

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): 11 March 2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:SWT-2015-319

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State:OK County/parish/borough: Tulsa City: Broken Arrow
Center coordinates of site (lat/long in degree decimal format): Lat. 36.048052° **N**, Long. -95.772950° **E**.
Universal Transverse Mercator:

Name of nearest waterbody: Unnamed Tributaries to Broken Arrow Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Arkansas River

Name of watershed or Hydrologic Unit Code (HUC): Broken Arrow Creek, Arkansas River, 111101010502

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: February 16, 2016

Field Determination. Date(s): September 9, 2015

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 waters² (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: 2,600 linear feet: 5 width (ft) and/or 0.30 acres.

Wetlands: 4.48 acres.

c. Limits (boundaries) of jurisdiction based on: **Not Applicable.**

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: **tributary**.

Summarize rationale supporting determination: _____.

2. **Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is “adjacent”: _____.

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

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

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

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

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

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

(i) **General Area Conditions:**

Watershed size: 977 **acres**
Drainage area: 1.53 **square miles**
Average annual rainfall: 43.73 inches
Average annual snowfall: 9.6 inches

(ii) **Physical Characteristics:**

(a) **Relationship with TNW:**

- Tributary flows directly into TNW.
 Tributary flows through **5** tributaries before entering TNW.

Project waters are **30 (or more)** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **30 (or more)** 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: _____.

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

Identify flow route to TNW⁵: The unnamed tributaries flow approximately 0.5 miles into Broken Arrow Creek, Broken Arrow Creek flows approximately 10 miles into the Arkansas River, the Arkansas River flows approximately 41 miles into the Arkansas River (Webber Falls reservoir), a traditionally navigable water.
Tributary stream order, if known: 1.

(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: 5 feet
Average depth: .5 feet
Average side slopes: **2:1**.

Primary tributary substrate composition (check all that apply):

Silts Sands Concrete
 Cobbles Gravel Muck
 Bedrock Vegetation. Type/% cover: native riparian and wetland vegetation. 90% cover within

riparian areas.

Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: The streams appeared to be mostly stable due to riparian habitat and vegetated areas.

Presence of run/riffle/pool complexes. Explain: The riffle/pool complexes are due to a clogged culvert under Houston Street.

Tributary geometry: **Meandering**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Seasonal flow**

Estimate average number of flow events in review area/year: **2-5**

Describe flow regime: The tributary is mapped on USGS 7-5 topographic maps as intermittent.

Other information on duration and volume: The intermittent streams contained flowing water and the culvert located south of the property and under Houston Street contained standing water at the time of the field investigation and following a rain event. Additionally, the intermittent streams were observed to contain seasonal flow, and the culvert located under Houston Street, directly south of the property, exhibited standing water in aerial photography.

Surface flow is: **Confined**. Characteristics: .

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

Dye (or other) test performed: .

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (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;

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.

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

⁷Ibid.

- physical markings/characteristics
- tidal gauges
- other (list):

vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: The intermittent streams appeared to have relatively clear flowing water. Although litter and debris was present along the stream channel.

Identify specific pollutants, if known: .

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

- Riparian corridor. Characteristics (type, average width): wooded corridor of varying widths. Average of 100 feet on each bank.
- Wetland fringe. Characteristics: Wetland fringe was identified adjacent and abutting the intermittent stream channel. The wetland areas were dominated by hackberry, elm, and black willow.

Habitat for:

Federally Listed species. Explain findings: .

Fish/spawn areas. Explain findings: .

Other environmentally-sensitive species. Explain findings: .

Aquatic/wildlife diversity. Explain findings: The wetland fringe and riparian areas provide habitat for a diverse aquatic and terrestrial wildlife community.

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: 4.48 acres

Wetland type. Explain: Emergent and forested wetland complex. The wetland complex exhibited hydric soils, hydrophytic vegetation, and hydrology and is located directly abutting the intermittent stream channel on site.

Wetland quality. Explain: Due to the site being used for hay production (as recently as 2015) and the surrounding agricultural, commercial, and residential developments, the existing wetlands have been determined to be impacted.

Project wetlands cross or serve as state boundaries. Explain: No.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: The wetlands are adjacent to three intermittent streams, which contain OHWMs. Overland sheet flow from the surrounding properties flow through the wetlands and into the streams. Since the streams are mapped as intermittent, located at the head waters of the stream system, and exhibit wet condition 3 out of 5 years, the water provided to the streams through the wetlands is considered intermittent.

Surface flow is: **Confined**

Characteristics: .

Subsurface flow: **No**. 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 1, 2, and 9 exhibited overland sheet flow, indicated by bent over vegetation, as well as flow along a berm, located north of Houston Street. Water from the wetlands was observed to flow directly into Intermittent Stream 1, and are found to be adjacent to the OHWM of Intermittent Stream 1.

Ecological connection. Explain: Wetland 1, 2, and 9 are part of a continuous wetland complex, including 4 out of nine total wetlands, with hydrologic flow direction from the northwest to the southeast, towards and into the mapped intermittent stream located on the eastern edge of the property. Additionally, the remaining 5 wetlands are located directly abutting the OHWMs of Intermittent Streams 1, 2 and 3.

Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **30 (or more)** river miles from TNW.

Project waters are **30 (or more)** aerial (straight) miles from TNW.

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

Estimate approximate location of wetland as within the **500-year or greater** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: The wetland was found to contain water at the time of the field investigation. The water appeared clear with dark soils below the waters.

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: hackberry, black willow, elm, and carex, approximately 90% cover.

Habitat for:

Federally Listed species. Explain findings: .

Fish/spawn areas. Explain findings: .

Other environmentally-sensitive species. Explain findings: .

Aquatic/wildlife diversity. Explain findings: The wetlands were determined to provide habitat for a diverse aquatic and terrestrial wildlife community.

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

All wetland(s) being considered in the cumulative analysis: **9**

Approximately (4.48) 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)

*****Wetlands 1 through 9 are depicted on the attached map*****

Summarize overall biological, chemical and physical functions being performed: All wetlands were identified using the National Wetland Inventory maps and onsite observation. The wetland complex is comprised of nine wetlands, which are located within the watershed of the jurisdictional determination area and adjacent/abutting the intermittent stream within the proposed project area, within the catchment.

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: All wetlands were identified using the National Wetland Inventory maps and onsite observation and are contained within the watershed of the jurisdictional determination area and the catchment. The site contains nine wetland areas. Six on-site wetlands directly abut Intermittent Streams 1, 2, and 3. Although a hydrologic connection was observed for the remaining three wetlands, which are part of a larger wetland complex, these wetlands do not directly abut any of the tributaries on-site. However, the wetlands have been determined to function as a sediment and pollutant trap, in addition to providing habitat to aquatic and terrestrial organisms. The wetland complex functions in conjunction with other wetlands and streams to improve chemical and physical integrity of downstream waters and the receiving TNW. Therefore, the wetland complex, including all associated wetlands, and the unnamed intermittent tributary have been determined to have a significant nexus to the downstream TNW.

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: During the site visit on September 9, 2015, Intermittent Streams 1, 2 and 3 were observed to contain characteristics of OHWM and bed and bank. Intermittent Stream 3 is identified on a 7.5 USGS Topographic map as intermittent streams. Intermittent Streams 1, 2, and 3 exhibited wet conditions in three out of five years of available aerial photography. The photographs showing wet conditions occur in various times of the year leading to the intermittent stream determination.

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: **2,600** linear feet **5** width (ft).
 Other non-wetland waters: acres.
Identify type(s) of waters: .

3. Non-RPWs⁸ that flow directly or indirectly into TNWs.

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

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters: linear feet 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: Six wetlands, exhibiting all three characteristics of a wetland per the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and all applicable Region Supplements, were identified within the proposed project boundary within the riparian area Intermittent Streams 1, 2, and 3. The wetland boundaries were observed to extend up to the OHWM within the channel Intermittent Streams 1, 2, and 3, which are unnamed tributaries of Broken Arrow Creek. Therefore, the wetlands were determined to abut Intermittent Streams 1, 2, and 3.

Provide acreage estimates for jurisdictional wetlands in the review area: **2.24**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 jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: **2.24**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

⁸See Footnote # 3.

⁹ To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

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

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

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

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet 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: .
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: Broken Arrow Creek, Arkansas River, 111101010502.

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.

- USGS NHD data.
- USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000; USGS 7.5 Minute Topographic Map, Broken Arrow, OK.
- USDA Natural Resources Conservation Service Soil Survey. Citation: <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
- National wetlands inventory map(s). Cite name: <http://www.fws.gov/wetlands/Data/Mapper.html>.
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps: 40143C0392K, 8-3-2009.
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): Google Earth Aerials (2015, 2014, 2012, 2011, 2010, 2006, 2005, 2004, 2003, 2002, and 1995).
- or Other (Name & Date): .
- 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: During a desktop site review and a September 9, 2015 site visit, the proposed project site was determined to be located in an area of commercial, agricultural, and residential developments. Three intermittent streams (unnamed tributaries of Broken Arrow Creek) were observed and found to contain Ordinary High Water Marks, and are visible on aerial imagery. One wetland complex, containing two emergent (wetlands 1 and 9) and two forested wetlands (wetlands 2 and 3), and five other forested wetlands (wetlands 4, 5, 6, 7, and 8) have been observed adjacent to Intermittent Stream 1. Wetlands 3, 4, 5, 6, 7, and 8 were identified as abutting Intermittent Streams 2 and 3. While the wetlands were not identified on National Wetland Inventory Maps, all wetlands were found to exhibit all 3 parameters required for a wetland using the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and applicable Regional Supplement. Additionally, the flow from Wetlands 1 thru 9 and Intermittent Streams 1, 2, and 3 were determined to flow into Broken Arrow Creek and into the Arkansas River (a Traditionally Navigable Water). Therefore, all waters identified on the site were determined to be jurisdictional under Section 404 of the Clean Water Act.