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): October 10, 2013

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: St. Louis, Centennial Park, MVS-2012-689
MVS-2008-838-011-SNR_ Stream S-1, Wetlands 4-10

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Missouri County/parish/borough: St. Charles City: St. Charles
Center coordinates of site (lat/long in degree decimal format): Lat. 38.8158 ° N, Long. -90.4718 ° W.
Universal Transverse Mercator: UTM Zone 15 North
Name of nearest waterbody: Stream "S-1" unnamed tributary to the Missouri River
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Missouri River
Name of watershed or Hydrologic Unit Code (HUC): 1030020008 Coldwater Creek – Missouri River
☒ 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 11, 2013
☒ Field Determination. Date(s): February 12, 2013

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. [*Navigable waters of the U.S. are not located within the review area; however, the review area lies within the floodplain of the adjacent Missouri River, a navigable waters of the U.S.*]
☐ 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.

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: 1,500 linear feet: 11 width (ft) and/or acres.
   Wetlands: 0.42 acres. SS Wetland 4 = 0.18 acres; Em. Wetland 5 = 0.06 ac.; Em. Wetland 6 = 0.03 ac.; Em. Wetland 7 = 0.02 ac.; Em. Wetland 8 = 0.05 ac.; SS Wetland 9 = 0.03 ac.; SS Wetland 10 = 0.05 ac.

   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]

[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.

☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

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

1. TNW
Identify TNW:

Summarize rationale supporting determination:

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

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

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

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

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

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

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

(i) General Area Conditions:
Watershed size: 86,147 **acres** Coldwater Creek – Lower Missouri River 10-digit
Drainage area: 110 **acres** Estimate; Trib exists in area with little to no contour on USGS
Average annual rainfall: ~38 inches
Average annual snowfall: ~20 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 **5-10** river miles from TNW.
Project waters are **1-2** river miles from RPW.
Project waters are **1 (or less)** aerial (straight) miles from TNW.
Project waters are **1-2** aerial (straight) miles from RPW.

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

Project waters cross or serve as state boundaries. Explain:.
Identify flow route to TNW[5]:

Tributary stream order, if known: .

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

Tributary is: ☐ Natural
☒ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The tributary is part of a complex of marshes, open water area, and channelized ditch/stream that exists within the Missouri River floodplain bottoms. This area has low relief, and drainage appears to be primarily based on channel scars and floodplain ridge/swale topography, as well as man-made drainage systems. Based on a review of the USGS topographic map, the NWI map, and aerial photographs; the tributary appears to originate off-site to the south, in an area mapped on the NWI as forested wetland. As hydrology from the wetland enters the southeastern corner of the site, it becomes concentrated into a channel that is either man-made, or the result of channelization of an existing stream and/or drainage of an existing wetland area. This channel, the subject of this jurisdictional determination, has been identified in the Shannon & Wilson delineation as Stream S-1.

Tributary properties with respect to top of bank (estimate):
Average width: 10-12 feet
Average depth: 6 feet Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

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

Tributary condition/stability moderately stable. Explain:.
Presence of run/riffle/pool complexes. None believed to exist Explain:.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): Based on USGS contour lines, gradient is estimated to be 0.1%.

(c) Flow:
Tributary provides for: **Intermittent but not seasonal flow**
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime: No quantitative information available. Based on tributary characteristics, the channel likely flows for a period greater than 24 hours following rain events. Evidence of out-of-bank flows is not documented, and the drainage area at the project location is relatively small. Due to its very low gradient, the time of concentration is likely significant, with an extenuated hydrograph. Much of the tributary's drainage area is vegetated, a factor that likely contributes to a lengthened hydrograph. This may be offset somewhat by the existence of approximately 40 acres of impervious surface from road, parking, and roofs of an industrial area within the drainage area. The tributary may also have standing water for significant periods, but not to the degree that it would be considered seasonally pooled.
Other information on duration and volume: .

Surface flow is: **Confined.** Characteristics: Flows though open channel directly to receiving waterbody.

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

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

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

☒ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: The drainage area of Stream S-1 is approximately 30% forested, 40% grassed, and 40% impervious.

Identify specific pollutants, if known: No indication of specific contaminants was observed during our site visit (odor, sheen, etc.) Due to the presence of roadways, roofs, and parking areas within the drainage area, the tributary is likely subject to introduction of petrochemicals from automobiles; road salts; and other contaminants associated with automobiles and roadway management.

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

☒ Riparian corridor. Characteristics (type, average width): Within the project area, the riparian corridor of the stream is limited to a single row of immature and/or scrubby trees along the left-descending bank. This row borders industrial area. The right-descending bank exhibits a similar row of woody vegetation, beyond which exists the abandoned trailer park. Excepting the single row of trees, the right-descending bank is primarily grassed for approximately 100 feet, after which the area is an open woods/grassed area.

☒ Wetland fringe. Characteristics: Stream S-1 is bordered by three swales that drain into the channel. The swales possess emergent wetland characteristics, such as inundated and/or saturated soils; and are dominated by cattail and sedge species.

☐ 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: Wetlands 4 and 5 are adjacent wetlands, located approximately 350 feet and 60 feet from Stream S-1, respectively. Wetland 4 exists as a broad forested depression dominated by young green ash trees. Wetland 5 appears to have formed from the collection of runoff from the former roadways, and is dominated by cattail. Wetlands 6 through 8 are abutting wetlands. These wetlands exist as swale-like features, that likely drained runoff from the former roads. Wetlands 6 through 8 are dominated by cattails and sedges. Wetlands 9 and 10 are hydrologically connected features. Wetland 9 is a small depression, dominated by green ash. Wetland 9 drains to Wetland 10, which exists as a linear, swale-like feature dominated by green ash. However, according to the Shannon and Wilson report, Wetland 10 does not have a direct surface connection to Stream S-1 or nearby Wetland 8. With its linear characteristics, Wetland 10 may be man-made and was possibly formerly connected to Stream S-1.

Wetland size: Wetland 4 is 0.18 acres; Wetland 5 is 0.06 ac; Wetland 6 is 0.03 ac; Wetland 7 is 0.02 ac; Wetland 8 is 0.05 ac; Wetland 9 is 0.03 ac; Wetland 10 is 0.05 acres. Total: 0.44 acres

Wetland type. Explain: Wetlands 5-8 are emergent; Wetlands 4, 9 and 10 are scrub shrub (early successional softwood).

Wetland quality. Wetlands 4 and 9 are of moderate quality, with early successional forest. These wetlands exhibit more or less natural hydrology. The remaining wetlands are of moderately low quality, and generally appear to have developed from man-made influences.

Project wetlands cross or serve as state boundaries. No Explain: The project wetlands are intrastate.

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow**. Explain: Wetlands 6-8 likely discharge directly to Stream S-1, but likely discharge only during precipitation and for a short duration thereafter. The remaining wetlands appear to have no direct surface connection .

Surface flow is**: Discrete and confined**

[7]Ibid.

Characteristics. See above

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

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting Wetlands 6-8 directly abut Stream S-1
☒ Not directly abutting Wetlands 4, 5, 9 and 10 do not appear to have a surface connection to Stream S-1
☒ Discrete wetland hydrologic connection. Explain: Wetlands 9 and 10 appear in more or less the same linear plane as Wetland 8, and are separated by a very small segment of uplands. Therefore, a reasonably assumption can be made that groundwater is exchanged from Wetlands 9 and 10, to Wetland 8 which abuts Stream S-1.
☒ Ecological connection. Explain: The wetlands are all part of a similar ecological setting, in which an abandoned trailer park is reverting to floodplain softwood forest which the non-TNW borders. The wetlands and their associated functions comprise the riparian setting of Stream S-1.
☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **5-10** river miles from TNW.
Project waters are **1-2** 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 adjacent to Stream S-1 are considered moderate to moderately-low quality. With the exception of Wetlands 4 and 5, the wetlands appear to have man-made origins stemming from the trailer park that formerly existed on the project site. The wetlands predominantly exhibit a linear, ditch-like configuration. The wetland vegetation is not overly conservative, consisting either of emergent vegetation or early-successional softwood. The area in which the wetlands are located is no longer a trailer park, and is reverting to a more-natural community that borders the Missouri River. However, large industrial areas are located immediately west and south of the stream/wetland complex.

Identify specific pollutants, if known: No specific pollutants are known.

(iii) Biological Characteristics. Wetland supports (check all that apply):
☒ Riparian buffer. Characteristics (type, average width): Stream S-1 is bordered on the east by an approximate 50-ft wide open herbaceous area, in which Wetlands 6-8 are located. Beyond the open area, the site is a generally contiguous early-successional softwood forest, which contains Wetlands 5, 9, and 10. The forested area extends greater than 300 feet from Stream S-1.
☒ Vegetation type/percent cover. Explain. Wetlands 6-8 are emergent, and dominated by cattails and sedges. Wetlands 4,5, 9 and 10 are scrub/shrub, and are dominated by green ash.
☐ 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: **6**
Approximately (0.42) 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)
Wetland 4 – N	0.18	Wetland 5 – N	0.06
Wetland 6 – Y	0.03	Wetland 7 - Y	0.02
Wetland 8 – Y	0.05	Wetland 9 – N	0.03
Wetland 10 – N	0.05		

Summarize overall biological, chemical and physical functions being performed: See Section III.C.2 The combined Wetlands 4-10 have the capacity to influence the chemical, physical, and biological characteristics of the downstream TNW

(Missouri River), through their interaction with the non-TNW Stream S-1. The wetlands likely directly affect the nature of water entering Stream S-1, both in quantity and physical attributes. This may be through the reduction of runoff rates of water received by Stream S-1; capture of water through evapo-transpiration; storage of runoff; filtering of nutrients; water temperature reduction; and other mechanisms. The wetlands likely provide habitat for fauna as part of a riparian wildlife corridor. Potential fauna that may utilize the wetlands could include macro-fauna such as deer, raccoon, opossum, and other species tolerant of proximity to development; woodland herpetofauna associated with wetland areas; and passerine species.

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: The unnamed, non-RPW possesses features of an intermittent tributary with an ordinary high water mark and defined bed and bank. It averages approximately 11 feet at the bed width and approximately 6 feet in depth. Based upon observed characteristics and its location within the watershed, Stream S-1 is likely a first-order tributary. Prior to reaching the downstream Missouri River, Stream S-1 discharges directly into the Marais Croche, an extensive Missouri River bottomland area containing marsh, forested wetland, and open water. The Marais Croche drains directly to the Missouri River via a man-made canal. At the point that hydrology from Stream S-1 reaches the Missouri River, the Missouri River has been designated a Traditional Navigable Waters (TNW) by the St. Louis District. This office has determined that the non-RPW and its associated wetlands maintain hydrologic connectivity to the Missouri River, thereby providing a significant nexus between the non-RPW and its adjacent wetlands, and a downstream TNW. Hydrologic connectivity refers to the flow that transports organic matter and nutrients, energy, and aquatic organisms throughout the system. (Freeman et al., 2006). The following outlines how Stream S-1 and its associated wetlands maintain a significant nexus to the Missouri River through their hydrologic connectivity.

   Stream S-1 influences the chemistry and physical conditions of the Marais Croche and the downstream TNW through its hydrologic input, and transport of sediments and energy. Rainfall within the drainage area of the tributary provides a frequent pulse of hydrology, thus providing a regular source of hydrology to downstream receiving waters. We anticipate that the tributary contributes to the chemical and physical make-up of the Marais Croche, through its ability to convey sediments, attached nutrients, and contaminants. Nutrients and chemicals attached to sediments and suspended solids can be transported downstream to the Marais Croche, and subsequently the Missouri River. Stream S-1 has a narrow riparian corridor. Therefore, the tributary likely has the capacity to transfer nutrients and organic carbon downstream to the TNW. The riparian corridor may also affect the physical attributes of water flowing to the TNW through temperature reduction (shading). While the wetland functions of the Marais Croche are significant to the Missouri River, the wetlands associated with Stream S-1 in turn affect it and the Marais Croche. The wetlands likely directly affect the nature of water entering Stream S-1 and its downstream receiving waters, both in quantity and physical attributes. This may be through the reduction of runoff rates of water received by Stream S-1; capture of water through evapo-transpiration; storage of runoff; filtering of nutrients; water temperature reduction; and other mechanisms.
   Lastly, headwater streams have been documented as providing necessary habitat for a variety of birds, mammals, reptiles, and amphibious populations. Because headwater streams have a small catchment area, they are varied and maintain some of the most diverse habitats within a lotic system. Headwater streams are utilized not only by species unique to headwater streams, but are also

used by animals requiring headwater streams for certain life stages and/or are utilized by animals that migrate between headwater environments and larger waters (Meyer et al. 2007). The subject site is within the Missouri River floodplain, and Stream S-1 and its wetlands are located less than a mile from the TNW. As part of an extensive bottomland community, the tributary and its wetlands likely provide habitat for terrestrial fauna, herpetofauna, passerine species, and other wildlife that utilize the TNW and its riparian area.

LITERATURE CITED

Freeman, M.C., C.M. Pringle, and C.R. Jackson. 2007. Hydrologic Connectivity and the Contribution of Stream Headwaters to Ecological Integrity at Regional Scales. Journal of the American Water Resources Association. 43:5-14.

Meyer, J.L., D.L. Strayer, J.B. Wallace, S.L. Eggert, G.S. Helfman, and N.E. Leonard. 2007. The Contribution of Headwater Streams to Biodiversity in River Networks. Journal of the American Water Resources Association. 43: 86-103.

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.**
   - ☒ 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: **1,500** linear feet **11** 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.

[8]See Footnote # 3.

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: **0.42** acres.

7. **Impoundments of jurisdictional waters.**[9]
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

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

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

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet 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.

[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.***

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: Jacobs concept plan dated 3/7/2013.
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant. Shannon & Wilson Nov. 2012 Delineation Report
  - ☒ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps:.
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: MO-St. Charles 1:24K GIS.
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation:.
- ☒ National wetlands inventory map(s). Cite name: GIS.
- ☐ State/Local wetland inventory map(s):.
- ☒ FEMA/FIRM maps: GIS.
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): GIS 2005, 2007, 2009, 2012; GoogleEarth various 1990-2012.
  or ☒ Other (Name & Date): Shannon & Wilson Nov. 2012 Delineation Report .
- ☐ 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: See Sections III B and C, above.