Jurisdictional Waters Determination

Botts Road and Missouri Highway 150

Adaptive Ecosystems Project #: 2007-107

September 2007

Prepared for

Piper Wind-Tapan AM

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Executive Summary

Piper Wind-Tapan AM (PW-TA) tasked Adaptive Ecosystems, Inc. to complete a jurisdictional waters identification, including a wetland determination in accordance with the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual*. PW-TA is under contract with the General Services Administration (GSA). The GSA is considering a development at Botts Road and 150 Highway in Jackson County, Missouri. The 187-acre site is located northwest of the intersection of Botts Road and 150 Highway, near Grandview in the southeast 1/4 of Section 27, Township 47 North, Range 33 West of Jackson County, Missouri.

In August of 2007, Adaptive Ecosystems, Inc. conducted a pedestrian survey of the area in question to identify jurisdictional Waters of the U.S. (WOUS). Aquatic resources identified within the project area include a total of eight tributaries and seven wetlands.

Aquatic resources were evaluated based on the guidance of *Rapanos vs. United States and Carabell vs. United States*. These elevations are referred throughout the report as "Rapanos determinations". The project includes relatively permanent waters (RPW), Non-RPWs with a potential nexus, wetlands abutting and adjacent to RPWs or Non-RPWs, and isolated wetlands. For the purposes of this report, all intermittent tributaries were considered RPWs; all ephemeral tributaries were considered Non-RPWs. RPW and Non-RPW determinations and significant nexus determinations are subjective. Rapanos determinations may be revised after review and coordination with the USACE.

The project area contains approximately 8,541 linear feet (l.f.) (0.26 acre) of potential jurisdictional tributaries and 0.39 acre (ac.) of potential jurisdictional wetlands. There are no open water features on the project area. The cumulative total area of jurisdictional WOUS (tributaries and wetlands) on the project areas is approximately 0.65 ac. Non-jurisdictional isolated wetlands measured 0.98 ac.

The information presented in this report is limited to a discussion of existing jurisdictional aquatic resources identified within the proposed project and does not address construction-related impacts to WOUS.

Note:
1. All statements presented in this report concerning jurisdictional and jurisdictional Waters of the United States are considered preliminary until the U.S. Army Corps of Engineers provides written concurrence with the report's findings.
2. All acreages are approximate. On the tables, the precision of area measurements for individual features were estimated to 1/1000th of an acre due to the small size of various features. The acreage totals within the report text, however, have been rounded to the nearest 1/100th.
3. All lengths are approximate. The linear distances have been rounded to the nearest foot; the Ordinary High Water Marks, Tributary Top of Bank widths and Tributary heights have been rounded to the nearest 1/10th of a foot.
4. GPS mapping was completed using a sub-meter capable unit.

1.0 Introduction

Piper Wind-Tapan AM (PW-TA) tasked Adaptive Ecosystems, Inc. to complete a jurisdictional waters identification, including a wetland determination in accordance with the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual*. PW-TA is under contract with the General Services Administration (GSA). The GSA is considering a development at Botts Road and 150 Highway in Jackson County, Missouri (**Figure 1**). The 187-acre site is located northwest of the intersection of Botts Road and 150 Highway, near Grandview in the southeast 1/4 of Section 27, Township 47 North, Range 33 West of Jackson County, Missouri.

Jurisdictional waters are described for the entire project. Figures are provided in **Appendix A**, site photographs are in **Appendix B**, data sheets are in **Appendix C,** and jurisdictional determination forms are provided in **Appendix D.**

2.0 Determination Methods

Wetland determination methods followed guidelines outlined in the USACE *Wetlands Delineation Manual* (USACE, 1987). Adaptive Ecosystems used the Routine Wetland Determination Method provided in the USACE manual. Ordinary High Water Mark determinations were based on guidelines outlined in the USACE *Ordinary High Water Mark Identificaiton* regulatory guidance letter (USACE, 2005). A review of resource maps was performed to prepare for the field work. Field references included the National List of Plant Species that Occur in Wetlands: Region 3 [United States Fish and Wildlife Service (USFWS, 1988)]; *The Grasses of Missouri* (Kucera, 1961); *Guide to the Vascular Flora of Illinois* (Mohlenbrock, 1986); and Munsell Soil Color Charts (Kollmorgen Instruments Corporation, 2000).

A pedestrian survey was completed for the entire project area. All mapping of jurisdictional features was based on data collected with a Trimble GeoExplorer GPS unit and in-house GIS.

2.1 Existing Information

Adaptive Ecosystems acquired information from several sources prior to performing the on-site wetland determinations (see **Figures 2 through 4**). Climate and vegetation in the area are also discussed. A summary of the in-house review is provided below.

2.2 USGS 7.5' Topographic Survey

The U.S. Geological Survey (USGS) topographic survey for the Belton, Missouri, quadrangle shows two unnamed tributaries bisecting the area. Site topography consists of agricultural fields gently sloping to the east (USGS, 1991).

The property is located in the Little Blue River Watershed. Runoff from the contributing watershed flows into unnamed tributaries. The unnamed tributaries drain east to the Little Blue River. The Little Blue River drains into the Missouri River. Surface drainage patterns were identified by conducting a thorough project area survey and by using topographic maps with 10-foot intervals **(Figure 2; Appendix A)**.

2.3 Jackson County Soil Survey

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey maps (USDA SCS, 1984; USDA NRCS, 2007) used to determine the soil information for the property and surrounding area are provided as **Figure 3 (Appendix A)**. Mapped soil types for the project area were compared to the Missouri Hydric Soils List (USDA NRCS, 2007). Greenton silty clay loam, 5 to 9 percent slopes; Sampsel silty clay loam, 5 to 9 percent slopes; and Kennebec silt loam, occasionally flooded; all have hydric soil inclusions. The property contains the following soil types:

- **6B – Sharpsburg silt loam, 2 to 5 percent slopes:** This soil consists of deep, moderately well-drained, moderately slowly permeable soils on convex ridgetops (USDA SCS, 1984).
- **6C2 – Sharpsburg silt loam, 5 to 9 percent slopes**: This soil consists of deep, moderately well-drained, moderately slowly permeable soils on convex side slopes and

narrow, convex ridgetops (USDA SCS, 1984).

- **11C – Greenton silty clay loam 5 to 9 percent slopes**: This soil consists of deep, somewhat poorly drained, slowly permeable soils on upland side slopes (USDA SCS, 1984). This soil has inclusions of Sampsel hydric soils (USDA NRCS, 2007).
- **13C – Sampsel silty clay loam 5 to 9 percent**: This soil consists of deep, poorly drained, slowly permeable soils on concave side slopes and foot slopes along drainageways (USDA SCS, 1984). This is a hydric soil (USDA NRCS, 2007).
  30 – Kennebec silt loam, occasionally flooded: This soil consists of deep, moderately well-drained, moderately permeable soils on floodplains along small or medium streams (USDA SCS, 1984). This soil has inclusions of Colo and Nodaway hydric soils (USDA NRCS, 2007).
- **62B – Macksburg-Urban land complex, 2 to 5 percent**: This soil consists of deep, somewhat poorly drained, moderately permeable soils on wide convex ridges (USDA SCS, 1984).

2.4 National Wetlands Inventory

Review of the National Wetlands Inventory (NWI) maps for the Belton, Missouri, quadrangle U.S. Department of the Interior (USDOI, 2007) identified no potential wetland features on the project area (**Figure 4**). Features shown on the NWI map are not comprehensive and are not intended to reflect jurisdiction.

2.5 Climate

Precipitation in Kansas City, Missouri, averages 35.75 inches per year. Approximately 70 percent of the annual precipitation occurs between the months of April and September. January is typically the driest month with an average of 1.17 inches, and June is the wettest month with an average of 5.18 inches. The growing season is between March 25th and November 6th and is 220 days long. The 5 percent continuous inundation/saturation requirement is 11 days. January is the coldest month in Kansas City, Missouri, with an average minimum temperature of 19.8º F and an average maximum temperature of 37.8º F. The warmest month is July with an average minimum temperature of 70.8º F and an average maximum temperature of 89.2º F. The mean date of the first fall frost is October 31st, and that of the last spring freeze is April 2nd. Prevailing winds are typically from the south with the highest speeds occurring in spring, averaging 12 miles per hour (USDA Soil Conservation Service, 1984).

2.6 Vegetation

According to *Ecoregions of the United States* (Bailey, 1995), the historic regional vegetation for the project area consisted of native plant species typical of a grassland-forest transition area, characterized by intermingling deciduous forests, wildflowers, and a variety of tall- and short-prairie grass species. With the impacts of agriculture, however, native vegetation is primarily confined to riparian corridors and areas of significant slope. The majority of the area is used for agricultural purposes. The upland areas not in crop production are vegetated with a blend of cool-season forage grasses and broad-leaved herbs.

3.0 Determination Results

This chapter is a presentation of aquatic resources and their jurisdictional status based on U.S. Army Corps of Engineers *Jurisdictional Determination Form Instructional Guidebook* (USACE, 2007). There are no Traditional Navigable Waters on the project area (TNW). The tributaries are placed into one of two categories: Relatively permanent waters (RPW) or non-relatively permanent waters (Non-RPW). The wetlands are listed with the tributaries they abut or are adjacent to. Aquatic resources and jurisdictional waters discussion is supported by the approved Jurisdictional Data Form (USACE, 2007).

The eight potential jurisdictional tributaries that have been identified within the project area (see **Figure 5**) have been arranged into jurisdictional determination categories. All ephemeral tributaries were classified as Non-RPWs. There are no impoundments in the project area. Isolated waters are described in this chapter. The jurisdictional data forms for these features are found in **Appendix D**.

3.1 Traditional Navigable Waters

TNWs are all tidal waters and waters that have been, could be, or are used in interstate or foreign commerce. TNWs are jurisdictional and any tributary that continually flows directly or indirectly at least seasonally into a TNW is also jurisdictional. There are no TNWs on the project area. At a distance of 19 aerial miles and greater than 30 river miles, the closest TNW is the Missouri River in Jackson County, Missouri. The RPWs and Non-RPWs listed below are connected to the Missouri River through on-site unnamed tributaries that drain into the Little Blue River.

3.2 Relatively Permanent Waters

RPWs are tributaries that flow year round or have continuous flow at least seasonally, and that flow directly or indirectly into a TNW. A wetland that abuts a tributary has no distinction between the immediate edge of the tributary and the wetland itself. An adjacent tributary has a barrier between itself and the tributary, but is connected by surface flow. A wetland adjacent to a RPW or Non-RPW must have a significant nexus. A significant nexus is a more than speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW (USACE, 2007). Abutting wetlands do not need a significant nexus analysis. Stream survey data sheets are provided in **Appendix C**. **Appendix D** presents the jurisdictional determination forms which describe in detail the type, length, area, channel and flow characteristics, hydrology, subwatershed area, river and aerial miles to an RPW, floodplain location, and feature position in relation to RPWs of Waters of the U.S. (WOUS) observed on the project area. For the purposes of this report, all intermittent tributaries are considered RPWs. There are three RPWs on the project area (**Table 3-1, Figure 5**).

- **Intermittent 1 (I-1):** I-1 is an unnamed relatively straight intermittent tributary (1,313 l.f.) with a boulder/cobble/silt bed and is bounded by a mixture of scrub-shrub riparian corridor and agricultural fields. I-1 is a manipulated channel that is now used to drain adjacent agricultural fields. Upstream and downstream of the project boundaries, I-1 is a natural channel. I-1 flows at least seasonally, with a subwatershed size of 80 ac. (**Figure 6**). I-1 discharges into an off-site unnamed tributary to the east, which discharges into the

Little Blue River and ultimately into the Missouri River. There are no adjacent wetlands. The abutting wetlands are:

  - **Palustrine Scrub-shrub Wetland/Palustrine Emergent Wetland 1 (PSS/PEM-1):** PSS/PEM-1 is a fringe wetland abutting I-1. The vegetation was a mixture of scrub-shrub and emergent wetland species. The vegetation was predominantly hydrophytic and dominated by black willow (*Salix nigra*), cottonwood (*Populus deltiodes*), and cat-tail (*Typha latifolia*). Soils sampled at PSS/PEM-1 displayed gleyed or low-chroma colors. PSS/PEM-1 is approximately 0.18 ac.

- **Intermittent 2 (I-2):** I-2 is an unnamed relatively straight intermittent tributary (2,342 l.f.) with a cobble/silt bed and is bounded by an herbaceous riparian corridor. I-2 is a manipulated channel that is now used to drain adjacent agricultural fields. **Figure 2** shows evidence that this tributary is a result of natural drainage. I-2 has a subwatershed size of 311 ac. (**Figure 6**). I-2 drains into I-1, which ultimately drains into the Missouri River. There are no adjacent wetlands. The abutting wetlands are:
  - **Palustrine Scrub-shrub 1 (PSS-1):** PSS-1 is a fringe wetland located along I-2. The vegetation was predominantly hydrophytic and dominated by black willow (*Salix nigra*), cottonwood (*Populus deltiodes*), cat-tail (*Typha latifolia*), and nutsedge (*Cyperus esculentus*). Soils sampled at PSS-1 displayed reducing conditions and gleyed or low-chroma colors. PSS-1 is approximately 0.05 ac.

- **Intermittent 3 (I-3):** I-3 is an unnamed meandering intermittent tributary (952 l.f.) with a cobble/silt bed and a forested riparian corridor. I-3 has a subwatershed size of 121 ac. (**Figure 6**) and drains ultimately into the Missouri River. There are no abutting wetlands. The adjacent wetlands are:
  - **Palustrine Emergent Wetland 3 (PEM-3):** PEM-3 is a wetland located near I-3. It discharges by surface drainageways into I-3 through approximately 50 l.f. of the riparian corridor of I-3. PEM-3 acts as a buffer for I-3 from sediments and pollution from the surrounding agricultural field. The vegetation was predominantly hydrophytic and dominated by silver maple (*Acer saccharinum*), nutsedge (*Cyperus esculentus*), and Virginia wild rye (*Elymus virginicus*). Soils sampled at PEM-3 displayed gleyed or low-chroma colors. PEM-3 is approximately 0.14 ac.

3.3 Non-relatively Permanent Waters

Non-RPWs are tributaries that do not have continuous flow at least seasonally. Non-RPWs are jurisdictional where there is a significant nexus to a TNW. Stream survey data sheets are provided in **Appendix C**. **Appendix D** presents the jurisdictional determination forms which describe in detail the type, length, area, channel and flow characteristics, hydrology, subwatershed area, river and aerial miles to an RPW, floodplain location, and feature position in relation to RPWs of Waters of the U.S. (WOUS) observed on the project area. For the purposes of this report, all ephemeral tributaries are considered Non-RPWs. There are eight Non-RPWs.

- **Ephemeral 1 (E-1):** E-1 is a meandering ephemeral tributary (1,026 l.f.) with a cobble/silt bed, is bounded by agricultural fields, and drains into an I-2. I-2 drains

into I-1, which ultimately discharges into the Missouri River. E-1 has a subwatershed size of 44 ac. (**Figure 6**). E-1 drains the surrounding agricultural fields and the pollutants and erosion associated with conventional agriculture. The transportation of pollution and erosion are the basis for the determination of a significant nexus. There are no abutting or adjacent wetlands.

- **Ephemeral 2a (E-2a):** E-2a is a meandering ephemeral tributary (372 l.f.) with a silt bed and a forested riparian corridor. The area between E-2a and E-2b is a vegetated drainageway with discontinuous ordinary high water mark (OHWM). Braided channels, labeled as D-3 on **Figure 5**, are found in this area that start and stop abruptly. These channels are not connected, have vegetation within the bottom of the channel, and there are considerable distances without any channels at all. It can be assumed through the topographic map (**Figure 2**) that E-2a and E-2b were once one channel and that agricultural practices have since separated them. E-2a drains by overland sheet flow through the vegetated drainageway into E-2b. E-2b drains into I-2, I-2 drains into I-1, which indirectly discharges into the Missouri River. E-2a and E-2b have a combined subwatershed size of 60 ac. (**Figure 6**). E-2a drains the surrounding agricultural fields and the pollutants and erosion associated with conventional agriculture. The transportation of pollution and erosion are the basis for a determination of a significant nexus. There are no abutting or adjacent wetlands.

- **Ephemeral 2b (E-2b):** E-2b is a relatively straight ephemeral tributary (989 l.f.) with a cobble/silt bed and has an herbaceous riparian corridor. E-2b drains into I-2, I-2 drains into I-1, which ultimately discharges into the Missouri River. E-2a and E-2b have a combined subwatershed size of 60 ac. (**Figure 6**). E-2b drains the surrounding agricultural fields and the pollutants and erosion associated with conventional agriculture. The transportation of pollution and erosion are the basis for a determination of a significant nexus. There are no abutting or adjacent wetlands.

- **Ephemeral 3 (E-3):** E-3 is a meandering ephemeral tributary (1,053 l.f.) with a silt bed and a forested riparian corridor. E-3 drains into I-3, which ultimately discharges to the Missouri River. E-3 has a subwatershed size of 59 ac. (**Figure 6**). E-3 drains the surrounding agricultural fields. The forested riparian corridor acts as a buffer from the pollutants and erosion associated with conventional agriculture. E-3 has flood storage capabilities. Buffering of pollutants and erosion, and flood storage are the basis for a determination of a significant nexus. There are no adjacent wetlands. The wetlands abutting E-3 are listed below:
    - **Palustrine Emergent Wetland 1 (PEM-1):** PEM-1 is a fringe wetland located along E-3. The vegetation was predominantly hydrophytic and dominated by reed canary grass (*Phalaris arundinacea*) and Pennsylvania smartweed (*Polygonum pensylvanicum*). Soils sampled at PEM-1 displayed gleyed or low-chroma colors. PEM-1 is approximately 0.03 ac.

- **Ephemeral 4 (E-4):** E-4 is a meandering ephemeral tributary (494 l.f.) with a cobble/silt bed and a forested riparian corridor. E-4 is part of a vegetated drainageway that drains the northwestern-most area of the property. Through most of this drainageway there is

no continuous OHWM, this is labeled as D-5 on **Figure 5**. E-4 starts at the point where there is an OHWM that is continuous until it reaches I-3. E-4 drains into I-3, which ultimately discharges into the Missouri River. E-4 has a subwatershed size of 46 ac. (**Figure 6**). The forested riparian corridor acts as a buffer from the pollutants and erosion associated with conventional agriculture. E-3 has flood storage capabilities. Buffering of pollutants and erosion, and flood storage act are the basis for a determination of a significant nexus. There are no abutting or adjacent wetlands.

3.4 Isolated Waters

An isolated water feature is a wetland that is not directly connected to a jurisdictional water. Isolated waters can be jurisdictional if they have a significant nexus with a TNW. If an isolated water does not have a significant nexus with a TNW, the isolated water is non-jurisdictional. There are three isolated water features on the project area. The jurisdictional determination forms are found in **Appendix D** and in the data sheets in **Appendix B**.

Isolated waters without a significant nexus include:

- **Palustrine Emergent Wetland 2 (PEM-2):** PEM-2 is a depressional wetland located near I-2. While PEM-2 discharges into I-2 through surface drainage, PEM-2 does not have a significant biological, chemical, or physical impact on a TNW. PEM-2 is of sufficient distance from I-2 that it does not provide pollution retention, flood storage, or habitat to species found in a TNW. PEM-2 is at a higher elevation than I-2 and would likely not connect during flood events. The vegetation was predominantly hydrophytic and dominated by Pennsylvania smartweed (*Polygonum pensylvanicum*), nutsedge (*Cyperus esculentus*), toothcup (*Ammannia coccinea*), and hop sedge (*Carex lupulina*). Soils sampled at PEM-2 displayed gleyed or low-chroma colors. PEM-2 is approximately 0.78 ac.

- **Palustrine Emergent Wetland 4 (PEM-4):** PEM-4 is a depressional wetland located near I-2. While PEM-4 discharges into I-2 through surface drainage, PEM-4 does not have a significant biological, chemical, or physical impact on a TNW. PEM-4 is of sufficient distance from I-2 that it does not provide pollution retention, flood storage, or habitat to species found in a TNW. PEM-4 is at a higher elevation than I-2 and would likely not connect during flood events. It discharges by surface drainage indirectly into I-2. The vegetation was predominantly hydrophytic and dominated by water pepper (*Polygonum hydropiper*), nutsedge (*Cyperus esculentus*), toothcup (*Ammannia coccinea*), and hop sedge (*Carex lupulina*). Soils sampled at PEM-4 displayed reducing conditions and gleyed or low-chroma colors. PEM-4 is approximately 0.04 ac.

- **Palustrine Scrub-shrub Wetland/Palustrine Emergent Wetland 2 (PSS/PEM-2):** PSS/PEM-2 is a depressional wetland located near I-2. It discharges by surface drainage indirectly into I-2. While PSS/PEM-2 discharges into I-2 through surface drainage, PSS/PEM -2 does not have a significant biological, chemical, or physical impact on a TNW. PSS/PEM-2 is of sufficient distance from I-2 that it does not provide pollution retention, flood storage, or habitat to species found in a TNW. PSS/PEM -2 is at a higher elevation than I-2 and would likely not connect during flood events. The vegetation was

a mixture of scrub-shrub and emergent wetland species. The vegetation was predominantly hydrophytic and dominated by black willow (*Salix nigra*), cottonwood (*Populus deltiodes*), nutsedge (*Cyperus esculentus*), and cat-tail (*Typha latifolia*). Soils sampled at PSS/PEM-2 displayed reducing conditions and gleyed or low-chroma colors. PSS/PEM-2 is approximately 0.16 ac.

3.5 Drainages

Drainages are swales, erosional features, or small washes that are characterized by low flow volume, infrequent and short duration flow; ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water; uplands transporting overland flow generated from precipitation (USACE, 2007). Drainages are not jurisdictional. There are five drainages within the project area that need discussion.

- **Drainage 1 (D-1):** D-1 is an erosional feature. D-1 has 1:1 side slopes and is a highly eroded feature. D-1 would not be present except for agricultural practices surrounding it.
- **Drainage 2 (D-2):** D-2 is an erosional feature. D-2 has 1:1 side slopes and is a highly eroded feature. Flowing water was present in D-2 near its convergence with I-1. This flow was due to the deep erosion reaching the current water table. D-2 would not be present except for agricultural practices surrounding it.
- **Drainage 3 (D-3):** D-3 is a vegetated drainageway consisting of braided channels that start and stop abruptly. These channels are not connected, have vegetation in the bottom of the channel, and there are considerable distances without any channels at all.
- **Drainage 4 (D-4):** D-4 is an erosional feature. D-4 has 2:1 side slopes and is a highly eroded feature. Its erosion has been slowed by a stand of dogwoods. D-4 would not be present except for agricultural practices surrounding it.
- **Drainage 5 (D-5):** D-5 is a vegetated drainageway consisting of braided channels that start and stop abruptly. These channels are not connected, have vegetation in the bottom of the channel, and there are considerable distances without any channels at all.

Table 3-1: Botts Road and Missouri Highway 150
Preliminary Jurisdictional Waters

Feature ID	Resource Type	Classification	Abutting Wetlands	Adjacent Wetlands	Total Stream (linear feet)	Total Area (acres)	OHWM Width (feet)	Feature Abuts RPW	Adjacent RPW
Tributaries									
I-1	Intermittent	RPW	PSS/PEM-1		1313	0.045	1.5		
I-2	Intermittent	RPW	PSS-1		2342	0.053	1.0		
I-3	Intermittent	RPW		PEM-3	952	0.044	2.0		
E-1	Ephemeral	NON-RPW			1026	0.047	2.0		
E-2a	Ephemeral	NON-RPW			372	0.004	0.5		
E-2b	Ephemeral	NON-RPW			989	0.022	1.0		
E-3	Ephemeral	NON-RPW	PEM-1		1053	0.024	1.0		
E-4	Ephemeral	NON-RPW			494	0.017	1.5		
	Subtotal				**8,541**	**0.26**			
Adjacent and Abutting Wetlands									
PEM-1	Palustrine Emergent Wetland	Directly Abutting E-3			-	0.030	-	E-3	
PEM-3	Palustrine Emergent Wetland	Adjacent to I-3			-	0.138	-		I-3
PSS-1	Palustrine Scrub Shrub Wetland	Directly Abutting I-2			-	0.045	-	I-2	
PSS/PEM-1	Palustrine Scrub Shrub/ Palustrine Emergent Wetland	Directly Abutting I-1			-	0.179	-	I-1	
	Subtotal				**-**	**0.39**			
	Total of Jurisdictional Features				**8,541**	**0.65**			
Isolated Wetlands without a Significant Nexus (Non-jurisdictional)									
PEM-2	Palustrine Emergent Wetland	Isolated Water			-	0.781			
PEM-4	Palustrine Emergent Wetland	Isolated Water			-	0.042			
PSS/PEM-2	Palustrine Scrub Shrub/ Palustrine Emergent Wetland	Isolated Water				0.159			
	Total of Non-jurisdictional Features					**0.98**			

Notes:

1. All values are approximate.

2. Widths are the distances between the ordinary high water mark (OHWM) elevations.
3. Areas are the tributary length within the project area multiplied by the tributary width between the OHWM elevations, converted to acres.

- Measurements are not applicable or are unavailable.

4.0 Summary

All aquatic resources on the Botts Road site were documented. For the purpose of this report, all intermittent tributaries were considered RPWs; all ephemeral tributaries were considered Non-RPWs. Currently, all ephemeral tributaries are considered jurisdictional (having a significant nexus). RPW and Non-RPW determinations and significant nexus determinations are subjective. Rapanos determinations may be revised after review and coordination with the USACE.

Based on the available field-verified data and the Rapanos guidance (USACE, 2007), the Botts Road project areas contain approximately 8,541 l.f. (0.26 ac.) of jurisdictional tributaries and 0.39 ac. of jurisdictional wetlands. There are no open water impoundments on the project area. The cumulative total area of jurisdictional WOUS (tributaries and wetlands) is 0.65 ac. **Table 3-1** is a summary table presenting jurisdictional and non-jurisdictional WOUS on the Botts Road project area.

Approximately 0.98 ac. of non-jurisdictional wetlands (isolated wetlands without a significant nexus) are located on the Botts Road project area (**Table 3-1**).

Note:
1. All statements presented in this report concerning anticipated jurisdictional Waters of the United States are considered preliminary until the U.S. Army Corps of Engineers provides written concurrence with the report's findings.
2. All acreages are approximate. On the tables, the precision of area measurements for individual features were estimated to 1/1000th of an acre due to the small size of various features. The acreage totals within the report text, however, have been rounded to the nearest 1/100th.
3. All lengths are approximate. The linear distances have been rounded to the nearest foot; the Ordinary High Water Marks, Tributary Top of Bank widths and Tributary heights have been rounded to the nearest 1/10th of a foot.
4. GPS mapping was completed using a sub-meter capable unit.

5.0 References

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Appendix A
Figures

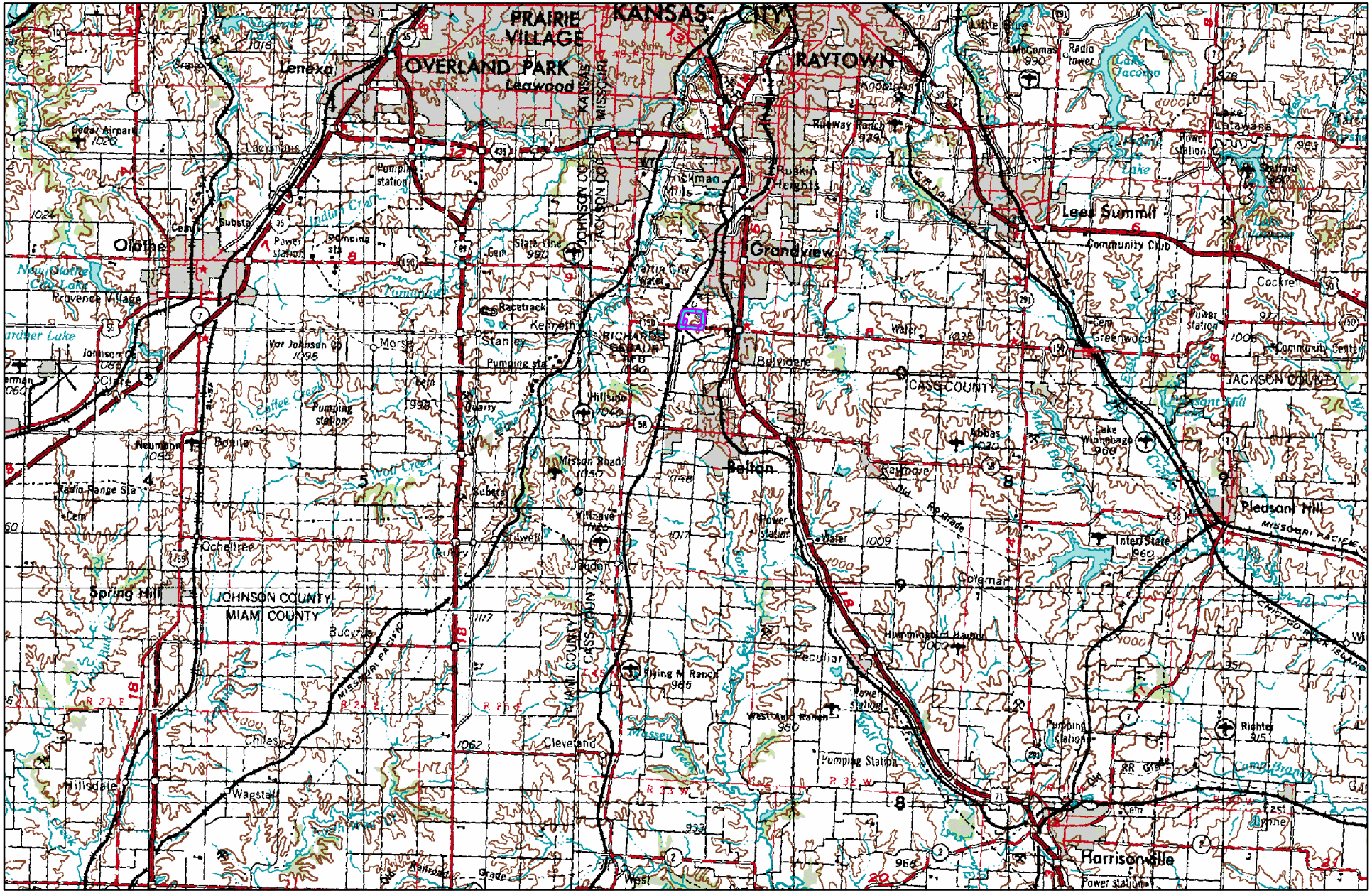


FIGURE 1
SITE VICINITY
Botts Road & MO Hwy 150

(Lawrence USGS 250k Quad)

NORTH

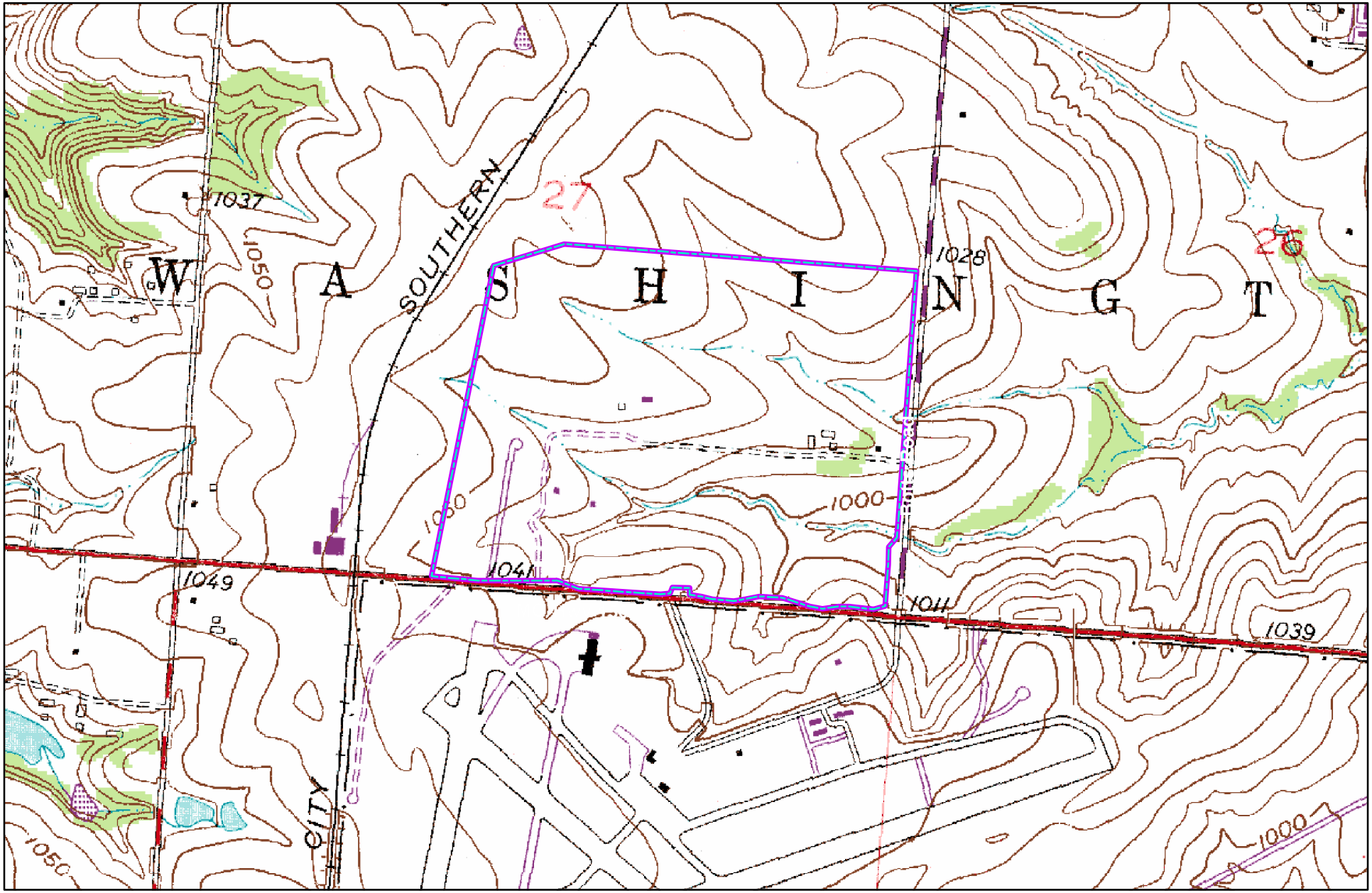
1:250,000

Approximate Project Boundary

ADAPTIVE ECOSYSTEMS, INC.
A NATURAL SOLUTION

2007-107 Botts Road\2007-107 Botts Road JDR\Supporting Materials\Spatial Data\MXD\Fig1SiteVic.mxd

Adaptive Ecosystems, Inc. Project No. 2007-107



NORTH

1,000 Feet

1 " equals 1,000 '

Approximate Project Boundary

FIGURE 2
USGS TOPOGRAPHY

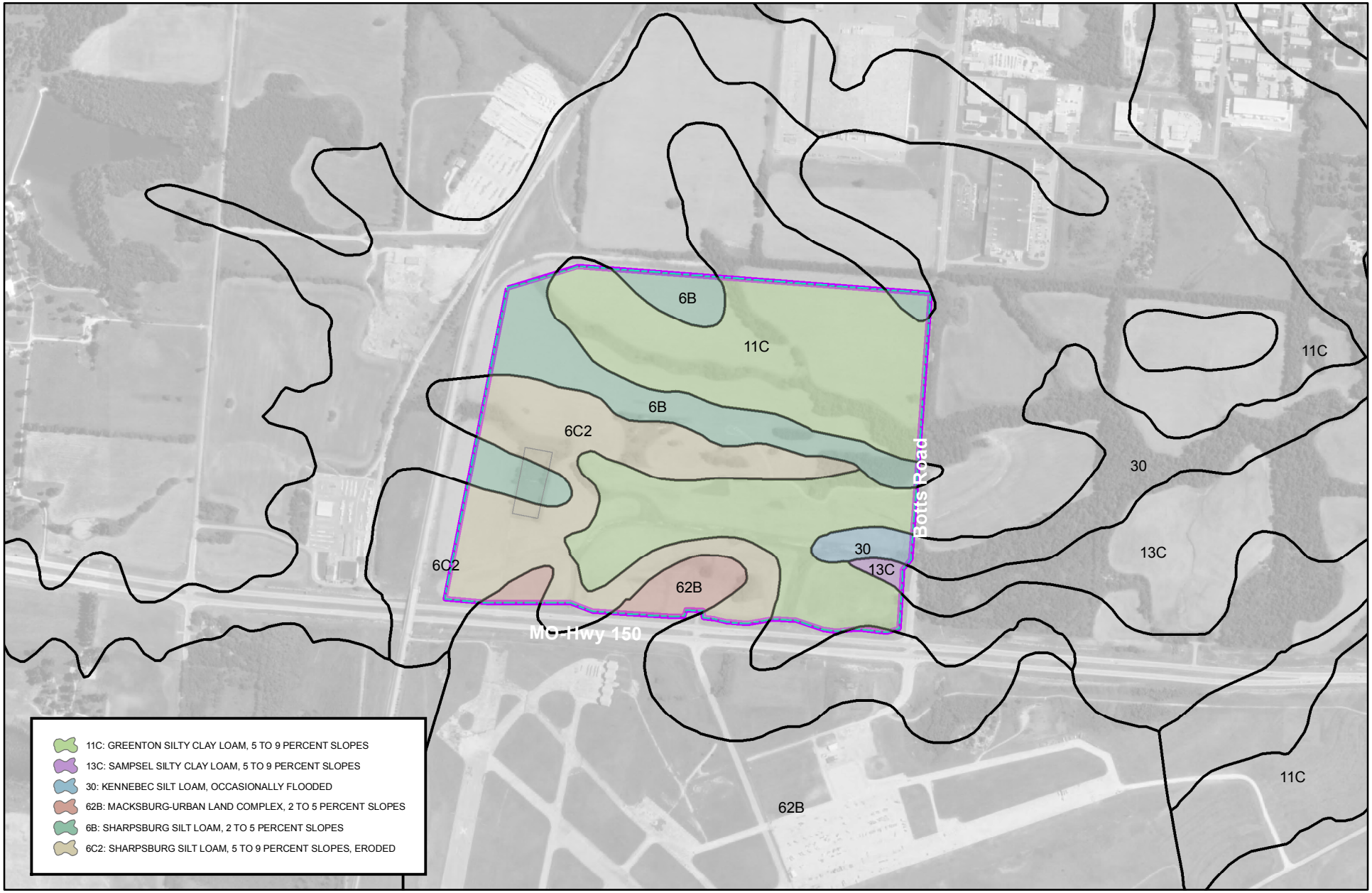
Botts Road & MO Hwy 150

(Belton, MO USGS 7.5' Quad)

ADAPTIVE ECOSYSTEMS, INC.
A NATURAL SOLUTION

2007-107 Botts Road\2007-107 Botts Road JDR\Supporting Materials\Spatial Data\MXD\Fig2USGS.mxd

Adaptive Ecosystems, Inc. Project No. 2007-107



NORTH

1,000 Feet

1 " equals 1,000 '

Approximate Project Boundary

FIGURE 3
JACKSON COUNTY SOIL SURVEY

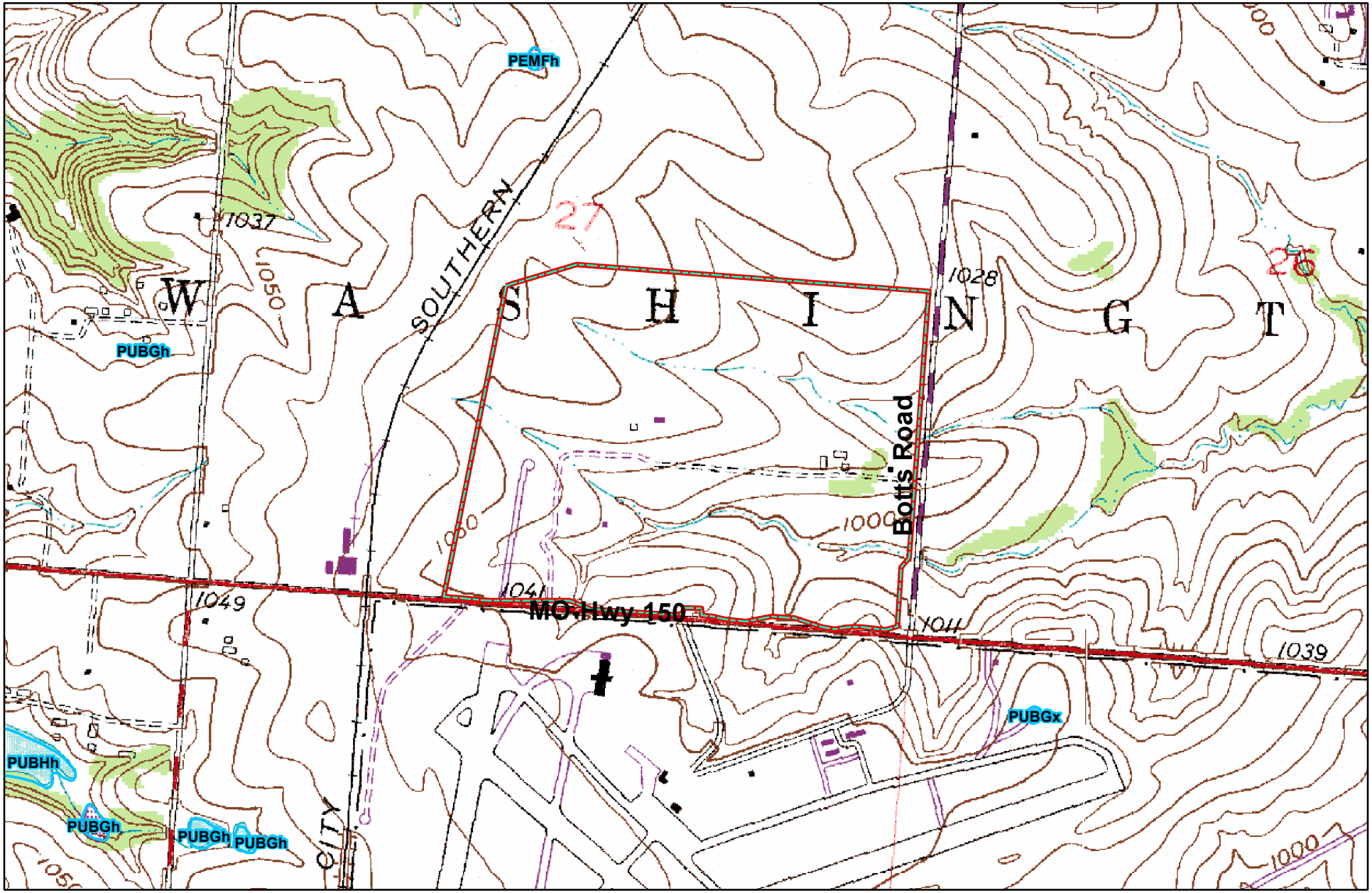
Botts Road & MO Hwy 150

(2006 NAIP aerial photography)

ADAPTIVE ECOSYSTEMS, INC.
A NATURAL SOLUTION

2007-107 Botts Road\2007-107 Botts Road JDR\Supporting Materials\Spatial Data\MXD\Fig3soils.mxd

Adaptive Ecosystems, Inc. Project No. 2007-107



NORTH
1,000 Feet
1 " equals 1,000 '

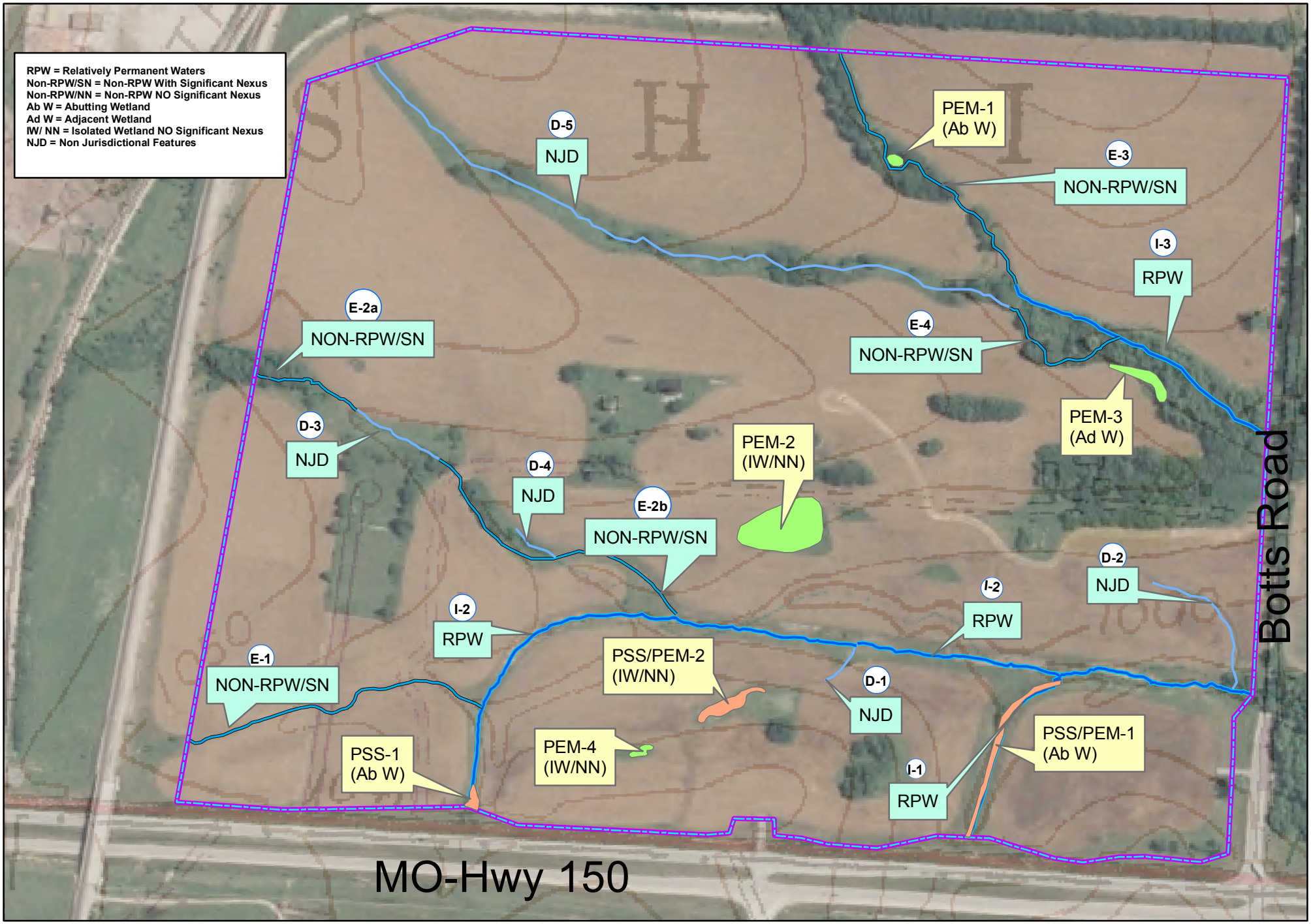
Approximate Project Boundary
NWI

FIGURE 4
NATIONAL WETLAND INVENTORY

Botts Road & MO Hwy 150
(Belton, MO USGS 7.5' Quad)

ADAPTIVE ECOSYSTEMS, INC.
A NATURAL SOLUTION

Adaptive Ecosystems, Inc. Project No. 2007-107



NORTH

500 Feet

1 " equals 396.686588 '

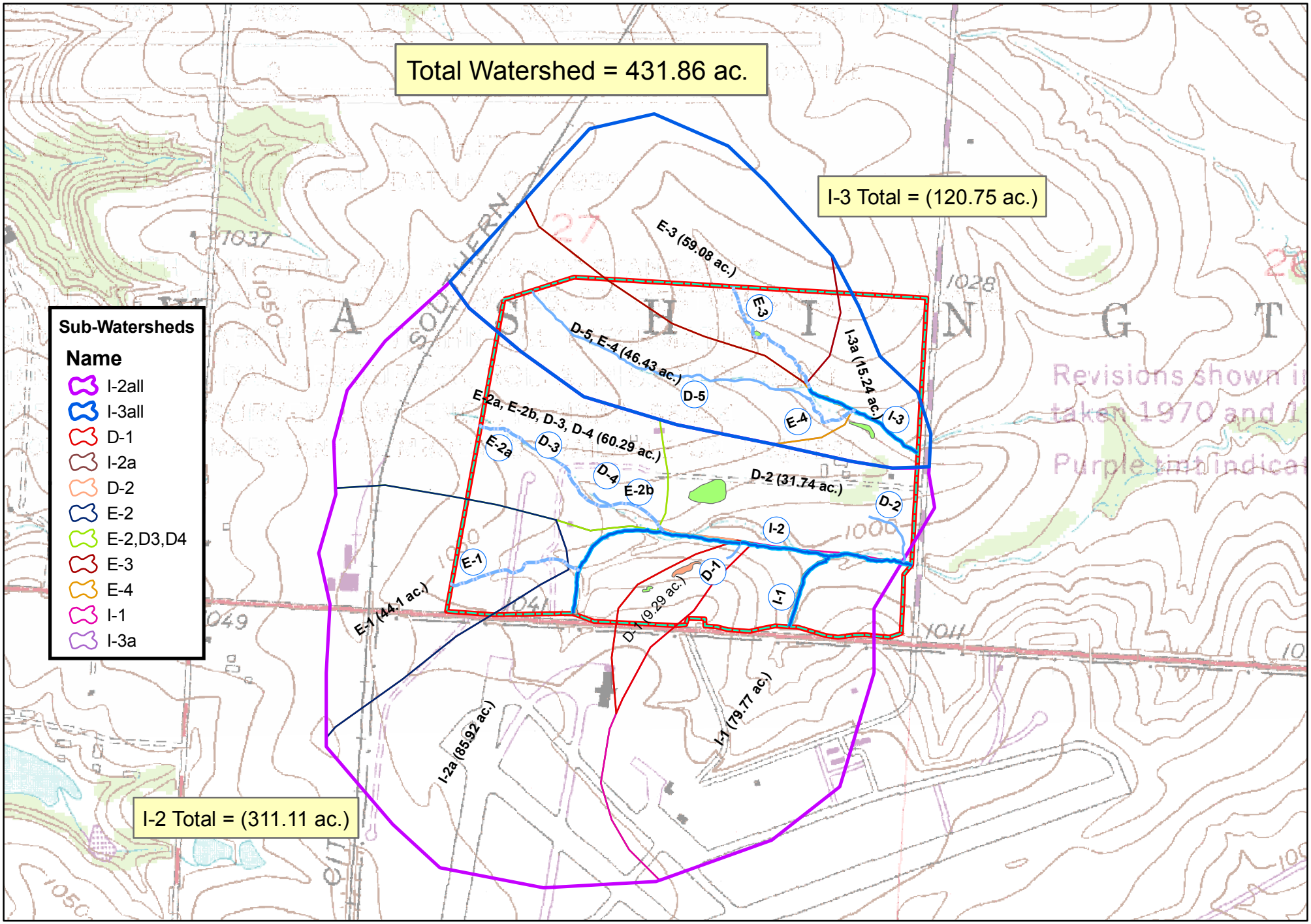
PEM - Palustrine Emergent Marsh
PSS - Palustrine Scrub / Shrub
Drainage (NJD)
Ephemeral (NON-RPW/SN)
Intermittent (RPW)
Approximate Boundary

FIGURE 5
JURISDICTIONAL WATERS
Botts Road & MO Hwy 150
(2006 NAIP aerial photography)

ADAPTIVE ECOSYSTEMS, INC.
A NATURAL SOLUTION

Adaptive Ecosystems, Inc. Project No. 2007-107

2007-107 Botts Road\2007-107 Botts Road JDR\Supporting Materials\Spatial Data\MXD\Fig5JurisdictionalWaters_20070827.mxd



NORTH

500 Feet

1 " equals 917.40709 '

Drainage
Ephemeral (Non-RPW)
Intermittent (RPW)
PEM - Palustrine Emergent Marsh
PSS - Palustrine Scrub / Shrub
Approximate Project Boundary

FIGURE 6
WATERSHED

Botts Road & MO Hwy 150

(Belton, MO USGS 7.5' Quad)

ADAPTIVE ECOSYSTEMS, INC.
A NATURAL SOLUTION

Adaptive Ecosystems, Inc. Project No. 2007-107

2007-107 Botts Road\2007-107 Botts Road JDR\Supporting Materials\Spatial Data\MXD\Fig6Watershed.mxd

Appendix B
Site Photographs

PHOTOLOG

Botts Road JDR	**FEATURE**	I-1	**Photo #:** 1
	DESCRIPTION	Intermittent Tributary	**Direction:**
Date: 15 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	West

Botts Road JDR	**FEATURE**	I-2	**Photo #:** 2
	DESCRIPTION	Intermittent Tributary	**Direction:**
Date: 15 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	West

Botts Road JDR	**FEATURE**	I-3	**Photo #:** 3
	DESCRIPTION	Intermittent Tributary	**Direction:**
Date: 15 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	Northwest

Botts Road JDR	**FEATURE**	E-1	**Photo #:** 4
	DESCRIPTION	Ephemeral Tributary	**Direction:**
Date: 15 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	Northwest

Botts Road JDR	**FEATURE**	E-2a	**Photo #:** 5
	DESCRIPTION	Ephemeral Tributary	**Direction:**
Date: 15 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	West

Botts Road JDR	**FEATURE**	E-2b	**Photo #:** 6
	DESCRIPTION	Ephemeral Tributary	**Direction:**
Date: 15 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	Northwest

Botts Road JDR	**FEATURE**	E-3	**Photo #:** 7
	DESCRIPTION	Ephemeral Tributary	**Direction:**
Date: 15 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	Northwest

Botts Road JDR	**FEATURE**	E-4	**Photo #:** 8
	DESCRIPTION	Ephemeral Tributary	**Direction:**
Date: 15 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	Southeast

Botts Road JDR	**FEATURE**	PEM-1 In	**Photo #:** 9
	DESCRIPTION	Palustrine Emergent Wetland	**Direction:**
Date: 16 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	South

Botts Road JDR	**FEATURE**	PEM-2-1 In	**Photo #:** 10
	DESCRIPTION	Palustrine Emergent Wetland	**Direction:**
Date: 16 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	Southeast

Botts Road JDR	**FEATURE**	PEM-3-1 In	**Photo #:** 11
	DESCRIPTION	Palustrine Emergent Wetland	**Direction:**
Date: 16 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	North

Botts Road JDR	**FEATURE**	PEM-4-1 In	**Photo #:** 12
	DESCRIPTION	Palustrine Emergent Wetland	**Direction:**
Date: 16 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	Northeast

Botts Road JDR	**FEATURE**	PSS/PEM-1-1 In	**Photo #:** 13
	DESCRIPTION	Palustrine Emergent Wetland	**Direction:**
Date: 16 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	North

Botts Road JDR	**FEATURE**	PSS/PEM-2-1 In	**Photo #:** 14
	DESCRIPTION	Palustrine Emergent Wetland	**Direction:**
Date: 16 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	Northeast

Botts Road JDR	**FEATURE**	PSS-1-1 In	**Photo #:** 15
	DESCRIPTION	Palustrine Scrub-shrub Wetland	**Direction:**
Date: 16 Aug 07	**PHOTOGRAPHER**	Chris Thomas, Adaptive Ecosystems, Inc.	North

Appendix C
Data Sheets

Stream Survey Data Sheet

Feature ID: I-1		Unique Site ID: I-1-1	
Project Name and #: Botts Road JDR 2007-107		Daily Photo #:	Photo Direction:
Date: 8-15-07	State: MO	County: Jackson	Delineators: Chris Thomas

Stream Characteristics

Stream Type: ☐Perennial ☒Intermittent ☐Ephemeral ☐Drainage	Stream Classification: ☐TNW ☒Relatively Permanent Water ☐Non-RPW	
Stream Characteristics: ☐Natural ☒Artificial ☐Manipulated	OHWM width: 1.5 ft.	OHWM depth: .5 ft.
Hydrology: ☒Flowing ☐Standing ☐None	Approximate water velocity (fps): 3 fps	
Top of bank to top of bank width: 10 ft.	Top of Bank height: 3 ft.	
Side Slopes: ☐1:1 ☐2:1 ☒3:1 ☐4:1 or >	Stream Bottom Composition: ☒silt ☐sand ☐gravel ☒cobble ☐bedrock ☐concrete ☐muck ☒other: Boulders ☐vegetation (% cover, type):	
Stream Condition/Stability: ☐erosion ☐bank collapse ☐cut-off channels ☐riffles/runs ☐ steep side slopes	Tributary Geometry: ☒Relatively Straight ☐Meandering	
Estimated Flow Events per year: ☐1 ☐2-5 ☐6-10 ☒11-20 ☐20 or >	Surface Flow: ☐Discrete ☐Confined ☒Discrete and Confined ☐Overland Sheet Flow	

Stream has: ☒Bed and Bank
☒OHWM: OHWM has: ☒clear, natural line on bank ☐shelving ☒veg. matted down or absent ☐leaf litter disturbed ☒sediment deposits ☐water staining ☐litter/debris ☒no terrestrial veg. ☐wrack line ☐sediment sorting ☐scour ☐multiple flow events ☐change in plant community ☐other:

Water Color/Quality: ☐Clear ☒Discolored ☒Oily film

Riparian Type: ☒Forested ☒Herbaceous ☐Ag. field	Riparian Buffer Width: 20 ft.

Buffer (adjacent bank) vegetation: Carex sp., Ambrosia artemisifolia, Ulmus americana, Salix nigra, Daucus carota, Populus deltoides

Adjacent and Abutting Wetland/Notes/Drawing

☐Adjacent Wetlands (list and draw):

☒Abutting Wetlands (list and draw): PSS/PEM-1

Report Photolog #:

Stream Survey Data Sheet

Feature ID: I-2		Unique Site ID: I-2-1	
Project Name and #: Botts Road JDR 2007-107		Daily Photo #:	Photo Direction:
Date: 8-15-07	State: MO	County: Jackson	Delineators: Chris Thomas

Stream Characteristics

Stream Type: ☐Perennial ☒Intermittent ☐Ephemeral ☐Drainage	Stream Classification: at least seasonally ☐TNW ☒Relatively Permanent Water ☐Non-RPW	
Stream Characteristics: ☐Natural ☒Artificial ☐Manipulated	OHWM width: 1 ft.	OHWM depth: .25 ft.
Hydrology: ☐Flowing ☐Standing ☒None	Approximate water velocity (fps): N/A	
Top of bank to top of bank width: 6 ft.	Top of Bank height: 2 ft.	
Side Slopes: ☐1:1 ☐2:1 ☒3:1 ☐4:1 or >	Stream Bottom Composition: ☒silt ☐sand ☐gravel ☒cobble ☐bedrock ☐concrete ☐muck ☐other: ☐vegetation (% cover, type):	
Stream Condition/Stability: ☐erosion ☐bank collapse ☐cut-off channels ☐riffles/runs ☐ steep side slopes	Tributary Geometry: ☒Relatively Straight ☐Meandering	
Estimated Flow Events per year: ☐1 ☐2-5 ☐6-10 ☒11-20 ☐20 or >	Surface Flow: ☐Discrete ☒Confined ☐Discrete and Confined ☐Overland Sheet Flow	
Stream has: ☒Bed and Bank ☒OHWM: OHWM has: ☒clear, natural line on bank ☐shelving ☐veg. matted down or absent ☐leaf litter disturbed ☒sediment deposits ☐water staining ☒litter/debris ☐no terrestrial veg. ☐wrack line ☐sediment sorting ☐scour ☐multiple flow events ☐change in plant community ☐other:		
Water Color/Quality: ☐Clear ☐Discolored ☐Oily film N/A		
Riparian Type: ☐Forested ☒Herbaceous ☐Ag. field	Riparian Buffer Width: 10 ft.	
Buffer (adjacent bank) vegetation: Ambrosia artemisifolia, Setaria verdii, Sorghum halepense, Daucus carota, Salix nigra		

Adjacent and Abutting Wetland/Notes/Drawing

☐Adjacent Wetlands (list and draw):

☒Abutting Wetlands (list and draw): PSS-1

Report Photolog #:

Stream Survey Data Sheet

Feature ID: I-3		Unique Site ID: I-3-1	
Project Name and #: Botts Road JDR 2007-107		Daily Photo #:	Photo Direction:
Date: 8-15-07	State: MO	County: Jackson	Delineators: Chris Thomas

Stream Characteristics

Stream Type: ☐Perennial ☒Intermittent ☐Ephemeral ☐Drainage	Stream Classification: seasonal ☐TNW ☒Relatively Permanent Water ☐Non-RPW	
Stream Characteristics: ☒Natural ☐Artificial ☐Manipulated	OHWM width: 2 ft.	OHWM depth: .75 ft.
Hydrology: ☐Flowing ☒Standing ☐None	Approximate water velocity (fps): 3	
Top of bank to top of bank width: 6 ft.	Top of Bank height: 3 ft.	
Side Slopes: ☐1:1 ☐2:1 ☒3:1 ☐4:1 or >	Stream Bottom Composition: ☒silt ☐sand ☐gravel ☒cobble ☐bedrock ☐concrete ☐muck ☐other: ☐vegetation (% cover, type):	
Stream Condition/Stability: ☐erosion ☐bank collapse ☐cut-off channels ☐riffles/runs ☐ steep side slopes	Tributary Geometry: ☐Relatively Straight ☒Meandering	
Estimated Flow Events per year: ☐1 ☐2-5 ☐6-10 ☒11-20 ☐20 or >	Surface Flow: ☐Discrete ☒Confined ☐Discrete and Confined ☐Overland Sheet Flow	

Stream has: ☒Bed and Bank
☒OHWM: OHWM has: ☒clear, natural line on bank ☐shelving ☒veg. matted down or absent ☐leaf litter disturbed ☒sediment deposits ☐water staining ☒litter/debris ☐no terrestrial veg. ☐wrack line ☐sediment sorting ☐scour ☐multiple flow events ☐change in plant community ☐other:

Water Color/Quality: ☐Clear ☒Discolored ☐Oily film

Riparian Type: ☒Forested ☐Herbaceous ☐Ag. field	Riparian Buffer Width: 20 ft.

Buffer (adjacent bank) vegetation: Ulmus americana, Vites sp., Ambrosia astemisifolia, Juglans nigra, Salix nigra, Populus deltoides, Elymus virginicum, Lonicera maackii, Symphoricarpos orbiculatus,

Adjacent and Abutting Wetland/Notes/Drawing

☒Adjacent Wetlands (list and draw): PEM-3

☐Abutting Wetlands (list and draw):

Bed is muddy with spots of standing water after 2+ weeks of no rain and 90º+ temperatures.

Report Photolog #:

Stream Survey Data Sheet

Feature ID: E-1		Unique Site ID: E-1-1	
Project Name and #: Botts Road JDR 2007-107		Daily Photo #:	Photo Direction:
Date: 8-15-07	State: MO	County: Jackson	Delineators: Chris Thomas

Stream Characteristics

Stream Type: ☐Perennial ☐Intermittent ☒Ephemeral ☐Drainage	Stream Classification: ☐TNW ☐Relatively Permanent Water ☒Non-RPW	
Stream Characteristics: ☒Natural ☐Artificial ☐Manipulated	OHWM width: 2 ft.	OHWM depth: .5 ft.
Hydrology: ☐Flowing ☐Standing ☒None	Approximate water velocity (fps):	
Top of bank to top of bank width: 3 ft.	Top of Bank height: 1.5 ft.	
Side Slopes: ☐1:1 ☐2:1 ☐3:1 ☒4:1 or >	Stream Bottom Composition: ☒silt ☐sand ☐gravel ☒cobble ☐bedrock ☐concrete ☐muck ☐other: ☐vegetation (% cover, type):	
Stream Condition/Stability: ☐erosion ☐bank collapse ☐cut-off channels ☐riffles/runs ☐ steep side slopes	Tributary Geometry: ☐Relatively Straight ☒Meandering	
Estimated Flow Events per year: ☐1 ☐2-5 ☐6-10 ☒11-20 ☐20 or >	Surface Flow: ☐Discrete ☐Confined ☒Discrete and Confined ☐Overland Sheet Flow	
Stream has: ☒Bed and Bank ☒OHWM: OHWM has: ☒clear, natural line on bank ☐shelving ☐veg. matted down or absent ☐leaf litter disturbed ☒sediment deposits ☐water staining ☒litter/debris ☐no terrestrial veg. ☐wrack line ☐sediment sorting ☐scour ☐multiple flow events ☐change in plant community ☐other:		
Water Color/Quality: ☐Clear ☐Discolored ☐Oily film		
Riparian Type: ☐Forested ☐Herbaceous ☒Ag. field	Riparian Buffer Width: 50 ft. ag field	
Buffer (adjacent bank) vegetation: soy beans		

Adjacent and Abutting Wetland/Notes/Drawing

☐Adjacent Wetlands (list and draw):

☐Abutting Wetlands (list and draw):

Report Photolog #:

Stream Survey Data Sheet

Feature ID: E-2a		Unique Site ID: E-2a-1	
Project Name and #: Botts Road JDR 2007-107		Daily Photo #:	Photo Direction:
Date: 8-15-07	State: MO	County: Jackson	Delineators: Chris Thomas

Stream Characteristics

Stream Type: ☐Perennial ☐Intermittent ☒Ephemeral ☐Drainage	Stream Classification: ☐TNW ☐Relatively Permanent Water ☒Non-RPW	
Stream Characteristics: ☒Natural ☐Artificial ☐Manipulated	OHWM width: .5 ft.	OHWM depth: .25 ft.
Hydrology: ☐Flowing ☐Standing ☒None	Approximate water velocity (fps):	
Top of bank to top of bank width: 1.5 ft.	Top of Bank height: .75 ft.	
Side Slopes: ☐1:1 ☐2:1 ☐3:1 ☒4:1 or >	Stream Bottom Composition: ☒silt ☐sand ☐gravel ☐cobble ☐bedrock ☐concrete ☐muck ☐other: ☐vegetation (% cover, type):	
Stream Condition/Stability: ☐erosion ☐bank collapse ☒cut-off channels ☐riffles/runs ☐ steep side slopes	Tributary Geometry: ☐Relatively Straight ☒Meandering	
Estimated Flow Events per year: ☐1 ☐2-5 ☒6-10 ☐11-20 ☐20 or >	Surface Flow: ☐Discrete ☐Confined ☒Discrete and Confined ☐Overland Sheet Flow	
Stream has: ☒Bed and Bank ☒OHWM: OHWM has: ☒clear, natural line on bank ☐shelving ☒veg. matted down or absent ☐leaf litter disturbed ☐sediment deposits ☐water staining ☐litter/debris ☒no terrestrial veg. ☐wrack line ☐sediment sorting ☐scour ☐multiple flow events ☐change in plant community ☐other:		
Water Color/Quality: ☐Clear ☐Discolored ☐Oily film		
Riparian Type: ☒Forested ☒Herbaceous ☐Ag. field	Riparian Buffer Width: Fo – 50 ft. He – 50 ft	
Buffer (adjacent bank) vegetation: Forested – Celtis occidentalis, Fraxinus pennsylvanica, Gleditsia triacanthos, Vites sp, Elymus virginicum		
Herbaceous – Phalaris arundinacea		

Adjacent and Abutting Wetland/Notes/Drawing

☐Adjacent Wetlands (list and draw):

☐Abutting Wetlands (list and draw):

Report Photolog #:

Stream Survey Data Sheet

Feature ID: E-2b		Unique Site ID: E-2b-1	
Project Name and #: Botts Road JDR 2007-107		Daily Photo #:	Photo Direction:
Date: 8-15-07	State: MO	County: Jackson	Delineators: Chris Thomas

Stream Characteristics

Stream Type: ☐Perennial ☐Intermittent ☒Ephemeral ☐Drainage	Stream Classification: ☐TNW ☐Relatively Permanent Water ☒Non-RPW	
Stream Characteristics: ☐Natural ☐Artificial ☒Manipulated	OHWM width: 1 ft.	OHWM depth: .5 ft.
Hydrology: ☐Flowing ☐Standing ☒None	Approximate water velocity (fps):	
Top of bank to top of bank width: 2 ft.	Top of Bank height: 1 ft.	
Side Slopes: ☐1:1 ☐2:1 ☒3:1 ☐4:1 or >	Stream Bottom Composition: ☒silt ☐sand ☐gravel ☒cobble ☐bedrock ☐concrete ☐muck ☐other: ☐vegetation (% cover, type):	
Stream Condition/Stability: ☐erosion ☐bank collapse ☒cut-off channels ☐riffles/runs ☐ steep side slopes	Tributary Geometry: ☒Relatively Straight ☐Meandering	
Estimated Flow Events per year: ☐1 ☐2-5 ☒6-10 ☐11-20 ☐20 or >	Surface Flow: ☐Discrete ☐Confined ☒Discrete and Confined ☐Overland Sheet Flow	

Stream has: ☒Bed and Bank
☒OHWM: OHWM has: ☐clear, natural line on bank ☐shelving ☒veg. matted down or absent ☒leaf litter disturbed ☒sediment deposits ☐water staining ☒litter/debris ☒no terrestrial veg. ☐wrack line ☐sediment sorting ☐scour ☐multiple flow events ☐change in plant community ☐other:

Water Color/Quality: ☐Clear ☐Discolored ☐Oily film

Riparian Type: ☐Forested ☒Herbaceous ☐Ag. field	Riparian Buffer Width: 20 ft.

Buffer (adjacent bank) vegetation: Sorghum halepense, Daucus carota, Sericea lespedeza, Ambrosia artemisifolia

Adjacent and Abutting Wetland/Notes/Drawing

☐Adjacent Wetlands (list and draw):
None

☐Abutting Wetlands (list and draw):

Report Photolog #:

Stream Survey Data Sheet

Feature ID: E-3		Unique Site ID: E-3-1	
Project Name and #: Botts Road JDR 2007-107		Daily Photo #:	Photo Direction:
Date: 8-15-07	State: MO	County: Jackson	Delineators: Chris Thomas

Stream Characteristics

Stream Type: ☐Perennial ☐Intermittent ☒Ephemeral ☐Drainage	Stream Classification: ☐TNW ☐Relatively Permanent Water ☒Non-RPW	
Stream Characteristics: ☒Natural ☐Artificial ☐Manipulated	OHWM width: 1 ft.	OHWM depth: .5 ft.
Hydrology: ☐Flowing ☐Standing ☒None	Approximate water velocity (fps):	
Top of bank to top of bank width: 3 ft.	Top of Bank height: 2 ft.	
Side Slopes: ☐1:1 ☐2:1 ☒3:1 ☐4:1 or >	Stream Bottom Composition: ☒silt ☐sand ☐gravel ☐cobble ☐bedrock ☐concrete ☐muck ☐other: ☐vegetation (% cover, type):	
Stream Condition/Stability: ☐erosion ☐bank collapse ☐cut-off channels ☐riffles/runs ☐ steep side slopes	Tributary Geometry: ☐Relatively Straight ☒Meandering	
Estimated Flow Events per year: ☐1 ☐2-5 ☒6-10 ☐11-20 ☐20 or >	Surface Flow: ☐Discrete ☒Confined ☐Discrete and Confined ☐Overland Sheet Flow	
Stream has: ☒Bed and Bank ☐OHWM: OHWM has: ☒clear, natural line on bank ☐shelving ☒veg. matted down or absent ☐leaf litter disturbed ☐sediment deposits ☐water staining ☐litter/debris ☒no terrestrial veg. ☐wrack line ☐sediment sorting ☐scour ☐multiple flow events ☐change in plant community ☐other:		
Water Color/Quality: ☐Clear ☐Discolored ☐Oily film		
Riparian Type: ☒Forested ☐Herbaceous ☐Ag. field	Riparian Buffer Width: 15 ft.	
Buffer (adjacent bank) vegetation: Ulmus americana, Vites sp., Ambrosia astemisifolia, Juglans nigra, Salix nigra, Populus deltoides, Elymus virginicum, Lonicera maackii, Symphoricarpos orbiculatus, Phalaris arundinacea		

Adjacent and Abutting Wetland/Notes/Drawing

☐Adjacent Wetlands (list and draw):

☒Abutting Wetlands (list and draw): PEM-1

Report Photolog #:

Stream Survey Data Sheet

Feature ID: E-4		Unique Site ID: E-4-1	
Project Name and #: Botts Road JDR 2007-107		Daily Photo #:	Photo Direction:
Date: 8-15-07	State: MO	County: Jackson	Delineators: Chris Thomas

Stream Characteristics

Stream Type: ☐Perennial ☐Intermittent ☒Ephemeral ☐Drainage	Stream Classification: ☐TNW ☐Relatively Permanent Water ☒Non-RPW	
Stream Characteristics: ☒Natural ☐Artificial ☐Manipulated	OHWM width: 1.5 ft.	OHWM depth: 1 ft.
Hydrology: ☐Flowing ☐Standing ☒None	Approximate water velocity (fps):	
Top of bank to top of bank width: 4 ft.	Top of Bank height: 3 ft.	
Side Slopes: ☐1:1 ☐2:1 ☒3:1 ☐4:1 or >	Stream Bottom Composition: ☒silt ☐sand ☒gravel ☒cobble ☐bedrock ☐concrete ☐muck ☐other: ☐vegetation (% cover, type):	
Stream Condition/Stability: ☐erosion ☐bank collapse ☐cut-off channels ☐riffles/runs ☐ steep side slopes	Tributary Geometry: ☐Relatively Straight ☒Meandering	
Estimated Flow Events per year: ☐1 ☐2-5 ☒6-10 ☐11-20 ☐20 or >	Surface Flow: ☐Discrete ☐Confined ☒Discrete and Confined ☐Overland Sheet Flow	
Stream has: ☒Bed and Bank ☒OHWM: OHWM has: ☐clear, natural line on bank ☐shelving ☒veg. matted down or absent ☐leaf litter disturbed ☐sediment deposits ☐water staining ☒litter/debris ☒no terrestrial veg. ☐wrack line ☐sediment sorting ☐scour ☐multiple flow events ☐change in plant community ☐other:		
Water Color/Quality: ☐Clear ☐Discolored ☐Oily film		
Riparian Type: ☒Forested ☐Herbaceous ☐Ag. field	Riparian Buffer Width: 20 ft.	
Buffer (adjacent bank) vegetation: Ulmus americana, Salix nigra, Gleditisia triacanthos, Acer saccharinum, Populus deltiodes, Elymus virginicum		

Adjacent and Abutting Wetland/Notes/Drawing

☐Adjacent Wetlands (list and draw):

☐Abutting Wetlands (list and draw):

Report Photolog #:

Wetland Data Sheets

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO

Do Normal Circumstances exist on the site?	☒ Yes	☐ No	Community ID:	PEM 1-1
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Transect ID:	
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes	☒ No	Plot ID:	DP# 1 - In

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Phalaris arundinacea	H	FACW+	8			
2	Polygonum pensylvanicum	H	FACW	9			
3	Cornus drummondii	S	FAC	10			
4				11			
5				12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 67%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: None (In.)
- Depth to Free Water in Pit: None (In.)
- Depth to Saturated Soil: N/A (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☒ Drift Lines
- ☒ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12”
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☒ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Greenton silty clay loam, 5 to 9 percent
Taxonomy (Subgroup):

Drainage Class: somewhat poorly *Circle*
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
10		2.5 YR 4/2			
10-14		10 YR 3/2	10 YR 4/6	5%	SCL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is this Sampling Point Within a Wetland?	☒ Yes	☐ No
Wetland Hydrology Present?	☒ Yes	☐ No			
Hydric Soils Present?	☒ Yes	☐ No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☒abuts is ☐adjacent to) tributary:E-3
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO

Do Normal Circumstances exist on the site?	☒	Yes	☐	No	Community ID: PEM 1-2
Is the site significantly disturbed (Atypical Situation)?	☐	Yes	☒	No	Transect ID:
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐	Yes	☒	No	Plot ID: DP# 2- Out

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Phalaris arundinacea	H	FACW-	8			
2	Vitis vulpine	V	FACW-	9			
3	Phytolacca Americana	H	FAC-	10			
4	Polygonum pennsylvanicum	H	FACW	11			
5	Cornus drummondi	S	FAC	12			
6	Gleditsia triacanthos	T	FAC	13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 83%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: N/A (In.)
- Depth to Free Water in Pit: N/A (In.)
- Depth to Saturated Soil: N/A (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12”
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Greenton silty clay loam, 5 to 9 percent
Taxonomy (Subgroup):

Drainage Class: somewhat poorly *Circle*
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-15		2.5 YR 4/2			
15-20		10 YR 3/2			

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks: No mottles

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒	Yes	☐	No	Is this Sampling Point Within a Wetland?	☐	Yes
Wetland Hydrology Present?	☐	Yes	☒	No		☒	No
Hydric Soils Present?	☐	Yes	☒	No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☐abuts is ☐adjacent to) tributary:_____
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO

Do Normal Circumstances exist on the site?	☒	Yes	☐	No	Community ID: PEM 2-1
Is the site significantly disturbed (Atypical Situation)?	☐	Yes	☒	No	Transect ID:
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐	Yes	☒	No	Plot ID: DP# 1-In

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Cyperus esculentus	H	FACW	8			
2	Abutilon theophrasti	H	FACU-	9			
3	Ambrosia artemisifolia	H	FACU	10			
4	Polygonum pensylvanicum	H	FACW	11			
5	Carex lupulina	H	OBL	12			
6	Ammania coccinea	H	OBL	13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 67%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: N/A (In.)
- Depth to Free Water in Pit: N/A (In.)
- Depth to Saturated Soil: N/A (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☒ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12"
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☒ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks Farmed

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Greenton silty clay loam, 5 to 9 percent
Taxonomy (Subgroup):

Drainage Class: somewhat poorly *Circle*
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-20		7.5 YR 3/1	10 YR 4/6	5%	SCL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks: No mottles

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒	Yes	☐	No	Is this Sampling Point Within a Wetland?	☒	Yes ☐ No
Wetland Hydrology Present?	☒	Yes	☐	No			
Hydric Soils Present?	☒	Yes	☐	No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☐abuts is ☐adjacent to) tributary:_____
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Keving Slates	State:	MO

			Community ID:	PEM 2-2
Do Normal Circumstances exist on the site?	☒ Yes	☐ No	Transect ID:	
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Plot ID:	DP# 2-Out
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes	☒ No		

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Phalaris arundinacea	H	FACW-	8			
2	Setaria virdis	H	UPL	9			
3	Andropogon virginicus	H	FAC-	10			
4	Bromus tectorum	H	UPL	11			
5				12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 25%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: N/A (In.)
- Depth to Free Water in Pit: N/A (In.)
- Depth to Saturated Soil: N/A (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12"
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Greenton silty clay loam, 5 to 9 percent
Taxonomy (Subgroup):

Drainage Class: somewhat poorly *Circle*
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-8		10 YR 3/4			

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks: Refosal @ 8"

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes	☒ No	Is this Sampling Point Within a Wetland? ☐ Yes ☒ No
Wetland Hydrology Present?	☐ Yes	☒ No	
Hydric Soils Present?	☐ Yes	☒ No	

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☐abuts is ☐adjacent to) tributary:_____
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO

Do Normal Circumstances exist on the site?	☒ Yes	☐ No	Community ID:	PEM – 3
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Transect ID:	
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes	☒ No	Plot ID:	DP# 1 - In

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Carex sp.	H		8			
2	Cyperus esculentus	H	FACW	9			
3	Polygonums sp.	H		10			
4	Amaranthus albus	H	FACU	11			
5	Ambrosia artemisifolia	H	FACU	12			
6	Elymus virginicus	H	FACW-	13			
7	Acer saccharinum	T	FACW	14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 60%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: None (In.)
- Depth to Free Water in Pit: None (In.)
- Depth to Saturated Soil: None (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☒ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12”
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☒ FAC-Neutral Test
- ☒ Other (explain in remarks)
  Presence of Crayfish

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Greenton silty clay loam, 5-9 percent slopes
Taxonomy (Subgroup):

Drainage Class: somewhat poorly *Circle*
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-22		10 YR 2/1			SCL
23-26		10YR 2/1	10YR 4/4	5%	CL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks: 0-12” soil from Ag field. 12”-below native soil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is this Sampling Point Within a Wetland?	☒ Yes	☐ No
Wetland Hydrology Present?	☒ Yes	☐ No			
Hydric Soils Present?	☒ Yes	☐ No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☐abuts is ☒adjacent to) tributary: I-3
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☒separated by berm/barrier (explain): separated by tilled up soil due to ag practices

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO
Do Normal Circumstances exist on the site?	☐ Yes ☐ No	Community ID:	PEM – 3
Is the site significantly disturbed (Atypical Situation)?	☐ Yes ☐ No	Transect ID:	
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes ☐ No	Plot ID:	DP# 2 - Out

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Sorghum halepense	H	FACU	8			
2	Abutilon theophrasti	H	FACU-	9			
3	Acer saccharinum	T	FACW	10			
4	Acer negundo	T	FACW-	11			
5				12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 50%

Remarks: Farmed

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: N/A (In.)
- Depth to Free Water in Pit: N/A (In.)
- Depth to Saturated Soil: N/A (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12”
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Greenston silty clay loam, 5 to 9 percent
Taxonomy (Subgroup):

Drainage Class: somewhat poorly
Field Observations Confirm Mapped Type? Yes No *(Circle)*

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-12		10 YR 2/1			SL
12-24		10 YR 2/1	10 YR 4/4	5%	SL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes	☒ No	Is this Sampling Point Within a Wetland?	☐ Yes	☒ No
Wetland Hydrology Present?	☐ Yes	☒ No			
Hydric Soils Present?	☒ Yes	☐ No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☐abuts is ☐adjacent to) tributary:_____
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO
Do Normal Circumstances exist on the site?	☒ Yes ☐ No	Community ID:	PEM 4-1
Is the site significantly disturbed (Atypical Situation)?	☐ Yes ☒ No	Transect ID:	
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes ☒ No	Plot ID:	DP# 1-In

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Ambrosia artemisifolia	H	FACU	8			
2	Polygonum hydropiper	H	OBL	9			
3	Carex lupulina	H	OBL	10			
4	Cyperus esculentus	H	FACW	11			
5	Ammania coccinea	H	OBL	12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 80%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: _____ (In.)
- Depth to Free Water in Pit: _____ (In.)
- Depth to Saturated Soil: _____ (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☒ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12”
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☒ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Sharpsburg silt loam, 5 to 9 percent
Taxonomy (Subgroup):

Drainage Class: moderately well drained *Circle*
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-6		10YR 3/1			SL
6-15		7 YR 2.5/1	7.5 YR 3/2	5%	SL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is this Sampling Point Within a Wetland?	☒ Yes	☐ No
Wetland Hydrology Present?	☒ Yes	☐ No			
Hydric Soils Present?	☒ Yes	☐ No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☐abuts is ☐adjacent to) tributary:_____
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO

Do Normal Circumstances exist on the site?	☒ Yes	☐ No	Community ID:	PEM 4-2
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Transect ID:	
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes	☒ No	Plot ID:	DP# 2-Out

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Polygonum pennsylvanicum	H	FACW	8			
2	Cyperus esculentus	H	FACW	9			
3	Ambrosia artemisifolia	H	FACU	10			
4				11			
5				12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 67%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: _____ (In.)
- Depth to Free Water in Pit: _____ (In.)
- Depth to Saturated Soil: _____ (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12"
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): _____
Taxonomy (Subgroup): _____

Drainage Class: *Circle*
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-10		10 YR 3-1			
		7 YR 2.5/1	7.5 YR 3.2	5%	SCL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is this Sampling Point Within a Wetland?	☐ Yes ☒ No
Wetland Hydrology Present?	☐ Yes	☒ No		
Hydric Soils Present?	☒ Yes	☐ No		

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Lacks sedimentation as compared to IN-point. Potentially cropped during dry years.

Wetland (☐abuts is ☐adjacent to) tributary:_____
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-15-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO

			Community ID:	PSS 1 -1
Do Normal Circumstances exist on the site?	☒ Yes	☐ No		
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Transect ID:	
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes	☒ No	Plot ID:	DP# 1-In

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Salix nigra	S	OBL	8			
2	Populus deltoides	S	FAC+	9			
3	Typha latifolia	H	OBL	10			
4	Cyperus esculentus	H	FACW	11			
5				12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 75%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: 2 (In.)
- Depth to Free Water in Pit: 5 (In.)
- Depth to Saturated Soil: _____ (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☒ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12"
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☒ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Sharpsburg silt loam, 5 to 9 percent slopes
Taxonomy (Subgroup): _____

Drainage Class: moderately well
Field Observations Confirm Mapped Type? Yes No *(Circle)*

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-10		10YR 2/1			
10+		10 YR 3/2	10 YR 4/4	10%	

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is this Sampling Point Within a Wetland?	☒ Yes	☐ No
Wetland Hydrology Present?	☒ Yes	☐ No			
Hydric Soils Present?	☒ Yes	☐ No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☒abuts is ☐adjacent to) tributary: I-2
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO

			Community ID:	PSS 1 -2
Do Normal Circumstances exist on the site?	☒ Yes	☐ No		
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Transect ID:	
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes	☒ No	Plot ID:	DP# 2-Out

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Cirsium arvense	H	UPL	8			
2	Bromus tectorum	H	UPL	9			
3	Polygonum pennsylvanicum	H	FACW	10			
4	Cyperus esculentus	H	FACW	11			
5				12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 50%

Remarks: Excavated hillside

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: None (In.)
- Depth to Free Water in Pit: N/A (In.)
- Depth to Saturated Soil: N/A (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12”
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks No hydrology

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Sharpsburg silt loam, 5 to 9 percent slopes
Taxonomy (Subgroup):

Drainage Class: moderately well
Field Observations Confirm Mapped Type? Yes No *(Circle)*

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-2		2.5 YR 2.5/1			SL
2-12		10 YR ¾			SL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks: Excavated hillside, unusual soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes	☒ No	Is this Sampling Point Within a Wetland?	☐ Yes	☒ No
Wetland Hydrology Present?	☐ Yes	☒ No			
Hydric Soils Present?	☒ Yes	☐ No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☐abuts is ☐adjacent to) tributary:_____
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO

			Community ID:	PSS/PEM-1-1
Do Normal Circumstances exist on the site?	☒ Yes	☐ No		
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Transect ID:	
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes	☒ No	Plot ID:	DP# 1-In

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Salix nigra	S	OBL	8			
2	Populus deltoids	S	FAC+	9			
3	Sorghum halepense	H	FACU	10			
4	Typha latifolia	H	OBL	11			
5				12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 75%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: _____ (In.)
- Depth to Free Water in Pit: _____ (In.)
- Depth to Saturated Soil: _____ (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☒ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12"
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☒ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Greenton silty clay loam, 5 to 9 percent
Taxonomy (Subgroup):

Drainage Class: somewhat poorly
Field Observations Confirm Mapped Type? Yes No *(Circle)*

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-6		10 YR 2/1	10 YR 4/3, 5 YR 4/6	40%, 10%	SCL
6-12		10 YR 2/1			SCL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is this Sampling Point Within a Wetland?	☒ Yes	☐ No
Wetland Hydrology Present?	☒ Yes	☐ No			
Hydric Soils Present?	☒ Yes	☐ No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☒abuts is ☐adjacent to) tributary: I-1
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO

Do Normal Circumstances exist on the site?	☒ Yes	☐ No	Community ID:	PSS/PEM 1-2
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Transect ID:	
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes	☒ No	Plot ID:	DP# 2-Out

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Festuca arundinacea	H	FACU+	8			
2	Setaria faberii	H	FACU+	9			
3	Convolvulus arvensis	V	UPL	10			
4				11			
5				12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: _____ (In.)
- Depth to Free Water in Pit: _____ (In.)
- Depth to Saturated Soil: _____ (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12"
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Greenton silty clay loam, 5 to 9 percent
Taxonomy (Subgroup):

Drainage Class: somewhat poorly *Circle*
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-8		10 YR 2/2			SL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks: No mottles

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes	☒ No	Is this Sampling Point Within a Wetland?	☒ Yes	☐ No
Wetland Hydrology Present?	☐ Yes	☒ No			
Hydric Soils Present?	☒ Yes	☐ No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☐abuts is ☐adjacent to) tributary:_____
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO
Do Normal Circumstances exist on the site?	☒ Yes ☐ No	Community ID:	PSS/PEM 2-1
Is the site significantly disturbed (Atypical Situation)?	☐ Yes ☒ No	Transect ID:	
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes ☒ No	Plot ID:	DP# 1-In

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Cyperus esculentus	H	FACW	8			
2	Salix nigra	S	OBL	9			
3	Populus deltoides	S	FAC+	10			
4	Typha latifolia	H	OBL	11			
5				12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 75%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: _____ (In.)
- Depth to Free Water in Pit: _____ (In.)
- Depth to Saturated Soil: _____ (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☒ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12"
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☒ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Sharpsburg silt loam, 5 to 9 percent slopes
Taxonomy (Subgroup):

Drainage Class: moderately well
Field Observations Confirm Mapped Type? Yes No *(Circle)*

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-5		7.5 YR 3/1	10 YR 4/4	10%	SL
5-12		7/5 YR 2.5/1	7.5 YR 4/6	5%	SCL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is this Sampling Point Within a Wetland?	☒ Yes	☐ No
Wetland Hydrology Present?	☒ Yes	☐ No			
Hydric Soils Present?	☒ Yes	☐ No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☐abuts is ☐adjacent to) tributary:_____
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site:	Botts Road JDR	Date:	8-16-07
Applicant/Owner:	Piper-Wind Architects, Inc.	County:	Jackson
Investigator:	Chris Thomas & Kevin Slates	State:	MO

			Community ID:	PSS/PEM 2-2
Do Normal Circumstances exist on the site?	☒ Yes	☐ No	Transect ID:	
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Plot ID:	DP# 2-Out
Is Area a Potential Problem Area? *(if needed, explain on reverse)*	☐ Yes	☒ No		

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Setaria faberii	H	FACU+	8			
2	Ambrosia artemisifolia	H	FACU	9			
3	Abutilon theophrasti	H	FACU-	10			
4	Cyperus esculentus	H	FACW	11			
5	Xanthium strumarium	H	FAC	12			
6				13			
7				14			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 40%

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No recorded data available

Field Observations:
- Depth of Surface Water: _____ (In.)
- Depth to Free Water in Pit: _____ (In.)
- Depth to Saturated Soil: _____ (In.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12"
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)

Remarks

Water color is ☐clear ☐brown ☐oily

SOILS

Map Unit Name (Series and Phase): Sharpsburg silt loam, 5 to 9 percent slopes
Taxonomy (Subgroup):

Drainage Class: moderately well
Field Observations Confirm Mapped Type? Yes No *(Circle)*

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-8		10 yr 2/1			SCL

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ Organic Streaking in Sandy Soils
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Listed on National Hydric Soils List
- ☐ Listed on Local Hydric Soils List
- ☐ Other (explain in remarks)

Remarks: Refusal @ 8"

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes	☒ No	Is this Sampling Point Within a Wetland?	☐ Yes	☒ No
Wetland Hydrology Present?	☐ Yes	☒ No			
Hydric Soils Present?	☒ Yes	☐ No			

Remarks/Explain significant nexus (pollution filtration, flood water retention, feeding/nesting/spawning ground for TNW species, other biological, physical or chemical relationships:

Wetland (☐abuts is ☐adjacent to) tributary:_____
Adjacency is shown by ☐discrete hydrologic connection (explain):
☐ecological connection (explain):
☐separated by berm/barrier (explain):

Appendix D
Jurisdictional Determination Forms

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): 8-22-07 I-1

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Kansas City, Mo; Botts Road JDR; 2007-107

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Mo County/parish/borough: Jackson City: Grandview
Center coordinates of site (lat/long in degree decimal format): Lat. 94° **N**, Long. 34° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Missouri River
Name of watershed or Hydrologic Unit Code (HUC): 10300101
☒ 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: 8-15,16-2007
☒ Field Determination. Date(s): 8-14-2007

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: 8,541linear feet: width (ft) and/or 0.26 acres.
Wetlands: 0.39 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: **PEM-2, PEM-4, PSS/PEM-2 do not have significant nexus to TNW**.

[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, 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: 432 **acres**
Drainage area: 80 **acres**
Average annual rainfall: 15.85 inches
Average annual snowfall: 19.9 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** 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 **15-20** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Unnamed tributary, Little Blue River.
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: Channelized tributary to drain ag fields.

Tributary properties with respect to top of bank (estimate):
Average width: 10 feet
Average depth: 3 feet
Average side slopes: **3:1 .**

Primary tributary substrate composition (check all that apply):

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

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

(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: .

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: .
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 waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

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

- ☒ Riparian corridor. Characteristics (type, average width): Forested and herbaceous corridor.
- ☒ Wetland fringe. Characteristics: Scrub shrub wetland frings.
- ☐ 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: 0.179 acres

Wetland type. Explain: Palustrine Scrub shrub/Palustrine emergent wetland.

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow** . Explain: No flow. Hydrology from I-1 fuels wetland.

Surface flow is**: Not present**

Characteristics: .

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: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

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

Project waters are **15-20** aerial (straight) miles from TNW.

Flow is from: **No Flow.**

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: .

Identify specific pollutants, if known: .

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

- ☒ Riparian buffer. Characteristics (type, average width): narrow fringe to I-1.
- ☒ Vegetation type/percent cover. Explain: Salix nigra, Polulus deltoides, typha latifolia.
- ☐ 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: **1**

Approximately (0.65) 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)
PSS/PEM-1 Y	0.18		

Summarize overall biological, chemical and physical functions being performed: Flood storage, buffer to ag runoff.

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: **1313** linear feet **1.5** 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: 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: **PSS/PEM-1=0.179** 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: 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: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Belton, Missouri 7.5' Quad.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Jackson County, MO.
☐ National wetlands inventory map(s). Cite name: Belton, Missouir 7.5' Quad.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Figure 5.
or ☒ Other (Name & Date): Appendix B.
☐ 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: .

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): 8-22-07 I-2

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Kansas City, Mo; Botts Road JDR; 2007-107

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Mo County/parish/borough: Jackson City: Grandview
Center coordinates of site (lat/long in degree decimal format): Lat. 94° **N**, Long. 34° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Missouri River
Name of watershed or Hydrologic Unit Code (HUC): 10300101
☒ 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: 8-15,16-2007
☒ Field Determination. Date(s): 8-14-2007

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: 8,541linear feet: width (ft) and/or 0.26 acres.
Wetlands: 0.39 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: **PEM-2, PEM-4, PSS/PEM-2 do not have significant nexus to TNW**.

[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, 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: 432 **acres**
Drainage area: 311 **acres**
Average annual rainfall: 15.85 inches
Average annual snowfall: 19.9 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** 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 **15-20** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Unnamed tributary, unnamed tributary, Little Blue River.
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: Channelized tributary to drain ag fields.

Tributary properties with respect to top of bank (estimate):
Average width: 6 feet
Average depth: 2 feet
Average side slopes: **3:1 .**

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: **Relatively straight**
Tributary gradient (approximate average slope): %

(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: .

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: .
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 waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

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

- ☒ Riparian corridor. Characteristics (type, average width): herbaceous corridor.
- ☐ 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: 0.045 acres

Wetland type. Explain: Palustrine Scrub shrub.

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow** . Explain: No flow. Hydrology from I-2 fuels wetland.

Surface flow is**: Not present**

Characteristics: .

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: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

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

Project waters are **15-20** aerial (straight) miles from TNW.

Flow is from: **No Flow.**

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: .

Identify specific pollutants, if known: .

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

- ☒ Riparian buffer. Characteristics (type, average width): narrow fringe to I-2.
- ☒ Vegetation type/percent cover. Explain: Salix nigra, Polulus deltoides, typha latifolia.
- ☐ 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: **1**

Approximately (0.65) 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)
PSS-1	Y	0.045		

Summarize overall biological, chemical and physical functions being performed: Flood storage, buffer to ag runoff.

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: **2,342** linear feet **1.0** 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: 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: **PSS-1=0.045** 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: 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: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Belton, Missouri 7.5' Quad.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Jackson County, MO.
☐ National wetlands inventory map(s). Cite name: Belton, Missouir 7.5' Quad.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Figure 5.
or ☒ Other (Name & Date): Appendix B.
☐ 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: .

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): 8-22-07 I-3

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Kansas City, Mo; Botts Road JDR; 2007-107

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Mo County/parish/borough: Jackson City: Grandview
Center coordinates of site (lat/long in degree decimal format): Lat. 94° **N**, Long. 34° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Missouri River
Name of watershed or Hydrologic Unit Code (HUC): 10300101
☒ 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: 8-15,16-2007
☒ Field Determination. Date(s): 8-14-2007

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: 8,541linear feet: width (ft) and/or 0.26 acres.
Wetlands: 0.39 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: **PEM-2, PEM-4, PSS/PEM-2 do not have significant nexus to TNW**.

[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, 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: 432 **acres**
Drainage area: 121 **acres**
Average annual rainfall: 15.85 inches
Average annual snowfall: 19.9 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** 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 **15-20** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Unnamed tributary, unnamed tributary, Little Blue River.
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: 6 feet
Average depth: 3 feet
Average side slopes: **3:1 .**

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: **Meandering**
Tributary gradient (approximate average slope): %

(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: .

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 stagnant and discolored.
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 waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

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

- ☒ Riparian corridor. Characteristics (type, average width): Forested corridor, 20' wide.
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

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: 0.14 acres

Wetland type. Explain: Palustrine Emergent-3.

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow**. Explain: No flow. Flow connects features after rain events.

Surface flow is**: Discrete**

Characteristics: .

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: drainages to I-3.
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

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

Project waters are **15-20** 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: .

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: Emergent vegetation.
- ☐ 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: **1**

Approximately (0.65) 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)
PEM-3 N	0.14		

Summarize overall biological, chemical and physical functions being performed: Flood storage, buffer to ag runoff.

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: PEM-3 acts as a buffer for I-3 from sediments and pollution from the surrounding agricultural field.

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: **952** linear feet **2.0** 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: 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: **PEM-3 = 0.14**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: 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: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Belton, Missouri 7.5' Quad.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Jackson County, MO.
☐ National wetlands inventory map(s). Cite name: Belton, Missouir 7.5' Quad.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Figure 5.
or ☒ Other (Name & Date): Appendix B.
☐ 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: .

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): 8-22-07 E-1

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Kansas City, Mo; Botts Road JDR; 2007-107

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Mo County/parish/borough: Jackson City: Grandview
Center coordinates of site (lat/long in degree decimal format): Lat. 94° **N**, Long. 34° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Missouri River
Name of watershed or Hydrologic Unit Code (HUC): 10300101
☒ 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: 8-15,16-2007
☒ Field Determination. Date(s): 8-14-2007

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: 8,541 linear feet: width (ft) and/or 0.26 acres.
Wetlands: 0.39 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: **PEM-2, PEM-4, PSS/PEM-2 do not have significant nexus to TNW**.

[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, 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: 432 **acres**
Drainage area: 44 **acres**
Average annual rainfall: 15.85 inches
Average annual snowfall: 19.9 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** 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 **15-20** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Unnamed tributary, unnamed tributary, Little Blue River.
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: 3 feet
Average depth: 1.5 feet
Average side slopes: **4:1 (or greater).**

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: Highly eroded.
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Discrete and 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: .
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 waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(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: E-1 drains the surrounding agricultural fields and the pollutants and erosion associated with conventional agriculture. The transportation of pollution and erosion act as a significant nexus.

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.
☒ 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: **1,026** linear feet **2.0** 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: .

[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.*

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: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Belton, Missouri 7.5' Quad.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Jackson County, MO.
☐ National wetlands inventory map(s). Cite name: Belton, Missouir 7.5' Quad.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Figure 5.
or ☒ Other (Name & Date): Appendix B.
☐ 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: .

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): 8-22-07 E-2a

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Kansas City, Mo; Botts Road JDR; 2007-107

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Mo County/parish/borough: Jackson City: Grandview
Center coordinates of site (lat/long in degree decimal format): Lat. 94° **N**, Long. 34° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Missouri River
Name of watershed or Hydrologic Unit Code (HUC): 10300101
☒ 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: 8-15,16-2007
☒ Field Determination. Date(s): 8-14-2007

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: 8,541 linear feet: width (ft) and/or 0.26 acres.
Wetlands: 0.39 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]

[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: **PEM-2, PEM-4, PSS/PEM-2 do not have significant nexus to TNW** .

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: 432 **acres**
Drainage area: 60 **acres**
Average annual rainfall: 15.85 inches
Average annual snowfall: 19.9 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** 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 **15-20** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Unnamed tributary, unnamed tributary, Little Blue River.
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: 1.5 feet
Average depth: 0.75 feet
Average side slopes: **4:1 (or greater).**

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: Highly eroded.
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Discrete and 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: .
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 waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

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

- ☒ Riparian corridor. Characteristics (type, average width): Riparian corridor, 50' wide.
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

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: E-2a drains the surrounding agricultural fields and the pollutants and erosion associated with conventional agriculture. The transportation of pollution and erosion act as a significant nexus.

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.**
☒ 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: **372** linear feet **0.5** 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: .

[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.*

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: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Belton, Missouri 7.5' Quad.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Jackson County, MO.
☐ National wetlands inventory map(s). Cite name: Belton, Missouir 7.5' Quad.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Figure 5.
or ☒ Other (Name & Date): Appendix B.
☐ 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: .

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): 8-22-07 E-2b

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Kansas City, Mo; Botts Road JDR; 2007-107

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Mo County/parish/borough: Jackson City: Grandview
Center coordinates of site (lat/long in degree decimal format): Lat. 94° **N**, Long. 34° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Missouri River
Name of watershed or Hydrologic Unit Code (HUC): 10300101
☒ 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: 8-15,16-2007
☒ Field Determination. Date(s): 8-14-2007

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: 8,541linear feet: width (ft) and/or 0.26 acres.
Wetlands: 0.39 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: **PEM-2, PEM-4, PSS/PEM-2 do not have significant nexus to TNW**.

[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, 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: 432 **acres**
Drainage area: 60 **acres**
Average annual rainfall: 15.85 inches
Average annual snowfall: 19.9 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** 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 **15-20** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Unnamed tributary, unnamed tributary, Little Blue River.
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: 2 feet
Average depth: 1 feet
Average side slopes: **3:1 .**

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: Cut-off channels.
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Discrete and 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: .
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 waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(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: E-2b drains the surrounding agricultural fields and the pollutants and erosion associated with conventional agriculture. The transportation of pollution and erosion act as a significant nexus.

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.**
☒ 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: **989** linear feet **1.0** 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: .

[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.*

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: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Belton, Missouri 7.5' Quad.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Jackson County, MO.
☐ National wetlands inventory map(s). Cite name: Belton, Missouir 7.5' Quad.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Figure 5.
or ☒ Other (Name & Date): Appendix B.
☐ 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: .

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): 8-22-07 E-3

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Kansas City, Mo; Botts Road JDR; 2007-107

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Mo County/parish/borough: Jackson City: Grandview
Center coordinates of site (lat/long in degree decimal format): Lat. 94° **N**, Long. 34° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Missouri River
Name of watershed or Hydrologic Unit Code (HUC): 10300101
☒ 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: 8-15,16-2007
☒ Field Determination. Date(s): 8-14-2007

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: 8,541 linear feet: width (ft) and/or 0.26 acres.
Wetlands: 0.39 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: **PEM-2, PEM-4, PSS/PEM-2 do not have significant nexus to TNW**.

[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, 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: 432 **acres**
Drainage area: 59 **acres**
Average annual rainfall: 15.85 inches
Average annual snowfall: 19.9 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **4** 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 **15-20** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Unnamed tributary, unnamed tributary, unnamed tributary, Little Blue River.
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: 3 feet
Average depth: 2 feet
Average side slopes: **3:1 .**

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: **Meandering**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime: .
Other information on duration and volume: .

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: .
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 waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

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

- ☐ Riparian corridor. Characteristics (type, average width): Riparian corridor, 15' wide.
- ☒ Wetland fringe. Characteristics: PEM-1.
- ☐ 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: 0.03 acres

Wetland type. Explain: Palustrine Emergent Wetland-1.

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow** . Explain: E-6 fuels PEM-1 hydrology.

Surface flow is**: Not present**

Characteristics: .

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: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

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

Project waters are **15-20** aerial (straight) miles from TNW.

Flow is from: **No Flow.**

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: .

Identify specific pollutants, if known: .

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

- ☒ Riparian buffer. Characteristics (type, average width): Emergent vegetation, 10' wide.
- ☒ Vegetation type/percent cover. Explain: Emergent vegetation.
- ☐ 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: **1**

Approximately (0.65) 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)
PEM-1	Y	0.03		

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:). PEM-1 and E-3 drains the surrounding agricultural fields. The forested riparian corridor acts as a buffer from the pollutants and erosion associated with conventional agriculture. PEM-1 and E-3 has flood storage capabilities. Buffering of pollutants and erosion, and flood storage act as a significant nexus..

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: **1053** linear feet **1.0** 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: **PEM-1=0.03** 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: .

[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.*

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: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Belton, Missouri 7.5' Quad.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Jackson County, MO.
☐ National wetlands inventory map(s). Cite name: Belton, Missouir 7.5' Quad.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Figure 5.
or ☒ Other (Name & Date): Appendix B.
☐ 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: .

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): 8-22-07 E-4

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Kansas City, Mo; Botts Road JDR; 2007-107

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Mo County/parish/borough: Jackson City: Grandview
Center coordinates of site (lat/long in degree decimal format): Lat. 94° **N**, Long. 34° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Missouri River
Name of watershed or Hydrologic Unit Code (HUC): 10300101
☒ 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: 8-15,16-2007
☒ Field Determination. Date(s): 8-14-2007

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: 8,541linear feet: width (ft) and/or 0.26 acres.
      Wetlands: 0.39 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: **PEM-2, PEM-4, PSS/PEM-2 do not have significant nexus to TNW**.

[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, 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: 432 **acres**
Drainage area: 46 **acres**
Average annual rainfall: 15.85 inches
Average annual snowfall: 19.9 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **4** 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 **15-20** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Unnamed tributary, unnamed tributary, unnamed tributary, Little Blue River.
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: 4 feet
Average depth: 3 feet
Average side slopes: **3:1 .**

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: **Meandering**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Discrete and 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: .
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 waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

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

- ☒ Riparian corridor. Characteristics (type, average width): Riparian corridor, 20' wide.
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

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: The forested riparian corridor acts as a buffer from the pollutants and erosion associated with conventional agriculture. E-3 has flood storage capabilities. Buffering of pollutants and erosion, and flood storage act as a significant nexus.

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.
☒ 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: **494** linear feet **1.5** 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: .

[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.*

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: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Belton, Missouri 7.5' Quad.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Jackson County, MO.
☐ National wetlands inventory map(s). Cite name: Belton, Missouir 7.5' Quad.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Figure 5.
or ☒ Other (Name & Date): Appendix B.
☐ 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: .

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): 8-22-07 Isolated PEM-2, PEM-4, PSS/PEM-2

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Kansas City, Mo; Botts Road JDR; 2007-107

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Mo County/parish/borough: Jackson City: Grandview
Center coordinates of site (lat/long in degree decimal format): Lat. 94° **N**, Long. 34° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Missouri River
Name of watershed or Hydrologic Unit Code (HUC): 10300101
☒ 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: 8-15,16-2007
☒ Field Determination. Date(s): 8-14-2007

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: 8,541linear feet: width (ft) and/or 0.26 acres.
      Wetlands: 0.39 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: **PEM-2, PEM-4, PSS/PEM-2 do not have significant nexus to TNW**.

[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, 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: 432 **acres**
Drainage area: **acres**
Average annual rainfall: 15.85 inches
Average annual snowfall: 19.9 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** 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 **15-20** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Unnamed tributary, Little Blue River.
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 waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(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.
☐ 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: .

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:**Distance away and higher elevation from RPW does not allow significant effect to physical, chemical, or biological characteristics of TNW.**
☐ 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: PEM-2= ; PEM-4= ; PSS/PEM-2 ; Total= acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Belton, Missouri 7.5' Quad.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Jackson County, MO.
☐ National wetlands inventory map(s). Cite name: Belton, Missouir 7.5' Quad.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Figure 5.
or ☒ Other (Name & Date): Appendix B.
☐ 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: .