent Wetland	No	29.221912	-95.491908
359	9.98	Freshwater Forested/Shrub Wetland	No	29.241766	-95.468250
360	170.44	Freshwater Forested/Shrub Wetland	No	29.268789	-95.502563
361	1.93	Freshwater Emergent Wetland	Yes	29.270716	-95.530877
362	12.73	Freshwater Emergent Wetland	No	29.240961	-95.482764
363	14.50	Freshwater Forested/Shrub Wetland	No	29.270383	-95.512394
364	1.80	Freshwater Emergent Wetland	No	29.358235	-95.526563
365	119.68	Freshwater Forested/Shrub Wetland	No	29.246253	-95.469503
366	2.95	Freshwater Emergent Wetland	No	29.250017	-95.463598
367	35.14	Freshwater Forested/Shrub Wetland	No	29.214251	-95.503596
368	14.71	Freshwater Forested/Shrub Wetland	No	29.292912	-95.480443
369	3.41	Freshwater Forested/Shrub Wetland	No	29.258456	-95.517506
370	3.13	Freshwater Forested/Shrub Wetland	No	29.352993	-95.568670
371	39.11	Freshwater Forested/Shrub Wetland	No	29.206263	-95.485497
372	1.84	Freshwater Forested/Shrub Wetland	No	29.240815	-95.519607
373	2.39	Freshwater Emergent Wetland	Yes	29.269379	-95.538899
374	78.36	Freshwater Emergent Wetland	No	29.210051	-95.490709
375	42.26	Freshwater Forested/Shrub Wetland	No	29.321920	-95.574850
376	11.83	Freshwater Forested/Shrub Wetland	No	29.291649	-95.559591
377	3.84	Freshwater Emergent Wetland	Yes	29.286135	-95.554456
378	131.96	Freshwater Forested/Shrub Wetland	No	29.331536	-95.487547
379	0.46	Freshwater Emergent Wetland	No	29.281030	-95.547293
380	10.20	Freshwater Forested/Shrub Wetland	No	29.360705	-95.569142
381	2.84	Freshwater Emergent Wetland	No	29.204191	-95.499458
382	0.94	Freshwater Emergent Wetland	No	29.208138	-95.478771
383	6.91	Freshwater Forested/Shrub Wetland	No	29.239829	-95.473150
384	4.12	Freshwater Forested/Shrub Wetland	No	29.278592	-95.500837
385	0.69	Freshwater Forested/Shrub Wetland	No	29.213641	-95.483008
386	7.73	Freshwater Forested/Shrub Wetland	No	29.217474	-95.512860
387	0.63	Freshwater Emergent Wetland	No	29.241657	-95.519902
388	0.15	Freshwater Pond	No	29.269721	-95.488674
389	1.42	Freshwater Emergent Wetland	No	29.338554	-95.541867
390	5.20	Freshwater Forested/Shrub Wetland	No	29.242675	-95.524541

391	2.46	Freshwater Pond	No	29.386857	-95.552095
392	5.95	Freshwater Emergent Wetland	No	29.202352	-95.498827
393	435.54	Freshwater Forested/Shrub Wetland	No	29.199562	-95.494332
394	12.63	Freshwater Forested/Shrub Wetland	No	29.204443	-95.509361

Total: 5764.7

PEM:	578.2	Abutting:	34.1
PFO:	5121.9	Non-Abutting:	5730.7
Other:	64.6		

*Proposed Project Area Wetlands

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): 3 November 2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Galveston District, SWG-2016-00127, Union Pacific Rail Road, Isolated Wetlands

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Texas County/Parish: Brazoria City: Angleton
Center coordinates of site (lat/long in degree decimal format, NAD-83): Lat. See Table° N, Long. ° W;
Universal Transverse Mercator: UTM: 15, See Table N., See Table E.,NAD: See Table
Name of nearest water body: Bastrop Bayou
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: N/A
Name of watershed or Hydrologic Unit Code (HUC): Austin-Oyster 12040104
☒ 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: 24 October 2016
☒ Field Determination. Date(s): 11 August 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 no** "*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: width (ft) and/or acres
      Wetlands: acres

   c. **Limits (boundaries) of jurisdiction** based on: **Pick List**
      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: Based on review of available information and the 11 August 2016 site visit, we have determined that Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are isolated waters of the United States, as defined in 33 CFR 328.3(a). Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and

[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.

Wetland P were identified using the Atlantic and Gulf Coastal Plain Region Supplement to the 1987 Corps of Engineers Wetland Delineation Manual. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are depressional wetlands with precipitation as the primary source of hydrology.

Wetland I is located approximately 2,200 feet northeast of Bastrop Bayou, an RPW that flows directly into a TNW (Bastrop Bayou). Wetland J is located approximately 2,100 feet northeast of Bastrop Bayou. Wetland K is located approximately 2,300 feet east of Bastrop Bayou. Wetland L is located approximately 2,300 feet east of Bastrop Bayou. Wetland M is located approximately 2,300 feet east of Bastrop Bayou. Wetland N is located approximately 2,200 feet east of Bastrop Bayou. Wetland O is approximately 2,900 feet northeast of Bastrop Bayou. Wetland P is located approximately 2,700 feet northeast of Bastrop Bayou. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P do not have a direct hydrologic connection to any waters of the United States. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are isolated and not waters of the United States, as defined in 33 CFR 328.3(a). Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not currently used, or were used in the past, nor susceptible to use for interstate or foreign commerce. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P do not have a known nexus to interstate commerce. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not subject to the ebb and flow of the daily tide. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P do not cross interstate or tribal boundaries. The destruction of Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P (intrastate wetlands) would not affect interstate or foreign travelers for recreational or other purposes, would not affect fish or shellfish that could be taken and sold in interstate or foreign commerce, and would not affect the current use or potential use for industrial purposes by industries in interstate commerce. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not an impoundment of a water of the United States. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not part of a surface tributary system of any of the above. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not part of the territorial seas. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not adjacent to waters identified in any of the above. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P have been determined by the Galveston District to NOT be adjacent, (bordering, contiguous, or neighboring) as defined by 33 CFR 328.3(c). Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are located out of the 100-year floodplain of any water of the United States and does not have a confined hydrological surface connection to any water of the United States. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are isolated wetlands as defined in 33 CFR 330.2(e): those non-tidal waters of the United States that are not part of a surface tributary system to interstate or navigable waters of the United States, and are not adjacent to such tributary waterbodies. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P have been determined to not be "ecologically adjacent", as defined in the Rapanos as being "reasonably close" such that an ecologic interconnectivity is beyond speculation and insubstantial. There are no known species in this georegion that require both the subject wetland and the nearest waterbody (a water of the United States other than an adjacent wetland) to fulfill spawning and/or life cycle requirements.

Therefore, it is SWG draft determination that Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are isolated, with no known nexus to interstate commerce. As such, Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not subject to federal jurisdiction under Section 404 of the Clean Water Act.

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:

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, fill out Section III.D.2 and 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 water body[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the water body 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: **Pick List**
Drainage area: **Pick List**
Average annual rainfall: inches
Average annual snowfall: inches

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

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW[5]:
Tributary stream order, if known:

[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:

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List**

Primary tributary substrate composition (check all that apply):

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

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:
Presence of run/riffle/pool complexes. Explain:
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime:
Other information on duration and volume:
Surface flow is: **Pick List**. Characteristics:
Subsurface flow: **Pick List**. 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):	

☐ 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;
☐ 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:
Identify specific pollutants, if known:

[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 water body'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.

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

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

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 width (ft), 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:

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

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

☐ Water body 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 width (ft).
- ☐ 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:
- ☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

[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.*

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft)
☐ 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 width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource:
☒ Wetlands: **Approximately 2.78** 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, width (ft).
☐ 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: **Olsson Associates**
☐ 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: **Site visit 11 August 2016**
☐ Corps navigable waters' study:
☒ U.S. Geological Survey Hydrologic Atlas: **Austin-Oyster 12040205**
☐ USGS NHD data
☒ USGS 8 and 12 digit HUC maps
☒ Galveston District's Approved List of Navigable Waters
☒ U.S. Geological Survey map(s). Cite scale & quad name: **1982 Angleton, Texas**
☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
☒ National wetlands inventory map(s). Cite name: **USFWS NWI Google Earth Layer**
☐ State/Local wetland inventory map(s):
☒ FEMA/FIRM maps: **Brazoria County, Texas Panel 48039C0440H and 48039C0445H**
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): **2010 to 2015 Google Earth**
or ☒ Other (Name & Date): **2009, 2015 Infrared; 2006 TWDB LiDAR Data**
☐ Previous determination(s). File no. and date of response letter:
☐ Applicable/supporting case law:
☐ Applicable/supporting scientific literature:
☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD: Based on review of available information and the 11 August 2016 site visit, we have determined that Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are isolated waters of the United States, as defined in 33 CFR 328.3(a). Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P were identified using the Atlantic and Gulf Coastal Plain Region Supplement to the 1987 Corps of Engineers Wetland Delineation

Manual. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are depressional wetlands with precipitation as the primary source of hydrology.

Wetland I is located approximately 2,200 feet northeast of Bastrop Bayou, an RPW that flows directly into a TNW (Bastrop Bayou). Wetland J is located approximately 2,100 feet northeast of Bastrop Bayou. Wetland K is located approximately 2,300 feet east of Bastrop Bayou. Wetland L is located approximately 2,300 feet east of Bastrop Bayou. Wetland M is located approximately 2,300 feet east of Bastrop Bayou. Wetland N is located approximately 2,200 feet east of Bastrop Bayou. Wetland O is approximately 2,900 feet northeast of Bastrop Bayou. Wetland P is located approximately 2,700 feet northeast of Bastrop Bayou. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P do not have a direct hydrologic connection to any waters of the United States. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are isolated and not waters of the United States, as defined in 33 CFR 328.3(a). Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not currently used, or were used in the past, nor susceptible to use for interstate or foreign commerce. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P do not have a known nexus to interstate commerce. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not subject to the ebb and flow of the daily tide. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P do not cross interstate or tribal boundaries. The destruction of Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P (intrastate wetlands) would not affect interstate or foreign travelers for recreational or other purposes, would not affect fish or shellfish that could be taken and sold in interstate or foreign commerce, and would not affect the current use or potential use for industrial purposes by industries in interstate commerce. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not an impoundment of a water of the United States. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not part of a surface tributary system of any of the above. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not part of the territorial seas. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not adjacent to waters identified in any of the above. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P have been determined by the Galveston District to NOT be adjacent, (bordering, contiguous, or neighboring) as defined by 33 CFR 328.3(c). Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are located out of the 100-year floodplain of any water of the United States and does not have a confined hydrological surface connection to any water of the United States. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are isolated wetlands as defined in 33 CFR 330.2(e): those non-tidal waters of the United States that are not part of a surface tributary system to interstate or navigable waters of the United States, and are not adjacent to such tributary waterbodies. Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P have been determined to not be "ecologically adjacent", as defined in the Rapanos as being "reasonably close" such that an ecologic interconnectivity is beyond speculation and insubstantial. There are no known species in this georegion that require both the subject wetland and the nearest waterbody (a water of the United States other than an adjacent wetland) to fulfill spawning and/or life cycle requirements.

Therefore, it is SWG draft determination that Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are isolated, with no known nexus to interstate commerce. As such, Wetland I, Wetland J, Wetland K, Wetland L, Wetland M, Wetland N, Wetland O, and Wetland P are not subject to federal jurisdiction under Section 404 of the Clean Water Act.

TABLE:

Wetland	Latitude	Longitude	UTM Zone	Easting	Northing	Approximate Acreage
Wetland I	29.147238	-95.447034	15	261959	3226775	1.21
Wetland J	29.146780	-95.447166	15	261945	3226724	0.03
Wetland K	29.145710	-95.446115	15	262045	3226603	0.01
Wetland L	29.145621	-95.445979	15	262058	3226593	0.01
Wetland M	29.145493	-95.445810	15	262074	3226579	0.02
Wetland N	29.144860	-95.446125	15	262042	3226509	0.04
Wetland O	29.147734	-95.444894	15	262168	3226825	0.23
Wetland P	29.146435	-95.444857	15	262169	3226681	1.23