Applications for Section 404 and 401 Permits

Riverpointe Public Infrastructure Project St. Charles, St. Charles County, Missouri

CMT Job Number: 19043402-00

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ENG FORM 4345



PROJECT DESCRIPTION AND OVERVIEW

The City of St. Charles is proposing a new, multi-phase riverfront development project along South River Road located south of Interstate 70 (I-70) to Friedens Road within the City of St. Charles, Missouri. The project consists of three phases of development adjacent to Bangert Island and the Missouri River.

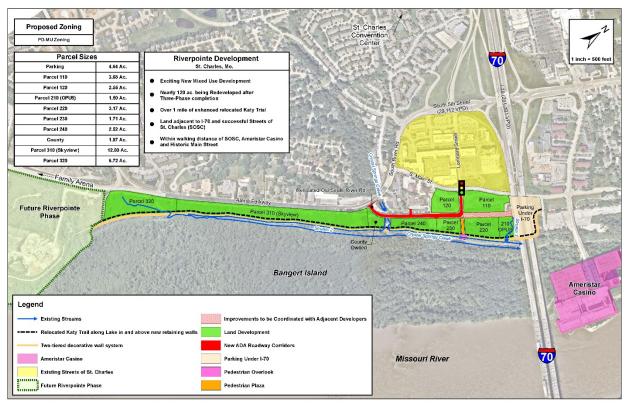


FIGURE 1 - PROPOSED IMPROVEMENTS

Phase 1a and 1b of the project consists of an approximately 22-acre mixed-use development located adjacent to I-70 and South Main Street, and extensions reconstruction of Lombard Street and Old South River Road. Phases 3a and 3b of the project consist of an approximately 20-acre development along South River Road between Phase 1 and Friedens Road. The development will provide recreational, employment, entertainment, and retail opportunities along approximately 1.1 miles of riverfront.

In addition to new mixed-use developments, the project will contain the following key components:

- New roadway infrastructure and ADA sidewalks
 - Lombard Street extension from South Main Street to a new intersection
 - New Phase 1 loop road from Old South River Road to Lombard intersection
 - Old South River Road reconstruction from South Main Street to South River Road, including a new bridge
- Reconstructed roadways and ADA sidewalks
 - Old South River Road from South Fifth Street to south of Friedens Road
- Off-street trail facilities



- Reconstruction of over 1 mile of flood-prone Katy Trail through Phases 1 and 3 built at an elevation above the 500 year floodplain
- Flood mitigation
 - Approximately 120 acres of ground directly removed from flood damages by elevation change.

Phase 1A, located east adjacent to South Main Street and entirely outside of the jurisdictional boundary, is currently under construction. Construction of Phases 1B and 3a is anticipated to begin construction in early 2021; construction of Phase 3b is anticipated to begin in 2023 or later.



PROJECT LOCATION

The proposed project is located along South River Road between I-70 and Friedens Road within the City of St. Charles in St. Charles County, Missouri. The project is located near Sections 5 and 8, Township 46 North, Range 5 East of the U.S. Geological Survey (USGS) St. Charles and Kampville, Missouri Quadrangles. The project location is in a relatively developed area with Bangert Island and the Missouri River to the east, I-70 to the north, and residential, commercial, and industrial development to the west and south.

From the I-70 and South 5th Street interchange, travel southwest on South 5th Street for 0.2 mile; keep left to continue onto South River Road for 0.2 mile. Turn left onto Old South River Road; the project area will be to the east.

The City of St. Charles is located in eastern St. Charles County, as shown on **Figure 2**. The City is situated along the Missouri River, approximately 27 miles upstream of its confluence with the Mississippi River.

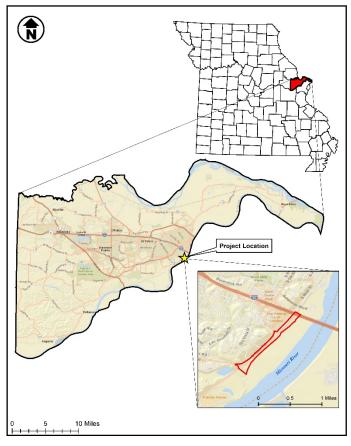


FIGURE 2 - COUNTY LOCATION MAP



PURPOSE AND NEED

The purpose of the proposed Riverpointe project is to support economic development within the City of St. Charles, while promoting multi modal transportation. Details on the project need elements are provided below.

ECONOMIC DEVELOPMENT

For over 30 years, St. Charles County has been the fastest growing part of the St. Louis region and the fastest growing county in Missouri. With a population estimated at over 400,000, this growth creates new and expanded service needs, which are heavily reliant on sales tax revenues.

The master planning efforts for the county identified that the county's economic potential would not be realized without the development of larger tracts of land at prime locations for business and commerce. One of the goals identified St. Charles County Master Plan – Envision 2030, was to encourage the creation of mixed-use development campus sites around the community. Some of the specific strategies indicated in the plan include:

- Targeting and recruiting a wide range of businesses to create diversity in employment opportunities and the tax base,
- Promote redevelopment of existing sites along Interstate 70 in St. Charles, and
- Encourage development at Arena Parkway (South River Road) in St. Charles.

The existing development in the project area along South River Road includes dilapidated residential, commercial, and industrial land uses. While St. Charles has been able to foster economic growth in the community through other public infrastructure improvement projects, such as the Streets of St. Charles, development potential is waning due to the lack of availability of sites without development constraints. Development along the City of St. Charles' riverfront has remained isolated to approximately one quarter of the City's total riverfront due to impacts from a changing river and historically poor access.

MULTI MODAL TRANSPORTATION

The county master plan identified the need to provide alternative and affordable modes of transportation by providing other modes of transportation, including bikeways, sidewalks, and trails, and supporting land use patterns that will utilize them.

Currently, portions of Historic Main Street suffer from car-centric development where residents will commonly drive from short distances only to struggle to find a place to park within a two-block radius of their final destination. The project will enhance the experience for users of the adjacent Katy Trail (the longest rails-to-trails conversion in the county) by providing improved access and services immediately adjacent to the trail. Other enhancements to multi-modal transportation provided by the project will be the addition of ADA compliant sidewalks and curb ramps, which will connect to the existing pedestrian facilities located north of the project area. The project will serve a population of 100,000 people just within walking (1/4 mile) and biking (3 miles) distance.



PUBLIC INVOLVEMENT

The City of St. Charles plans to hold a public meeting for the project to inform the public on the proposed development and to answer any questions. Due to the ongoing COVID-19 pandemic, the City of St. Charles plans to conduct a virtual public meeting, with live staff available to answer questions. While the specifics are still being planned, residents can sign up to receive a meeting invite at https://www.riverpointe-stc.com/public-involvement.

In addition to the upcoming public meeting, the City has had extensive public involvement in the project. In 2018, the City of St. Charles created a "www.riverpointe-stc.com" to assist in keeping residents up to date. As of early November 2020, the website has approximately 14,000 views.

In June and July 2020, the City conducted its annual roadshow, and with the Riverpointe project serving as the showcased project. The virtual road show received over 5,000 unique views, and the City received valuable feedback from surveys that helped shape the direction and decision making on the project.

The Mayor, City administrator, Director of Engineering, and several engineering staff attended the Big Muddy Speaker series that focused on the Riverpointe Development, and conducted a question and answer session with Greg Poleski, members of 'Friends of the Big Muddy', and other residents. The City has also had numerous council agenda items in which recorded public comments were provided.

The City of St. Charles has received letters of support for this project from Governor Mike Parson, Senator Roy Blunt, Senator Josh Hawley, Congressman Blaine Luetkemeyer, US Representative Ann Wagner, County Executive Steve Ehlmann, Missouri State Senator Bill Eigel, Missouri State Senator Robert Onder, Missouri State Representative Chrissy Sommer, Missouri State Representative Tom Hannegan, Former State Senate Pro Tem Tom Dempsey, and St. Charles Mayor Daniel J. Borgmeyer. The East-West Gateway Council of Governments is supportive of the project because it creates accessibility to this underdeveloped area through transportation improvements. Large and small business alike support the project including the Missouri Chamber of Commerce, the Missouri State Director of Economic Development Rob Dixon, Ameristar Casino, Cullinan Properties, Bike Stop Cafe, TR Hughes Development, Home Builders Association of St. Louis & Eastern Missouri, OPO Startups, Millstone Properties, Cushman Wakefield, and Drury Hotels as it will provide a catalyst for continued economic growth in the region.



ALTERNATIVES ANALYSIS

The project has evolved significantly since the original project inception, in large part due to the impacts to regulated surface water resources. Alternatives considered are described below.

NO BUILD/NO IMPACT ALTERNATIVE

The no build alternative would involve no development action. The project area would remain as it currently is with dilapidated residential, commercial, and industrial land uses. This alternative would have no impacts to identified surface water resources, but does not address the purpose and need to support economic development and multi modal transportation. Additionally, in this no-build scenario the wetlands adjacent to the current dilapidated development would likely continue to further degrade. Since this alternative would not fulfill the purpose and need, it was eliminated form further consideration.

ALTERNATIVE 1: ELM POINT SITE ALTERNATIVE

This alternative included an evaluation of a development site located south of Missouri Route 370 as part of the Zumbehl Road Corridor Study. A feasibility study was completed for the site which identified a large property available for commercial/industrial development in the area of a proposed new interchange. The study identified that the development of this site would have



Zumbehl Road Corridor Study DEVELOPMENT STRATEGIES

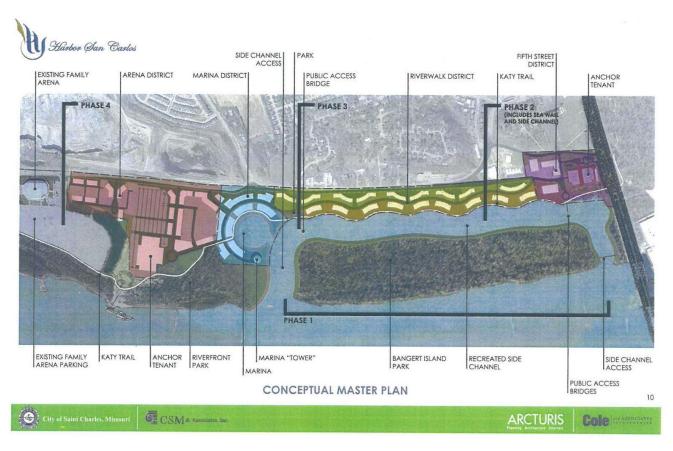
ALTERNATIVE 1: ELM POINT SITE



generated up to \$3.6M annually in property taxes. The disadvantages of the site included the impact to a large area of wetlands (the study estimated up to 80 acres) and would have required the implementation of flood control strategies. The Elm Point Levee District and levee were proposed to address flooding concerns on the property. While this alternative would support economic development within the City of St. Charles, and promote multi modal transportation, it does not connect to other investments in the area and does not address the countywide plan for the development along Arena Parkway. Based on the environmental impacts along with the substantial up-front costs associated with the development of this property, this alternative was not selected.

ALTERNATIVE 2: HARBOR SAN CARLOS

As the City of St. Charles started to conduct early planning efforts for the project adjacent to Bangert Island, the first conceptual site plan involved the creation of a harbor along the river, called Harbor San Carlos. This concept developed, in 2007, would have impacted an estimated 150 acres of wetlands on and around Bangert Island, which included the creation of the harbor channel itself. Relocation of Katy Trail and the construction of a large retaining wall would also be required under this alternative. This alternative would support economic development within the City of St. Charles, promote multi modal transportation. However, based on the substantial wetland impacts, this alternative was not selected.

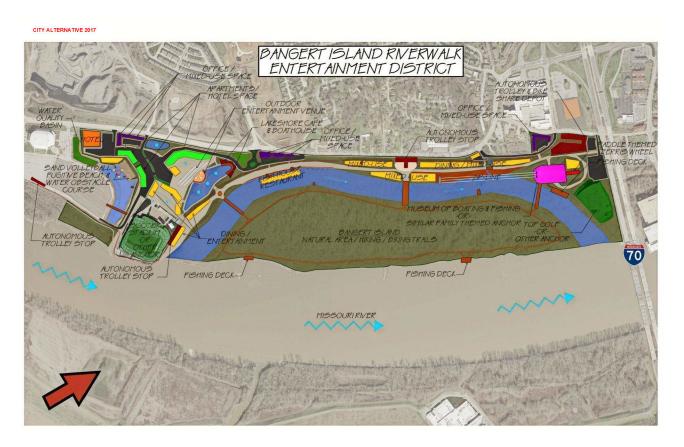


ALTERNATIVE 2: HARBOR SAN CARLOS



ALTERNATIVE 3: RIVERWALK ENTERTAINMENT DISTRICT

In 2017, an alternative that opened up the Crystal Springs Creek channel on both ends was evaluated. This option was dominated by recreation/entertainment venues and would be expected to generate less economic impact than commercial/retail and office development. While this alternative would support economic development within the City of St. Charles, promote multi modal transportation. This alternative would result in over 20 acres of wetland and stream impact, including impacts within the Missouri River. These impacts do not include the impacts resulting from the creation of the new channel. Due to concerns regarding the navigation channel, the magnitude of surface water resource impacts, and the potential to generate less income for the local economy, this alternative was not selected.

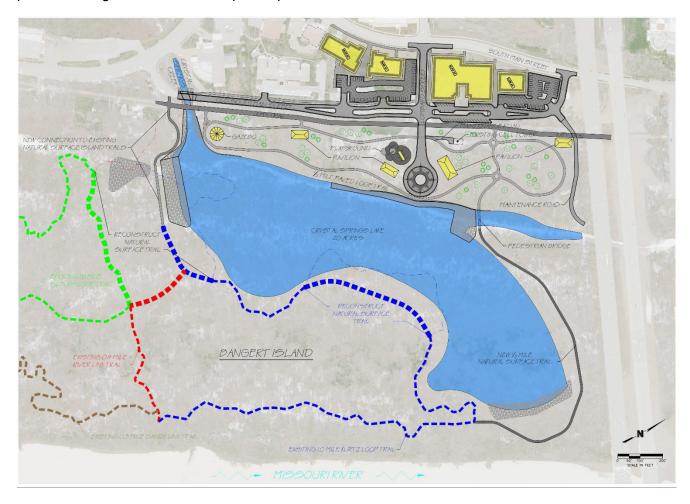


ALTERNATIVE 3: RIVERWALK ENTERTAINMENT DISTRICT



ALTERNATIVE 4: CRYSTAL SPRINGS LAKE

Under this alternative, Crystal Springs Creek would be impounded to create a 20-acre Crystal Springs Lake. The alternative would also include a small development area and outdoor recreation facilities including a playground, pavilions, and gazebos along with new trails on Bangert Island. The new park facilities and economic development area would impact an estimated 8 acres of wetland and an estimated 1,000 linear feet of stream, excluding the 20 acres of wetland impact for the creation of the lake. While this alternative would support economic development within the City of St. Charles and promote multi modal transportation, it would fail to provide enough economic development potential to be feasible.



ALTERNATIVE 4: CRYSTAL SPRINGS LAKE



ALTERNATIVE 5: CRYSTAL SPRINGS LAKE MINIMIZED

Under this alternative, Crystal Springs Creek would be impounded to create a smaller Crystal Springs Lake. Similar to Alternative 4, economic development area would impact an estimated 10 acres of wetland, excluding the area for the lake. While this alternative would support economic development within the City of St. Charles, promote multi modal transportation, it would fail to provide enough economic development potential to be feasible.

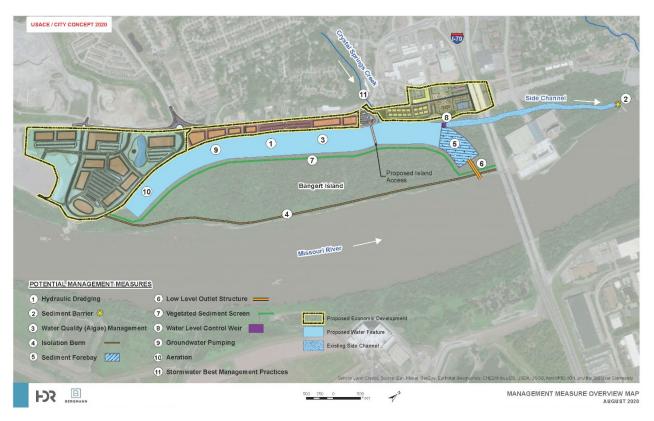


ALTERNATIVE 5: CRYSTAL SPRINGS CREEK MINIMIZED



ALTERNATIVE 6: RIVERPOINTE 2020 CONCEPT

This alternative resulted from the study conducted by HDR for the US Army Corps of Engineers Kansas City District Civil Works Division. This alternative combines economic development areas and the restoration of the existing channel to trap sediment and prevent it from entering the Missouri River. The alternative provides the necessary land for economic development and promotes multi-modal transportation. However, under this alternative, the development of the proposed economic development area would have impacted 20.2 acres of wetlands, which excludes the wetland impacts from the creation of the proposed water quality basin. Based on the magnitude of wetland impacts, this alternative was not selected as the preferred alternative.



ALTERNATIVE 6: RIVERPOINTE 2020 CONCEPT



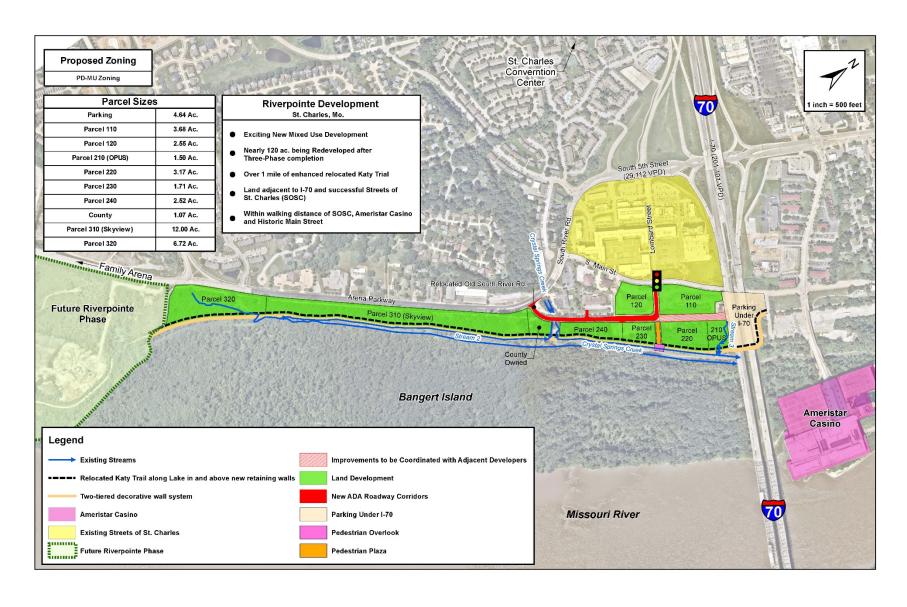
PREFERRED ALTERNATIVE

Under this alternative, Riverpointe will be a mixed-use development with office, retail, commercial business and the associated attendant parking and infrastructure will provide approximately 120 acres of land for development, as shown on . Riverpointe will convert an underutilized section of riverfront to complement existing development within St. Charles' Historic Main Street and Streets of St. Charles and serve as a connection between these areas and Family Arena to the south. Riverpointe is expected to create approximately 4,000 jobs and stimulate approximately \$1.5 billion in growth within the city through annual property and sales tax revenues. Access to Bangert Island Park would be maintained at all times and the project is expected to enhance the parking and services for park and Katy Trail users. The improved Katy Trail along with the additional ADA compliant sidewalks provided by the project will encourage multi-modal transportation. This alternative results in approximately 13.95 acres of wetland impact and an estimated 1,260 linear feet of stream impact. The preferred alternative meets both purpose and need elements while reducing the impacts to regulated surface water resources.

MINIMIZATION AND AVOIDANCE

Through the alternatives evaluation process, the project has reduced the wetland impacts to the extent possible while meeting the purpose and need elements of the project and meeting the goals outlined in the St. Charles County Master Plan. The most recent iteration of the alternatives reduced the wetland impacts from 20.2 acres to approximately 13.95 acres. As discussed in the alternatives analysis, all sites and configurations analyzed would result in surface water resource impacts.





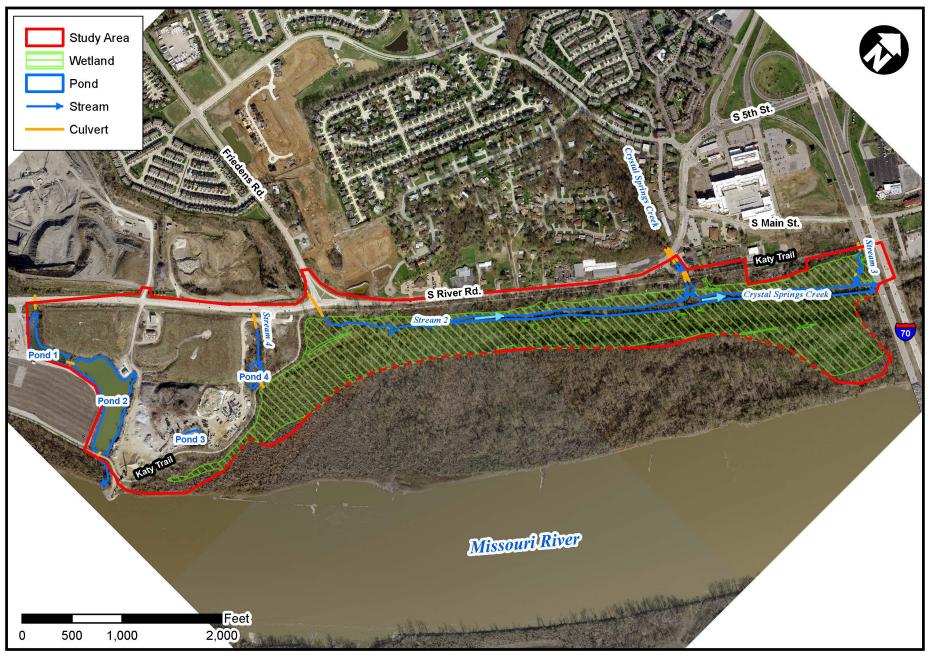


AQUATIC RESOURCES

As summarized in the table below, a total of four (4) streams, an approximately 76-acre forested wetland, and four (4) ponds were identified within the study area. A map showing the resource locations is provided on the following page. The Wetlands and Other Waters of the United States Delineation Report is included in Appendix B.

AQUATIC RESOURCES							
RESOURCE	TYPE	EXISTING CONDITION					
Crystal Springs Creek	Perennial	Moderately Functional					
Stream 2	Perennial	Moderately Functional					
Stream 3	Intermittent	Functionally Impaired					
Stream 4	Ephemeral	Functionally Impaired					
Wetland	Forested	Slightly Impaired/Fully Functional					
Pond 1	Man-made impoundment of former river channel						
Pond 2	Man-made impoundment of former river channel						
Pond 3	Man-made stormwater pond						
Pond 4	Ephemeral Pond						





Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO





SURFACE WATER IMPACTS

Although surface water resource avoidance measures were diligently employed throughout the development of alternatives, waters of the United States will be unavoidably affected. Surface water resource impacts associated with the project have, to every extent practicable, been evaluated based on the need for human safety throughout the planning and design processes and balanced against appropriate engineering design criteria.

As summarized in the table on the next page, the project will impact three of the four identified streams and a portion of the 76-acre forested wetland for the construction of the proposed development. The wetland area will be filled behind a retaining wall to build up the area for the proposed development; the Katy Trail will be rerouted from its current position to on top of the retaining wall. Crystal Springs Creek will be permanently impacted for culvert extensions under South River Road and Old South River Road. The upstream portion of Stream 2 will be permanently impacted with the placement of a pipe. Stream 3 will be permanently impacted; it will be straightened and converted to a grassed waterway along the north side of proposed retaining wall and piped under the Katy Trail. Plan and cross section views of the impact areas are provided in Appendix A.



SURFACE WATER IMPACT SUMMARY									
RESOURCE ID		EXISTING		IMPACT LENGTH		IMPACT AREA		VOLUME	
		CONDITION		(LINEAL Temporary	R FEET) Permanent	(AC	RES) Permanent	(CUBIC `Temporary	YARDS) Permanent
Stream 1 - Crystal Springs Creek Perennial	Doronnial	Moderately	Below Grade Culvert	0	74	0	0.05	0	425
	Perenniai	Functional	Morphological Disturbance	0	20	0	0.01	0	0
Crystal Springs Creek subtotal		0	94	0.00	0.07	0	425		
Stream 2 (upstream)	Intermittent	Moderately Functional	Pipe	0	790	0	0.09	0	146
Stream 3 Intermittent	Into was it to at	ent Functionally Impaired	Morphological Disturbance	0	276	0	0.08	0	613
	Intermittent		Pipe	0	100	0	0.03	0	222
Stream 3 subtotal			0	376	0	0.10	0	836	
Stream Subtotal		0	1,260	0.00	0.26	0	1,407		
Wetland Fore	Forested Slightly Impaired	Fill			0	13.97	0	22506	
		• •	Clearing			1.57	0	0	0
Wetland subtotal		1		1.57	13.97	0	22,506		
			TOTALS	0	1,260	1.57	14.23	0	23,913



OTHER ENVIRONMENTAL RESOURCE IMPACTS

Beyond direct impacts to aquatic resources, a summary of the impacts on select other environmental resources is provided below to assist the USACE with their NEPA compliance determination.

CULTURAL RESOURCES

Efforts to identify historic properties and assess potential adverse effects pursuant to 36 CFR 800, Protection of Historic Properties, regulations implementing Section 106 of the National Historic Preservation Act (16 USC 470) have been implemented. A reasonable and good faith effort has been made to identify historic properties that would be of "extraordinary circumstances," none of which have been ascertained in the undertaking's area of potential effects.

A background literature search was conducted in accordance with Section 106 of the National Historic Preservation Act (as amended). There are multiple residential structures located within the project area. Missouri DNR mapping indicates that there are no historic sites within the project area. The nearest property listed on the National Register of Historic Places is located north of the project area, in the St. Charles Historic District.

A request for a Section 106 review was submitted to Missouri Department of Natural Resource – State Historic Preservation Office (SHPO) on July 6, 2020. On July 30, 2020, the SHPO Deputy State Historic Preservation Officer indicated that the review of the project would proceed once a survey and magnetometer survey being conducted in cooperation with the Kansas City US Army Corp of Engineers and the City of St. Charles was received. A magnetometer survey was completed by the Center for Archaeological Research at Missouri State University to determine if any buried steamboat wrecks would be disturbed as a result of the proposed re-excavation of a historic channel of the Missouri River. The report concluded that based on the partial magnetometer survey, historic records about shipwrecks in the area, a large suite of historic maps and aerial photographs, and the geomorphological history of Bangert Island, it appears to be extremely unlikely that any buried steamboat wrecks dating to the nineteenth century are located within the project area.

On October 26, 2020, the SHPO Deputy State Historic Preservation Officer indicated that there will be "no historic properties affected" for the area covered by the survey. On October 28, 2020, a follow-up email with revised limits of the proposed development was sent to SHPO to confirm that the proposed project had received Section 106 clearance since portions of the development were outside the boundary of the magnetometer survey. On November 6, 2020, the SHPO Deputy State Historic Preservation Officer indicated that there will be "no historic properties affected" for the areas of the proposed development (Phases 1, 3a, and 3b).

A copy of the Section 106 request, the magnetometer survey, and the SHPO responses are provided in Appendix C.



ENDANGERED SPECIES

According to the United States Fish and Wildlife Service (USFWS) IPAC Official Species list generated April 16, 2020 (Consultation Code: 03E14000-2020-SLI-1940), the project is located within the known or historic range of the following federally endangered or threatened species:

- Gray bat (Myotis grisescens), endangered
- Indiana bat (Myotis sodalis), endangered
- Northern long-eared bat (Myotis septentrionalis), threatened
- Pallid sturgeon (Scaphirhynchus albus), endangered
- Decurrent false aster (Boltonia decurrens), threatened

The Missouri Department of Conservation (MDC) Natural Heritage Review (NHR) indicated that there were known records of federal- and state-listed endangered species near the project area.

- Pallid sturgeon (Scaphirhynchus albus), federal and state-listed endangered
- Lake sturgeon (Acipenser fulvexcens), state-listed endangered
- American bittern (Botaurus lentiginosus), state-listed endangered
- Flathead chub (*Platygobio gracilis*), state-listed endangered

GRAY BAT (MYOTIS GRISESCENS): With rare exceptions, gray bats live in caves year-round. During the winter they hibernate in deep, vertical caves. In the summer, they roost in caves in limestone karst areas which are scattered along rivers. No caves are known to be present in the project area so suitable habitat is not expected to be available in the project area.

A total of five acoustic sites were surveyed from 23 to 25 June 2020 by consultant HDR. Survey efforts consisted of four detectors deployed for two nights (one detector was moved to a new site after one night), for a total of eight detector nights. Bat calls were analyzed using a software program approved by the USFWS: Kaleidoscope Pro (KPro) Version 5.1.1. The only Federally listed bat calls identified by KPro were from gray bats. Calls identified as gray bats by KPro were manually verified.

INDIANA BAT (MYOTIS SODALIS), AND NORTHERN LONG-EARED BAT (MYOTIS SEPTENTRIONALIS): The Indiana bat life cycle requires suitable summer roosting and brood rearing habitat (which includes living or standing dead trees or snags with exfoliating, peeling or loose bark, split trunks and/or branches, or cavities) and suitable hibernacula during the winter months (typically caves, or abandoned mines that provide cool, humid, stable conditions for hibernation). During winter, northern long-eared bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but include roosting habitat in dead or live trees and snags ≥ 3 inches in diameter at breast height with cavities, peeling or exfoliating bark, split tree trunk and/or branches, which may be used as roost or maternity roost areas. Occasionally the species may roost in structures like barns and sheds. Foraging habitat for the species includes upland and lowland woodlots and tree lined corridors.

Approximately 50 acres of the project study area was assessed for suitable habitat for the Indiana and Northern long-eared bat on May 1, 20-21, 2020. Suitable habitat for these species was identified as any tree over 3 inches DBH with peeling bark or cavities that would provide shelter and allow bats to move around the tree for thermoregulation. Within assessed area, 40



potential bat habitat trees were identified. Of the potential bat habitat trees, 24 were suitable snags. Based on the size of the study area and the composition of the forested habitat, more potential bat habitat trees are expected to occur within the larger forested study area. Approximately 115 acres of the study area are forested; the forest and vegetation density was variable throughout, but the majority of the forested study area was dominated by forest canopy with thin, relatively open midstory and understory, which is ideal bat habitat along a large riparian corridor. Approximately 32 acres of trees will be cleared for this project.

A total of five acoustic sites were surveyed from 23 to 25 June 2020 by consultant HDR. Survey efforts consisted of four detectors deployed for two nights (one detector was moved to a new site after one night), for a total of eight detector nights. No Indiana or northern long-eared bat calls were recorded.

PALLID STURGEON (SCAPHIRHYNCHUS ALBUS): Pallid sturgeon are bottom dwellers in the Missouri and Mississippi Rivers in Missouri., including parts of major tributaries. They live in areas of strong current that have firm sand substrates in the main river channels, such as along sand bars and behind wing dikes with deeply scoured trenches. Their preferred habitat has a diversity of depths and velocities formed by braided channels, sand bars, sand flats, and gravel bars. The MDC NHR indicated there were records of pallid sturgeon 0.08 mile from the project area. As no direct impacts to the river will occur, the preferred habitat for the species will not be impacted by the project.

DECURRENT FALSE ASTER (*BOLTONIA DECURRENS*): Decurrent false aster is found on moist, sandy, floodplains, and prairie wetlands. This species needs periodic flooding or disturbance to eliminate competing vegetation and to provide the high light and moist soil that its seeds require to germinate. The MDC NHR did not indicate there were records of decurrent false aster near the project area and none were identified during the on-site investigations on May 1, 20-21, 2020.

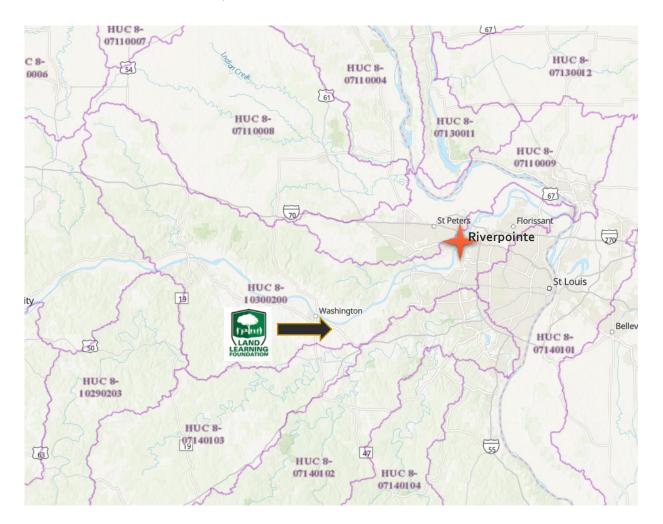
Copies of the Missouri Natural Heritage Database review results and IPAC report are provided in Appendix D.



CONCEPTUAL MITIGATION (COMPENSATION)

The conceptual stream and wetland compensatory mitigation proposed for this project will involve the three components listed below. The implementation of the mitigation would be coordinated with the impacts so that appropriate mitigation occurs in advance or concurrent to the impact in the various construction phases.

- 1. Purchase of in-lieu fee stream credits from the Land Learning Foundation (LLF)
- 2. Wetland preservation of an estimated 70 acres of wetland and 30 acres of upland buffer on Bangert Island using a conservation easement protecting the island from development in perpetuity
- 3. Creation of wetlands on a site at Labadie Bottoms (within 10300200 -the same 8-digit HUC as the impact site) in coordination with LLF





REFERENCES

Bangert Island Riverfront Transformation Project at Riverpointe, USDOT BUILD Discretionary Grant Program May 2020. Available at https://www.riverpointe-stc.com/project-narrative

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St. Charles County Master Plan Envision 2030. Available at: <a href="https://www.sccmo.org/2009/Master-Plan-Envision-2030/

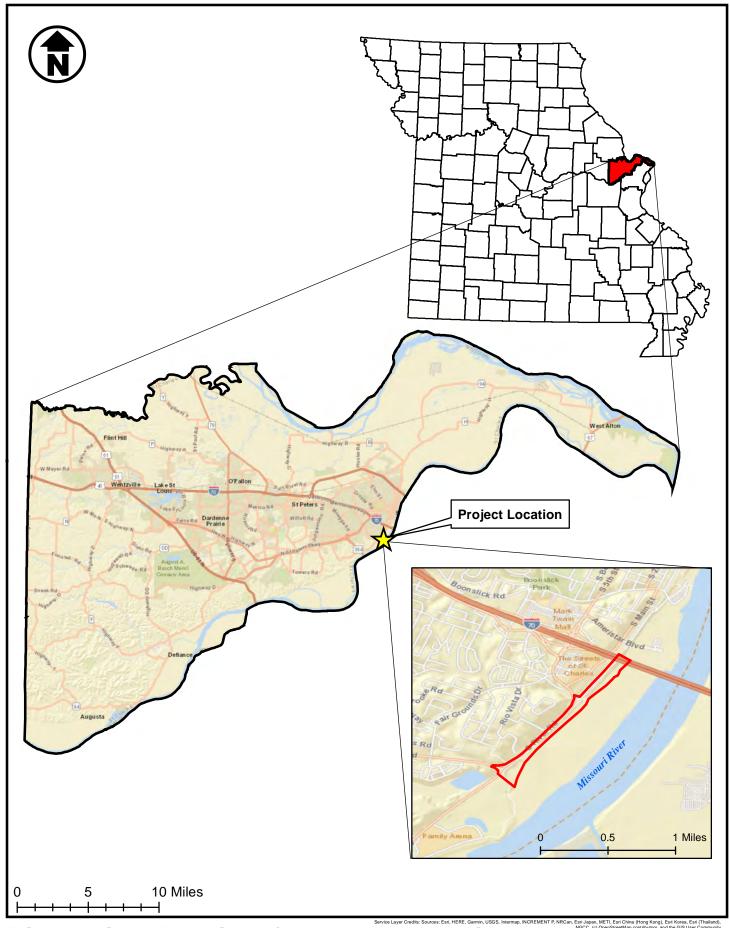
St. Charles County Economic Development Center (2019) Complete Demographic Summary Report. Available at: <a href="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Complete-Demographic-Summary-Report-2019-PDF?bidId="https://www.sccmo.org/DocumentCenter/View/15221/Center/Vie



Riverpointe Public Infrastructure Project

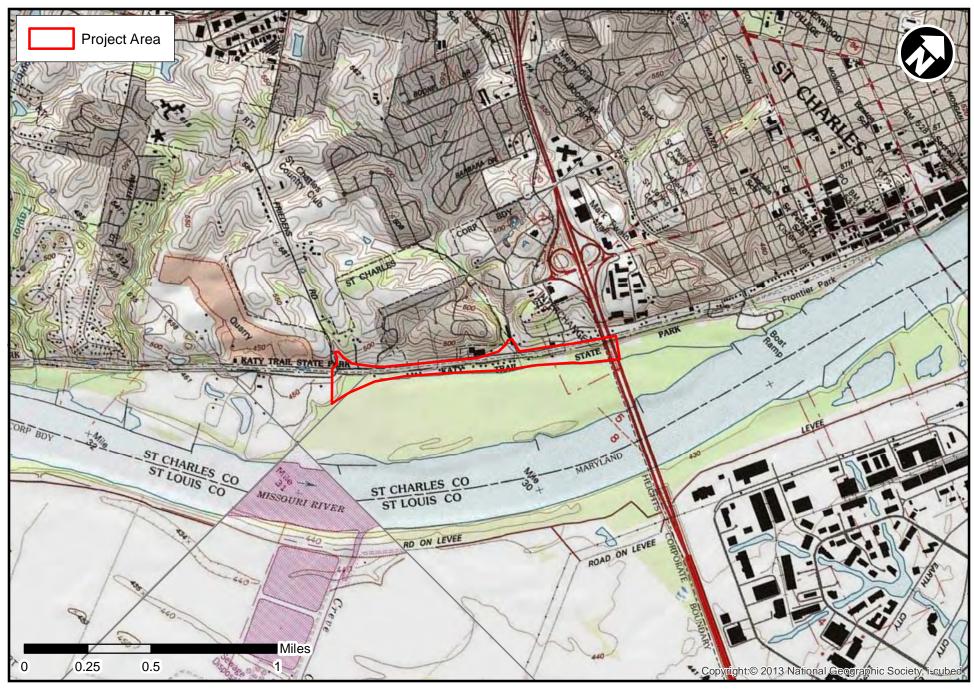
APPENDIX A: PROJECT IMPACT MAPPING





Riverpointe Public Infrastructure Project
Location Map - St. Charles County, MO





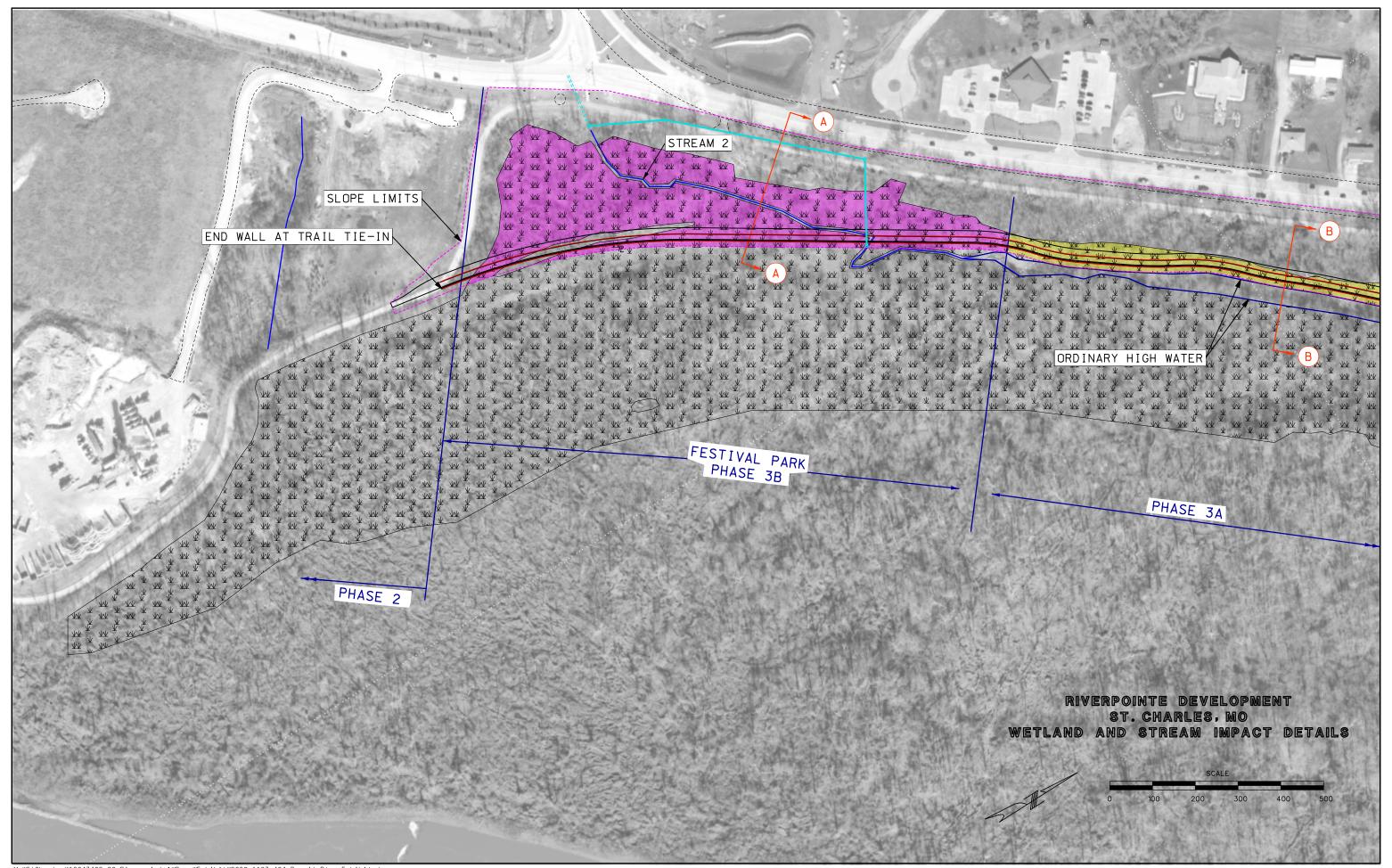
Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO USGS Topographic Map - St. Charles and Kampville, MO Quadrangles

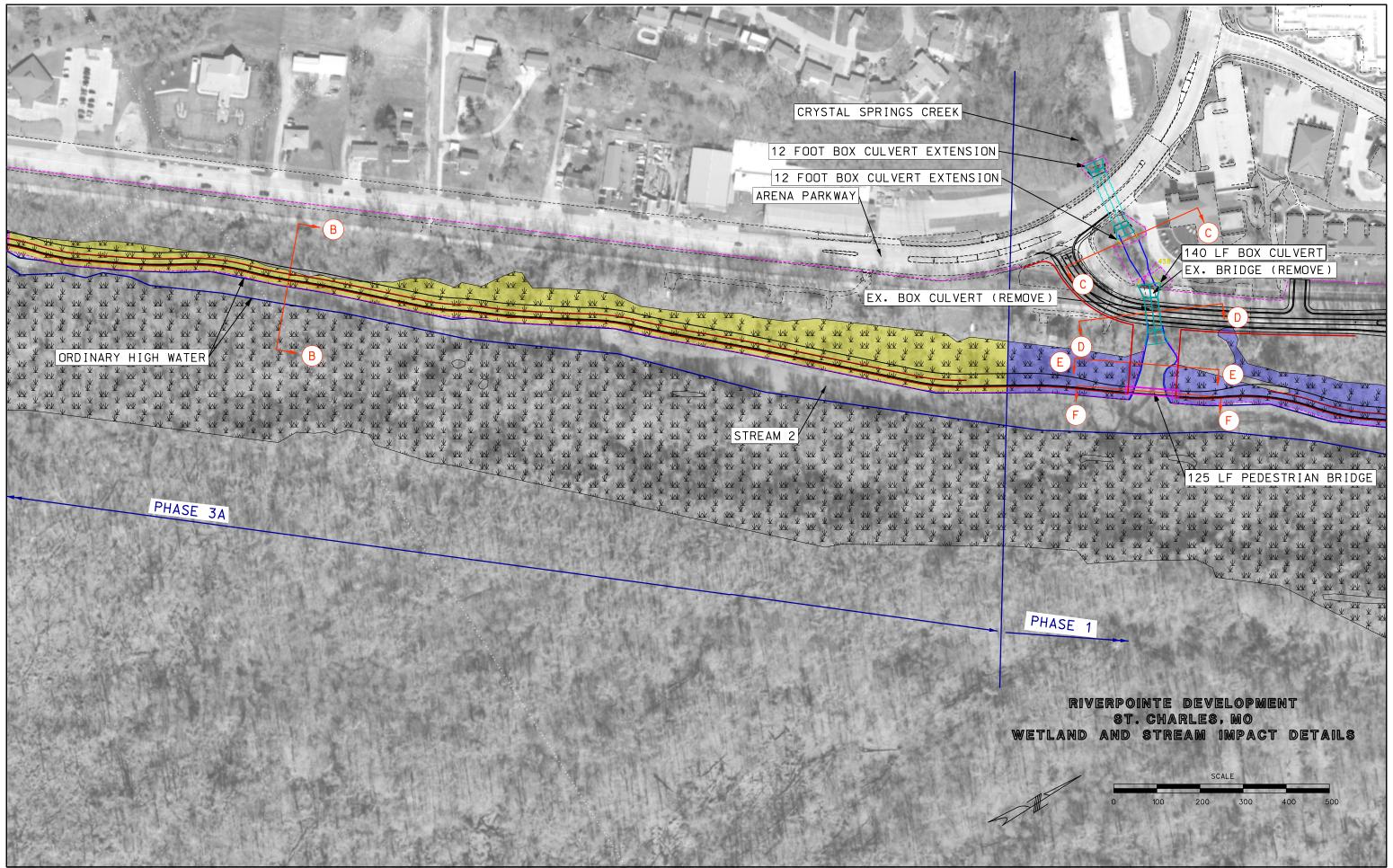


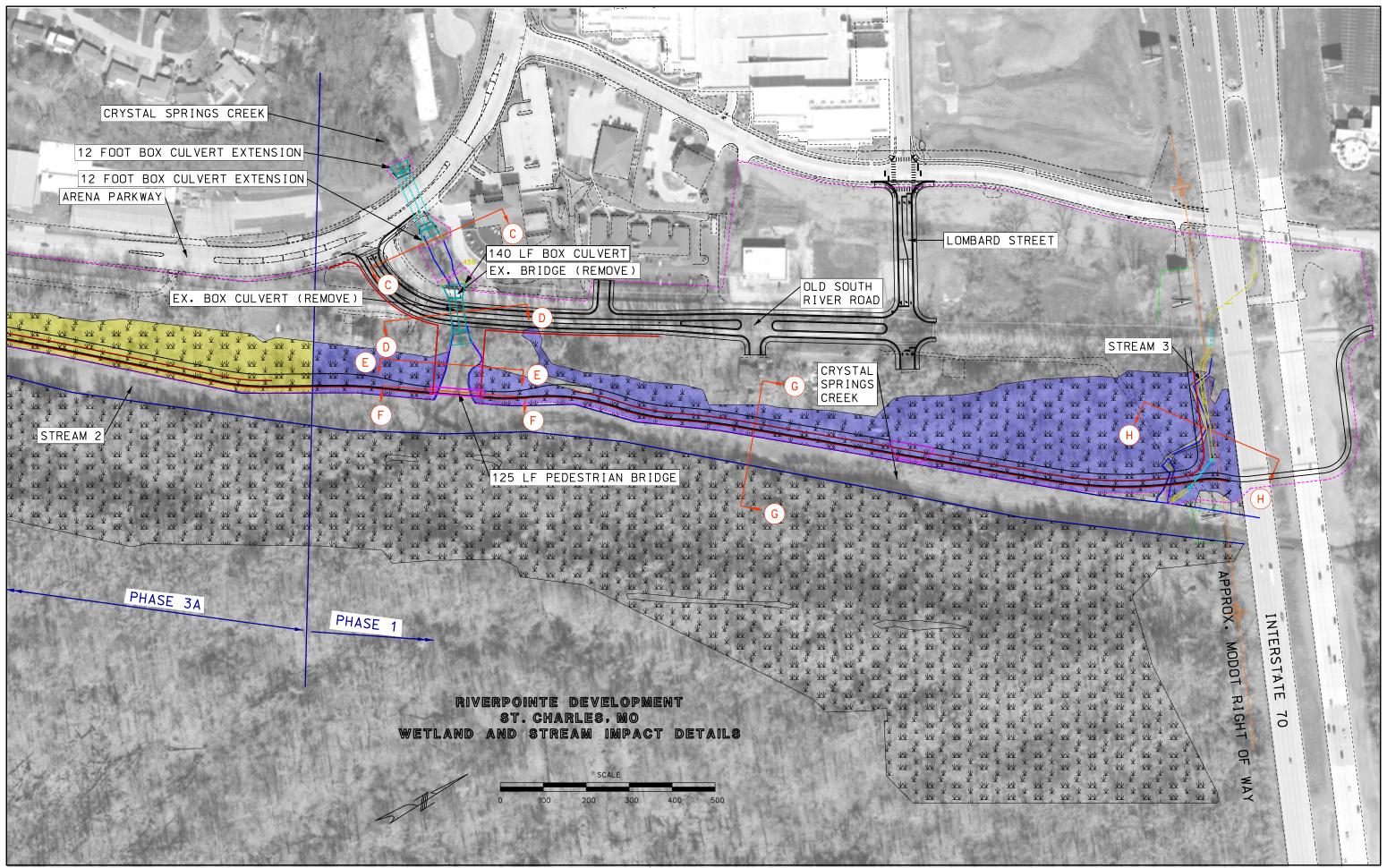


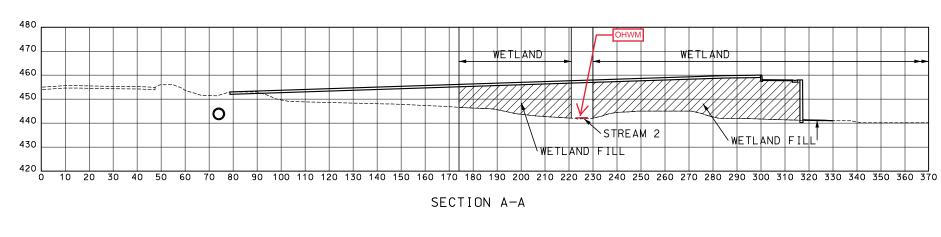
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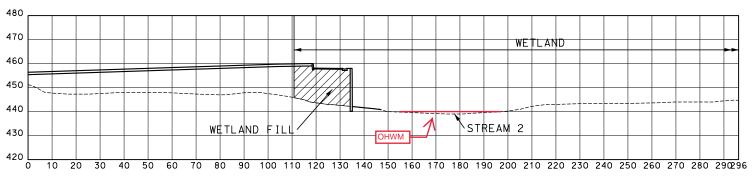




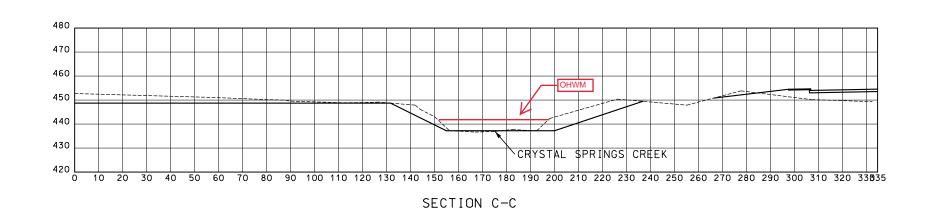


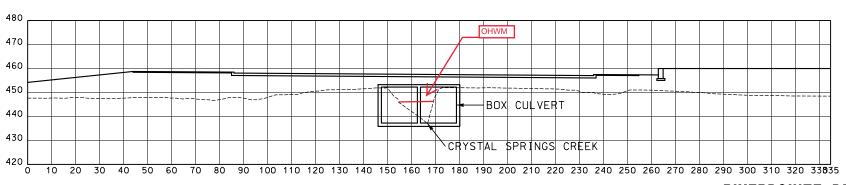






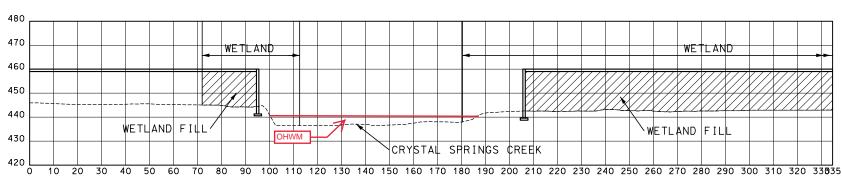
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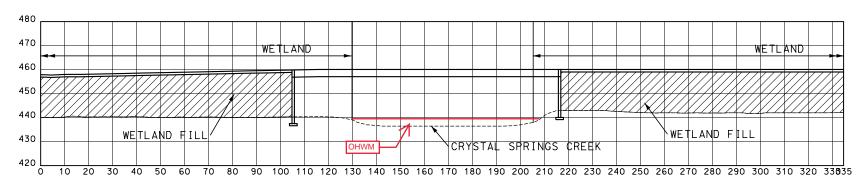


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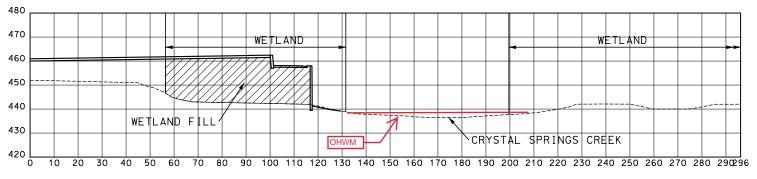
riverpointe development Stream & Wetland impact profiles Sheet 1 of 2



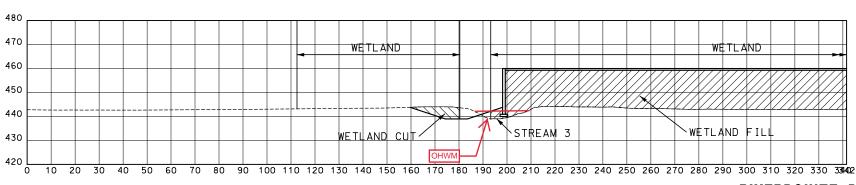
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SECTION G-G



SECTION H-H

RIVERPOINTE DEVELOPMENT STREAM & WETLAND IMPACT PROFILES SHEET 2 OF 2

Riverpointe Public Infrastructure Project

APPENDIX B: WETLAND DELINEATION REPORT



Wetlands and Other Waters of the United States Delineation Report

Riverpointe Public Infrastructure Project St. Charles, St. Charles County, Missouri

CMT Job Number: 19043402-00

OCTOBER 16, 2020



PREPARED BY:

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APPENDICES

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Initial Wetland/Habitat Summary Appendix D

1.0 SUMMARY

This water resource report has been prepared at the request of the City of St. Charles. The purpose of this report is to describe the wetlands and other regulated surface water resources located within the study area for the proposed Riverpoint Public Infrastructure Project in St. Charles, Missouri.

The Clean Water Act defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils." Thus, in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and the Midwest Regional Supplement, for an area to be considered a wetland, it must meet all of the following criteria, under normal circumstances: wetland hydrology, a dominance of hydrophytic vegetation and hydric soils.

As summarized in the table below, a total of four (4) streams, an approximately 76-acre forested wetland, and four (4) ponds were identified within the study area. These resources may be subject to regulation under the Clean Water Act and, therefore, impacts to these resources may require 404 authorization from the US Army Corps of Engineers and a 401 water quality certification from the Missouri Department of Natural Resources.

AQUATIC RESOURCES							
RESOURCE	ТҮРЕ	EXISTING CONDITION	PRELIMINARY JURISDICTIONAL STATUS	WITHIN STUDY AREA			
Crystal Springs Creek	Perennial	Moderately Functional	Federally Jurisdictional (a)(2)	2,368 linear feet, 3.54 acres			
Stream 2	Perennial	Moderately Functional	Federally Jurisdictional (a)(2)	3845 linear feet, 3.41 acres			
Stream 3	Intermittent	Functionally Impaired	Federally Jurisdictional (a)(2)	408 linear feet, 0.13 acre			
Stream 4	Ephemeral	Functionally Impaired	Non-Jurisdictional (b)(3)	551 linear feet			
Wetland	Forested	Type A; wooded wetland	Federally Jurisdictional (a)(4)	76.3 acres			
Pond 1	Man-made impoundment of former river channel	1	Non-Jurisdictional (b)(8)	1.39 acres			
Pond 2	Man-made impoundment of former river channel	1	Non-Jurisdictional (b)(8)	5.65 acres			
Pond 3	Man-made stormwater pond		Non-Jurisdictional (b)(10)	0.44 acre			
Pond 4	Ephemeral Pond		Non-Jurisdictional (b)(3)	0.60 acre			

2.0 METHODOLOGY

2.1 WETLANDS

The on-site evaluation of the approximately 195-acre study area was conducted during site visits on May 20-21, and June 26, 2020. When evaluating for the presence of wetlands, CMT personnel used the routine method for areas greater than 5 acres in size presented in the 1987 Corps of Engineers Wetlands Delineation Manual and the Midwest Regional Supplement. Routine Wetland Determination Data Forms were completed at points along the established transects at changes in inundation depth and/or vegetation community (Appendix A, Exhibit I). Additional data forms were completed in areas off the transects to classify areas of similar inundations depths. Consultant HDR prepared mapping documenting inundation depths for a typical year within the study area (Appendix A, Exhibit J). The mapped inundation is based on the median value from annual USGS gage 06935965 data. Inundation depths for a typical year are separated into six classes: 0-2, 2-5, 5-10, 10-15, 15-20, and >20 feet; the changes in inundation depths were used to inform decisions on where to complete the wetland data form.

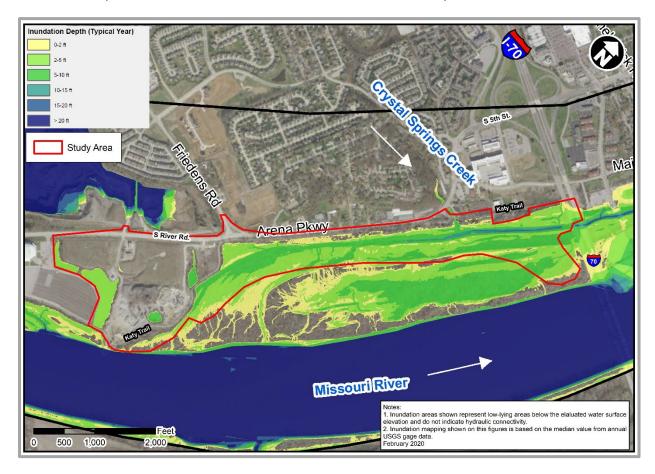


FIGURE 1 - INUNDATION DEPTH TYPICAL YEAR

In order for an area to be classified as a jurisdictional wetland, the area has to have a dominance of hydrophytic vegetation, hydric soils, and wetland hydrology and be an adjacent wetland as defined by the 2020 Navigable Waters Protection Rule. The specific indicators used

for each of the three parameters are noted in the following paragraphs. The completed Routine Wetland Determination Data Forms are included in Appendix B.

2.1.1 HYDROPHYTIC VEGETATION

According to Tiner (2012), a hydrophyte is a vascular plant that grows in water or on a substrate that is saturated at a frequency and duration during the growing period sufficient to affect plant occurrence. Using this definition, the U.S. Fish and Wildlife Service released the National Wetland Plant List. This list categorizes species according to their probability of occurrence in wetlands based on the ecological region. The list identifies five general plant indicator status categories:

- Obligate (OBL): almost always is a hydrophyte, rarely in uplands
- Facultative Wetland (FACW): Usually is a hydrophyte but occasionally found in uplands
- Facultative (FAC): Commonly occurs as either a hydrophyte or non-hydrophyte
- Facultative Upland (FACU): Occasionally is a hydrophyte but usually occurs in uplands
- Obligate Upland (UPL): Rarely is a hydrophyte, almost always in uplands

In order to satisfy the hydrophytic vegetation criteria required for a jurisdictional wetland, the area had to be dominated (over 50 percent) by obligate wetland plants, facultative wetland plants, and facultative plants.

The method used during this survey for determining vegetation dominance was the 50/20 method. Using this method, plant species in each stratum are ranked according to their percent aerial cover and then cumulatively summed until 50 percent of the total dominance measure is exceeded. All species contributing to that cumulative total plus any additional species that have at least 20 percent of the total dominance measure are considered dominants in their respective stratum.

2.1.2 HYDRIC SOIL

Hydric soil is soil formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Hydric soil indicators include the presence of histosols, histic epipedons, reducing conditions, gleyed or low chroma soil colors and high organic content or organic streaking in sandy soil. An additional hydric soil indicator used was if the mapped and confirmed soil type appears on the local or national hydric soils list.

2.1.3 WETLAND HYDROLOGY

Wetland hydrology is defined as an area that is inundated or saturated at or near the surface for at least five percent of the growing season in most years. This can include areas that are ponded, flooded or those areas that have a water table at or near the surface. Indications of wetland hydrology included surface water, saturation, evidence of drift deposits, iron deposits or drainage patterns, and inundation. Water-stained leaves, oxidized root channels within 12

inches below ground surface on living plants, the FAC neutral test and local soil survey data were also used to indicate wetland hydrology.

2.1.4 WETLAND LOCATION

The wetland boundary was determined using the draft map of inundation depths for a typical year produced by consultant HDR. The wetland or upland determinations at the field-collected data points informed the wetland or upland determination of the similar inundation areas within the study area. The wetland boundary with the field-collected data point locations are found on the wetland delineation map in Appendix A. All additional wetland mapping and physical data is also provided in Appendix A.

2.1.5 WETLAND QUALITATIVE ASSESSMENT

The wetland plant community was evaluated using the Floristic Quality Index (FQI).

The FQI is an index derived from floristic inventory data and is calculated from the number of species that occur in the plant community, as well as the species coefficient of conservatism (C) values. C-values are assigned to individual plant species. The higher the C-value is, the more likely a plant is from a minimally altered landscape. Low C-values are assigned to weeds, or species that can exist in a wide range of conditions. An area of high natural quality would include conservative native plants that are adapted to a specialized community context and would have a mean C-value of 5 or greater. The aggregate conservatism of all the plants inhabiting a site is used to determine its FQI.

The general classifications of the vegetative communities are made based on the FQI scores.

FQI	Classification
0-5	severely degraded
5-10	degraded
10-20	moderately degraded
20 +	high quality

2.2 STREAMS

Streams were evaluated for their jurisdictional status based on the 2020 Navigable Waters Protection Rule definition of waters of the United States, which requires the presence of an ordinary high water mark (OHWM) and be a perennial or intermittent tributary with ultimate connection to downstream Section 10 Traditional Navigable Waters (TNW).

The following USACE definitions for the three streams types were used:

Ephemeral streams have flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Intermittent streams have flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Perennial Streams have flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

The determination of stream designation is based on an evaluation of the size of the watershed for each stream, the presence of flow during the on-site evaluation and the evidence observed of the frequency of flow, and the presence of aquatic life. In addition to flow regime, streams were also classified according to existing conditions and rated either functional, moderately functional, or functionally impaired, based on the definitions in the State of Missouri Stream Mitigation Method (MSMM).

3.0 BACKGROUND INFORMATION

3.1 PROJECT DESCRIPTION

The City of St. Charles is proposing a new, multi-phase riverfront development project along South River Road located south of Interstate 70 (I-70) to the Family Arena within the City of St. Charles. The project consists of three phases of development along Bangert Island and the Missouri River.

Phase 1 of the project consists of an approximately 22-acre mixed-use development located adjacent to I-70 and South Main Street. Phase 2 of the project consists of an approximately 80-acre mixed-use and office space development near the Family Arena. Phase 3 of the project consists of an approximately 20-acre development along South River Road connecting Phases 1 and 2.

The development will provide recreational, employment, entertainment, and retail opportunities along approximately 1.6 miles of riverfront.

Portions of the project are currently in the preliminary design phase. Phased construction is anticipated to begin in Fall 2020 and be completed in Fall 2022.

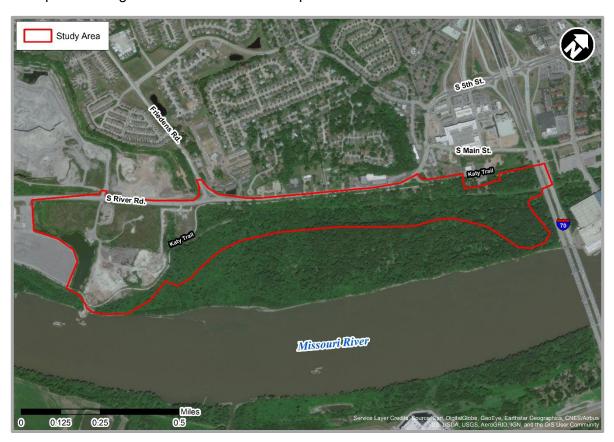


FIGURE 2 – STUDY AREA

3.2 PROJECT LOCATION

The proposed project is located along South River Road between I-70 and the Family Arena within the City of St. Charles in St. Charles County, Missouri. The project is within Sections 5 and 8, Township 46 North, Range 5 East of the U.S. Geological Survey (USGS) St. Charles,

Kampville, Chesterfield, and Creve Coeur, Missouri Quadrangles. The project location is in a relatively developed area with Bangert Island and the Missouri River to the east, I-70 to the north, and residential and commercial development to the west and south.

The study area includes portions of Bangert Island, which was once an island separated from the bluff at St. Charles by a side channel. However, river channel structures built on the Missouri River in the 1930s and 1940s have gradually silted in the channel separating Bangert Island from the shoreline. The deposition chocked the original side channel entrance at the Missouri River to the point of closure by 1980 and effectively reattached Bangert Island to the bluff.

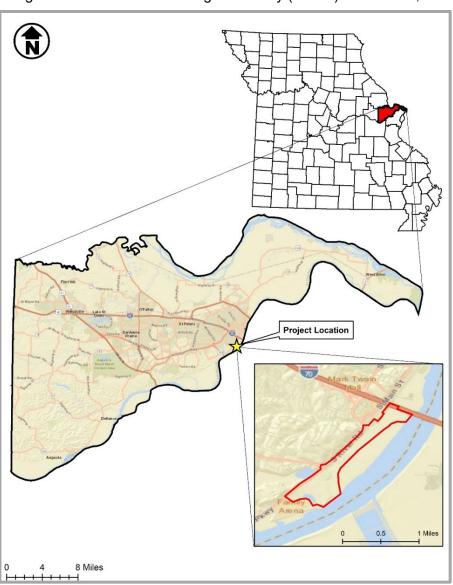


FIGURE 3 - COUNTY LOCATION MAP

Bangert Island, which was purchased by St. Charles County from the Missouri Department of Natural Resources in 2014, is currently being utilized as a park and recreation area. Within the park, there are approximately four miles of natural surfaced trails utilized for hiking, bird watching, etc. The remainder of the land is maintained as a natural area comprised of habitats that primarily consist of bottomland hardwood forest. The Katy Trail State Park is located

adjacent to the northwest boundary of the project and crosses through the southern portion of the study area.

3.3 HISTORICAL OR PUBLISHED INFORMATION

The study area is located within the Cowmire Creek-Missouri River (12 digit HUC 103002000801) and Duckett Creek-Missouri River (12 digit HUC 103002000704) watershed of the Lower Missouri watershed (8 digit HUC 10300200). The reach of the Missouri River located adjacent to the study area is listed on Missouri's 2018 303(d) listed waters as impaired for E. coli. The Missouri River is classified as a TNW.

The St. Charles County Soil Survey indicates the following soils are present within the study area.

- 60003 Menfro silt loam, 9 to 14 percent slopes, eroded
- 60125 Harvester-Urban land complex, 9 to 14 percent slopes
- 66092 Fishpot-Urban land complex, 0 to 5 percent slopes, rarely flooded
- ❖ 66126* Haynie-Treloar-Blake complex, 0 to 2 percent slopes, frequently flooded
- ❖ 99000 Pits, quarry
- 99001 Water

According to the St. Charles County Hydric Soils List, the soils marked with an asterisk are hydric.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the study area is located within FEMA Flood Zone AE, which corresponds to 1% annual chance of a flood hazard and the regulatory floodway of the Missouri River and Crystal Springs Creek.

The National Wetlands Inventory (NWI) map indicates that forested wetlands are located throughout the study area; riverine and emergent wetlands are also located within the study area.

According to the National Hydrography Dataset (NHD), NWI, and USGS topographic maps, streams are located within the study area.

Copies of the USGS topographic map, NWI map, NHD map, FEMA flood zone map, NRCS soils map, and the relevant portions of the St. Charles County Soil Survey are included in Appendix A (Exhibits C-H).

Biologists from the Kansas City District U.S. Army Corp of Engineers performed an initial wetlands field review of Bangert Island and portions of the study area in February 2016. The Initial Field Wetland/Habitat Summary for Bangert Island is provided in Appendix D.

4.0 RESULTS

A total of four (4) streams, an approximately 76-acre forested wetland, and four (4) ponds were identified in the study area during the onsite investigations on May 20-21 and June 26, 2020. The Water Resources Maps provided in Appendix A depict the locations of these resources on an aerial photograph and the inundation depths for a typical year. Data forms and the Floristic Quality Index (FQI) result are provided in Appendix B. Representative photographs of the identified features are provided in Appendix C.



FIGURE 4 - WATER RESOURCES MAP

4.1 WETLANDS

Thirty-two (32) data points were assessed in the study area; twenty (20) data points were identified as exhibiting all three wetland characteristics. A summary of the wetland data points is provided in the table below. Based on the results of the data points within inundation depths of 2-5 feet and greater, these areas met the three parameters of a wetland and were delineated as a wetland. Approximately half of the data points collected within inundation depths of 0-2 feet met the three parameters of a wetland; therefore, these areas within the study area have been classified as transitional areas between wetlands and uplands and approximately half of the area has been delineated as a wetland.

DELINEATION DATA POINT SUMMARY							
	WETLAN	ID INDICATOR PR		INUNDATION DEPTH (TYPICAL YEAR), feet			
DATA POINT	HYDROPHYTIC VEGETATION	HYDRIC SOIL HYDROLOGY				SAMPLED AREA WITHIN WETLAND?	
Α	yes	yes	yes	yes	2-5		
В	yes	no	yes	no	0-2		
С	yes	yes	yes	yes	2-5		
D	yes	yes	yes	yes	2-5 / 5-10		
Е	yes	no	yes	no	0-2		
F	yes	yes	yes	yes	0-2		
G	no	no	yes	no	none		
Н	yes	yes	yes	yes	2-5		
I	yes	yes	no	no	none		
J	yes	yes	yes	yes	0-2		
K	yes	yes	yes	yes	5-10		
L	yes	no	no	no	0-2		
М	yes	yes	no	no	none / 0-2		
N	yes	yes	yes	yes	2-5		
0	yes	no	yes	no	0-2		
Р	yes	yes	yes	yes	2-5 / 5-10		
Q	yes	no	yes	no	0-2		
R	yes	yes	yes	yes	2-5		
S	yes	yes	yes	yes	0-2		
T	yes	yes	yes	yes	2-5		
U	yes	yes	yes	yes	2-5		
٧	yes	no	yes	no	0-2		
W	yes	no	yes	no	none		
Х	yes	yes	yes	yes	2-5		
Y	yes	yes	yes	yes	0-2		
Z	yes	no	yes	no	none		
AA	yes	yes	yes	yes	0-2		
BB	yes	yes	yes	yes	2-5		
CC	yes	yes	yes	yes	2-5		
DD	yes	yes	yes	yes	0-2		
EE	yes	yes	yes	yes	0-2		
FF	yes	no	yes	no	5-10		

The study area contains approximately 76 acres of continuous forested wetlands. The wetland area abuts and is inundated by flooding from Crystal Springs Creek and Stream 2, which are perennial tributaries to the Missouri River, a TNW, and is likely federally jurisdictional as defined by (a)(4) of the 2020 Navigable Waters Rule. The wetland area is also inundated by flooding from the Missouri River during a typical year.

Based on the Missouri Wetland Mitigation Method (MWMM), the wetland area is aquatic resource type A: wooded wetland with canopy height greater than 6 meters. A Floristic Quality Index (FQI) was completed for the continuous wetland area. The native mean C-value is 2.6, indicating that the plant community is considered low quality. The native FQI is 10.4, indicating that the plant community is moderately degraded.

Throughout the study area, the wetland vegetation was dominated by ash-leaf maple (*Acer negundo*, FAC), silver maple (*Acer saccharinum*, FACW), Eastern cottonwood (*Populus deltoides*, FAC), and American sycamore (*Platanus occidentalis*, FACW) in the tree layer, ash-leaf maple (*Acer negundo*, FAC), silver maple (*Acer saccharinum*, FACW) and common hackberry (*Celtis occidentalis*, FAC) in the sapling/shrub layer, and cress-leaf groundsel (*Packera glabella*, FACW), spotted touch-me-not (*Impatiens capensis*, FACW), Eastern poison ivy (*Toxicodendron radicans*, FAC), in the herbaceous layer. The wetland soils typically met the redox dark surface or depleted matrix hydric soil indicators. The primary hydrology indicators saturation, water marks, drift deposits, sparsely vegetation concave surface, and water-stained leaves, and the secondary hydrology indicators surface soil cracks, drainage patterns, geomorphic position, and FAC-neutral test were typically present throughout the wetland data points.

Details on the soil, hydrology and dominant vegetation for at each data point are provided on the Routine Wetland Determination Data Forms included in Appendix B. Photographs at each data point are provided in Appendix C.

4.2 STREAMS

A total of four (4) streams were identified within the study area. A summary of these streams is provided in the table below.

STREAM SUMMARY								
STREAM NAME	RECEIVING WATERS	PRELIMINARY USACE JURISDICTIONAL STATUS	STREAM TYPE	DRAINAGE AREA (SQ MI)*	PRIORITY WATERS	EXISTING CONDITION	LINEAR FEET WITHIN STUDY AREA	ACRES WITHIN STUDY AREA
Crystal Springs Creek (Stream 1)	Missouri River	Jurisdictional (a)(2)	Perennial	2.23	Secondary Priority	Moderately Functional	2,337	3.54
Stream 2	Crystal Springs Creek > Missouri River	Jurisdictional (a)(2)	Perennial	0.36	Secondary Priority	Moderately Functional	3,859	3.41
Stream 3	Crystal Springs Creek > Missouri River	Jurisdictional (a)(2)	Intermittent	0.06	Secondary Priority	Functionally Impaired	419	0.13
Stream 4	Pond 4 > culvert > undefined channel/swale > Stream 2 > Crystal Springs Creek > Missouri River	Non- Jurisdictional (b)(3)	Ephemeral	0.32	Tertiary Priority	Functionally Impaired	551	

^{*} As calculated by USGS Stream Stats at most downstream location within the study area.

As indicated in the table, Crystal Springs Creek, Stream 2, and Stream 3 are perennial or intermittent tributaries to the Missouri River, a TNW, and are likely federally jurisdictional as defined by (a)(2) of the 2020 Navigable Waters Rule.

The Water Resources Maps in Appendix A show the locations of these streams in the study area. The Stream Stats reports for each stream are in Appendix B. Representative photographs of each stream are provided in Appendix C.

4.3 LAKES/PONDS

Within the study area, a total of four (4) ponds were identified during the onsite investigation. The Water Resources Map in Appendix A shows the location of these ponds within the study area. Photographs of the ponds are provided in Appendix C. Based on historical imagery, Ponds 1 and 2 were once directly connected to the Missouri River as side channels; as development and upland were constructed around the ponds, they were cut off from the Missouri River in the early 1970s and appear to currently function as stormwater collection basins for the surrounding developments and upland areas. Pond 4 appears to be created from the backing up of Stream 4 at partially blocked culverts located under the Katy Trail.

POND SUMMARY							
POND NAME	CONNECTION TO DOWNSTREAM TNW	ТҮРЕ	PRELIMINARY USACE JURISDICTIONAL STATUS	AQUATIC RESOURCE TYPE*	ACRES WITHIN STUDY AREA		
Pond 1	culvert > Pond 2 > culvert > unnamed tributary > Missouri River	Man-made impoundment of former river channel	Non-Jurisdictional (b)(8)	Туре С	1.39		
Pond 2	culvert > unnamed tributary > Missouri River	Man-made impoundment of former river channel	Non-Jurisdictional (b)(8)	Туре С	5.65		
Pond 3	None - Isolated	Man-made stormwater pond	Non-Jurisdictional (b)(10)	Туре С	0.44		
Pond 4	culvert > undefined channel > Stream 2 > Crystal Springs Creek > Missouri River	Ephemeral pond	Non-Jurisdictional (b)(3)	Туре С	0.60		
				TOTAL	8.08		

^{*}Based on MWMM

5.0 REFERENCES

The following references were consulted during the investigation:

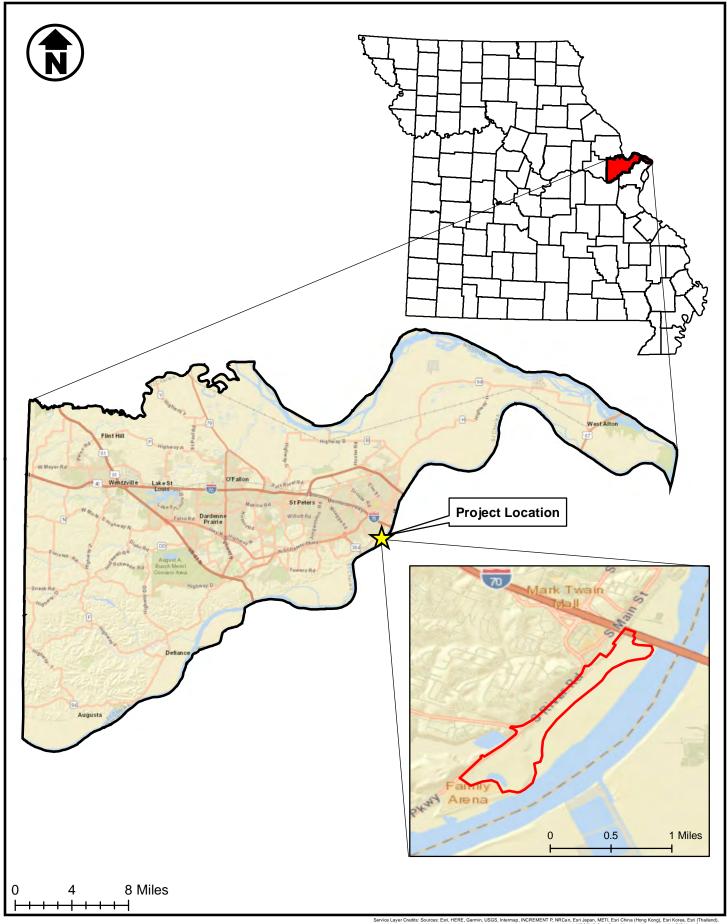
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- Priority Watershed Listing at: http://www.nwk.usace.army.mil/Portals/29/docs/regulatory/nationwidepermits/2017/ PriorityWatersheds.pdf

Wetland and Other Waters of the United States Delineation Report

APPENDIX A: PROJECT MAPPING





Riverpointe Public Infrastructure Project
Location Map - St. Charles County, MO

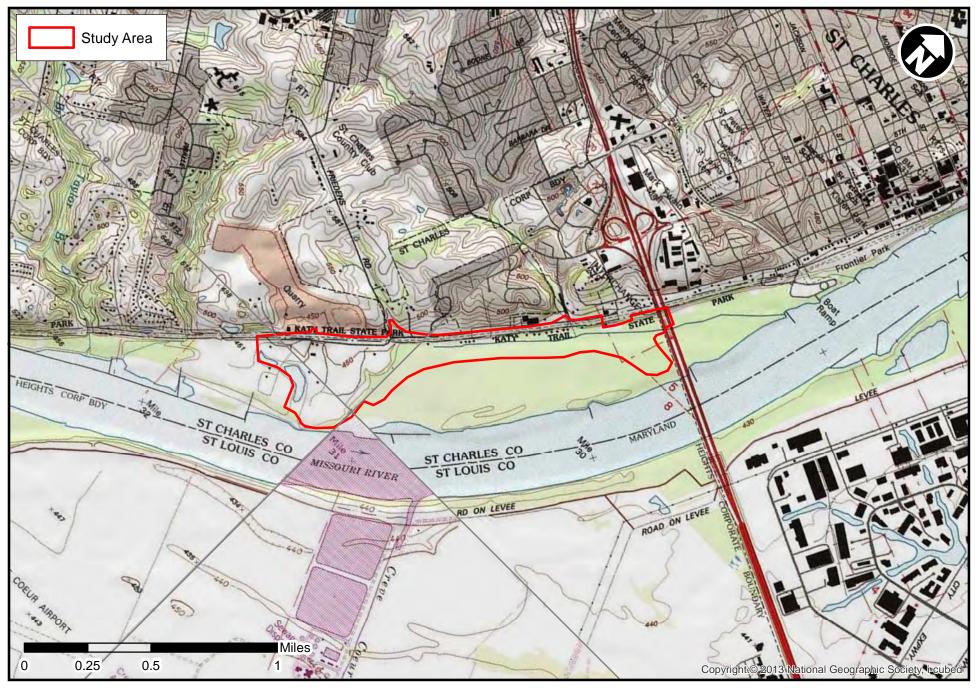


Exhibit B





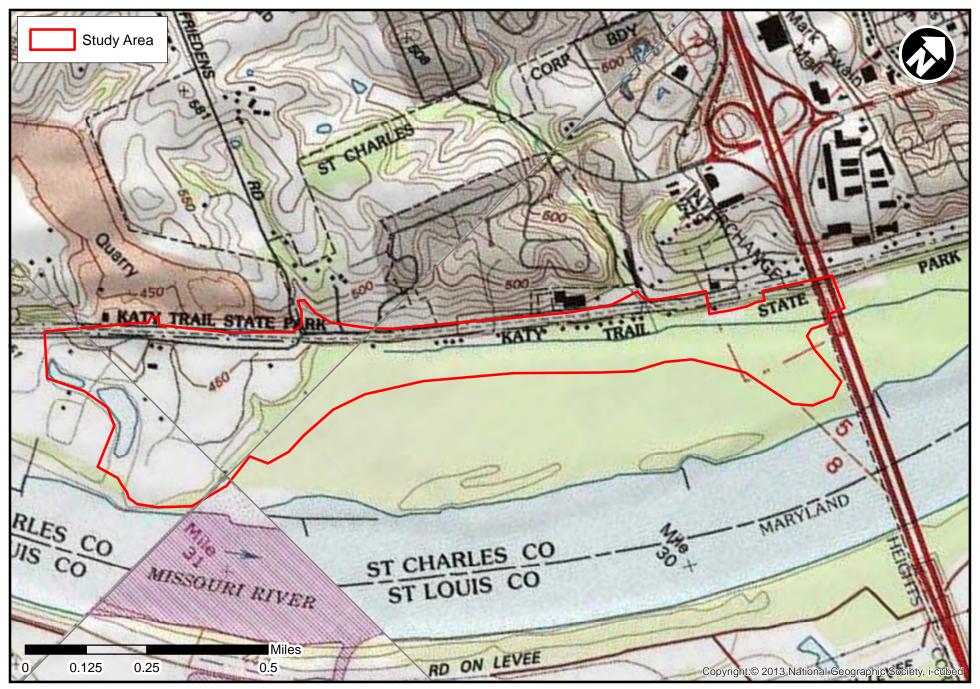
Exhibit C



Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO USGS Topographic Map - St. Charles, Kampville, Chesterfield, and Creve Coeur, MO Quadrangles



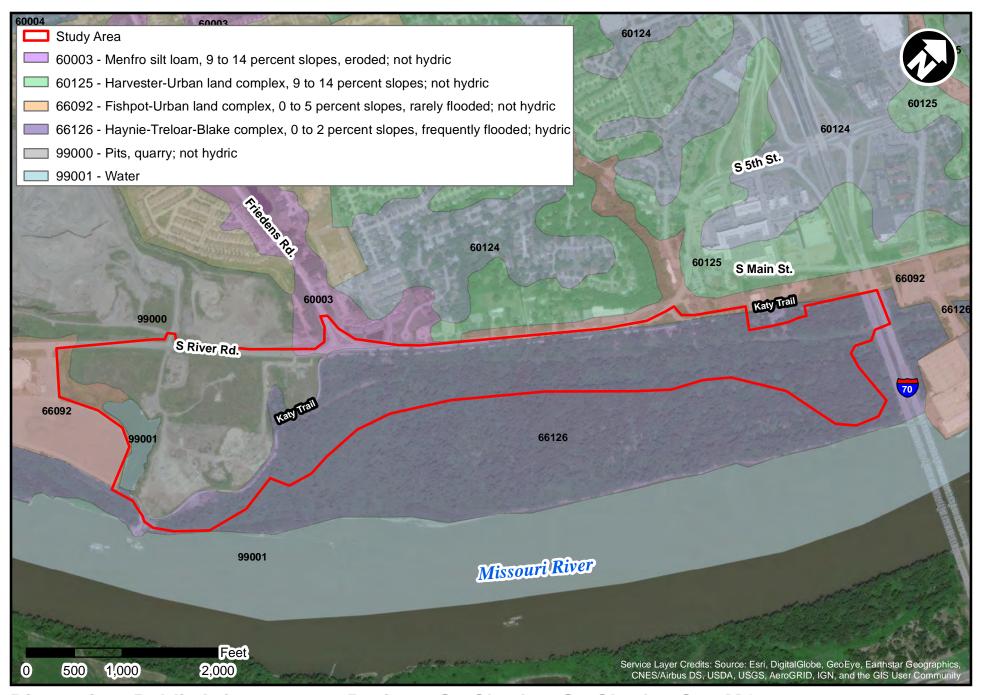
Exhibit D



Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO USGS Topographic Map - St. Charles, Kampville, Chesterfield, and Creve Coeur, MO Quadrangles



Exhibit E







Map Unit Description (Brief, Generated)

St. Charles County, Missouri

[Minor map unit components are excluded from this report]

Map unit: 60003 - Menfro silt loam, 9 to 14 percent slopes, eroded

Component: Menfro (85%)

The Menfro component makes up 85 percent of the map unit. Slopes are 9 to 14 percent. This component is on hills, hillslopes. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the F115BY001MO Deep Loess Upland Woodland ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Map unit: 60125 - Harvester-Urban land complex, 9 to 14 percent slopes

Component: Harvester (70%)

The Harvester component makes up 70 percent of the map unit. Slopes are 9 to 14 percent. This component is on hills, hillslopes. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 34 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 0 percent. This component is in the F115BY001MO Deep Loess Upland Woodland ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Component: Urban land (20%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Map unit: 66092 - Fishpot-Urban land complex, 0 to 5 percent slopes, rarely flooded

Component: Fishpot (50%)

The Fishpot component makes up 50 percent of the map unit. Slopes are 0 to 5 percent. This component is on stream terraces, river valleys. The parent material consists of mine spoil or earthy fill. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 20 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 2w. This soi does not meet hydric criteria.

Component: Urban land (40%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.



Survey Area Version: 19 Survey Area Version Date: 09/16/2019

Map Unit Description (Brief, Generated)

St. Charles County, Missouri

Map unit: 66126 - Haynie-Treloar-Blake complex, 0 to 2 percent slopes, frequently flooded

Component: Haynie (45%)

The Haynie component makes up 45 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains, river valleys. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the F115BY015MO Sandy/loamy Floodplain Forest ecological site. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 5 percent.

Component: Treloar (25%)

The Treloar component makes up 25 percent of the map unit. Slopes are 0 to 2 percent. This component is on river valleys, flood-plain steps. The parent material consists of sandy alluvium over loamy alluvium. Depth to a root restrictive layer, strongly contrasting textural stratification, is 16 to 39 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 28 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 1 percent. This component is in the F115BY015MO Sandy/loamy Floodplain Forest ecological site. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent.

Component: Blake (20%)

The Blake component makes up 20 percent of the map unit. Slopes are 0 to 2 percent. This component is on river valleys, flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 14 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 3 percent. This component is in the F115BY031MO Loamy Floodplain Forest ecological site. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 5 percent.

Map unit: 99000 - Pits, quarry

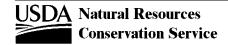
Component: Pits (100%)

Generated brief soil descriptions are created for major soil components. The Pits is a miscellaneous area.

Map unit: 99001 - Water

Component: Water (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.



Hydric Soils

St. Charles County, Missouri

[This report lists only those map unit components that are rated as hydric. Dashes (---) in any column indicate that the data were not included in the database. Definitions of hydric criteria codes are included at the end of the report]

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
66126:					1
Haynie-Treloar-Blake complex, 0 to 2 percent slopes, frequently flooded	Haynie	45	Flood plains	Yes	4
	Treloar	25	Flood-plain steps	Yes	4
	Blake	20	Flood plains	Yes	4
	SansDessein	5	Flood-plain steps	Yes	2, 4
	Sarpy	5	Flood-plain steps	Yes	4



Hydric Soils

This table lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2003) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2B3). Definitions for the codes are as follows:

- 1. All Histels except for Folistels, and Histosols except for Folists.
- 2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
 - A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
 - B. are poorly drained or very poorly drained and have either:
 - 1) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
 - 2) a water table at a depth of 0.5 foot or less during the growing season if
 - permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
 - 3) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
- 3. Soils that are frequently ponded for long or very long duration during the growing season.
- 4. Soils that are frequently flooded for long or very long duration during the growing season.

References

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

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Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.



Exhibit F

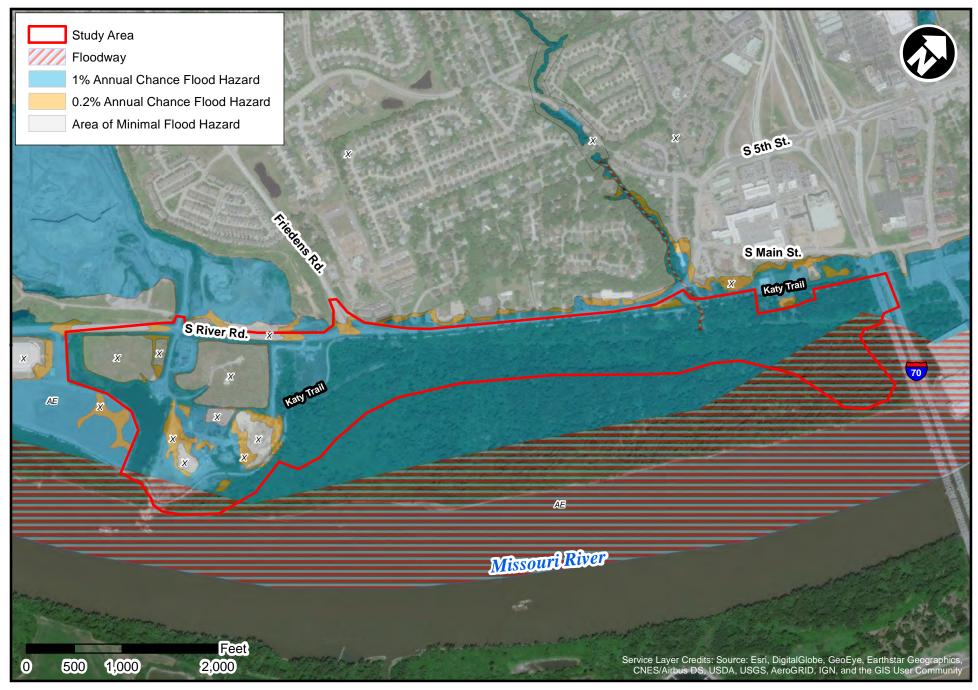






Exhibit G



Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO National Hydrography Dataset Map



Exhibit H



Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO National Wetland Inventory Map



Exhibit I





Exhibit J

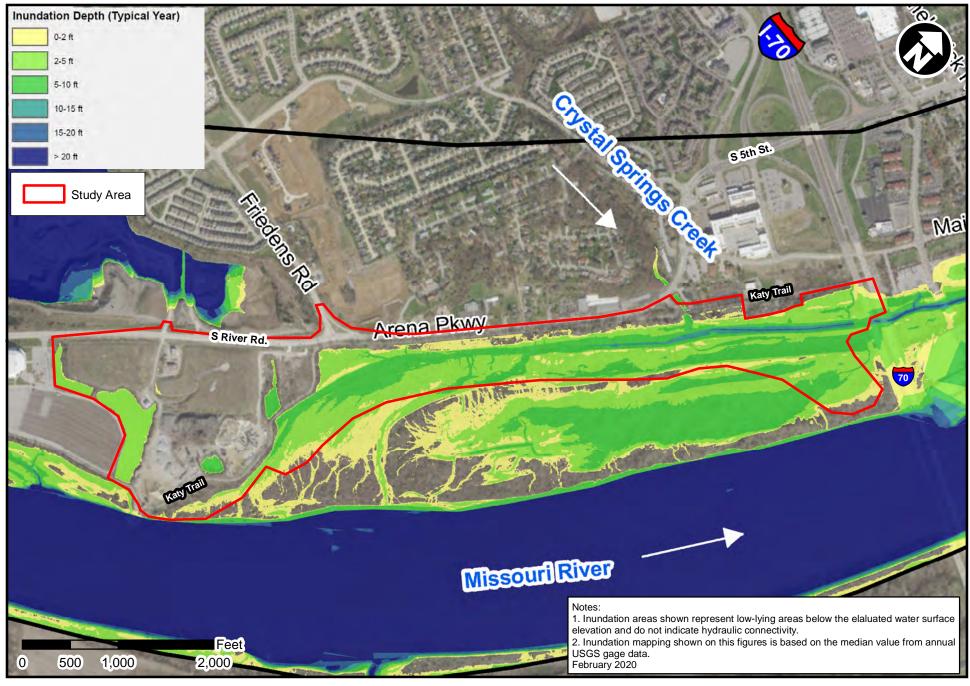






Exhibit K







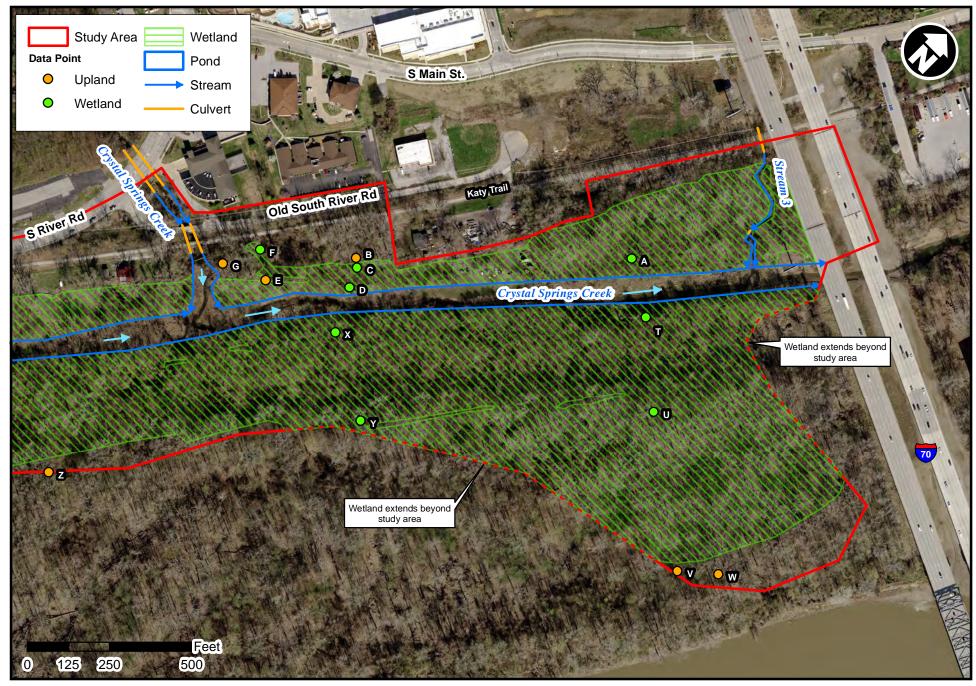
Exhibit L



Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO Water Resources Map - North



Exhibit M



Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO Water Resources Map - North



Exhibit N

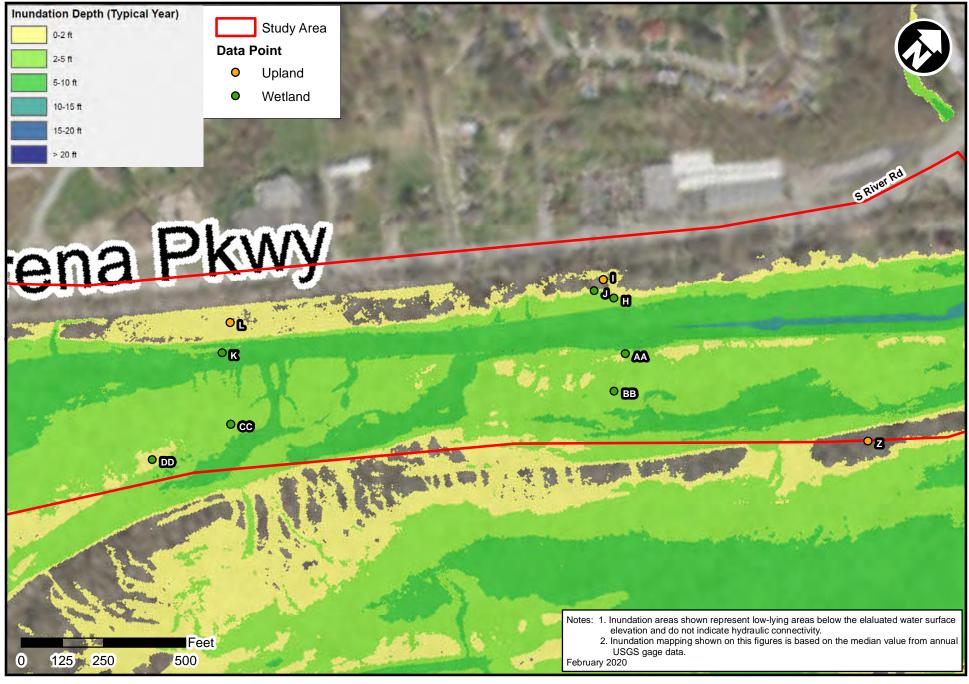






Exhibit O

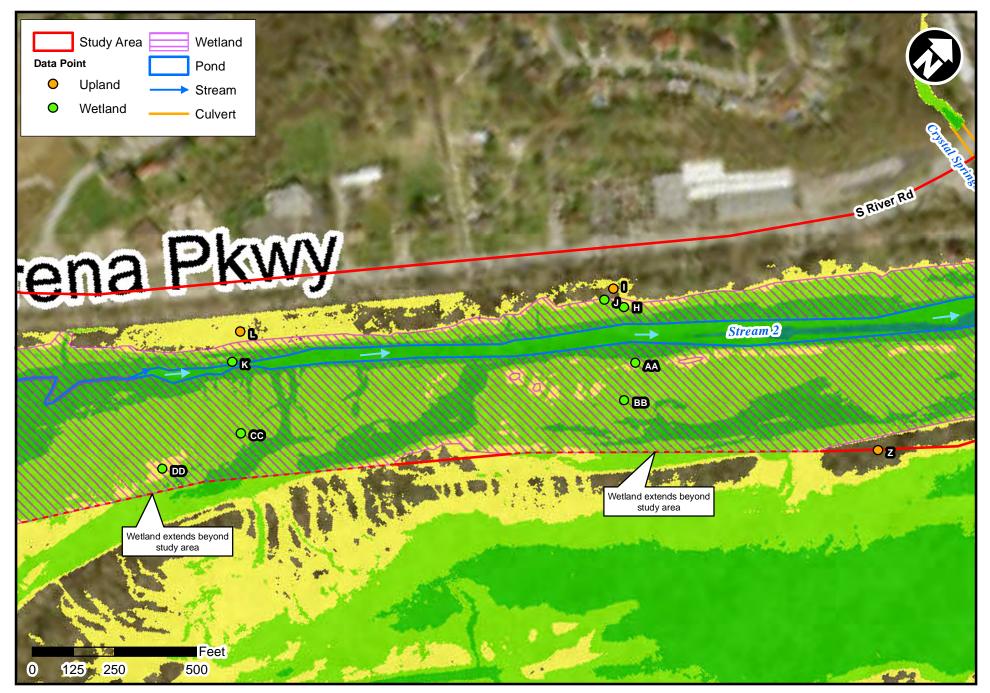
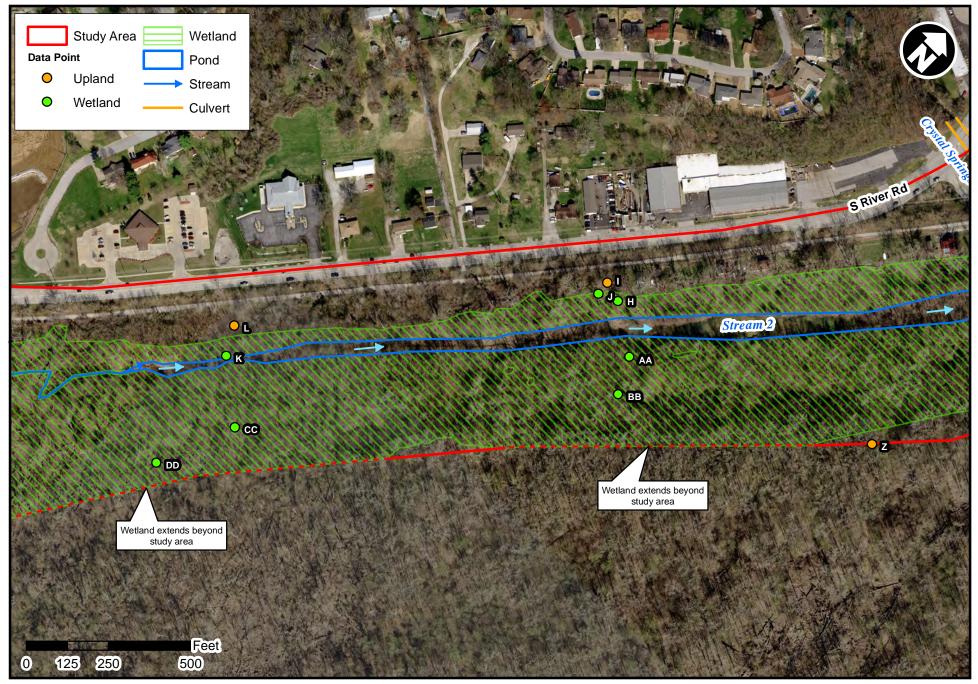




Exhibit P



Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO Water Resources Map - Central



Exhibit Q

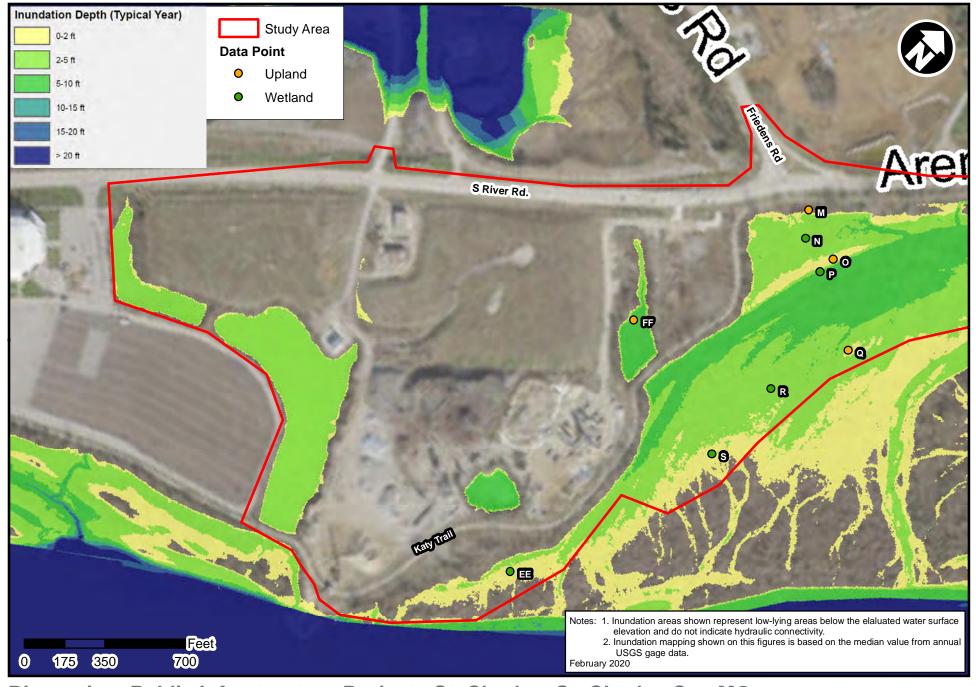




Exhibit R





Exhibit S

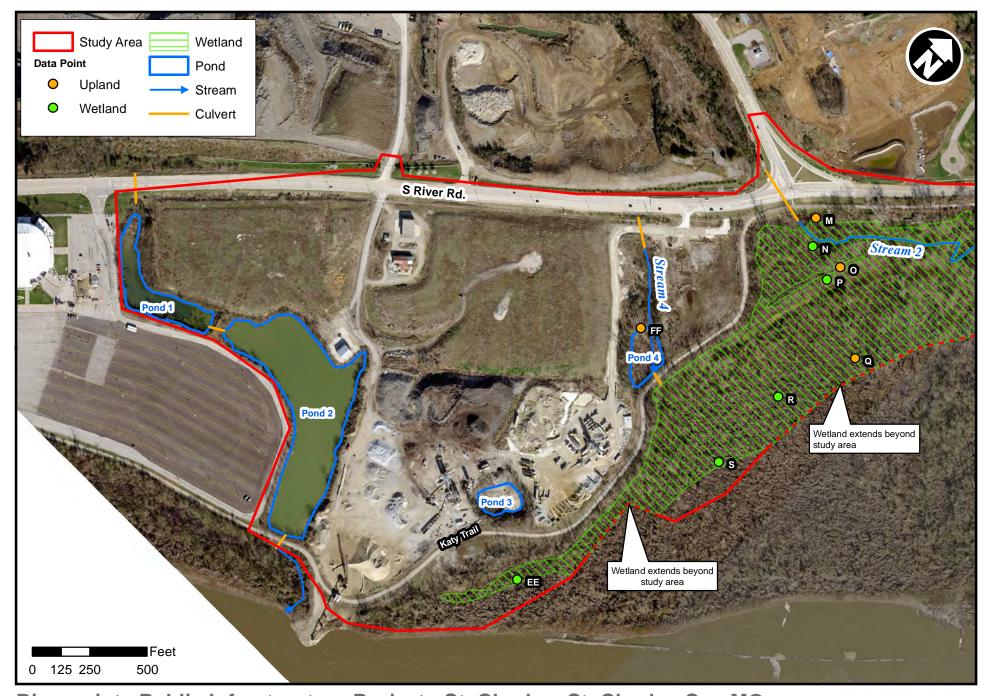
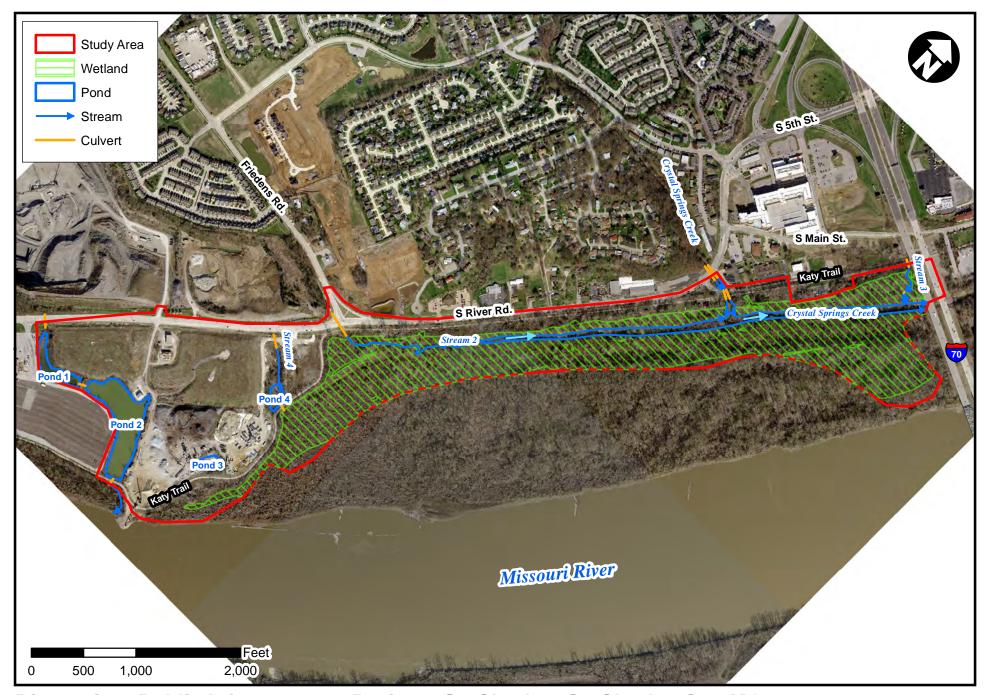




Exhibit T







Wetland and Other Waters of the United States Delineation Report

APPENDIX B: DATA FORMS AND FQI



Project/Site: Riverpointe Public Infrastructure Project		City/County	St. Charle	es, St. Charles County Sampling Date: 5/20/2020			
Applicant/Owner: City of St. Charles		State: MO Sampling Point: A					
Investigator(s): AMZ, ELH	wnship, Rai	nge: Section 08, Township 46 N, Range 5 E					
Landform (hillslope, terrace, etc.): floodplain depression							
Slope (%): 1 Lat: 38.765003				` <u> </u>			
Soil Map Unit Name: 66126: Haynie-Treloar-Blake comp		-					
Are climatic / hydrologic conditions on the site typical for							
	_						
				Normal Circumstances" present? Yes X No No			
Are Vegetation, Soil, or Hydrology				eeded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS – Attach site ma	p showing	samplin	g point le	ocations, transects, important features, etc.			
Hydrophytic Vegetation Present? Yes X	No	le th	e Sampled	Area			
Hydric Soil Present? Yes X			in a Wetlar				
Wetland Hydrology Present? Yes X	No			100 <u>- 1</u> 110 <u></u>			
Remarks:							
VEGETATION – Use scientific names of plan	to						
VEGETATION – Ose scientific flames of plan	Absolute	Dominant	Indicator	Dominance Test worksheet:			
Tree Stratum (Plot size: 30' radius)		Species?		Number of Dominant Species			
1. Acer saccharinum	40	Y	FACW	That Are OBL, FACW, or FAC:6 (A)			
2. Acer negundo	15	Y	FAC	Total Number of Dominant			
3. Salix nigra	5	N	OBL	Species Across All Strata: 6 (B)			
4. Morus alba	5	N	FAC	Percent of Dominant Species			
5				That Are OBL, FACW, or FAC: 100.00 (A/B)			
Sapling/Shrub Stratum (Plot size:15' radius)		= Total Cov	er er	Prevalence Index worksheet:			
1				Total % Cover of: Multiply by:			
2.				OBL species5 x 1 =5			
3.				FACW species 43 x 2 = 86			
4.				FAC species 21 x 3 = 63			
5				FACU species0 x 4 =0			
		= Total Cov	er er	UPL species0 x 5 =0			
Herb Stratum (Plot size: 5' radius)				Column Totals:69 (A)154 (B)			
Acer saccharinum			FACW	Prevalence Index = B/A =2.23			
Acer saccnarinum Packera glabella			FACW	Hydrophytic Vegetation Indicators:			
to a thought and a control	4	Y	FACW	X Dominance Test is >50%			
impatiens capensis Toxicodendron radicans		Y	FAC	X Prevalence Index is ≤3.0¹			
6.		-		Morphological Adaptations ¹ (Provide supporting			
7.				data in Remarks or on a separate sheet)			
8.				Problematic Hydrophytic Vegetation ¹ (Explain)			
9				1			
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
	4	= Total Cov	er er				
Woody Vine Stratum (Plot size: 30' radius)				Underwhydia			
1				Hydrophytic Vegetation			
2				Present? Yes X No			
		= Total Cov	rer				
Remarks: (Include photo numbers here or on a separa	te sheet.)						

SOIL Sampling Point: A

Profile Description: (Describe to to Depth Matrix	ne ueptii nee		nent tne i x Feature		or contirn	n uie absend	e of mulcators.)
(inches) Color (moist)	% Col	or (moist)	% reature:	s Type ¹	Loc ²	Texture	Remarks
0-14 10YR 3/2		0YR 4/6	20	C	M	not sand	loam
		011111110				not cana	- Ioum
						-	- -
·							
			- '				
					-	-	
1T C-Concentration D-Doubti		and Madrice CC			d Cand C	21	anation. DI -Dona Lining M-Matrix
¹ Type: C=Concentration, D=Depletion Hydric Soil Indicators:	on, Rivi=Reduc	eu Mairix, Co	S=Covered	J OF COALE	u Sanu G		ocation: PL=Pore Lining, M=Matrix. rs for Problematic Hydric Soils ³ :
Histosol (A1)		Sandy (Gleyed Ma	atriv (S4)			st Prairie Redox (A16)
Histic Epipedon (A2)			Redox (S5				Manganese Masses (F12)
Black Histic (A3)			d Matrix (S				r (Explain in Remarks)
Hydrogen Sulfide (A4)			Mucky Mir				,
Stratified Layers (A5)		Loamy	Gleyed Ma	atrix (F2)			
2 cm Muck (A10)			d Matrix (I				
Depleted Below Dark Surface (A	(11)	X Redox I		. ,			
Thick Dark Surface (A12)				ırface (F7)			ers of hydrophytic vegetation and
Sandy Mucky Mineral (S1)		X Redox I	Depression	ns (F8)			and hydrology must be present,
5 cm Mucky Peat or Peat (S3) Restrictive Layer (if observed):						unies	ss disturbed or problematic.
Type:						11	11 Burnando Vara V Na
Depth (inches):						Hydric Sc	oil Present? Yes X No
Remarks:							
Remarks:							
Remarks: HYDROLOGY							
HYDROLOGY	s required; che	eck all that ap	pply)			Secon	dary Indicators (minimum of two required)
HYDROLOGY Wetland Hydrology Indicators:	•	eck all that ap		es (B9)			dary Indicators (minimum of two required) urface Soil Cracks (B6)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the indicators)	•		ined Leav	, ,		Sı	· · · · · · · · · · · · · · · · · · ·
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3)	•	✓ Water-Sta	ined Leav)		Su _ X Dr	urface Soil Cracks (B6)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2)	•	✓ Water-Sta Aquatic Fa	ined Leav auna (B13 atic Plants) (B14)		St Dr Dr	urface Soil Cracks (B6) rainage Patterns (B10)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3)	•	✓ Water-Sta _ Aquatic Fa _ True Aqua	ined Leave auna (B13 atic Plants Sulfide Oc) (B14) dor (C1)	ing Roots	St Dr Dr Cr	urface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the second of the se	•	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence	ined Leave auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce) (B14) dor (C1) res on Livied Iron (C4	ł)	Su Dr Cr C(C3) Sa St	urface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) aturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4)	•	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	ined Leave auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce) (B14) dor (C1) res on Livied Iron (C4	ł)	Su Dr Cr C(C3) Se St St	curface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) raturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) reomorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	<u>></u>	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck	ined Leave auna (B13 atic Plants Sulfide Oc Rhizosphe of Reduce on Reducti a Surface ((B14) dor (C1) res on Livi ed Iron (C4 on in Tilled	ł)	Su Dr Cr C(C3) Se St St	urface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) aturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the state of the	> - - - - - - - - - -	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or	ined Leave auna (B13 atic Plants Sulfide Oc Rhizosphe of Reduce on Reducti a Surface ((B14) dor (C1) res on Livi ed Iron (C4 on in Tilled (C7) (D9)	ł)	Su Dr Cr C(C3) Se St St	curface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) raturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) reomorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imaged X Sparsely Vegetated Concave Surface (A1)	> - - - - - - - - - -	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck	ined Leave auna (B13 atic Plants Sulfide Oc Rhizosphe of Reduce on Reducti a Surface ((B14) dor (C1) res on Livi ed Iron (C4 on in Tilled (C7) (D9)	ł)	Su Dr Cr C(C3) Se St St	curface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) raturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) reomorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Image X Sparsely Vegetated Concave Surfield Observations:		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Leaviauna (B13 atic Plants Sulfide Or Rhizosphe on Reduction Surface (Well Data blain in Re	(B14) (B14) dor (C1) res on Liv ed Iron (C4 on in Tilled (C7) (D9) emarks)	l) d Soils (Ce	Su Dr Cr C(C3) Se St St	curface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) raturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) reomorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Image X Sparsely Vegetated Concave Surfield Observations: Surface Water Present? Yes		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Leave auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti & Surface (Well Data blain in Re	(B14) (B14) dor (C1) res on Livi ed Iron (C4 on in Tilled (C7) (D9) emarks)	l) d Soils (Ce	Su Dr Cr C(C3) Se St St	curface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) raturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) reomorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Images X Sparsely Vegetated Concave Surfield Observations: Surface Water Present? Yes Water Table Present? Yes		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Leavenum (B13 atic Plants Sulfide Oc Rhizosphe of Reduce on Reduction Surface (Well Data blain in Reches):ches):ches):ches):ches):ches	(B14) (B14) dor (C1) res on Livi ed Iron (C4 on in Tilled (C7) (D9) emarks)	l) d Soils (Ce	Su Dr Cr C(C3) Se St St	curface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) raturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) reomorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the state of the		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Leavenum (B13 atic Plants Sulfide Oc Rhizosphe of Reduce on Reduction Surface (Well Data blain in Reches):ches):ches):ches):ches):ches	(B14) (B14) dor (C1) res on Livi ed Iron (C4 on in Tilled (C7) (D9) emarks)	I) d Soils (Ce	St Dr Cr (C3) Sa St St X Go X FA	curface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) raturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) reomorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Images X Sparsely Vegetated Concave Surface Water Present? Yes Water Table Present? Yes	gery (B7)	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Leave auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti & Surface (Well Data blain in Re ches): ches): ches):	(B14) (B14) dor (C1) res on Livied Iron (C4 on in Tilled (C7) (D9) emarks)	d Soils (Ce	Su Dr Cr (C3) Sa St St St St St	urface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) aturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) eomorphic Position (D2) AC-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Images X Sparsely Vegetated Concave Surfice Water Present? Water Table Present? Yes Saturation Present? Yes (includes capillary fringe)	gery (B7)	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Leave auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti & Surface (Well Data blain in Re ches): ches): ches):	(B14) (B14) dor (C1) res on Livied Iron (C4 on in Tilled (C7) (D9) emarks)	d Soils (Ce	Su Dr Cr (C3) Sa St St St St St	urface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) aturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) eomorphic Position (D2) AC-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Image in the surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gater)	gery (B7)	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Leave auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti & Surface (Well Data blain in Re ches): ches): ches):	(B14) (B14) dor (C1) res on Livied Iron (C4 on in Tilled (C7) (D9) emarks)	d Soils (Ce	Su Dr Cr (C3) Sa St St St St St	urface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) aturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) eomorphic Position (D2) AC-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one in the surface Water (A1) High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Images X Sparsely Vegetated Concave Surfice Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gates)	gery (B7)	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or Other (Exp Depth (in Depth (in	ined Leaverauma (B13 attic Plants Sulfide Oo Rhizosphe of Reducer on Reduction Surface (Well Data plain in Reches): ches): photos, pr	(B14) (B14) dor (C1) res on Livi ed Iron (C4 on in Tilled (C7) (D9) emarks) surface evious ins	d Soils (Ce	Su Dr Cr (C3) Sa St St St St St	urface Soil Cracks (B6) rainage Patterns (B10) ry-Season Water Table (C2) rayfish Burrows (C8) aturation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) eomorphic Position (D2) AC-Neutral Test (D5)

Project/Site: Riverpointe Public Infrastructure Project	c	ity/County:	St. Charle	s, St. Charles County Sampling Date: 5/20/2020
Applicant/Owner: City of St. Charles	State: MO Sampling Point: B			
	nge: Section 08, Township 46 N, Range 5 E			
Landform (hillslope, terrace, etc.): terrace				
Slope (%): 1 Lat: 38.763380				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex, 0-		· —		
Are climatic / hydrologic conditions on the site typical for this tir				
Are Vegetation, Soil, or Hydrology sign	-			
Are Vegetation, Soil, or Hydrology natu				eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sh				
Hydrophytic Vegetation Present? Yes X No _ Hydric Soil Present? Yes No _ Wetland Hydrology Present? Yes X No _	×		e Sampled n a Wetlan	
Remarks:				
VEGETATION – Use scientific names of plants.				
		Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: 30' radius) % 1. Acer negundo	40	Species? Y		Number of Dominant Species That Are OBL, FACW, or FAC:4 (A)
Celtis occidentalis	20	Y	FAC	That Are OBL, FACW, or FAC:4 (A)
3. Acer saccharinum	5	N	FACW	Total Number of Dominant Species Across All Strata: 5 (B)
4. 5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 80.00 (A/B)
Conline/Chruh Stratum (Plot circum 15' radius	65 =	Total Cov	er	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Lonicera maackii	40	Υ	UPL	Total % Cover of: Multiply by:
Acer negundo		Y		OBL species 0 x 1 = 0
3.				FACW species5 x 2 =10
4.				FAC species80 x 3 =240
5				FACU species0 x 4 =0
- Clarities	55 =	Total Cov	er	UPL species40 x 5 =200
Herb Stratum (Plot size: 5' radius) 1. Toxicodendron radicans	5	~	FAC	Column Totals: <u>125</u> (A) <u>450</u> (B)
Ioxicodendron radicans Z				Prevalence Index = B/A = 3.60
3				Hydrophytic Vegetation Indicators:
4.				X Dominance Test is >50%
5.				Prevalence Index is ≤3.0 ¹
6				Morphological Adaptations ¹ (Provide supporting
7				data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
8				Tobiematic Hydrophytic vegetation (Explain)
9				¹ Indicators of hydric soil and wetland hydrology must
10				be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30' radius) 1		Total Cov		Hydrophytic
2				Vegetation
		Total Cov	er	Present? Yes X No
Remarks: (Include photo numbers here or on a separate she	et.)			
Distinct change in vegetation with presence of dead/live h	honeysuc	kle		

SOIL								Sampling Point: B	
Profile Desc	ription: (Describe	to the depth	needed to docu	ment the i	ndicator	or confirn	n the absence	of indicators.)	
Depth	Matrix	•		ox Features				,	
(inches)	Color (moist)	%	Color (moist)	%	_Type ¹	Loc ²	Texture	Remarks	
0-3	10YR 3/2	99	10YR 5/6	1		M	not sand	clay loam	
3-15	10YR 4/2	99	10YR 5/6	1		M	sand	sand loam	
	oncentration, D=Depl	etion, RM=F	Reduced Matrix, C	S=Covered	d or Coate	d Sand Gi		cation: PL=Pore Lining, M=Matrix.	
Hydric Soil I								for Problematic Hydric Soils ³ :	
Histosol	` '			Gleyed Ma				Prairie Redox (A16)	
	pipedon (A2)			Redox (S5)	,			langanese Masses (F12)	
Black Hi	, ,			d Matrix (S			Other	(Explain in Remarks)	
	n Sulfide (A4)			Mucky Min	. ,				
	Layers (A5)			Gleyed Ma					
2 cm Mu	` '	. (111)		ed Matrix (F	•				
	d Below Dark Surface ark Surface (A12)	e (A11)		Dark Surfa ed Dark Su	. ,		3Indicator	s of hydrophytic vegetation and	
· 	lucky Mineral (S1)			Depressior				d hydrology must be present,	
	icky Peat or Peat (S3	8)	Nedux	Dehressioi	15 (1 0)		unless disturbed or problematic.		
	_ayer (if observed):	·)					dilico.	s distarbed of problematic.	
	ches):		<u> </u>				Hydric Soil	Present? Yes No X	
Remarks:									
Area not inu	ndated long enoug	h to sustair	n prominent, abu	ndant redo	x concer	trations.			
HYDROLO	GY								
Wetland Hyd	drology Indicators:								
Primary Indic	ators (minimum of o	ne is require	d; check all that a	pply)			Second	ary Indicators (minimum of two required)	
Surface	Water (A1)		Water-Sta	ained Leave	es (B9)		Sur	face Soil Cracks (B6)	
High Wa	ter Table (A2)		Aquatic F	auna (B13))		Dra	inage Patterns (B10)	
Saturation	on (A3)		True Aqu	atic Plants	(B14)		Dry	-Season Water Table (C2)	
× Water M	arks (B1)		Hydrogen	Sulfide Oc	dor (C1)		Cra	yfish Burrows (C8)	
Sedimer	nt Deposits (B2)		Oxidized	Rhizospher	res on Livi	ng Roots	(C3) Sat	uration Visible on Aerial Imagery (C9)	
Drift Dep	oosits (B3)		Presence	of Reduce	d Iron (C4	.)	Stu	nted or Stressed Plants (D1)	
Algal Ma	it or Crust (B4)		Recent Ire	on Reduction	on in Tilled	d Soils (Ce	6) Geo	omorphic Position (D2)	
Iron Dep	osits (B5)		Thin Muc	k Surface (C7)		FA0	C-Neutral Test (D5)	
Inundation	on Visible on Aerial II	magery (B7)	Gauge or	Well Data	(D9)				
Sparsely	Vegetated Concave	Surface (B8	B) Other (Ex	plain in Re	marks)				
Field Observ	vations:								
Surface Water	er Present? You	es N	o X Depth (ir	nches):		_			
Water Table	Present? You	es N	o X Depth (ir	nches):					
Saturation Pr	resent? Yo		o X Depth (ir				and Hydrolog	y Present? Yes X No	
	corded Data (stream	gauge, mon	itoring well, aerial	photos, pre	evious ins	pections),	if available:		

Inundation depth (typical year): border of none and 0-2 feet; hydrology indicators not as prominent

Remarks:

Investigator(s): AMZ, ELH Landform (hillslope, terrace, etc.): toe of slope	_ Section,	Township, Ra	State: MO Sampling Point: C ange: Section 08, Township 46 N, Range 5 E					
Landform (hillslope, terrace, etc.): toe of slope Slope (%): 3 Lat: 38.763331			ange: Section 08, Township 46 N, Range 5 E					
Landform (hillslope, terrace, etc.): toe of slope Slope (%): 3 Lat: 38.763331			•					
Slope (%): <u>3</u> Lat: <u>38.763331</u>		Landform (hillslope, terrace, etc.): toe of slope Local relief (
	Slope (%): 3 Lat: 38.763331 Long: -90.491649							
			<u> </u>					
Are climatic / hydrologic conditions on the site typical for this time of								
Are Vegetation, Soil, or Hydrology significant								
Are Vegetation, Soil, or Hydrology naturally p								
SUMMARY OF FINDINGS – Attach site map showir								
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes X No Remarks: Transitional boundary area between upland and wetland areas.	- v	s the Sampleo						
- '								
VEGETATION – Use scientific names of plants.	Da!	ont ledicata	Dominance Test we desk set					
Absolut		ant Indicator ss? Status	Dominance Test worksheet: Number of Dominant Species					
1. Acer negundo 40	Y	FAC	That Are OBL, FACW, or FAC:3 (A)					
2. Acer saccharinum 10 3		FACW	Total Number of Dominant Species Across All Strata:4 (B)					
4.			Percent of Dominant Species That Are OBL, FACW, or FAC:75.00 (A/B)					
	= Total	Cover						
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Lonicera maackii 10	Y	LIDI	Prevalence Index worksheet: Total % Cover of: Multiply by:					
2			OBL species0 x 1 =0					
3.			FACW species10 x 2 =20					
4.			FAC species45 x 3 =135					
5			FACU species 0 x 4 = 0					
	= Total	Cover	UPL species10 x 5 =50					
Herb Stratum (Plot size: 5' radius) 1. Acer negundo 5	Υ	FAC	Column Totals:65 (A)205 (B)					
2			Prevalence Index = B/A =3.15					
3.			Hydrophytic Vegetation Indicators:					
4			X Dominance Test is >50%					
5			Prevalence Index is ≤3.0 ¹					
6			Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)					
7			Problematic Hydrophytic Vegetation ¹ (Explain)					
8			rissismals riyarspriyas vegetation (Explain)					
9			¹ Indicators of hydric soil and wetland hydrology must					
10			be present, unless disturbed or problematic.					
Woody Vine Stratum (Plot size: 30' radius) 1	= Total		Hydrophytic					
2.			Vegetation Present? Yes X No					
Remarks: (Include photo numbers here or on a separate sheet.)		- = - = -						
Transition area of honeysuckle becoming less abundant.								

SOIL		Sampling Point: C	
Profile Descri	ption: (Describe to the o	depth needed to document the indicator or confirm the absence of indicators.)	
Depth	Matrix	Redox Features	

Depth (inches)	Color (moist)	%	Color (moist)	<u>x Features</u> %	Type ¹	Loc²	Texture	Remarks
0-16	10YR 3/1	95	10YR 3/6	5	C	M		
0-10	10113/1	90	10113/0			IVI	not sand	clay silt
								-
1			Dadwaad Matrix C				21 -	estion. DI - Done Lining. M-Matrix
Hydric Soil I	oncentration, D=Depl	etion, Rivi=i	Reduced Matrix, C	S=Covered	or Coate	a Sana Gr		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
•			0 1		(0.4)			•
Histosol	` '			Gleyed Mat				Prairie Redox (A16)
Black Hi	oipedon (A2)			Redox (S5) d Matrix (S				langanese Masses (F12) (Explain in Remarks)
	en Sulfide (A4)			Mucky Min			Other	(Explain in Remarks)
	d Layers (A5)			Gleyed Ma				
	ick (A10)		-	ed Matrix (F				
	d Below Dark Surface	e (A11)		Dark Surfa	,			
	ark Surface (A12)	(,		ed Dark Sui			3Indicators	s of hydrophytic vegetation and
	Mucky Mineral (S1)			Depression				d hydrology must be present,
	icky Peat or Peat (S3	3)		•	()			s disturbed or problematic.
Restrictive I	Layer (if observed):							
Type:								
	ches):						Hydric Soil	Present? Yes X No
Remarks:							11,700.10	
remand.								
HYDROLO	GY							
Wetland Hvo	drology Indicators:							
_	cators (minimum of or	ne is require	ad: check all that a	anly)			Second	ary Indicators (minimum of two required)
-		ie is require			- (DO)			· · · · · · · · · · · · · · · · · · ·
	Water (A1)		× Water-Sta				·	face Soil Cracks (B6)
_	ater Table (A2)			auna (B13)				inage Patterns (B10)
Saturatio	, ,			atic Plants (. ,			-Season Water Table (C2)
× Water M			Hydrogen		, ,			yfish Burrows (C8)
	nt Deposits (B2)			Rhizospher		_		uration Visible on Aerial Imagery (C9)
	posits (B3)		· · · · · · · · · · · · · · · · · · ·	of Reduce	•	•	·	nted or Stressed Plants (D1)
Algal Ma	at or Crust (B4)			n Reduction		d Soils (C6) Geo	omorphic Position (D2)
Iron Dep	oosits (B5)		Thin Mucl	Surface (C7)		FAC	C-Neutral Test (D5)
Inundation	on Visible on Aerial Ir	magery (B7)	Gauge or	Well Data	(D9)			
X Sparsely	Vegetated Concave	Surface (B	8) Other (Ex	plain in Rei	marks)			
Field Observ	vations:							
Surface Water	er Present? Ye	es N	o X Depth (in	ches):				
Water Table	Present? Ye	es N	o X Depth (in	ches):				
Saturation Pr			o X Depth (in				and Hydrolog	y Present? Yes X No No
(includes cap		11	o <u> </u>			_ '''	and riyarolog	y 11000nt. 100 <u>- 7 </u>
	corded Data (stream	gauge, mor	nitoring well, aerial	photos, pre	evious ins	pections), i	if available:	
Remarks:								
Inundation of	depth (typical year):	2-5 feet						
Inundation (depth (typical year):	2-5 feet						

Project/Site: Riverpointe Public Infrastructure Project	(City/County:	St. Charle	es, St. Charles County Sampling Date: 5/20/2020			
Applicant/Owner: City of St. Charles		State: MO Sampling Point: D					
Investigator(s): AMZ, ELH	;	Section, Township, Range: Section 08, Township 46 N, Range 5 E					
Landform (hillslope, terrace, etc.): ridge adjacent stream							
Slope (%): <u>3</u> Lat: <u>38.763168</u>				` <u> </u>			
Soil Map Unit Name: 66126: Haynie-Treloar-Blake comple.		-					
Are climatic / hydrologic conditions on the site typical for thi							
	-						
Are Vegetation, Soil, or Hydrology s							
Are Vegetation, Soil, or Hydrology				eeded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS – Attach site map	showing	sampling	g point l	ocations, transects, important features, etc.			
Hydrophytic Vegetation Present? Yes X	lo	le th	e Sampled	Aroa			
Hydric Soil Present? Yes X	lo		e Sampled in a Wetlar				
Wetland Hydrology Present? Yes X N	lo	WILLI	iii a vvetiai	165 <u>//</u> NO			
Remarks:							
VECETATION Lies escentific names of plants							
VEGETATION – Use scientific names of plants	Absolute	Dominant	Indicator	Dominance Test worksheet:			
Tree Stratum (Plot size: 30' radius)		Species?		Number of Dominant Species			
1. Acer negundo	30	Y	FAC	That Are OBL, FACW, or FAC:5 (A)			
2. Acer saccharinum	20	Y	FACW	Total Number of Dominant			
3. Populus deltoides	5	N	FAC	Species Across All Strata:5 (B)			
4				Percent of Dominant Species			
5				That Are OBL, FACW, or FAC: 100.00 (A/B)			
Sapling/Shrub Stratum (Plot size: 15' radius)	55	= Total Cov	er	Prevalence Index worksheet:			
1. Acer saccharinum	10	Y	FACW	Total % Cover of: Multiply by:			
2				OBL species			
3.				FACW species 40 x 2 = 80			
4.				FAC species 40 x 3 = 120			
5				FACU species0 x 4 =0			
		= Total Cov	er	UPL species0 x 5 =0			
Herb Stratum (Plot size: 5' radius)	_		E4.0	Column Totals:80(A)200(B)			
1. Acer negundo		Y	FAC	Prevalence Index = B/A =2.50			
2				Hydrophytic Vegetation Indicators:			
3				X Dominance Test is >50%			
4				X Prevalence Index is ≤3.0¹			
5 6				Morphological Adaptations ¹ (Provide supporting			
7.				data in Remarks or on a separate sheet)			
8.				Problematic Hydrophytic Vegetation ¹ (Explain)			
9.				1			
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
		= Total Cov	er				
Woody Vine Stratum (Plot size: 30' radius)	40		E 4 0 1 4 /	Underwhydia			
1. Vitis riparia		Y	FACW	Hydrophytic Vegetation			
2		= Total Oc		Present? Yes X No			
		= Total Cov	er				
Remarks: (Include photo numbers here or on a separate	sheet.)						

								Sampling Point: D
Profile Des	cription: (Describe	to the dept	n needed to docu	ment the i	ndicator	or confirm	n the absence	of indicators.)
Depth	Matrix		Redo	ox Feature	s			
(inches)	Color (moist)	<u></u> %	Color (moist)	%	Type ¹	Loc ²	Texture	<u>Remarks</u>
0-16	10YR 3/2	85	10YR 3/6	15	C	М	not sand	clay silt
		·						
	-	· -						
1 _{Tymor} C=C	`anaantration D=Dan	lotion DM-I	Dadwood Matrix C	C=Covered	d or Coots	d Cand C		cation: PL=Pore Lining, M=Matrix.
	Concentration, D=Dep Indicators:	ietion, Rivi=i	Reduced Mairix, C	S=Covered	J OF COALE	u Sanu G		for Problematic Hydric Soils ³ :
Histoso			Sandy	Gleyed Ma	atriv (SA)			Prairie Redox (A16)
	pipedon (A2)		-	Redox (S5				langanese Masses (F12)
	listic (A3)			d Matrix (S				(Explain in Remarks)
	en Sulfide (A4)			Mucky Mir				,
Stratifie	ed Layers (A5)		Loamy	Gleyed Ma	atrix (F2)			
	uck (A10)			ed Matrix (
	ed Below Dark Surface	e (A11)	× Redox		, ,		3	
	Park Surface (A12)			ed Dark Su				s of hydrophytic vegetation and
-	Mucky Mineral (S1) ucky Peat or Peat (S3	3)	Redox	Depressio	ns (F8)			d hydrology must be present, s disturbed or problematic.
	Layer (if observed):							distarbed of problematic.
	Layor (ii oboor roa).							
							Huddia Cai	
Donth (in	ochoc).							Drocont2 Voc X No
. `	nches):						Hydric Soi	Present? Yes X No
Depth (ir Remarks:	nches):						Hydric Soi	Present? Yes X No
. `	nches):						Hydric Soi	Present? Yes X No
	nches):						Hydric Soi	Present? Yes X No
	nches):						Hydric Soi	Present? Yes X No
	nches):		_				Hydric Soi	Present? Yes X No
Remarks:			_				Hydric Soi	Present? Yes X No
Remarks:							Hydric Soi	Present? Yes X No
Remarks: IYDROLO Wetland Hy	OGY /drology Indicators:		ed: check all that a	pply)				
Remarks: IYDROLO Wetland Hy Primary Indi	OGY /drology Indicators: icators (minimum of o				es (B9)		Second	ary Indicators (minimum of two required
Remarks: IYDROLO Wetland Hy Primary Indi X Surface	OGY vdrology Indicators: icators (minimum of o		X Water-Sta	ained Leav			Second	ary Indicators (minimum of two required face Soil Cracks (B6)
Remarks: IYDROLO Wetland Hy Primary Indi X Surface X High W	OGY /drology Indicators: icators (minimum of o		X Water-Sta	ained Leav auna (B13)		<u>Second</u> Sur Dra	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10)
Remarks: IYDROLO Wetland Hy Primary Indi X Surface X High W X Saturat	ody odrology Indicators: icators (minimum of o water (A1) ater Table (A2) ion (A3)		X Water-Sta Aquatic F True Aqua	ained Leav auna (B13 atic Plants) (B14)		Second Sur X Dra Dry	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2)
Remarks: IYDROLO Wetland Hy Primary Ind X Surface X High W X Saturat X Water N	ody rdrology Indicators: icators (minimum of of e Water (A1) ater Table (A2) ion (A3) Marks (B1)		X Water-Sta Aquatic F True Aqua Hydrogen	ained Leav auna (B13 atic Plants Sulfide O) (B14) dor (C1)	ing Roots	Second Sur Dry Cra	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8)
Remarks: IYDROLO Wetland Hy Primary Indi X Surface X High W X Saturat X Water M Sedime	order (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2)		X Water-Sta Aquatic F True Aqua Hydrogen Oxidized	ained Leav auna (B13 atic Plants Sulfide Oo Rhizosphe) (B14) dor (C1) res on Liv	-	<u>Second</u> Sur Dray Cra Cra (C3) Sat	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9)
Remarks: IYDROLO Wetland Hy Primary Indi X Surface X High W X Saturat X Water M Sedime Drift De	order (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B3)		X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence	ained Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce) (B14) dor (C1) res on Liv ed Iron (C4	·)	Second Sur Dry Cra (C3) Sat Stu	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1)
Remarks: HYDROLO Wetland Hy Primary Indi X Surface X High W X Saturat X Water M Sedime Drift De	order (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) ent or Crust (B4)		X Water-Sta Aquatic F True Aqua Hydrogen Oxidized	ained Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille	·)	Second Sur X Dra Dry Cra (C3) Sat Stu 36) X Gea	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9)
Remarks: IYDROLO Wetland Hy Primary Indi X Surface X High W X Saturat X Water N Sedime Drift De Algal M Iron De	order (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) ent or Crust (B4)	ne is require	X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iro Thin Mucl	ained Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti k Surface ((B14) (B14) dor (C1) res on Liv ed Iron (C4 on in Tilled	·)	Second Sur X Dra Dry Cra (C3) Sat Stu 36) X Gea	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
Primary Indi X Surface X High W X Saturat X Water N Sedime Drift De Algal M Iron De Inundat	rdrology Indicators: icators (minimum of of et Water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5)	ne is require	X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iru Thin Mucl	ained Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti k Surface ((B14) dor (C1) res on Liv ed Iron (C4 on in Tilled (C7) (D9)	·)	Second Sur X Dra Dry Cra (C3) Sat Stu 36) X Gea	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
Remarks: HYDROLO Wetland Hy Primary Ind X Surface X High W X Saturat X Water N Sedime Drift De Algal M Iron De Inundat	order of the control	ne is require	X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iru Thin Mucl	ained Leav auna (B13 atic Plants Sulfide Or Rhizosphe of Reduce on Reducti k Surface ((B14) dor (C1) res on Liv ed Iron (C4 on in Tilled (C7) (D9)	·)	Second Sur X Dra Dry Cra (C3) Sat Stu 36) X Gea	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
Remarks: HYDROLO Wetland Hy Primary Indi X Surface X High W X Saturat X Water M Sedime Drift De Algal M Iron De Inundat X Sparse Field Obse	order of the contract of the c	ne is require magery (B7 e Surface (B	X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Ira Thin Mucl Gauge or Other (Ex	ained Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti k Surface (Well Data plain in Re	(B14) dor (C1) res on Liv ed Iron (C4 on in Tilled (C7) (D9)	·)	Second Sur X Dra Dry Cra (C3) Sat Stu 36) X Gea	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
Remarks: HYDROLO Wetland Hy Primary Indi X Surface X High W X Saturat X Water M Sedime Drift De Algal M Iron De Inundat X Sparse Field Obse	order of the control	magery (B7 e Surface (B	X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Ira Thin Mucl Gauge or Other (Ex	ained Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti k Surface (Well Data plain in Re	(B14) (B14) dor (C1) res on Liv ed Iron (C4 on in Tiller (C7) (D9) emarks)	·)	Second Sur X Dra Dry Cra (C3) Sat Stu 36) X Gea	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)

Inundation depth (typical year): border 2-5 and 5-10 feet

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

(includes capillary fringe)

Project/Site: Riverpointe Public Infrastructure Project		City/County	St. Charle	es, St. Charles County Sampling Date: 5/20/2020
Applicant/Owner: City of St. Charles	State: MO Sampling Point: E			
Investigator(s): AMZ, ELH	nge: Section 08, Township 46 N, Range 5 E			
Landform (hillslope, terrace, etc.): ridge/terrace				
Slope (%): 1 Lat: 38.762715				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake comp		-		
Are climatic / hydrologic conditions on the site typical for				
	-			"Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology				eded, explain any answers in Remarks.)
				ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes X Yes X	No X		e Sampled in a Wetlar	
Remarks:				
VEGETATION – Use scientific names of plan	ts.			
Too Otesture (Diet siege 20) redius	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size:30' radius) 1. Populus deltoides	<u>% Cover</u> 10	Species? Y		Number of Dominant Species
2. Acer saccharinum	10		FACW	That Are OBL, FACW, or FAC:5 (A)
3. Ulmus americana	5	Y		Total Number of Dominant Species Across All Strata: 6 (B)
4. 5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 83.33 (A/B)
	25	= Total Cov	/er	
Sapling/Shrub Stratum (Plot size: 15' radius)		V	LIDI	Prevalence Index worksheet: Total % Cover of: Multiply by:
1. Lonicera maackii		<u>Y</u>		
2				FACW species x 1 40
4.				FAC species 15 x 3 = 45
5.				FACU species 0 x 4 = 0
		= Total Cov	/er	UPL species30 x 5 =150
Herb Stratum (Plot size: 5' radius)	_	.,	E4.0	Column Totals:65 (A)235 (B)
1. <u>Toxicodendron radicans</u>		Y	<u>FAC</u>	Prevalence Index = B/A = 3.62
2				Hydrophytic Vegetation Indicators:
3				X Dominance Test is >50%
4				Prevalence Index is ≤3.0¹
5 6				Morphological Adaptations ¹ (Provide supporting
7				data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation ¹ (Explain)
9.				
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		= Total Cov		be present, unless distarsed or prosentatio.
Woody Vine Stratum (Plot size: 30' radius)	=	.,	E. 6	I budua a budia
1. <u>Vitis riparia</u>		Y	FACW	Hydrophytic Vegetation
2		= Total Cov	/er	Present? Yes X No
Remarks: (Include photo numbers here or on a separat	te sheet.)			
Distinct difference in vegetation with presence of de	,	/suckle		

SOIL								Sampling Point: E
	ription: (Describe	to the depti	h needed to docui	ment the	indicator	or confirm	the absence	
Depth	Matrix			x Feature				,
(inches)	Color (moist)	%	Color (moist)	%	_Type ¹	Loc ²	Texture	Remarks
0-2	10YR 3/2	99	10YR 3/6	1		M	not sand	clay loam, redox not prominent
2-16	10YR 3/2	99	10YR 3/6	1		M	sand	with clay inclusions
	oncentration, D=Dep	letion, RM=I	Reduced Matrix, C	S=Covere	d or Coate	d Sand Gr		cation: PL=Pore Lining, M=Matrix.
Hydric Soil I			Conduc	Olavad Ma	-t-i (C.4)			for Problematic Hydric Soils ³ :
Histosol	(AT) pipedon (A2)		-	Gleyed Ma Redox (S5				Prairie Redox (A16) langanese Masses (F12)
Black His	. ,			d Matrix (S	,			(Explain in Remarks)
	n Sulfide (A4)			Mucky Mir				,
Stratified	l Layers (A5)		Loamy	Gleyed Ma	atrix (F2)			
2 cm Mu	, ,			ed Matrix (
	Below Dark Surfac	e (A11)		Dark Surfa	. ,		31	- of books about a constation and
· · · · · · · · · · · · · · · · · · ·	rk Surface (A12) lucky Mineral (S1)			ed Dark St Depressio	ırface (F7)			s of hydrophytic vegetation and dhydrology must be present,
	cky Peat or Peat (S	3)	Redux	Depressio	115 (F0)			s disturbed or problematic.
	ayer (if observed):							, alotaloga of procedurate
_	,							
7. —	ches):						Hydric Soil	Present? Yes No X
Remarks:							1	
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
Primary Indic	ators (minimum of c	ne is require	ed; check all that ap	oply)			Seconda	ary Indicators (minimum of two required)
Surface	Water (A1)		X Water-Sta	ined Leav	es (B9)		Sur	face Soil Cracks (B6)
	ter Table (A2)		Aquatic Fa	auna (B13)			inage Patterns (B10)
Saturatio	• •		True Aqua					-Season Water Table (C2)
× Water M	, ,		Hydrogen					yfish Burrows (C8)
	t Deposits (B2)		Oxidized F			•	· · · —	uration Visible on Aerial Imagery (C9)
	oosits (B3)		Presence					nted or Stressed Plants (D1)
	t or Crust (B4)		Recent Iro			a Solis (Co		omorphic Position (D2)
	osits (B5) on Visible on Aerial I	magary (P7)	Thin Muck) Gauge or		. ,		<u> </u>	C-Neutral Test (D5)
	Vegetated Concave		_					
Field Observ		Couriace (D	0) Ollier (EX	piaiii iii i i i	marks)			
Surface Water		es N	lo X Depth (in	ches).				
Water Table			lo X Depth (in					
Saturation Pr			lo <u>X</u> Depth (in				and Hydrolog	y Present? Yes X No
(includes cap								y350m. 165 / 140

Inundation depth (typical year): 0-2 feet

Remarks:

Reset Form

		,		s, St. Charles County Sampling Date: 5/20/2020
Applicant/Owner: City of St. Charles	State: MO Sampling Point: F			
•	nge: Section 08, Township 46 N, Range 5 E			
Landform (hillslope, terrace, etc.): depression				
Slope (%): 1 Lat: 38.762863				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex, 0-2		-		
Are climatic / hydrologic conditions on the site typical for this tim				
Are Vegetation, Soil, or Hydrology signif	-			
Are Vegetation, Soil, or Hydrology natur	ally prob	lematic?	(If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map sho	wing	sampling	g point lo	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Yes X No Wetland Hydrology Present? Yes X No Remarks:			e Sampled n a Wetlan	
Transitional area between upland and wetland areas.				
VEGETATION – Use scientific names of plants.				
		Dominant		Dominance Test worksheet:
		Species?		Number of Dominant Species
Acer negundo Populus deltoides		Y		That Are OBL, FACW, or FAC:4 (A)
3				Total Number of Dominant Species Across All Strata: 6 (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)
		= Total Cov	er	
Sapling/Shrub Stratum (Plot size: 15' radius)	40		F40	Prevalence Index worksheet:
1. Acer negundo	10	Y Y	FAC UPL	
Lonicera maackii Morus alba	5			FACW species0 x 2 =0
				FAC species
4				FACU species 0 x 4 = 0
5		Total Cov		UPL species 40 x 5 = 200
Herb Stratum (Plot size: 5' radius)		- 10tal 00v	Ci	Column Totals: 80 (A) 320 (B)
1. Euonymus fortunei	30	Y	UPL	
2				Prevalence Index = B/A =4.00
3				Hydrophytic Vegetation Indicators:
4				X Dominance Test is >50%
5				Prevalence Index is ≤3.0 ¹
6				Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
7				Problematic Hydrophytic Vegetation ¹ (Explain)
8				
9				¹ Indicators of hydric soil and wetland hydrology must
10				be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30' radius)		= Total Cov		Hydrophytic
1				Vegetation
2		= Total Cov	er	Present? Yes <u>X</u> No
Remarks: (Include photo numbers here or on a separate shee	t.)			I
Distinct difference in vegetation with presence of winter cr	eeper in	n herb laye	r and dead	d/live honeysuckle in shrub layer

Profile Desc	cription: (Describe	to the depth	needed to docu	ment the ir	ndicator	or confirm	the absence	e of indicators.)
Depth	Matrix			ox Features				
inches)	Color (moist)	<u></u> %	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-8	10YR 3/2	95	7.5YR 4/6	5	C	M	not sand	silty clay
8-16	10YR 3/2	100					sand	with clay
	oncentration, D=Dep	oletion, RM=R	educed Matrix, C	S=Covered	or Coate	ed Sand Gra	nins. ² Lc	ocation: PL=Pore Lining, M=Matri
-	Indicators:							s for Problematic Hydric Soils ³ :
Histosol	(A1) pipedon (A2)			Gleyed Mat Redox (S5)	. ,			t Prairie Redox (A16) Manganese Masses (F12)
	istic (A3)			ed Matrix (Se				(Explain in Remarks)
	en Sulfide (A4)			Mucky Mine			00.	(
	d Layers (A5)		-	Gleyed Ma				
	uck (A10)			ed Matrix (F				
	d Below Dark Surfac	e (A11)		Dark Surfac	, ,		3, ,, ,	
	ark Surface (A12)			ed Dark Sur	, ,)		rs of hydrophytic vegetation and nd hydrology must be present,
	Sandy Mucky Mineral (S1) Redox Depressions (F8) 5 cm Mucky Peat or Peat (S3)					s disturbed or problematic.		
	Layer (if observed)							·
Type:			<u></u>					
Depth (in	ches):						Hydric Soi	il Present? Yes X No
DROLO	drology Indicators:							
•	cators (minimum of c		l: check all that a	nnly)			Second	dary Indicators (minimum of two re
-	Water (A1)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	X Water-Sta		s (B9)			rface Soil Cracks (B6)
	ater Table (A2)		Aquatic F				· · · · · · · · · · · · · · · · · · ·	ainage Patterns (B10)
Saturati	, ,		True Aqu	. ,			· · · · · · · · · · · · · · · · · · ·	y-Season Water Table (C2)
✓ Water M	larks (B1)		Hydrogen				-	ayfish Burrows (C8)
_ Sedime	nt Deposits (B2)		Oxidized	Rhizospher	es on Liv	ing Roots (0	C3) Sa	turation Visible on Aerial Imagery
_ Drift De	posits (B3)		Presence			,		unted or Stressed Plants (D1)
	at or Crust (B4)		Recent Ir			d Soils (C6)	<u>X</u> Ge	eomorphic Position (D2)
_ Iron Dep	, ,		Thin Muc	•	,		FA	C-Neutral Test (D5)
	on Visible on Aerial		Gauge or		,			
	y Vegetated Concav	e Surface (B8)	Other (Ex	plain in Rer	narks)			
ield Obser		/oo No	Y Donth (in	achoo).				
uпасе vvat Vater Table			X Depth (ir X Depth (ir					
Saturation P			X Depth (ir				nd Hydrolog	gy Present? Yes X No
ncludes ca	oillary fringe) corded Data (stream							gy i resent: 165 <u>/ N</u> NO
resulbe re	corucu Dala (Siream	ı gauge, monn	oning wen, aenal	priotos, pre	vious IIIS	ρ ο υιυπ s) , Π	avallable.	
Domorko:								
lemarks:								
emarks.								

Reset Form

Project/Site: Riverpointe Public Infrastructure Project	(City/County	: St. Charle	es, St. Charles County Sampling Date: 5/20/2020			
		State: MO Sampling Point: G					
				nge: Section 08, Township 46 N, Range 5 E			
Landform (hillslope, terrace, etc.): terrace							
Slope (%): 2 Lat: 38.762561							
Soil Map Unit Name: 66126: Haynie-Treloar-Blake comple		_					
•							
Are climatic / hydrologic conditions on the site typical for the Are Vegetation, Soil, or Hydrology	•			(If no, explain in Remarks.) Normal Circumstances" present? Yes X No No			
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?	(If ne	eded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.			
Hydrophytic Vegetation Present? Yes I Hydric Soil Present? Yes I	No <u>X</u>		e Sampled in a Wetlar				
Wetland Hydrology Present? Yes X	No	with	ın a vveuar	id? Tes NOX			
VEGETATION – Use scientific names of plants	S. Absolute	Dominant	Indicator	Dominance Test worksheet:			
Tree Stratum (Plot size: 30' radius)		Species?		Number of Dominant Species			
1. Populus deltoides	15	Y	FAC	That Are OBL, FACW, or FAC: (A)			
2. Celtis occidentalis	10	Y	FAC	Total Number of Dominant			
3. Acer saccharinum	5	N	FACW	Species Across All Strata: 4 (B)			
4. Juglans nigra	5	N	FACU	Percent of Dominant Species			
5				That Are OBL, FACW, or FAC: 50.00 (A/B)			
Sapling/Shrub Stratum (Plot size:15' radius)	35	= Total Cov	/er	Prevalence Index worksheet:			
1. Lonicera maackii	30	Y	UPL	Total % Cover of: Multiply by:			
Cornus drummondii	E			OBL species 0 x 1 = 0			
3.				FACW species5 x 2 =10			
4.				FAC species 30 x 3 = 90			
5.				FACU species 5 x 4 = 20			
		= Total Cov		UPL species35 x 5 =175			
Herb Stratum (Plot size: 5' radius)	_			Column Totals:75 (A)295 (B)			
1. Euonymus fortunei		Y	UPL_	Prevalence Index = B/A = 3.93			
2				Hydrophytic Vegetation Indicators:			
3				Dominance Test is >50%			
4				Prevalence Index is ≤3.0¹			
5 6				Morphological Adaptations ¹ (Provide supporting			
7				data in Remarks or on a separate sheet)			
8.				Problematic Hydrophytic Vegetation ¹ (Explain)			
9				1			
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
		= Total Cov	/er	, ,			
Woody Vine Stratum (Plot size: 30' radius) 1				Hydrophytic			
2				Vegetation			
		= Total Cov	/er				
Remarks: (Include photo numbers here or on a separate	sheet.)						

SOIL Sampling Point: G

Profile Description: (Describe to the depth	needed to document the indicator or	confirm the al	sence of indicators.)
Depth <u>Matrix</u>	Redox Features		
(inches) Color (moist) %	Color (moist) % Type ¹	Loc ² Tex	ture Remarks
0-10 10YR 3/1 100		not s	sand clay loam
10-16 10YR 4/2 100		sa	nd with clay inclusions
¹ Type: C=Concentration, D=Depletion, RM=R	educed Matrix CS=Covered or Coated	Sand Grains	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators:	caucea Matrix, OO-OOVERED OF OODLED		icators for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Gleyed Matrix (S4)		Coast Prairie Redox (A16)
Histic Epipedon (A2)	Sandy Redox (S5)		Iron-Manganese Masses (F12)
Black Histic (A3)	Stripped Matrix (S6)	_	Other (Explain in Remarks)
Hydrogen Sulfide (A4)	Loamy Mucky Mineral (F1)		, ,
Stratified Layers (A5)	Loamy Gleyed Matrix (F2)		
2 cm Muck (A10)	Depleted Matrix (F3)		
Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)		
Thick Dark Surface (A12)	Depleted Dark Surface (F7)		dicators of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Redox Depressions (F8)		wetland hydrology must be present,
5 cm Mucky Peat or Peat (S3) Restrictive Layer (if observed):		1	unless disturbed or problematic.
Type:	_		
Depth (inches):	<u> </u>	Hydi	ric Soil Present? Yes No _X_
Remarks:			
HYDROLOGY			
HYDROLOGY Wetland Hydrology Indicators:			
	d; check all that apply)		Secondary Indicators (minimum of two required)
Wetland Hydrology Indicators:	d; check all that apply) Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) Surface Soil Cracks (B6)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required Surface Water (A1)	Water-Stained Leaves (B9)		_ Surface Soil Cracks (B6)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required)			Surface Soil Cracks (B6) Drainage Patterns (B10)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required Surface Water (A1) High Water Table (A2)	Water-Stained Leaves (B9)Aquatic Fauna (B13)True Aquatic Plants (B14)	- - -	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required	Water-Stained Leaves (B9)Aquatic Fauna (B13)True Aquatic Plants (B14)Hydrogen Sulfide Odor (C1)	- - - -	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living	- - - g Roots (C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required	Water-Stained Leaves (B9)Aquatic Fauna (B13)True Aquatic Plants (B14)Hydrogen Sulfide Odor (C1)	- - - g Roots (C3) _ -	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S	g Roots (C3) _ Soils (C6) _	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Thin Muck Surface (C7)	g Roots (C3) _ Soils (C6) _	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Thin Muck Surface (C7) Gauge or Well Data (D9)	g Roots (C3) _ Soils (C6) _	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Thin Muck Surface (C7) Gauge or Well Data (D9)	g Roots (C3) _ Soils (C6) _	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks)	g Roots (C3) _ - Soils (C6) _	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
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Wetland Hydrology Indicators: Primary Indicators (minimum of one is required	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks) X Depth (inches): Depth (inches):	g Roots (C3) _ Soils (C6) _	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks) Depth (inches):	g Roots (C3) _ Soils (C6) _	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks) X Depth (inches): X Depth (inches):	g Roots (C3) Soils (C6) Wetland Hy	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required and surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Field Observations: Surface Water Present? Yes No Saturation Present? Yes No Gincludes capillary fringe)	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks) X Depth (inches): X Depth (inches):	g Roots (C3) Soils (C6) Wetland Hy	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
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Wetland Hydrology Indicators: Primary Indicators (minimum of one is required and surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Field Observations: Surface Water Present? Yes Notes Note (Includes Capillary fringe) Describe Recorded Data (stream gauge, monitored)	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks) X Depth (inches): X Depth (inches):	g Roots (C3) _ Soils (C6) _ Wetland Hy	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required and surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Field Observations: Surface Water Present? Yes Now Water Table Present? Yes Now Now Saturation Present? Yes Now (includes capillary fringe) Describe Recorded Data (stream gauge, monitary of the present of the p	Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks) X Depth (inches): X Depth (inches):	g Roots (C3) _ Soils (C6) _ Wetland Hy	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
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Project/Site: Riverpointe Public Infrastructure Project		City/County:	St. Charle	es, St. Charles County	Sampling D	oate: 5/20/20)20
Applicant/Owner: City of St. Charles		State: MO Sampling Point: H					
Investigator(s): AMZ, ELH		Section. To	wnship. Ra	nge: Section 08, Township	46 N, Ran	ige 5 E	
			Local relief (concave, convex, none): none				
Slope (%): 2 Lat: 38.759648						D 83	
Soil Map Unit Name: 66126: Haynie-Treloar-Blake con		· —					
Are climatic / hydrologic conditions on the site typical for							
Are Vegetation, Soil, or Hydrology	_					s X N	0
							·
Are Vegetation, Soil, or Hydrology SUMMARY OF FINDINGS - Attach site m				eded, explain any answer			s etc
			5 Po	outrons, transcotts,			0, 010.
	_ No	Is th	e Sampled	Area			
	No _ No	with	in a Wetlar	nd? Yes X	No		
Wetland Hydrology Present? Yes X Remarks:	INU						
Remarks.							
VEGETATION – Use scientific names of pla							
Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?		Dominance Test works			
1. Celtis occidentalis	20	Υ	FAC	Number of Dominant Sp That Are OBL, FACW, o		6	(A)
2. Ulmus americana	15	Υ	FACW				` ′
3. Acer negundo	10	N	FAC	Total Number of Domina Species Across All Strat		6	(B)
4. Acer saccharinum	5	N	FACW				` '
5. Populus deltoides	5	N	FAC	Percent of Dominant Sp That Are OBL, FACW, o		100.00	(A/B)
	55	= Total Cov	er				()
Sapling/Shrub Stratum (Plot size: 15' radius	.)	.,	= 4 0 14 /	Prevalence Index work		. 10. 1	
1. Ulmus americana		Y		Total % Cover of:		Multiply by:	_
2. Celtis occidentalis		<u>Y</u>	FAC	OBL species 0			
3. Acer negundo	5	Y	FAC		x 2 = x 3 =		_
4				· · · · · · · · · · · · · · · · · · ·	x		_
5	25	= Total Cov		UPL species0			
Herb Stratum (Plot size: 5' radius)		- Total Cov	EI	Column Totals: 85		225	— (B)
1. Toxicodendron radicans	5	Y	FAC	Column Fotalo.	(71)		_ (5)
2				Prevalence Index	= B/A =	2.65	_
3				Hydrophytic Vegetatio	n Indicator	s:	
4				X Dominance Test is			
5				X Prevalence Index is			
6				Morphological Adap data in Remarks			
7				Problematic Hydrop			
8				i iobicinatio riyarop	Tytio veget	ation (Expla	,
9				¹ Indicators of hydric soil	and wetland	d hvdrology i	must
10				be present, unless distu			
Woody Vine Stratum (Plot size: 30' radius)		= Total Cov	er				
1				Hydrophytic			
2.				Vegetation	.		
		= Total Cov	er	Present? Yes	<u> </u>	NO	
Remarks: (Include photo numbers here or on a separ	rate sheet \						

							Sampling Point: H
Profile Desc	cription: (Describe to the	depth needed to docur	ment the	indicator	or confirm	n the absence	e of indicators.)
Depth	Matrix	Redo	x Feature	S			
(inches)	Color (moist) %	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2	10YR 3/1 9	3 7.5YR 3/4	7	С	PL	not sand	silty clay
2-16	10YR 4/2 8	5 7.5YR 5/6	15	C	M	not sand	clay silt
Type: C=C	oncentration, D=Depletion	, RM=Reduced Matrix, CS	S=Covere	d or Coate	d Sand G	rains. ² Lo	ocation: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils³:
Histosol Histic Ep Black Hi Hydroge Stratified 2 cm Mt X Depleted Thick Da Sandy N 5 cm Mt Restrictive		Sandy F Stripped Loamy F Loamy F X Deplete Redox F Redox F	Gleyed Ma Redox (S5 d Matrix (S Mucky Mil Gleyed Ma d Matrix (Dark Surfa d Dark Su Depressio	5) 66) neral (F1) atrix (F2) F3) ace (F6) urface (F7)		Coasi Iron-N Other	t Prairie Redox (A16) Manganese Masses (F12) (Explain in Remarks) s of hydrophytic vegetation and hydrology must be present, s disturbed or problematic.
	disturbed area; concrete	and railroad ties presen	nt				
oreviously o	GY						
YDROLO	GY drology Indicators:						
YDROLO		required; check all that ap	oply)			Second	lary Indicators (minimum of two required
YDROLO Wetland Hy	drology Indicators:	required; check all that ap		res (B9)			lary Indicators (minimum of two required
YDROLO Wetland Hy Primary India Surface	drology Indicators: cators (minimum of one is	· · · · · · · · · · · · · · · · · · ·	ined Leav			Su	
YDROLO Vetland Hy Primary India Surface X High Wa	drology Indicators: cators (minimum of one is Water (A1) ater Table (A2)	× Water-Sta	ined Leav auna (B13)		Sui Dra Dry	rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2)
YDROLO Vetland Hy Primary India Surface X High Wa X Saturatia	drology Indicators: cators (minimum of one is Water (A1) ater Table (A2) on (A3)	X Water-Sta Aquatic Fa True Aqua Hydrogen	ined Leav auna (B13 atic Plants Sulfide O	(B14) dor (C1)		Sui Dra Dry Cra	rface Soil Cracks (B6) ainage Patterns (B10)
YDROLO Vetland Hy Primary India Surface X High Wa X Saturatia X Water M Sedimer	drology Indicators: cators (minimum of one is Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2)	X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	ined Leav auna (B13 atic Plants Sulfide O Rhizosphe	(B14) dor (C1) eres on Livi		Sur _X Dra Dry Cra (C3) Sat	rface Soil Cracks (B6) ainage Patterns (B10) /-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9)
YDROLO Wetland Hy Primary India Surface X High Wa X Saturatia Water M Sedimer X Drift Der	drology Indicators: cators (minimum of one is Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3)	X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence	ined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce	(B14) (dor (C1) eres on Livied Iron (C4)	Sun Dry Cra Cra (C3) Sai Stu	rface Soil Cracks (B6) ainage Patterns (B10) /-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1)
YDROLO Wetland Hy Primary Indic Surface X High Wa X Saturatic X Water M Sedimel X Drift Dep Algal Ma	drology Indicators: cators (minimum of one is Water (A1) ater Table (A2) on (A3) darks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro	ined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce on Reducti	(B14) (B14) dor (C1) eres on Livied Iron (C4 don in Tilled)	Sun Dry Cra Cra (C3) Sat Stu Stu St Ge	rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) omorphic Position (D2)
YDROLO Wetland Hy Primary India Surface X High Wa X Saturatia X Water M Sedimer X Drift Dep Algal Ma Iron Dep	drology Indicators: cators (minimum of one is Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck	ined Leave auna (B13 atic Plants Sulfide O Rhizosphe of Reduction Surface ((B14) dor (C1) eres on Livi ed Iron (C4 on in Tilled)	Sun Dry Cra Cra (C3) Sat Stu Stu St Ge	rface Soil Cracks (B6) ainage Patterns (B10) /-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1)
YDROLO Vetland Hyv Primary India Surface X High Wa X Saturatia Water M Sedimel X Drift Dep Algal Ma Iron Dep Inundati	drology Indicators: cators (minimum of one is Water (A1) ater Table (A2) on (A3) darks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck ry (B7) Gauge or	ined Leave auna (B13 atic Plants Sulfide O Rhizosphe of Reduction Reduction Surface ((B14) dor (C1) eres on Livi dor Iron (C4 don in Tilled (C7) (D9))	Sun Dry Cra Cra (C3) Sat Stu Stu St Ge	rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) omorphic Position (D2)

Reset Form

Print Form

Project/Site: Riverpointe Public Infrastructure Project	(City/County:	St. Charle	es, St. Charles County Sampling Date: 5/20/2020			
		State: MO Sampling Point: _I					
Investigator(s): AMZ, ELH	Ç	Section, To	wnship, Ra	nge: Section 08, Township 46 N, Range 5 E			
Landform (hillslope, terrace, etc.): terrace							
Slope (%): 1 Lat: 38.759693							
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex		_					
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation, Soil, or Hydrology si	-						
Are Vegetation, Soil, or Hydrologyn	aturally prol	blematic?	(If ne	eeded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS – Attach site map s							
Hydrophytic Vegetation Present? Hydric Soil Present? Yes X No Yes X No			e Sampled				
Wetland Hydrology Present? Yes No		with	in a Wetlar	nd? Yes NoX			
Remarks: VEGETATION – Use scientific names of plants.							
Total Objectives (Dietaines 20) rediive	Absolute	Dominant		Dominance Test worksheet:			
Tree Stratum (Plot size: 30' radius) 1. Celtis occidentalis	% Cover	Species?	·	Number of Dominant Species That Are OBL, FACW, or FAC:5 (A)			
Platanus occidentalis		Y					
3.				Total Number of Dominant Species Across All Strata:5 (B)			
4. 5.				Percent of Dominant Species That Are OBL, FACW, or FAC:100.00 (A/B)			
Sapling/Shrub Stratum (Plot size:15' radius)	25	= Total Cov	er	Prevalence Index worksheet:			
1. Ulmus americana	10	Y	FACW	Total % Cover of: Multiply by:			
2. Cornus drummondii	E			OBL species0 x 1 =0			
3.				FACW species 20 x 2 = 40			
4				FAC species 32 x 3 = 96			
5				FACU species 0 x 4 = 0			
Herb Stratum (Plot size: 5' radius)	15	= Total Cov	er	UPL species x 5 = 0			
4 Viola agraria	10	Υ	FAC	Column Totals: (A) 136 (B)			
Viola sororia Alliaria petiolata		N	FAC	Prevalence Index = B/A =2.62			
3.				Hydrophytic Vegetation Indicators:			
4.				X Dominance Test is >50%			
5				X Prevalence Index is ≤3.0 ¹			
6				Morphological Adaptations ¹ (Provide supporting			
7				data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)			
8				1 Tobicinatio Trydrophytic Vegetation (Explain)			
9				¹ Indicators of hydric soil and wetland hydrology must			
10				be present, unless disturbed or problematic.			
Woody Vine Stratum (Plot size: 30' radius) 1.		= Total Cov		Hydrophytic			
2.				Vegetation Present? Yes X No			
		= Total Cov	er	165 X NO			
Remarks: (Include photo numbers here or on a separate s	heet.)						

Depth inches)	Matrix Color (moist)	%	Color (moist)	ox Features %	Type ¹	Loc ²	Texture	Remarks
0-9	10YR 3/1	100	Color (molot)		1 1 1 1		not sand	loam
9-16	10YR 4/2	95	7.5YR 4/6	5	С	M	not sand	silty loam
	ncentration, D=De	pletion, RM=R	educed Matrix, C	S=Covered	or Coate	d Sand Gra		cation: PL=Pore Lining, M=Matrix.
ydric Soil Ir								for Problematic Hydric Soils ³ :
_ Black His _ Hydroger	pedon (A2) tic (A3) n Sulfide (A4) Layers (A5)		Sandy Strippe Loamy	Gleyed Mai Redox (S5) d Matrix (S Mucky Min Gleyed Ma ed Matrix (F) 6) eral (F1) itrix (F2)		Iron-N	Prairie Redox (A16) Manganese Masses (F12) (Explain in Remarks)
C Depleted Thick Dar Sandy Mu 5 cm Muc	Below Dark Surfact K Surface (A12) ucky Mineral (S1) cky Peat or Peat (S	3)	Redox Deplete	Dark Surfaced Dark Sur Depression	ce (F6) rface (F7)		wetlar	s of hydrophytic vegetation and ad hydrology must be present, s disturbed or problematic.
	ayer (if observed)):						
Type:			<u> </u>					
Type: Depth (incl			_				Hydric Soi	I Present? Yes X No
Depth (inclemarks:	hes): GY rology Indicators	:						
Depth (inclements: POROLOG Vetland Hyde Primary Indica	GY rology Indicators	:	d; check all that a		oe (RO)		Second	ary Indicators (minimum of two requi
Depth (inclemarks: 'DROLOG' 'etland Hydrimary Indicator Surface V	SY rology Indicators ators (minimum of Vater (A1)	:	d; check all that a	ined Leave	. ,		Second	ary Indicators (minimum of two requiface Soil Cracks (B6)
Depth (inclemarks: 'DROLOG' Tetland Hydrimary Indicate Surface V	rology Indicators ators (minimum of Vater (A1) er Table (A2)	:	d; check all that a	nined Leave auna (B13)			Second Sur Dra	ary Indicators (minimum of two requi
Depth (inclemarks: 'DROLOG' Tetland Hydrimary Indicate Surface V High Wat	rology Indicators ators (minimum of Vater (A1) er Table (A2) n (A3)	:	d; check all that a Water-Sta Aquatic F True Aqua	nined Leave auna (B13)	(B14)		Second Sui	ary Indicators (minimum of two requi face Soil Cracks (B6) iinage Patterns (B10)
Depth (inclemarks: 'DROLOG' Tetland Hydrimary Indicates Surface V High Wates Saturation Water Mates Sediment	rology Indicators ators (minimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2)	:	d; check all that a Water-Sta Aquatic F True Aqua Hydrogen	nined Leave auna (B13) atic Plants (Sulfide Od Rhizospher	(B14) lor (C1) res on Livi	-	Second Sul Dra Dra Cra	ary Indicators (minimum of two requi face Soil Cracks (B6) ninage Patterns (B10) r-Season Water Table (C2) nyfish Burrows (C8) uration Visible on Aerial Imagery (CS
Depth (inclemarks: DROLOG Total Hyderimary Indicate Water Mater Mater Mater Mater Mater Drift Depo	rology Indicators ators (minimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3)	:	d; check all that a Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence	nined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduce	(B14) for (C1) res on Livi d Iron (C4	!)	Second	ary Indicators (minimum of two requested Soil Cracks (B6) sinage Patterns (B10) r-Season Water Table (C2) syfish Burrows (C8) suration Visible on Aerial Imagery (C8) nted or Stressed Plants (D1)
Depth (inclemarks: "DROLOG" Tetland Hydrimary Indica Surface Water May Saturation Water May Sediment Drift Depo	rology Indicators ators (minimum of Vater (A1) er Table (A2) in (A3) arks (B1) it Deposits (B2) posits (B3) or Crust (B4)	:	d; check all that a Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iru	ained Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced on Reduction	(B14) dor (C1) res on Livi d Iron (C4 on in Tilled	!)	Second Sui Dry Cra Sai Stu Ge	ary Indicators (minimum of two requiface Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) htted or Stressed Plants (D1) homorphic Position (D2)
Depth (inclemarks: DROLOG Toronto Indicate of the control of the	rology Indicators ators (minimum of an	: one is required	d: check all that a Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Ird Thin Mucl	nined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced on Reductic s Surface (((B14) dor (C1) res on Livi d Iron (C4 on in Tilled	!)	Second Sui Dry Cra Sai Stu Ge	ary Indicators (minimum of two requi face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9 hted or Stressed Plants (D1)
Depth (inclemarks: DROLOG Toronto Indication of the second of the seco	rology Indicators ators (minimum of Vater (A1) er Table (A2) in (A3) arks (B1) it Deposits (B2) posits (B3) or Crust (B4)	: one is required	d; check all that all Water-State Aquatic F True Aquatic F Hydrogen Oxidized Presence Recent Ind Thin Mucl	ained Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced on Reduction & Surface (Well Data	(B14) flor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9)	!)	Second Sui Dry Cra Sai Stu Ge	ary Indicators (minimum of two required face Soil Cracks (B6) alonge Patterns (B10) ar-Season Water Table (C2) aryfish Burrows (C8) arration Visible on Aerial Imagery (C5) arration Stressed Plants (D1) comorphic Position (D2)
Depth (inclemarks: Depth	rology Indicators ators (minimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial Vegetated Concav	: one is required	d; check all that all Water-State Aquatic F True Aquatic F Hydrogen Oxidized Presence Recent Ind Thin Mucl	ained Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced on Reduction & Surface (Well Data	(B14) flor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9)	!)	Second Sui Dry Cra Sai Stu Ge	ary Indicators (minimum of two required face Soil Cracks (B6) alonge Patterns (B10) ar-Season Water Table (C2) aryfish Burrows (C8) arration Visible on Aerial Imagery (C5) arration Stressed Plants (D1) comorphic Position (D2)
Depth (inclemarks: DROLOG Vetland Hydrimary Indica Surface Water May Sediment Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely ield Observ	rology Indicators ators (minimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial Vegetated Concavations:	: one is required Imagery (B7) re Surface (B8	d; check all that all Water-State Aquatic F True Aquatic F Hydrogen Oxidized Presence Recent Ind Thin Mucl	nined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced on Reduction & Surface (C Well Data	(B14) for (C1) fes on Livi d Iron (C4 on in Tilled C7) (D9) marks)	d Soils (C6)	Second Sui Dry Cra Sai Stu Ge	ary Indicators (minimum of two required face Soil Cracks (B6) alonge Patterns (B10) ar-Season Water Table (C2) aryfish Burrows (C8) arration Visible on Aerial Imagery (C5) arration Stressed Plants (D1) comorphic Position (D2)
Depth (inclemarks: DROLOG TOROLOG Toronto Indication Water Mater Mat	rology Indicators ators (minimum of Nater (A1) er Table (A2) in (A3) arks (B1) it Deposits (B2) posits (B3) it or Crust (B4) posits (B5) in Visible on Aerial Vegetated Concavations: r Present?	: one is required Imagery (B7) re Surface (B8 res No res No	d; check all that all Water-State Aquatic F True Aquatic F Hydrogen Oxidized Presence Recent Ind Thin Mucl Gauge or Other (Ex	ained Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced on Reduction & Surface ((Well Data (plain in Reduction)	(B14) dor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)	d Soils (C6)	Second Sui Dra Cra C3) Sai Stu Ge X FA	ary Indicators (minimum of two required face Soil Cracks (B6) minage Patterns (B10) reseason Water Table (C2) myfish Burrows (C8) muration Visible on Aerial Imagery (C9) mited or Stressed Plants (D1) morphic Position (D2) C-Neutral Test (D5)
Depth (inclemarks: PROLOCY Petland Hydrimary Indication High Water Mater Ma	rology Indicators ators (minimum of Vater (A1) er Table (A2) in (A3) arks (B1) t Deposits (B2) posits (B3) c or Crust (B4) posits (B5) in Visible on Aerial Vegetated Concavations: r Present? Present?	: one is required lmagery (B7) re Surface (B8 res No res No res No	d; check all that al Water-Sta Aquatic F True Aquatic F Hydrogen Oxidized Presence Recent Ind Thin Mucl Gauge or Other (Ex	ained Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced on Reduction of Surface ((Well Data (plain in Reduction) aches): aches):	(B14) dor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)	d Soils (C6)	Second Sui Dra Cra C3) Stu Ge X FA	ary Indicators (minimum of two required face Soil Cracks (B6) alonge Patterns (B10) ar-Season Water Table (C2) aryfish Burrows (C8) arration Visible on Aerial Imagery (C5) arration Stressed Plants (D1) comorphic Position (D2)
Depth (inclemarks: DROLOG TOROLOG Toronto High Wate May Sediment Sediment Drift Deporation Algal Mate Iron Deporation Sparsely Toronto High Wate Water Table For Sediment Produces Capital Control Con	rology Indicators ators (minimum of Nater (A1) er Table (A2) in (A3) arks (B1) t Deposits (B2) posits (B3) for Crust (B4) posits (B5) in Visible on Aerial Vegetated Concavations: r Present?	: one is required lmagery (B7) re Surface (B8 res No res No res No	d; check all that al Water-Sta Aquatic F True Aquatic F Hydrogen Oxidized Presence Recent Ind Thin Mucl Gauge or Other (Ex	ained Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced on Reduction of Surface ((Well Data (plain in Reduction) aches): aches):	(B14) dor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)	d Soils (C6)	Second Sui Dra Cra C3) Stu Ge X FA	ary Indicators (minimum of two requestace Soil Cracks (B6) sinage Patterns (B10) r-Season Water Table (C2) syfish Burrows (C8) suration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) comorphic Position (D2) C-Neutral Test (D5)

Project/Site: Riverpointe Public Infrastructure Project	St. Charle	arles, St. Charles County Sampling Date: 5/20/2020						
Applicant/Owner: City of St. Charles		State: MO Sampling Point: J						
Investigator(s): AMZ, ELH		Section, To	wnship, Rai	nge: Section 08, Townsh	ip 46 N, F	Range 5 E		
Landform (hillslope, terrace, etc.): toe of slope		1	Local relief	of (concave, convex, none): concave				
Slope (%): 1 Lat: <u>38.759575</u>								
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex								
Are climatic / hydrologic conditions on the site typical for thi								
Are Vegetation, Soil, or Hydrologys	-						0	
Are Vegetation, Soil, or Hydrology r								
SUMMARY OF FINDINGS – Attach site map							s, etc.	
Hydrophytic Vegetation Present? Yes X N	lo	1- 41-	. 011	A				
Hydric Soil Present? Yes X N	lo		e Sampled in a Wetlar		No			
Wetland Hydrology Present? Yes X N	lo	With	iii a vvetiai	iu: les <u> </u>	NO			
Remarks:								
Based on field observations, this is a boundary between	en wetland	and upland	d area.					
VEGETATION – Use scientific names of plants								
Troo Stratum (Diot circ) 20' radius	Absolute	Dominant		Dominance Test work				
Tree Stratum (Plot size: 30' radius) 1. Acer negundo	<u>% Cover</u>	Species?	FAC	Number of Dominant Sp That Are OBL, FACW, of		4	(A)	
Acer negunad Ulmus americana	15	Y					(^)	
3. Platanus occidentalis	5	N	FACW	Total Number of Domin Species Across All Stra		5	(B)	
4. Acer saccharinum	-	N	FACW				(5)	
5				Percent of Dominant Sp That Are OBL, FACW, of		80.00	(A/B)	
0 1: (0) 1 0: (D) 1 :	65	= Total Cov	/er	Prevalence Index wor				
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Lonicera maackii	15	~	LIDI	Total % Cover of:		Multiply by:		
				OBL species 0			_	
2				FACW species 27			_	
4.				FAC species 42		3 = 126	_	
5.				FACU species0	x	4 =0	_	
Et au dive	15	= Total Cov	/er	UPL species15	<u> </u>	5 =75	_	
Herb Stratum (Plot size: 5' radius)			NII	Column Totals: 84	(A) 255	_ (B)	
Toxicodendron radicans	•		NI FAC	Prevalence Index	= B/A =	3.04		
2. Ioxicodendron radicans 3. Ulmus americana				Hydrophytic Vegetation		•	_	
4				X Dominance Test is				
5.				Prevalence Index is	s ≤3.0 ¹			
6.				Morphological Ada	otations ¹	(Provide suppor	ting	
7				data in Remarks Problematic Hydror		. ,	in)	
8				Problematic Hydrop	mytic ve	getation (⊏xpia	III <i>)</i>	
9				¹ Indicators of hydric soi	and wet	land hydrology r	nust	
10				be present, unless distu				
Woody Vine Stratum (Plot size: 30' radius)	4	= Total Cov	/er					
1				Hydrophytic				
2.				Vegetation Present? Yes	e Y	No		
		= Total Cov	/er	11030111: 16:	· <u> </u>			
Remarks: (Include photo numbers here or on a separate	sheet.)							
· · ·	,							
Presence of dead honeysuckle.								

OIL	Sampling Point: J

Profile Desc	ription: (Describe t	o the depth n				r confirm	the absence	of indicators.)		
Depth (in the sec	Matrix	%		x Features		Loc ²	Tanduna	Damarka		
(inches)	Color (moist)		Color (moist)	<u>%</u>	Type ¹		Texture	Remarks		
0-11	10YR 3/2	95	7.5 YR 4/6	5	C	<u>M</u>	not sand	clay loam		
11-16	10YR 4/2	95	10YR 5/6	5	C	M	not sand	silty loam		
				· <u></u>						
17	D. D. al	-ti DM D	de a a di Martinia di OC		01 -	1010	-: 21 -			
Hydric Soil I	ncentration, D=Depl	etion, Rivi=Red	duced Matrix, CS	=Covered	or Coated	a Sand Gra		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :		
Histosol			Sandy (Sleyed Mat	riy (S4)			Prairie Redox (A16)		
	ipedon (A2)			Redox (S5)				langanese Masses (F12)		
Black His				Matrix (S				(Explain in Remarks)		
	n Sulfide (A4)			Mucky Min						
	Layers (A5)		-	Gleyed Ma						
2 cm Mu	, ,	(444)		d Matrix (F	,					
	Below Dark Surface rk Surface (A12)	(A11)	X Redox Deplete	d Dark Suriac	. ,		3Indicators	s of hydrophytic vegetation and		
	ucky Mineral (S1)			Depression				d hydrology must be present,		
	cky Peat or Peat (S3)	<u> </u>	•	` ,			disturbed or problematic.		
Restrictive L	ayer (if observed):									
Type:			_							
Depth (inc	hes):		_				Hydric Soil	Present? Yes X No		
Remarks:							•			
HYDROLOG	GY									
Wetland Hyd	Irology Indicators:									
Primary Indic	ators (minimum of or	ne is required;	check all that ap	ply)			Seconda	ary Indicators (minimum of two required)		
Surface \	Water (A1)		X Water-Stai	ned Leave	s (B9)		Sur	face Soil Cracks (B6)		
High Wat	ter Table (A2)		Aquatic Fa	` ,			Drainage Patterns (B10)			
Saturatio	` '		True Aqua				Dry-Season Water Table (C2)			
Water Ma	` ,		Hydrogen					yfish Burrows (C8)		
	t Deposits (B2)		Oxidized R			-		uration Visible on Aerial Imagery (C9)		
	osits (B3) t or Crust (B4)		Presence o					nted or Stressed Plants (D1) omorphic Position (D2)		
Iron Dep	` '		Thin Muck			30113 (00		C-Neutral Test (D5)		
	on Visible on Aerial Ir	nagery (B7)	Gauge or \					7 (Da)		
	Vegetated Concave		Other (Exp							
Field Observ		· · · ·			<u> </u>					
Surface Water	er Present? Ye	es No _	X Depth (inc	ches):		_				
Water Table I	Present? Ye	es No _	X Depth (inc	ches):		_				
Saturation Pr	esent? Ye	s No _	X Depth (inc	ches):		Wetla	and Hydrolog	y Present? Yes <u>X</u> No		
(includes cap	illary fringe)						f available:			
Describe Rec	orded Data (stream	yauye, 111011110	inig well, aerial p	motos, pre	vious iris	oecuons), I	ı avallable.			
Remarks:										
nemarks.										
_										
Inundation (depth (typical year)	: 0-2 feet								

Project/Site: Riverpointe Public Infrastructure Project	_ City/Co	ounty: St. Charle	es, St. Charles County	Sampling Dat	e: <u>5/20/20</u> 2	20	
Applicant/Owner: City of St. Charles		State: MO Sampling Point: K					
Investigator(s): AMZ, ELH	Section	n, Township, Ra	nge: Section 08, Township	46 N, Range	9 5 E		
Landform (hillslope, terrace, etc.): ridge adjacent stream		Local relief (concave, convex, none): none					
Slope (%): 3 Lat: 38.757013		Long: -90.497967 Datum: NAD 83					
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex, 0-2 % s	_						
· · · · · · · · · · · · · · · · · · ·					OODI i daja	OCITE	
Are climatic / hydrologic conditions on the site typical for this time of	-				V N.	_	
Are Vegetation, Soil, or Hydrology significant)	
Are Vegetation, Soil, or Hydrology naturally p	problemat	ic? (If ne	eeded, explain any answers	in Remarks.)		
SUMMARY OF FINDINGS – Attach site map showing	ng sam	pling point l	ocations, transects,	important	features	s, etc.	
Hydrophytic Vegetation Present? Yes X No		l. 4b. 0	1.4				
Hydric Soil Present? Yes X No		Is the Sampled		N			
Wetland Hydrology Present? Yes X No	_	within a Wetla	na? Yes <u> </u>	No			
Remarks:							
VEGETATION – Use scientific names of plants.							
Absolu Tree Stratum (Plot size: 30' radius) % Cove		nant Indicator ies? Status	Dominance Test works				
1. Acer saccharinum 30		FACW	Number of Dominant Sports Are OBL, FACW, or		8	(A)	
2. Fraxinus pennsylvanica 10	Y	FACW				()	
3. Acer negundo 5	N	FAC	Total Number of Domina Species Across All Strata		8	(B)	
4						` '	
5			Percent of Dominant Spe That Are OBL, FACW, or		100.00	(A/B)	
45	= Tota	l Cover				,	
Sapling/Shrub Stratum (Plot size: 15' radius)	V	EA C\A/	Prevalence Index work		ltiply by:		
-		FACW	Total % Cover of: OBL species0		ltiply by: 0	_	
2			1			-	
3			FAC species 10			-	
4.			1	x 4 = _		_	
	= Tota	l Cover	UPL species 0	x 5 =	0	_	
Herb Stratum (Plot size: 5' radius)	_		Column Totals: 76		162	(B)	
1					0.40		
2. Packera glabella 3	Y		Prevalence Index				
3. <u>Carex sp.</u> 3	<u>Y</u>		Hydrophytic Vegetation				
4. Fraxinus pennsylvanica 3	<u>Y</u> Y		X Dominance Test is >X Prevalence Index is				
5. Acer negundo 3 6. Symphyotrichum sp. 2	<u> </u>		Morphological Adap		ride sunnort	tina	
6. Symphyotrichum sp. 2 7. Bidens sp. 2	<u>N</u>		data in Remarks			.ii ig	
8			Problematic Hydrop	nytic Vegetation	on¹ (Explair	n)	
9							
10			¹ Indicators of hydric soil			nust	
	= Tota	l Cover	be present, unless distur	bed of proble	mauc.		
Woody Vine Stratum (Plot size: 30' radius)							
1. Vitis riparia 10	Y	FACW	Hydrophytic Vegetation				
2				No)		
10	= Tota	l Cover					
Remarks: (Include photo numbers here or on a separate sheet.)			•				
Area lacks live/dead honeysuckle.							
Alou luoko livoruouu liolioyouokio.							

SOIL								Sampling Point: K
Profile Desc	cription: (Describ	e to the depti	n needed to docu	ment the i	ndicator	or confirm	the absence	
Depth	Matrix	•		x Feature				,,
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 3/2	75	5YR 4/6	25	С	M	not sand	clay silt
				-				
	-			_				
¹ Type: C=C	oncentration, D=D	epletion, RM=F	Reduced Matrix, C	S=Covered	d or Coate	d Sand Gr	ains. ² Lo	cation: PL=Pore Lining, M=Matrix.
Hydric Soil		•					Indicators	for Problematic Hydric Soils ³ :
Histosol	I (A1)		Sandy	Gleyed Ma	atrix (S4)		Coast	Prairie Redox (A16)
	pipedon (A2)			Redox (S5	,			langanese Masses (F12)
	istic (A3)			d Matrix (S			Other	(Explain in Remarks)
	en Sulfide (A4) d Layers (A5)			Mucky Mir Gleyed Ma				
	uck (A10)			ed Matrix (I	, ,			
	d Below Dark Surfa	ace (A11)	X Redox	,	,			
Thick Da	ark Surface (A12)	, ,	Deplete	ed Dark Su	ırface (F7)		³ Indicator	s of hydrophytic vegetation and
	Mucky Mineral (S1)		Redox	Depression	ns (F8)			nd hydrology must be present,
	ucky Peat or Peat (unless	s disturbed or problematic.
	Layer (if observed	•						
• • • • • • • • • • • • • • • • • • • •								
	ches):		<u> </u>				Hydric Soi	I Present? Yes X No
Remarks:								
Redox muc	h more prominan	t.						
HYDROLO	GY							
Wetland Hy	drology Indicator	s:						
Primary Indi	cators (minimum o	f one is require	ed; check all that ap	oply)			Second	ary Indicators (minimum of two required)
X Surface	Water (A1)		X Water-Sta	ined Leav	es (B9)			face Soil Cracks (B6)
X High Wa	ater Table (A2)		Aquatic Fa				X Dra	inage Patterns (B10)
X Saturati			True Aqua				-	-Season Water Table (C2)
× Water M			Hydrogen					yfish Burrows (C8)
	nt Deposits (B2)		Oxidized F			_	—	ruration Visible on Aerial Imagery (C9)
	Drift Deposits (B3) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (nted or Stressed Plants (D1)	
	at or Crust (B4)					a Solis (Co		omorphic Position (D2)
Iron Dep	posits (B5) ion Visible on Aeria	al Imagony (P7)	Thin Muck) Gauge or				<u> </u>	C-Neutral Test (D5)
	y Vegetated Conca		=					
Field Obser		Carrace (Di	Outer (EX	piani iii i (C				
Surface Wat		Yes X N	o Depth (in	iches).	1			
Water Table			o Depth (in			_		
Saturation P			o Depth (in			Wetls	and Hydrolog	y Present? Yes X No
(includes ca	pillary fringe) ecorded Data (strea							700 700 100 100 100 100 100 100 100 100

US Army Corps of Engineers

Remarks:

Reset Form

Project/Site: Riverpointe Public Infrastructure Project	(City/County	St. Charle	es, St. Charles County Sampling Date: 5/20/2020		
				State: MO Sampling Point: L		
				nge: Section 08, Township 46 N, Range 5 E		
Landform (hillslope, terrace, etc.): terrace, ridge						
		ong:90.498134				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex		_				
Are climatic / hydrologic conditions on the site typical for this				·		
Are Vegetation, Soil, or Hydrologys	-					
Are Vegetation, Soil, or Hydrologyn	aturally pro	blematic?	(If ne	eded, explain any answers in Remarks.)		
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.		
Hydrophytic Vegetation Present? Yes N Hydric Soil Present? Yes N Wetland Hydrology Present? Yes N	o <u> </u>		e Sampled in a Wetlar			
Remarks:		•				
VEGETATION – Use scientific names of plants.						
TEGETATION OSC SCIENTING HARRIES OF Plants.	Absolute	Dominant	Indicator	Dominance Test worksheet:		
Tree Stratum (Plot size: 30' radius)		Species?		Number of Dominant Species		
1. Acer negundo		Y	-	That Are OBL, FACW, or FAC:5 (A)		
Platanus occidentalis .		Y	FACW NI	Total Number of Dominant Species Across All Strata: 6 (B)		
4				Percent of Dominant Species		
5				That Are OBL, FACW, or FAC: 83.33 (A/B)		
Sapling/Shrub Stratum (Plot size: 15' radius)	35	= Total Cov	er	Prevalence Index worksheet:		
1. Lonicera maackii	20	Υ	UPL	Total % Cover of: Multiply by:		
2. Acer negundo	10	Y	FAC	OBL species 0 x 1 = 0		
3. Cornus drummondii	5	N	FAC	FACW species15 x 2 =30		
4.		· ·		FAC species 41 x 3 = 123		
5				FACU species0 x 4 =0		
	35	= Total Cov	er	UPL species 20 x 5 = 100		
Herb Stratum (Plot size: 5' radius)				Column Totals:76 (A)253 (B)		
1	2		FAC	Prevalence Index = B/A = 3.33		
3. Cornus drummondii		Y	FAC	Hydrophytic Vegetation Indicators:		
4.				X Dominance Test is >50%		
5.				Prevalence Index is ≤3.0 ¹		
6.				Morphological Adaptations ¹ (Provide supporting		
7.				data in Remarks or on a separate sheet)		
8.				Problematic Hydrophytic Vegetation ¹ (Explain)		
9				¹ Indicators of hydric soil and wetland hydrology must		
10				be present, unless disturbed or problematic.		
Woody Vine Stratum (Plot size: 30' radius	6	= Total Cov	rer			
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic		
1				Vegetation		
		= Total Cov	er	Present? Yes <u>X</u> No		
Remarks: (Include photo numbers here or on a separate s	sheet)					
Presence of live/dead honeysuckle.	,					
_						

SolL

Sampling Point: L

Profile Description: (Describe to the depth peeded to document the indicator or confirm the absence of indicators.)

	•	-	n needed to docur		tor or commi	the absence	of indicators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Features %Type	e ¹ Loc ²	Texture	Remarks
0-4	10YR 4/2	97	10YR 4/6	3	M	not sand	loam
4-16	10YR 4/1	99	10YR 4/6	1	M	not sand	silty loam
		 ,					
		<u> </u>					
				<u> </u>			
¹Type: C=Co	ncentration, D=D	epletion, RM=	Reduced Matrix, CS	S=Covered or Co	oated Sand Gra	ains. ² Loo	cation: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:					Indicators	for Problematic Hydric Soils ³ :
Histosol	` '			Gleyed Matrix (S	4)		Prairie Redox (A16)
	ipedon (A2)			Redox (S5)			langanese Masses (F12)
Black His				d Matrix (S6)	-4\	Other	(Explain in Remarks)
	n Sulfide (A4) Layers (A5)			Mucky Mineral (f Gleyed Matrix (F			
2 cm Mu				ed Matrix (F3)	2)		
	Below Dark Surf	ace (A11)		Dark Surface (F6	3)		
	rk Surface (A12)	,		d Dark Surface (•	³ Indicators	s of hydrophytic vegetation and
	ucky Mineral (S1))		Depressions (F8			d hydrology must be present,
	cky Peat or Peat					unless	disturbed or problematic.
Restrictive L	ayer (if observe	d):					
Type:							
Depth (inc	:hes):					Hydric Soil	Present? Yes NoX
Remarks:							
Redox featur	res present but r	not distinct/pr	rominent in soil pr	ofile.			
HYDROLOG	GY Irology Indicator	's:					
			ed; check all that ap	nnly)		Seconda	ary Indicators (minimum of two required)
	Water (A1)	1 0110 10 10 00		ined Leaves (B9)		face Soil Cracks (B6)
	ter Table (A2)			auna (B13)	,		inage Patterns (B10)
Saturatio	, ,			atic Plants (B14)			-Season Water Table (C2)
Water Ma				Sulfide Odor (C	1)		yfish Burrows (C8)
	t Deposits (B2)			Rhizospheres on			uration Visible on Aerial Imagery (C9)
	osits (B3)			of Reduced Iron	-		nted or Stressed Plants (D1)
	t or Crust (B4)			n Reduction in T	` '		omorphic Position (D2)
Iron Dep			Thin Muck				C-Neutral Test (D5)
Inundatio	on Visible on Aeria	al Imagery (B7) Gauge or	Well Data (D9)			
Sparsely	Vegetated Conca	ave Surface (E	88) Other (Exp	olain in Remarks)		
Field Observ	vations:						
Surface Water	er Present?	Yes N	lo <u>X</u> Depth (in	ches):			
Water Table	Present?	Yes N	lo 🔀 Depth (in	ches):			
Saturation Pr		Yes N	No X Depth (in	ches):	Wetla	and Hydrolog	y Present? Yes No X
(includes cap Describe Rec	orded Data (strea	am gauge, mo	nitoring well, aerial	photos, previous	inspections) i	if available:	
	(2)	J J.,o.	J,	,, p	- //		
Remarks:							
Inundation	depth (typical ye	ear): 0-2 feet					

Reset Form

Print Form

Project/Site: Riverpointe Public Infrastructure Project	C	City/County:	St. Charle	es, St. Charles County Sampling Date: 5/20/2020			
				State: MO Sampling Point: M			
	5	Section, Township, Range: Section 08, Township 46 N, Range 5 E					
Landform (hillslope, terrace, etc.): terrace, ridge							
Slope (%): 2 Lat: 38.754886							
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex,		-					
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation, Soil, or Hydrology sig	-	·					
Are Vegetation, Soil, or Hydrology na	iturally prob	olematic?	(If ne	eded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map s	howing	samplin	g point le	ocations, transects, important features, etc.			
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No			e Sampled in a Wetlar				
Wetland Hydrology Present? Yes No	<u></u>						
VEGETATION – Use scientific names of plants.	Absolute	Dominant	Indicator	Dominance Test worksheet:			
		Species?		Number of Dominant Species			
1. Acer negundo	20	Y	FAC	That Are OBL, FACW, or FAC:5 (A)			
Acer saccharinum 3		Y		Total Number of Dominant Species Across All Strata: 7 (B)			
4. 5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 71.43 (A/B)			
Sapling/Shrub Stratum (Plot size:15' radius)	25 :	= Total Cov	er	Prevalence Index worksheet:			
1. Lonicera maackii	30	Υ	UPL	Total % Cover of: Multiply by:			
2. Morus rubra	10			OBL species 0 x 1 = 0			
3				FACW species15 x 2 =30			
4				FAC species30 x 3 =90			
5				FACU species10 x 4 =40			
Herb Stratum (Plot size: 5' radius)	40 =	= Total Cov	er	UPL species 30 x 5 = 150			
1. Toxicodendron radicans	5	Υ	FAC	Column Totals: <u>85</u> (A) <u>310</u> (B)			
2. Acer rubrum	5	Y	FAC	Prevalence Index = B/A =3.65			
3.				Hydrophytic Vegetation Indicators:			
4				X Dominance Test is >50%			
5				Prevalence Index is ≤3.0 ¹			
6				Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)			
7				Problematic Hydrophytic Vegetation ¹ (Explain)			
8							
9 10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
		= Total Cov	er	, , , , , , , , , , , , , , , , , , , ,			
Woody Vine Stratum (Plot size: 30' radius)	10	V	EACW	Hydrophytic			
1. Vitis riparia 2		<u>Y</u>		Vegetation Present? Yes X No			
	10 :	= Total Cov	er				
Remarks: (Include photo numbers here or on a separate sh	neet.)						

SOIL Sampling Point: M

Depth Matrix		ox Features		1 = -2	Tand	D
(inches) Color (moist) %		%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-11 10YR 3/2 95	5 5YR 4/6	5	C	PL	not sand	loam clay
11-16 10YR 3/2 10	0				sand	sandy clay
¹ Type: C=Concentration, D=Depletion,	RM=Reduced Matrix, C	S=Covered	d or Coate	d Sand Gr		cation: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators:						for Problematic Hydric Soils ³ :
Histosol (A1)	-	Gleyed Ma				Prairie Redox (A16)
Histic Epipedon (A2)		Redox (S5)				anganese Masses (F12)
Black Histic (A3)		ed Matrix (S			Other	(Explain in Remarks)
Hydrogen Sulfide (A4)Stratified Layers (A5)		/ Mucky Mill / Gleyed Ma	. ,			
2 cm Muck (A10)	-	ed Matrix (F				
Depleted Below Dark Surface (A11		Dark Surfa				
Thick Dark Surface (A12)	· —	ed Dark Su	, ,		3Indicators	of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Redox	Depression	ns (F8)		wetlan	d hydrology must be present,
5 cm Mucky Peat or Peat (S3)					unless	disturbed or problematic.
Restrictive Layer (if observed):						
Type:						
Depth (inches):					Hydric Soil	Present? Yes X No
Remarks:					1 2 2 2 2	
HYDROLOGY						
	· · · · · · · · · · · · · · · · · · ·					ary Indicators (minimum of two required
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is round) Surface Water (A1)	Water-St	ained Leave	. ,		Seconda	face Soil Cracks (B6)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is r Surface Water (A1) High Water Table (A2)	Water-St	ained Leave auna (B13))		Seconda Sur Dra	race Soil Cracks (B6) inage Patterns (B10)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rown and the company of the com	Water-St Aquatic F True Aqu	ained Leave Fauna (B13) latic Plants	(B14)		Seconda Sur Dra Dry	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is r Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	Water-St Aquatic F True Aqu Hydroger	ained Leave Fauna (B13) uatic Plants n Sulfide Od) (B14) dor (C1)		Seconda Sur Dra Dry. Cra	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is r Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	Water-St Aquatic F True Aqu Hydrogei Oxidized	ained Leave Fauna (B13) latic Plants In Sulfide Od Rhizospher	(B14) dor (C1) res on Livi	_	Seconda Sur Dra Dry Cra (C3) Sati	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is reconstruction) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	Water-St Aquatic F True Aqu Hydroger Oxidized Presence	ained Leave Fauna (B13) latic Plants on Sulfide Od Rhizospher e of Reduce	(B14) dor (C1) res on Livi d Iron (C4)	Seconda Sur Dra Dry Cra (C3) Sati	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is r Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	Water-St Aquatic F True Aqu Hydroget Oxidized Presencet Recent Ir	ained Leave Fauna (B13) latic Plants on Sulfide Od Rhizospher e of Reduce con Reduction	(B14) dor (C1) res on Livi d Iron (C4 on in Tilled)	Seconda Sur Dra Dry Cra (C3) Satu Stur	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is reconstruction) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	Water-St Aquatic F True Aqu Hydrogei Oxidized Presence Recent Ir	ained Leave Fauna (B13) latic Plants on Sulfide Od Rhizospher of Reduce on Reduction	(B14) dor (C1) res on Livi d Iron (C4 on in Tilleo)	Seconda Sur Dra Dry Cra (C3) Satu Stur	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is r Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imager	— Water-St — Aquatic F — True Aqu — Hydroger — Oxidized — Presencer — Recent Ir — Thin Muc	ained Leave Fauna (B13) latic Plants (n Sulfide Od Rhizospher e of Reduce con Reduction ck Surface (f	(B14) dor (C1) res on Livi d Iron (C4 on in Tilleo C7) (D9))	Seconda Sur Dra Dry Cra (C3) Satu Stur	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is r Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imager Sparsely Vegetated Concave Surface	— Water-St — Aquatic F — True Aqu — Hydroger — Oxidized — Presencer — Recent Ir — Thin Muc	ained Leave Fauna (B13) latic Plants (n Sulfide Od Rhizospher e of Reduce con Reduction ck Surface (f	(B14) dor (C1) res on Livi d Iron (C4 on in Tilleo C7) (D9))	Seconda Sur Dra Dry Cra (C3) Satu Stur	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is researched) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagered Sparsely Vegetated Concave Surfated	Water-St Aquatic F True Aqu Hydrogei Oxidized Presence Recent Ir Thin Muc (y (B7) Gauge o	ained Leave Fauna (B13) latic Plants in Sulfide Od Rhizospher e of Reducer on Reduction ok Surface (I r Well Data	(B14) (B14) dor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)) I Soils (C6	Seconda Sur Dra Dry Cra (C3) Satu Stur	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is research of the surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imager Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes	Water-St Aquatic F True Aqu Hydrogei Oxidized Presence Recent Ir Thin Muc (y (B7) Gauge or ace (B8) Other (Ex	ained Leave Fauna (B13) latic Plants in Sulfide Od Rhizospher e of Reduce con Reduction ck Surface (for well Data xplain in Res	(B14) (B14) dor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)) I Soils (C6	Seconda Sur Dra Dry Cra (C3) Satu Stur	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is research of the second of the seco	Water-St Aquatic F True Aqu Hydroger Oxidized Presencer Recent Ir Thin Muc (B7) Gauge or ace (B8) Other (Extended to the company of th	ained Leave Fauna (B13) latic Plants in Sulfide Od Rhizospher e of Reduce ron Reduction ck Surface (in r Well Data explain in Rei nches):	(B14) (B14) res on Livi d Iron (C4 on in Tillec C7) (D9) marks)) I Soils (C6	Seconda Sur Dra Cra Cra Stur Stur FAC	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2) C-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is result of the second	Water-St Aquatic F True Aqu Hydrogei Oxidized Presence Recent Ir Thin Muc (y (B7) Gauge or ace (B8) Other (Ex	ained Leave Fauna (B13) latic Plants in Sulfide Od Rhizospher e of Reduce ron Reduction ck Surface (in r Well Data explain in Rei nches):	(B14) (B14) res on Livi d Iron (C4 on in Tillec C7) (D9) marks)) I Soils (C6	Seconda Sur Dra Cra Cra Stur Stur FAC	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is research of the second of the seco	Water-St Aquatic F True Aqu Hydroger Oxidized Presence Recent Ir Thin Muc (B7) Gauge or ace (B8) Other (Exitation of the content of t	ained Leave Fauna (B13) latic Plants in Sulfide Od Rhizospher e of Reduce ron Reduction ck Surface (for Well Data explain in Ref nches):	(B14) (B14) res on Livi d Iron (C4 on in Tillec C7) (D9) marks)) I Soils (C6	Seconda Sur Dra Dry Cra Stur Stur FAC	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2) C-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is research of the state of the	Water-St Aquatic F True Aqu Hydroger Oxidized Presence Recent Ir Thin Muc (B7) Gauge or ace (B8) Other (Exitation of the content of t	ained Leave Fauna (B13) latic Plants in Sulfide Od Rhizospher e of Reduce ron Reduction ck Surface (for Well Data explain in Ref nches):	(B14) (B14) res on Livi d Iron (C4 on in Tillec C7) (D9) marks)) I Soils (C6	Seconda Sur Dra Dry Cra Stur Stur FAC	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2) C-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is reconstruction) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imageres Sparsely Vegetated Concave Surfated Observations: Surface Water Present? Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge	Water-St Aquatic F True Aqu Hydroger Oxidized Presencer Recent Ir Thin Muc (B7) Gauge or ace (B8) Other (Exitation of the company of	ained Leave Fauna (B13) latic Plants in Sulfide Od Rhizospher e of Reduce ron Reduction ck Surface (for Well Data explain in Ref nches):	(B14) (B14) res on Livi d Iron (C4 on in Tillec C7) (D9) marks)) I Soils (C6	Seconda Sur Dra Dry Cra Stur Stur FAC	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2) C-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is reconstruction) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imageres Sparsely Vegetated Concave Surfated Observations: Surface Water Present? Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge	Water-St Aquatic F True Aqu Hydrogei Oxidized Presence Recent Ir Thin Muc (y (B7) Gauge or ace (B8) Other (Ex No X Depth (in N	ained Leave Fauna (B13) latic Plants in Sulfide Oc Rhizospher e of Reduce ron Reduction ck Surface (for Well Data explain in Refunches):	(B14) (B14) res on Livi d Iron (C4 on in Tillec C7) (D9) marks)) I Soils (C6	Seconda Sur Dra Dry Cra Stur Stur FAC	face Soil Cracks (B6) inage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) imorphic Position (D2) C-Neutral Test (D5)

Reset Form Prir

Project/Site: Riverpointe Public Infrastructure Project	(City/County	: St. Charle	es, St. Charles County Sampling Date: 5/20/2020			
				State: MO Sampling Point: N			
•			ction, Township, Range: Section 08, Township 46 N, Range 5 E				
		Local relief (concave, convex, none): concave					
		Long: -90.500709 Datum: NAD 83					
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex	·						
Are climatic / hydrologic conditions on the site typical for thi							
Are Vegetation, Soil, or Hydrologys	•						
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?	(If ne	eded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.			
Hydrophytic Vegetation Present? YesX N Hydric Soil Present? YesX N Wetland Hydrology Present? YesX N	lo		e Sampled in a Wetlar				
Remarks:		I					
VEGETATION – Use scientific names of plants							
Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:			
1. Acer negundo	40		FAC	Number of Dominant Species That Are OBL, FACW, or FAC:8 (A)			
2. Acer saccharinum	20		FACW	Total Number of Dominant			
3. Salix nigra		N	OBL	Species Across All Strata: 8 (B)			
4				Percent of Dominant Species			
5				That Are OBL, FACW, or FAC: 100.00 (A/B)			
Sapling/Shrub Stratum (Plot size: 15' radius)	65	= Total Cov	/er	Prevalence Index worksheet:			
1. Acer negundo	15	Υ	FAC	Total % Cover of: Multiply by:			
Fraxinus pennsylvanica	_	Y	FACW	OBL species5 x 1 =5			
3. Acer saccharinum		Υ	FACW	FACW species36 x 2 =72			
4.				FAC species58 x 3 =174			
5				FACU species 0 x 4 = 0			
El madina	25	= Total Cov	/er	UPL species 0 x 5 = 0			
Herb Stratum (Plot size: 5' radius)			NII	Column Totals:99 (A)251 (B)			
Packera glabella	3		NI FACW	Prevalence Index = B/A = 2.54			
3. Toxicodendron radicans		Y	FAC	Hydrophytic Vegetation Indicators:			
4. Fraxinus pennsylvanica		Y	FACW	X Dominance Test is >50%			
5.				X Prevalence Index is ≤3.0 ¹			
6.				Morphological Adaptations ¹ (Provide supporting			
7				data in Remarks or on a separate sheet)			
8				Problematic Hydrophytic Vegetation ¹ (Explain)			
9				¹ Indicators of hydric soil and wetland hydrology must			
10				be present, unless disturbed or problematic.			
Woody Vine Stratum (Plot size: 30' radius)	9	= Total Cov	/er				
1				Hydrophytic			
2.				Vegetation			
		= Total Cov	/er	Present? YesX No			
Remarks: (Include photo numbers here or on a separate	sheet \			1			
Tremaine. (moidee priote numbers here of on a separate	onest.)						

SOIL Brofile Dec	scription: (Describe	to the den	th pooded to doou	mont the i	ndicator	or confirm	a the absence	Sampling Point: N	
		to the dep				or commi	n the absence	e of indicators.)	
Depth (inches)	Matrix Color (moist)	%	Color (moist)	ox Feature: %	s Type ¹	Loc²	Texture	Remarks	
0-4	10YR 4/2	75	10YR 5/6	25	C	M	not sand	silty clay	
4-16	10YR 4/2	50	7.5YR 4/6	_ 5	C	M	not sand	silty clay	
	10YR 5/6	45							
	<u> </u>	 -		_					
1 _{T. max} C=0	Consontanting D-Don	Jetien DM	Doduced Metric C	C-C			21 -	antiana DI - Dana Lining M-Matrix	
	Concentration, D=Dep Indicators:	netion, Rivi	=Reduced Matrix, C	S=Covered	or Coate	a Sana G		cation: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils ³ :	
Histoso			Sandy	Gleyed Ma	atriv (S4)			Prairie Redox (A16)	
_	Epipedon (A2)			Redox (S5				flanganese Masses (F12)	
	Histic (A3)			d Matrix (S	,			(Explain in Remarks)	
	jen Sulfide (A4)			Mucky Mir	. ,				
	ed Layers (A5)			Gleyed Ma					
	luck (A10)	- (444)	X Deplete		,				
	ed Below Dark Surfac Dark Surface (A12)	e (A11)	_	Dark Surfa ed Dark Su	` ,		³ Indicators of hydrophytic vegetation and wetland hydrology must be present,		
· 	, ,		X Redox			1			
Sandy Mucky Mineral (S1)5 cm Mucky Peat or Peat (S3)			<u> </u>	_ op. 000.0.	()		unless disturbed or problematic.		
5 cm M	lucky real of real (3)	3)					unless	s disturbed or problematic.	
	Layer (if observed):						unless	s disturbed or problematic.	
	Layer (if observed):	<u> </u>					unless	s disturbed or problematic.	
Restrictive	Layer (if observed):	1					unless		
Restrictive	Layer (if observed):	1							
Restrictive Type: Depth (iii	Layer (if observed):	1							
Restrictive Type: Depth (iii	Layer (if observed):	1							
Restrictive Type: Depth (iii	Layer (if observed):	1							
Restrictive Type: Depth (iii	Layer (if observed):	1							
Restrictive Type: Depth (ii Remarks:	Layer (if observed):	1							
Restrictive Type: Depth (in Remarks:	Layer (if observed): nches):								
Restrictive Type: Depth (in Remarks:	CLayer (if observed): nches): OGY ydrology Indicators:			anh)			Hydric Soi	I Present? Yes <u>X</u> No	
Restrictive Type: Depth (ii Remarks: HYDROLO Wetland Hy Primary Ind	DGY ydrology Indicators:		red; check all that a		oo (PO)		Hydric Soi	I Present? Yes X No	
Restrictive Type: Depth (ii Remarks: HYDROLO Wetland Hy Primary Ind Surface	DGY ydrology Indicators: licators (minimum of o		red; check all that a	ined Leav			Hydric Soi Second X Sur	ary Indicators (minimum of two required face Soil Cracks (B6)	
Restrictive Type: Depth (ii Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W	DGY ydrology Indicators: icators (minimum of o e Water (A1) /ater Table (A2)		red; check all that an — Water-Sta — Aquatic Fa	nined Leav)		Hydric Soi Second X Sur X Dra	ary Indicators (minimum of two required face Soil Cracks (B6) tinage Patterns (B10)	
Restrictive Type: Depth (in Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W X Saturat	DGY ydrology Indicators: dicators (minimum of of e Water (A1) //ater Table (A2) tion (A3)		red; check all that an Water-Sta Aquatic Fa True Aqua	ained Leave auna (B13) atic Plants) (B14)		Hydric Soi Second X Sur X Dra Dry	ary Indicators (minimum of two required face Soil Cracks (B6) hinage Patterns (B10)	
Restrictive Type: Depth (ii Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W X Satural X Water I	DGY ydrology Indicators: iicators (minimum of of the Water (A1) //ater Table (A2) tion (A3) Marks (B1)		red; check all that ap — Water-Sta — Aquatic Fa — True Aqua — Hydrogen	ained Leave auna (B13 atic Plants Sulfide Oc) (B14) dor (C1)	ing Roots	Hydric Soi Second X Sur X Dra Dry Cra	ary Indicators (minimum of two required face Soil Cracks (B6) hinage Patterns (B10) Y-Season Water Table (C2) hyfish Burrows (C8)	
Restrictive Type: Depth (ii Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W X Saturat X Water I Sedime	DGY ydrology Indicators: licators (minimum of of e Water (A1) //ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2)		red; check all that ap — Water-Sta — Aquatic Fa — True Aqua — Hydrogen — Oxidized I	nined Leave auna (B13) atic Plants Sulfide Oo Rhizosphe) (B14) dor (C1) res on Liv	-	Hydric Soi Second X Sur X Dra Dry Cra (C3) Sat	ary Indicators (minimum of two required face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) uration Visible on Aerial Imagery (C9)	
Restrictive Type: Depth (ii Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W X Saturat X Water I Sedime X Drift De	DGY ydrology Indicators: licators (minimum of of the Water (A1) //ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3)		red; check all that an Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence	nined Leave auna (B13) atic Plants Sulfide Oo Rhizosphe of Reduce) (B14) dor (C1) res on Liv ed Iron (C4	1)	Hydric Soi Second X Sur X Dra Dry Cra (C3) Sat Stu	ary Indicators (minimum of two required face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) ruration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1)	
Restrictive Type: Depth (ii Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W X Saturat X Water I Sedime X Drift De Algal M	DGY vdrology Indicators: icators (minimum of ore Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) flat or Crust (B4)		red; check all that ap — Water-Sta — Aquatic Fa — True Aqua — Hydrogen — Oxidized I	nined Leave auna (B13) atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille	1)	Second X Sur X Dra Cra Cra Cra Stu Stu	ary Indicators (minimum of two required face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) and or Stressed Plants (D1) comorphic Position (D2)	
Restrictive Type: Depth (in Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W X Saturat X Water I Sedime X Drift De Algal W Iron De	DGY ydrology Indicators: licators (minimum of of the Water (A1) //ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3)	ene is requi	red; check all that an Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck	ained Leave auna (B13) atic Plants Sulfide Oc Rhizosphe of Reduce on Reduction	(B14) dor (C1) res on Lived Iron (C4) on in Tilled	1)	Second X Sur X Dra Cra Cra Cra Stu Stu	ary Indicators (minimum of two required face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) ruration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1)	
Restrictive Type: Depth (in Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W X Saturat X Water I Sedime X Drift De Algal M Iron De Inunda	DGY ydrology Indicators: dicators (minimum of of the Water (A1) //ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) flat or Crust (B4) eposits (B5)	one is requi	red; check all that ap Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 7) Gauge or	ained Leave auna (B13) atic Plants Sulfide Oc Rhizosphe of Reduce on Reduction	(B14) (dor (C1) res on Liv ed Iron (C4 on in Tillee C7) (D9)	1)	Second X Sur X Dra Cra Cra Cra Stu Stu	ary Indicators (minimum of two required face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) and or Stressed Plants (D1) comorphic Position (D2)	
Restrictive Type: Depth (in Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W X Saturat X Water I Sedime X Drift De Algal M Iron De Inunda	DGY ydrology Indicators: licators (minimum of of e Water (A1) // ater Table (A2) // tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) // ater Crust (B4) eposits (B5) tion Visible on Aerial I	one is requi	red; check all that ap Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 7) Gauge or	ained Leave auna (B13) atic Plants Sulfide Oc Rhizosphe of Reduce on Reductic C Surface ((B14) (dor (C1) res on Liv ed Iron (C4 on in Tillee C7) (D9)	1)	Second X Sur X Dra Cra Cra Cra Stu Stu	ary Indicators (minimum of two required face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) and or Stressed Plants (D1) comorphic Position (D2)	
Restrictive Type: Depth (ii Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W X Saturat X Water I Sedime X Drift De Algal M Iron De Inunda Sparse Field Obse	DGY ydrology Indicators: licators (minimum of ore Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) flat or Crust (B4) eposits (B5) tion Visible on Aerial I	one is required in the second	red; check all that ap Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 7) Gauge or	nined Leave auna (B13) atic Plants Sulfide Oc Rhizosphe of Reduce on Reduction Surface (Well Data plain in Re	(B14) (B14) dor (C1) res on Liv ed Iron (C4 on in Tiller (C7) (D9) emarks)	1)	Second X Sur X Dra Cra Cra Cra Stu Stu	ary Indicators (minimum of two required face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) and or Stressed Plants (D1) comorphic Position (D2)	
Restrictive Type: Depth (ii Remarks: HYDROLO Wetland Hy Primary Ind Surface X High W X Saturat X Water I _ Sedime X Drift De _ Algal M _ Iron De _ Inunda _ Sparse Field Obse	DGY variones): inches): variones: varione	one is required limagery (B) e Surface (I	red; check all that and the second se	nined Leave auna (B13) atic Plants Sulfide Oc Rhizosphe of Reduce on Reductic Surface (Well Data plain in Re	(B14) (B14) dor (C1) res on Liv ed Iron (C4 on in Tiller (C7) (D9) emarks)	1)	Second X Sur X Dra Cra Cra Cra Stu Stu	ary Indicators (minimum of two required face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) and or Stressed Plants (D1) comorphic Position (D2)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Inundation depth (typical year): 2-5 feet

(includes capillary fringe)

Remarks:

Project/Site: Riverpointe Public Infrastructure Project	(City/County	St. Charle	es, St. Charles County Sampling Date: 5/20/2020			
		State: MO Sampling Point: O					
	vnship, Range: Section 08, Township 46 N, Range 5 E						
Landform (hillslope, terrace, etc.): ridge							
Slope (%): 1 Lat: 38.754676							
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex		_					
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation, Soil, or Hydrologys	-						
Are Vegetation, Soil, or Hydrologyn	aturally prol	blematic?	(If ne	eded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point le	ocations, transects, important features, etc.			
Hydrophytic Vegetation Present? Yes X N Hydric Soil Present? Yes N	o <u> </u>		e Sampled in a Wetlar				
Wetland Hydrology Present? Yes X N Remarks:	0						
VEGETATION – Use scientific names of plants.		Dominost	Indianton	Deminung Test weekshoot			
Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet: Number of Dominant Species			
1. Populus deltoides	20	Υ	FAC	That Are OBL, FACW, or FAC:3 (A)			
2. Acer saccharinum	15	Υ	FACW	Total Number of Dominant			
3. Acer negundo	5	N	FAC	Species Across All Strata:5 (B)			
4. Celtis occidentalis	5	N	FAC	Percent of Dominant Species			
5				That Are OBL, FACW, or FAC: 60.00 (A/B)			
Capling/Chruh Ctratum /Dlat size: 15' radius	45	= Total Cov	ver .	Prevalence Index worksheet:			
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Lonicera maackii	20	Υ	UPI	Total % Cover of: Multiply by:			
2.				OBL species 0 x 1 = 0			
3				FACW species 16 x 2 = 32			
4.				FAC species 30 x 3 = 90			
5.				FACU species 0 x 4 = 0			
		= Total Cov	ver .	UPL species21 x 5 =105			
Herb Stratum (Plot size: 5' radius)				Column Totals:67 (A)227 (B)			
Euonymus fortunei			UPL	Prevalence Index = B/A = 3.39			
· ·			FACW	Hydrophytic Vegetation Indicators:			
Fraxinus pennsylvanica 4				X Dominance Test is >50%			
5.				Prevalence Index is ≤3.0 ¹			
6.				Morphological Adaptations ¹ (Provide supporting			
7.				data in Remarks or on a separate sheet)			
8.				Problematic Hydrophytic Vegetation ¹ (Explain)			
9				1			
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
		= Total Cov	er				
Woody Vine Stratum (Plot size: 30' radius)				I hadron hadio			
1				Hydrophytic Vegetation			
2				Present? Yes X No			
		= Total Cov	rer				
Remarks: (Include photo numbers here or on a separate s	sheet.)						
Distinct difference in vegetation community with prese	ence of hon	eysuckle.					

SOIL								Sampling Point: O		
Profile Des	cription: (Describe to	the depth	needed to docu	ment the	indicator	or confirm	n the absence	e of indicators.)		
Depth	Matrix		Redo	x Feature	s					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-3	10YR 3/2	97	7.5YR 3/4	3	С	PL	not sand	silty clay		
3-16	10YR 3/2	99	7.5YR 3/4	1		M	not sand	loam, redox features not prominent		
	Concentration, D=Deple	tion, RM=F	Reduced Matrix, C	S=Covere	d or Coate	d Sand G		cation: PL=Pore Lining, M=Matrix.		
•	Indicators:							s for Problematic Hydric Soils ³ :		
Histoso	` '			Gleyed Ma	, ,			Prairie Redox (A16)		
	Epipedon (A2) Histic (A3)			Redox (S5 d Matrix (\$,		·	langanese Masses (F12) (Explain in Remarks)		
	en Sulfide (A4)			Mucky Mi			Other	(Explain in Remarks)		
	ed Layers (A5)			Gleyed M	. ,					
	uck (A10)		-	ed Matrix (
Deplete	ed Below Dark Surface	(A11)		Dark Surfa	,					
Thick D	ark Surface (A12)		Deplete	ed Dark Su	ırface (F7)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
	Mucky Mineral (S1)		Redox	Depressio	ns (F8)					
	ucky Peat or Peat (S3)									
Restrictive	Layer (if observed):									
Туре:			<u> </u>							
Depth (ir	nches):						Hydric Soi	I Present? Yes No _X		
Remarks:										
HYDROLO		below. Red	dox features in 3-	16 inches	are not d	listinct/pr	ominent			
-	drology Indicators:									
	icators (minimum of one	e is require						ary Indicators (minimum of two required)		
Surface	e Water (A1)		Water-Sta					face Soil Cracks (B6)		
	ater Table (A2)		Aquatic F					inage Patterns (B10)		
	ion (A3)		True Aqua					-Season Water Table (C2)		
	Marks (B1)		Hydrogen					ayfish Burrows (C8)		
	ent Deposits (B2)		Oxidized			-		turation Visible on Aerial Imagery (C9)		
Drift De	eposits (B3)				ed Iron (C4			inted or Stressed Plants (D1)		
	lat or Crust (B4)		Recent Iro	on Reducti	ion in Tilled	d Soils (C	6) <u> </u>	omorphic Position (D2)		
Iron De	posits (B5)		Thin Mucl	s Surface	(C7)	(.		C-Neutral Test (D5)		
Iron De	tion Visible on Aerial Im		Thin Mucl Gauge or	k Surface Well Data	(C7) (D9)	(.				
Iron De Inundat Sparse	tion Visible on Aerial Im ly Vegetated Concave S		Thin Mucl Gauge or	k Surface (Well Data	(C7) (D9)					
Iron De Inundat Sparse Field Obse	tion Visible on Aerial Im ly Vegetated Concave S	Surface (B	Thin Mucl Gauge or	c Surface Well Data plain in Re	(C7) (D9)					

 Yes
 No
 X
 Depth (inches):

 Yes
 No
 X
 Depth (inches):

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Inundation depth (typical year): 0-2 feet

Water Table Present?

Saturation Present? (includes capillary fringe)

Remarks:

Wetland Hydrology Present? Yes X No ___

Project/Site: Riverpointe Public Infrastructure Project	(City/County	St. Charle	es, St. Charles County Sampling Date: 5/20/2020
				State: MO Sampling Point: P
···				nge: Section 08, Township 46 N, Range 5 E
Landform (hillslope, terrace, etc.): depression				
Slope (%): 1 Lat: 38.754461				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex		-		
•				
Are climatic / hydrologic conditions on the site typical for this Are Vegetation, Soil, or Hydrologys	•			
Are Vegetation, Soil, or Hydrology r	naturally pro	blematic?	(If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? YesX N Hydric Soil Present? YesX N Wetland Hydrology Present? YesX N	lo		e Sampled in a Wetlar	
Remarks:				
VEGETATION – Use scientific names of plants.				
Tree Stratum (Plot size:30' radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet: Number of Dominant Species
1. Acer saccharinum	15		FACW	That Are OBL, FACW, or FAC:8 (A)
2. Acer negundo	15	Y	FAC	Total Number of Demisers
3. Morus alba	5	N	FAC	Total Number of Dominant Species Across All Strata: 8 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:100.00 (A/B)
Ocalia (Obsah Otsahan (Dishaira) 15' radius	35	= Total Cov	ver .	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Cephalanthus occidentalis	15	Υ	OBL	Total % Cover of: Multiply by:
O Colin piara	E	Y	OBL	OBL species35 x 1 =35
Salix riigra Fraxinus pennsylvanica		Y		FACW species 30 x 2 = 60
				FAC species 20 x 3 = 60
5.				FACU species 0 x 4 = 0
	25	= Total Cov	/er	UPL species0 x 5 =0
Herb Stratum (Plot size: 5' radius)				Column Totals: <u>85</u> (A) <u>155</u> (B)
1. Hibiscus laevis		<u>Y</u>	OBL	December of Indian D/A 4.93
2. Packera glabella		<u>Y</u>	FACW	Prevalence Index = B/A = 1.82
3. Fraxinus pennsylvanica			FACW	Hydrophytic Vegetation Indicators: X Dominance Test is >50%
4				X Prevalence Index is ≤3.0¹
5				Morphological Adaptations¹ (Provide supporting
6				data in Remarks or on a separate sheet)
8.				Problematic Hydrophytic Vegetation ¹ (Explain)
9.				
10.				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		= Total Cov	ver .	, , , , , , , , , , , , , , , , , , , ,
Woody Vine Stratum (Plot size: 30' radius) 1				Hydrophytic
2				Vegetation
		= Total Cov	ver .	
Remarks: (Include photo numbers here or on a separate	sheet.)			

	cription: (Descrii	be to the dept	h needed to docur	ment the i	ndicator	or confirm	the absence	e of indicators.)
epth	Matrix			x Features				
nches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	5Y 4/1	90	10YR 4/6	10	C	PL_	not sand	silt with clay
5-16	10YR 3/2	90	2.5YR 3/6	10	C	PL/M	not sand	silt with clay
	oncentration, D=D Indicators:	epletion, RM=I	Reduced Matrix, CS	S=Covered	or Coate	ed Sand Gr		ocation: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils ³ :
Histosol			Sandy (Gleyed Mat	trix (S4)			t Prairie Redox (A16)
-	pipedon (A2)			Redox (S5)				Manganese Masses (F12)
	istic (A3)			d Matrix (S				(Explain in Remarks)
	en Sulfide (A4)		Loamy	Mucky Min	eral (F1)			
	d Layers (A5)			Gleyed Ma				
	uck (A10)		X Deplete	,	,			
	d Below Dark Surf		X Redox I		, ,		31	
_	ark Surface (A12) Mucky Mineral (S1			d Dark Sur Depression	, ,)		rs of hydrophytic vegetation and hydrology must be present,
	ucky Peat or Peat	,	Redux i	Depression	15 (1 0)			s disturbed or problematic.
	Layer (if observe							
Type:	``	•						
I VDC.								
	ches):						Hydric So	il Present? Yes X No
• • •	ches):						Hydric So	il Present? Yes X No
Depth (in	ches):						Hydric So	il Present? Yes X No
Depth (in emarks:)GY						Hydric Soi	il Present? Yes X No
Depth (in marks:	OGY drology Indicato	rs:						
Depth (in marks: DROLO etland Hy mary India	OGY drology Indicato cators (minimum c	rs:	ed; check all that ap	•	(50)		Second	lary Indicators (minimum of two req
Depth (in marks: DROLO etland Hy mary India Surface	OGY odrology Indicator cators (minimum c Water (A1)	rs:	ed; check all that ar <u>X</u> Water-Sta	ined Leave	` '		Second	lary Indicators (minimum of two req
Depth (in marks: DROLO etland Hy mary India Surface High Wa	OGY Idrology Indicator cators (minimum of Water (A1) ater Table (A2)	rs:	ed; check all that an X Water-Sta Aquatic Fa	ined Leave auna (B13)			<u>Second</u> Su Su	lary Indicators (minimum of two req rface Soil Cracks (B6) ainage Patterns (B10)
DROLO etland Hy mary India Surface High Wa Saturatia	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3)	rs:	ed; check all that an X Water-Sta Aquatic Fa True Aqua	ined Leave auna (B13) atic Plants ((B14)		Second Substitution Substitutio	lary Indicators (minimum of two req rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2)
DROLO etland Hy mary India Surface High Wa Saturatia Water M	rdrology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1)	rs:	ed; check all that ap X Water-Sta Aquatic Fa True Aqua Hydrogen	ined Leave auna (B13) atic Plants (Sulfide Od	(B14) lor (C1)	ting Poots (Second Substitution Substitutio	lary Indicators (minimum of two req rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8)
DROLO PROLO PR	rdrology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)	rs:	ed; check all that ap X Water-Sta Aquatic Fa True Aqua Hydrogen X Oxidized F	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher	(B14) lor (C1) res on Liv	-	Second Su Dry Crs Crs	lary Indicators (minimum of two req rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (
DROLO Ptland Hy mary India Surface High Wa Saturati Water M Sedimen Drift De	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3)	rs:	ed; check all that an X Water-Sta	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduce	(B14) for (C1) res on Liv d Iron (C4	4)	Second Su Dry Cra C3) X Sa Stu	lary Indicators (minimum of two req rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (Gunted or Stressed Plants (D1)
DROLO etland Hy mary India Surface High Wa Saturatia Water M Sedimel Drift Del Algal Ma	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	rs:	ed; check all that ap X Water-Sta Aquatic Fa True Aqua Hydrogen X Oxidized F Presence Recent Iro	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced on Reduction	(B14) dor (C1) res on Liv d Iron (C4 on in Tille	-	Second Su X Dra Dry Cra C3) X Sa Stu X Ge	lary Indicators (minimum of two requires Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (Unted or Stressed Plants (D1) omorphic Position (D2)
DROLO etland Hy mary India Surface High Wa Saturatia Water M Sedimel Drift Del Algal Ma Iron Dep	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	rs: of one is require	ed; check all that ap X Water-Sta Aquatic Fa True Aqua Hydrogen X Oxidized F Presence Recent Iro	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced on Reduction	(B14) lor (C1) res on Liv d Iron (C ² on in Tille C7)	4)	Second Su X Dra Dry Cra C3) X Sa Stu X Ge	lary Indicators (minimum of two req rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (Gunted or Stressed Plants (D1)
DROLO etland Hy mary India Surface High Wa Saturatia Water M Sedimel Drift Del Algal Ma Iron Dep Inundati	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeric	rs: of one is require	ed; check all that ap X Water-Sta Aquatic Fa True Aqua Hydrogen X Oxidized F Presence Recent Iro Thin Muck) Gauge or	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduce on Reduction & Surface (Well Data	(B14) for (C1) res on Liv d Iron (C4 on in Tiller C7) (D9)	4)	Second Su X Dra Dry Cra C3) X Sa Stu X Ge	lary Indicators (minimum of two requiface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (Unted or Stressed Plants (D1) omorphic Position (D2)
DROLO Petland Hy Imary India Surface High Wa Saturati Water M Sedimel Drift Del Algal Ma Iron Dep Inundati Sparsely	rdrology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aericy y Vegetated Conc	rs: of one is require	ed; check all that ap X Water-Sta Aquatic Fa True Aqua Hydrogen X Oxidized F Presence Recent Iro Thin Muck Cauge or	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduce on Reduction & Surface (Well Data	(B14) for (C1) res on Liv d Iron (C4 on in Tiller C7) (D9)	4)	Second Su X Dra Dry Cra C3) X Sa Stu X Ge	lary Indicators (minimum of two requiface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (Cunted or Stressed Plants (D1) omorphic Position (D2)
Depth (in emarks: DROLO etland Hy imary India Surface High Water M Sedimer Drift Del Algal Ma Iron Dep Inundati Sparsely	rdrology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aericy y Vegetated Conc	rs: of one is require al Imagery (B7 ave Surface (B	ed; check all that an X Water-Sta Aquatic Fa True Aqua Hydrogen X Oxidized F Presence Recent Iro Thin Muck) Gauge or 8) Other (Exp	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduce on Reductio s Surface ((Well Data ((B14) flor (C1) fles on Liv d Iron (C4 on in Tiller C7) (D9) marks)	4)	Second Su X Dra Dry Cra C3) X Sa Stu X Ge	lary Indicators (minimum of two requiface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (Cunted or Stressed Plants (D1) omorphic Position (D2)
Depth (in emarks: DROLO etland Hy imary India Surface High Water M Sedimer Drift Del Algal Ma Iron Dept Inundati Sparsely eld Obser	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeric y Vegetated Concervations:	rs: of one is required al Imagery (B7) ave Surface (B	ed; check all that and the sed; check all t	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced in Reduction Surface (C Well Data plain in Rel	(B14) for (C1) for son Liv for in Tiller for (C2) for in Tiller for (D9) for in Tiller for (D9) for in Tiller for in	4)	Second Su X Dra Dry Cra C3) X Sa Stu X Ge	lary Indicators (minimum of two requiface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (Cunted or Stressed Plants (D1) omorphic Position (D2)
Depth (in emarks: DROLO etland Hy imary India Surface High Water M Sedimer Drift Del Algal Ma Iron Dep Inundati Sparsely	rdrology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeric y Vegetated Concervations: ter Present?	rs: of one is required al Imagery (B7) ave Surface (B Yes X N Yes X N	ed; check all that an X Water-Sta Aquatic Fa True Aqua Hydrogen X Oxidized F Presence Recent Iro Thin Muck) Gauge or 8) Other (Exp	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduce on Reductio s Surface ((Well Data (blain in Red ches): ches): ches):	(B14) dor (C1) res on Liv d Iron (C4 on in Tille C7) (D9) marks) 7	4) d Soils (C6	Second Su X Dra Dry Cra C3) X Sa Stu X Ge X FA	lary Indicators (minimum of two requires Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (Cunted or Stressed Plants (D1) comorphic Position (D2) C-Neutral Test (D5)
Depth (in emarks: DROLO etland Hy imary India Surface High Water M Sediment Drift Deptember Inundati Sparsely eld Observator Table atturation Perceptures at the control of the control o	rdrology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aeric y Vegetated Concervations: ter Present? Present? Present?	al Imagery (B7, ave Surface (B) Yes X N	ed; check all that ap X Water-Sta Aquatic Fa True Aqua Hydrogen X Oxidized Fa Presence Recent Iro Thin Muck Gauge or S) Other (Exp	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduce on Reductio c Surface ((Well Data (blain in Red ches): ches): ches):	(B14) dor (C1) res on Liv d Iron (C4 on in Tille C7) (D9) marks) 7 1 surface	4) d Soils (C6	Second Su	lary Indicators (minimum of two requiface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (Cunted or Stressed Plants (D1) omorphic Position (D2)

Inundation depth (typical year): border of 2-5 and 5-10 feet; stream backwater area, water is not flowing but generally drains to the north/northeast during normal conditions.

Reset Form Print Form

Project/Site: Riverpointe Public Infrastructure Project		City/County	St. Charle	es, St. Charles County Sampling Date: 5/20/2020
Applicant/Owner: City of St. Charles				State: MO Sampling Point: Q
•				nge: Section 08, Township 46 N, Range 5 E
Landform (hillslope, terrace, etc.): terrace				
Slope (%): 1 Lat: 38.75401				· · · · · · · · · · · · · · · · · · ·
Soil Map Unit Name: 66126: Haynie-Treloar-Blake compl		Ŭ 		
•				
Are climatic / hydrologic conditions on the site typical for the	-			
				'Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?	(If ne	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes Yes	No X		e Sampled in a Wetlar	
Remarks:				
Dense understory of downed trees.				
VEGETATION – Use scientific names of plant	S.			
		Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:30' radius)		Species?		Number of Dominant Species
1. Acer negundo				That Are OBL, FACW, or FAC:6 (A)
2				Total Number of Dominant Species Across All Strata: 7 (B)
4.				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 85.71 (A/B)
		= Total Cov	ver	
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet:
1. Acer negundo		<u>Y</u>		
2. Fraxinus pennsylvanica			FACW	OBL species 0 x 1 = 0
3. Lonicera maackii	10	Y	UPL_	FACW species 90 x 2 = 180
4				FAC species 20 x 3 = 60 FACU species 0 x 4 = 0
5		= Total Cov		UPL species 10 x 5 = 50
Herb Stratum (Plot size: 5' radius)		= Total Cov	rei	Column Totals: 120 (A) 290 (B)
1. Packera glabella	5	Υ	FACW	Column Totals. 120 (A) 200 (B)
2. Impatiens capensis		Y	FACW	Prevalence Index = B/A =2.42
3. Viola sororia	5	Υ	FAC	Hydrophytic Vegetation Indicators:
4				X Dominance Test is >50%
5				X Prevalence Index is ≤3.0¹
6				Morphological Adaptations ¹ (Provide supporting
7				data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
8				Problematic Hydrophytic Vegetation (Explain)
9				¹ Indicators of hydric soil and wetland hydrology must
10				be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:30' radius)		= Total Cov		
1				Hydrophytic Vegetation
2		= Total Cov	ver	Present? Yes <u>X</u> No
Remarks: (Include photo numbers here or on a separate	·			
Presence of dead/live honeysuckle indicates change	,	nunity.		

SOIL Sampling Point: Q

Depth	Matrix			x Features			45061106	Caioatoroij
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 3/2	98	7/5YR 4/6	2		M	not sand	silty with clay
				· ·				
-				· —— ·				
-				 -				
1								
	Concentration, D=Dep Indicators:	oletion, RM=F	Reduced Matrix, C	S=Covered	or Coated	Sand Gra		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
Histoso			Sandy	Clayed Mat	riv (C1)			· · · · · · · · · · · · · · · · · · ·
	pipedon (A2)			Gleyed Mat Redox (S5)				Prairie Redox (A16) langanese Masses (F12)
	listic (A3)			d Matrix (S6				(Explain in Remarks)
	en Sulfide (A4)			Mucky Mine				,
	ed Layers (A5)			Gleyed Mat				
	uck (A10)			d Matrix (F				
	ed Below Dark Surfac	e (A11)		Dark Surfac	. ,		31	- A book and the constant and
	Park Surface (A12) Mucky Mineral (S1)			d Dark Sur Depression:				s of hydrophytic vegetation and d hydrology must be present,
	ucky Peat or Peat (S	3)	Redox	Jepi ession.	3 (1 0)			s disturbed or problematic.
	Layer (if observed)							γ
Depth (ir	nches):						Hydric Soil	Present? Yes No X
Remarks:								
	roughout, redox not	Prominion						
HYDROLO								
_	drology Indicators:		d. ala a al : all #la a# a ::	l\			Caaaad	
	icators (minimum of o	one is require	· · · · · · · · · · · · · · · · · · ·		- (DO)			ary Indicators (minimum of two required)
	e Water (A1) ater Table (A2)			ined Leave auna (B13)	s (B9)			face Soil Cracks (B6) inage Patterns (B10)
	ion (A3)		Aqualic Fa		B14)		· 	-Season Water Table (C2)
X Water N			Hydrogen					yfish Burrows (C8)
	ent Deposits (B2)		Oxidized F			a Roots (uration Visible on Aerial Imagery (C9)
X Drift De			Presence			-		nted or Stressed Plants (D1)
·	at or Crust (B4)		Recent Iro		, ,			omorphic Position (D2)
Iron De	posits (B5)		Thin Muck	Surface (C	27)		FAC	C-Neutral Test (D5)
Inundat	ion Visible on Aerial	Imagery (B7)	Gauge or	Well Data (D9)			
Sparse	ly Vegetated Concav	e Surface (B8	3) Other (Ex	olain in Ren	narks)			
Field Obse	rvations:							
Surface Wa			Depth (in					
Water Table	Present?	/es No	o <u>X</u> Depth (in	ches):		-		
Saturation F	Present? Yapillary fringe)	/es No	Depth (in	ches):		Wetla	nd Hydrolog	y Present? Yes X No No
	ecorded Data (stream	n gauge, mon	itoring well, aerial	photos, pre	vious insp	ections), i	f available:	
			_					
Remarks:								
Inundation	depth (typical year)): 0-2 feet						

Print Form

Project/Site: Riverpointe Public Infrastructure Project	(City/County	: St. Charle	es, St. Charles County Sampling Date: 5/20/2020
				State: MO Sampling Point: R
	;	Section, To	wnship, Ra	nge: Section 08, Township 46 N, Range 5 E
Landform (hillslope, terrace, etc.): floodplain				
Slope (%): 2 Lat: 38.753061				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake comple		_		
Are climatic / hydrologic conditions on the site typical for th				
	-			"Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?	(If ne	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes X N Yes X N	lo		e Sampled in a Wetlar	
Remarks:	NO			
VEGETATION – Use scientific names of plants				
Tree Stratum (Plot size:30' radius)	Absolute % Cover			Dominance Test worksheet: Number of Dominant Species
1. Acer negundo		Υ		That Are OBL, FACW, or FAC:6 (A)
Acer saccharinum		<u>Y</u>		Total Number of Dominant Species Across All Strata:6 (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC:100.00 (A/B)
Capling/Chrub Stratum (Diet size) 15' radius	60	= Total Cov	/er	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Acer negundo	20	Y	FAC	Total % Cover of: Multiply by:
Acer saccharinum	20		FACW	OBL species 0 x 1 = 0
3.				FACW species 59 x 2 = 118
4.				FAC species 57 x 3 = 171
5				FACU species0 x 4 =0
El maline	40	= Total Cov	/er	UPL species 0 x 5 = 0
Herb Stratum (Plot size: 5' radius)	5	Y	EACW	Column Totals:116 (A)289 (B)
Impatiens capensis Symphyotrichum sp.	_ <u> </u>	Y	FACW FAC	Prevalence Index = B/A = 2.49
3. Toxicodendron radicans			FAC	Hydrophytic Vegetation Indicators:
4. Packera glabella		N	FACW	X Dominance Test is >50%
5. Urtica dioica		N	FACW	X Prevalence Index is ≤3.0 ¹
6.				Morphological Adaptations ¹ (Provide supporting
7				data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation ¹ (Explain)
9				¹ Indicators of hydric soil and wetland hydrology must
10				be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30' radius)		= Total Cov		Hydrophytic
1				Vegetation
		= Total Cov	/er	Present? Yes <u>X</u> No
Remarks: (Include photo numbers here or on a separate	sheet.)			

SOIL Sampling Point: R

Profile Desc	cription: (Describe t	to the depth r	needed to docu	ment the i	ndicator o	r confirm	the absence	of indicators.)	
Depth	Matrix			ox Feature					
(inches)	Color (moist)	<u></u> %	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks	
0-5	10YR 4/2	90	5YR 4/6	10	C	PL_	not sand	silty clay	
5-16	10YR 4/2	90	10YR 4/6	10	C	PL	not sand	silty clay	
	oncentration, D=Depl	etion, RM=Re	duced Matrix, C	S=Covered	d or Coated	d Sand Gra		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :	
Hydric Soil			0	01	t-i- (0.4)			-	
Histosol	pipedon (A2)			Gleyed Ma Redox (S5				Prairie Redox (A16) langanese Masses (F12)	
	istic (A3)			ed Matrix (S				(Explain in Remarks)	
	en Sulfide (A4)			Mucky Mir				,	
	d Layers (A5)			Gleyed Ma	. ,				
	uck (A10)	(4.44)	X Deplete						
	d Below Dark Surface ark Surface (A12)	e (A11)		Dark Surfa ed Dark Su			3Indicators	s of hydrophytic vegetation and	
I	Mucky Mineral (S1)			Depression				d hydrology must be present,	
	ucky Peat or Peat (S3	3)		2 op. 000.0	(. 0)			s disturbed or problematic.	
	Layer (if observed):								
Type:			_						
Depth (in	ches):		_				Hydric Soil	Present? Yes X No _	
Remarks:									
HYDROLO									
_	drology Indicators:								
	cators (minimum of or	ne is required;						ary Indicators (minimum of two req	uired)
_	Water (A1)			ained Leav	` ,		_	face Soil Cracks (B6)	
	ater Table (A2)			auna (B13				inage Patterns (B10)	
Saturati X Water M	` '		True Aqu	atic Plants Sulfide O	. ,		-	-Season Water Table (C2) yfish Burrows (C8)	
	nt Deposits (B2)		X Oxidized			na Roots (uration Visible on Aerial Imagery (<u>-</u> :9)
X Drift De				of Reduce		-		nted or Stressed Plants (D1)	30)
	at or Crust (B4)		Recent Ir					omorphic Position (D2)	
	posits (B5)		Thin Muc	k Surface (C7)		X FAC	C-Neutral Test (D5)	
Inundati	ion Visible on Aerial Ir	magery (B7)	Gauge or	Well Data	(D9)				
Sparsel	y Vegetated Concave	Surface (B8)	Other (Ex	plain in Re	marks)				
Field Obser									
Surface Wat			X Depth (ir						
Water Table			X Depth (ir						
Saturation P		es No	X Depth (ir	nches):		_ Wetla	and Hydrolog	y Present? Yes X No _	
Describe Re	pillary fringe) corded Data (stream	gauge, monito	oring well, aerial	photos, pr	evious inst	ections), i	if available:		
	,				·	,			
Remarks:									
Inundation	depth (typical year):	2-5 feet							
aiiaatioii	(cyprodi yodi).	_ 0 1000							

Reset Form Print Form

Project/Site: Riverpointe Public Infrastructure Project	(City/County	St. Charle	es, St. Charles County Sampling Date: 5/20/2020
Applicant/Owner: City of St. Charles				State: MO Sampling Point: S
				nge: Section 08, Township 46 N, Range 5 E
Landform (hillslope, terrace, etc.): floodplain				
Slope (%): 2 Lat: 38.752013				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex				
· · · · · · · · · · · · · · · · · · ·				
Are climatic / hydrologic conditions on the site typical for thi				
Are Vegetation, Soil, or Hydrology s				
Are Vegetation, Soil, or Hydrology r	naturally pro	blematic?	(If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X N	lo	1- 41-	. 011	I A
Hydric Soil Present? Yes X			e Sampled in a Wetlar	
Wetland Hydrology Present? Yes X N	lo	With	iii a vvetiai	id: Tes NO
Remarks:		•		
Characterize area as wetland to upland transition area				
VECTATION Lies esignific names of plants				
VEGETATION – Use scientific names of plants		Dominant	Indicator	Dominanaa Taat warkahaati
Tree Stratum (Plot size:30' radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet: Number of Dominant Species
1. Acer negundo	25	Y	FAC	That Are OBL, FACW, or FAC:8 (A)
2. Morus rubra	25	Y	FACU	Total Number of Dominant
3. Populus deltoides	15	Y	FAC	Species Across All Strata: 12 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:
Opening (Obserts Obsert up a (Obsert page 15) redicted	65	= Total Cov	ver .	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Acer negundo	10	Υ	FAC	Total % Cover of: Multiply by:
2. Morus rubra	10	Y	FACU	OBL species 0 x 1 = 0
3. Lonica maackii	5	Y		FACW species6 x 2 =12
4.				FAC species 61 x 3 = 183
5.				FACU species 38 x 4 = 152
	25	= Total Cov	/er	UPL species 5 x 5 = 25
Herb Stratum (Plot size:5' radius)				Column Totals:110 (A)372 (B)
1. Alliaria petiolata	5	Y	<u>FAC</u>	2.20
Urtica dioica Toxicodendron radicans	3	Y	FACW	Prevalence Index = B/A = 3.38
		Y	FAC	Hydrophytic Vegetation Indicators: X Dominance Test is >50%
4. Symphyotrichum sp.	3 3	Y	FACW	Prevalence Index is ≤3.0¹
5. Impatiens capensis 6. Campsis radicans		Y	FACU	Morphological Adaptations ¹ (Provide supporting
			TACO	data in Remarks or on a separate sheet)
7 8				Problematic Hydrophytic Vegetation ¹ (Explain)
9.				
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		= Total Cov	ver	be present, unless disturbed of problematic.
Woody Vine Stratum (Plot size: 30' radius)				
1				Hydrophytic Vegetation
2				Present? Yes X No
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate	sheet.)			
Presence of dead/alive honeysuckle.				
				· · · · · · · · · · · · · · · · · · ·

SOIL Sampling Point: S

Profile Des	cription: (Describe	to the depth r	needed to docui	nent the i	ndicator	or confir	m the absence	of indicators.)
Depth	Matrix		Redo	x Feature:				
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-6	10YR 3/2	95	7.5YR 4/6	5	C	PL	not sand	silty clay
6-16	10YR 3/2	97	7.5YR 4/6	3	С	PL	sand	sandy loam
				-			-	
	=							
		· ——						
¹ Type: C=C	concentration, D=Dep	letion, RM=Re	duced Matrix, CS	S=Covered	d or Coate	d Sand G	Grains. ² Lo	cation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators	for Problematic Hydric Soils ³ :
Histoso	I (A1)			Gleyed Ma			Coast	Prairie Redox (A16)
	pipedon (A2)		<u></u> X Sandy I					langanese Masses (F12)
	istic (A3)			d Matrix (S			Other	(Explain in Remarks)
	en Sulfide (A4) d Layers (A5)			Mucky Mir Gleyed Ma	. ,			
	uck (A10)			d Matrix (I				
	ed Below Dark Surface	e (A11)	X Redox					
	ark Surface (A12)	<i>(,</i>)			rface (F7)		³ Indicators	s of hydrophytic vegetation and
Sandy I	Mucky Mineral (S1)		Redox I	Depression	ns (F8)		wetlan	d hydrology must be present,
	ucky Peat or Peat (S3	•					unless	s disturbed or problematic.
Restrictive	Layer (if observed):							
Type:			_					
Depth (in	iches):		_				Hydric Soil	Present? Yes X No No
Remarks:							•	
HYDROLO								
_	drology Indicators:							
	cators (minimum of o	ne is required;						ary Indicators (minimum of two required)
	Water (A1)		Water-Sta		, ,			face Soil Cracks (B6)
	ater Table (A2)		Aquatic Fa					inage Patterns (B10)
Saturati			True Aqua				-	-Season Water Table (C2)
X Water N			Hydrogen					lyfish Burrows (C8)
	nt Deposits (B2)		Oxidized F			-		uration Visible on Aerial Imagery (C9)
X Drift De	. ,		Presence					nted or Stressed Plants (D1)
_	at or Crust (B4)		Recent Iro			i Solis (C	· —	omorphic Position (D2)
	posits (B5)	magary (P7)	Thin Muck	,	,		FAC	C-Neutral Test (D5)
	ion Visible on Aerial I		Gauge or Other (Exp					
Field Obser	, ,	Surface (Do)	Other (EX	Jiaiii iii Re	iliaiks)	<u> </u>		
		oo No	X Donth (in	oboo).				
			X Depth (in					
Water Table			X Depth (in			1		
Saturation F (includes ca	resent? Your Your Your Your You	es No	X Depth (in	cnes):		_ Wet	iand Hydrolog	y Present? Yes X No No
	ecorded Data (stream	gauge, monito	oring well, aerial	photos, pr	evious ins	pections)	, if available:	
Remarks:								
Inundation	depth (typical year)	: 0-2 feet						
1								

Print Form

Applicant/Owner: City of St. Charles State: MO Sampling Point: _T Investigator(s): AMZ, ELH Section, Township, Range: Section 08, Township 46 N, Range 5 E Landform (hillslope, terrace, etc.): ridge adjacent river Local relief (concave, convex, none): _Convex Slope (%): _1	
Investigator(s): AMZ, ELH Section, Township, Range: Section 08, Township 46 N, Range 5 E Landform (hillslope, terrace, etc.): ridge adjacent river Local relief (concave, convex, none): convex Slope (%): 1 Lat: 38.764741 Long: -90.489098 Datum: NAD 83 Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex, 0-2 % slopes, frequently flooded; hydric NWI or WWI classification: R2UBH Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.) Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No Are Vegetation , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features	
Lat: 38.764741 Long: -90.489098 Datum: NAD 83 Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex, 0-2 % slopes, frequently flooded; hydric NWI or WWI classification: R2UBH Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.) Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features	
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SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features	otc
	otc
V V V V	, etc.
Hydrophytic Vegetation Present? Yes X No Is the Sampled Area	
Hydric Soil Procent?	
Wetland Hydrology Present? Yes X No within a Wetland? Yes X No	
Remarks:	
VEGETATION – Use scientific names of plants.	
Absolute Dominant Indicator Dominance Test worksheet:	
Tree Stratum (Plot size: 30' radius)	(4)
1. Acer negundo 30 Y FAC That Are OBL, FACW, or FAC: 6 2. Acer saccharinum 10 Y FACW	(A)
Total Number of Dominant	(D)
	(B)
4 Percent of Dominant Species	
5 That Are OBL, FACW, or FAC: <u>85.71</u> 45 = Total Cover	(A/B)
Sapling/Shrub Stratum (Plot size: 15' radius) Prevalence Index worksheet:	
1. Acer negundo 15 Y FAC Total % Cover of: Multiply by:	.
2 OBL species 0 x1 = 0	
3 FACW species35 x 2 =70	,
4 FAC species 50 x 3 = 150	
5 FACU species 5 x 4 = 20	
4. Postero debello	(B)
S. Taylord and tan variance $A = A = A = A = A = A = A = A = A = A $	
3. Humulus japonicus 5 Y FACU Hydrophytic Vegetation Indicators:	
4	
5 X_ Prevalence Index is ≤3.0¹	
6 Morphological Adaptations ¹ (Provide support	ng
7 data in Remarks or on a separate sheet)	
8 Problematic Hydrophytic Vegetation ¹ (Explain)
9.	
10. Indicators of hydric soil and wetland hydrology metabolic be present, unless disturbed or problematic.	ust
= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)	
1. <u>Vitis riparia</u> 10 Y FACW Hydrophytic Vegetation	
2 Present? Yes X No	
10 = Total Cover	
Remarks: (Include photo numbers here or on a separate sheet.)	

Profile Des	cription: (Describe	to the depth	needed to docu	ment the	indicator	or confirm	the absence	e of indicators.)
Depth	Matrix	to the dopth		x Feature		0. 00		o or marcatorol,
inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-5	10YR 3/2	90	7.5YR 3/4	10	С	M/PL	not sand	loam
5-14	10YR 4/2	90	10YR 5/6	10		M	not sand	loam
14-20	10YR 4/2	85	10YR 5/6	15		M	not sand	loam with clay inclusions
14-20	1011(4/2		10111 0/0			IVI	not sand	loan with day inclusions
		- <u></u> -			·			
	oncentration, D=Dep	letion, RM=R	Reduced Matrix, C	S=Covere	d or Coate	ed Sand Gra		ocation: PL=Pore Lining, M=Matrix.
-	Indicators:							s for Problematic Hydric Soils ³ :
_ Histoso				Gleyed Ma				t Prairie Redox (A16)
	pipedon (A2) istic (A3)			Redox (S5				Manganese Masses (F12)
	en Sulfide (A4)			d Matrix (S Mucky Mir			Other	(Explain in Remarks)
	d Layers (A5)			Gleyed Ma	, ,			
	uck (A10)		× Deplete	-	, ,			
	d Below Dark Surface	e (A11)	X Redox					
	ark Surface (A12)		Deplete	ed Dark Su	ırface (F7))	³ Indicator	s of hydrophytic vegetation and
_	Mucky Mineral (S1)		Redox	Depressio	ns (F8)			nd hydrology must be present,
	ucky Peat or Peat (S						unles	s disturbed or problematic.
estrictive	Layer (if observed):							
Type:								
Depth (in	ches):							I Draggard? Vac V No
	<u> </u>		_				Hydric Soi	I Present? Yes <u>X</u> No
emarks:							Hydric Sol	TPTESETT! TES NO
emarks:)GY						Hydric Sol	TPTESENT? TES A NO
emarks: 'DROLO Vetland Hy	DGY drology Indicators:		d: check all that a	(ylac				
emarks: /DROLO /etland Hy rimary Indi	PGY drology Indicators: cators (minimum of o				es (R9)		Second	lary Indicators (minimum of two requi
POROLO Petland Hy rimary Indi Surface	OGY odrology Indicators: cators (minimum of o Water (A1)		X Water-Sta	ined Leav			Second	lary Indicators (minimum of two requirface Soil Cracks (B6)
POROLO Porting the state of th	OGY Idrology Indicators: cators (minimum of o Water (A1) ater Table (A2)		X Water-Sta	ined Leav auna (B13)		Su: Su: Su: Su:	lary Indicators (minimum of two requi rface Soil Cracks (B6) ainage Patterns (B10)
PROLC Petland Hy rimary Indi Surface High Wa	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3)		X Water-Sta Aquatic Fa	ined Leav auna (B13 atic Plants	(B14)		Second Su Dra Dry	lary Indicators (minimum of two requi rface Soil Cracks (B6) ainage Patterns (B10) /-Season Water Table (C2)
PROLO Petland Hy rimary Indi Surface High Wa Saturati ✓ Saturati	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1)		X Water-Sta Aquatic Factor True Aquatic Hydrogen	nined Leav auna (B13 atic Plants Sulfide O	(B14) dor (C1)	ing Roots (Second Su Su Dry Cre	lary Indicators (minimum of two requi rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8)
/DROLO /etland Hy rimary Indi _ Surface _ High Water Notes Water Notes Sedime	or (A3) Marks (B1) nt rology Indicators: cators (minimum of or Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)		X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized	nined Leav auna (B13 atic Plants Sulfide O Rhizosphe	(B14) dor (C1) eres on Liv	ing Roots (Second Sul Dry Cra C3) Sa	lary Indicators (minimum of two requi rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (CS
/DROLO /etland Hy rimary Indi _ Surface _ High W: < Saturati < Water № _ Sedime < Drift De	oddy Indrology Indicators: Cators (minimum of of of water (A1) Inter Table (A2) Introduction (A3) Introduction (A3) Introduction (B2) Introduction (B3)		X Water-Sta Aquatic F. True Aqua Hydrogen Oxidized	nined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce	(B14) (B14) dor (C1) eres on Liv ed Iron (C4	4)	Second	lary Indicators (minimum of two requi rface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8)
/DROLC /etland Hy rimary Indi _ Surface _ High W: ✓ Saturati ✓ Water N Sedime ✓ Drift De Algal M	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)		X Water-Sta Aquatic F. True Aqua Hydrogen Oxidized	nined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce on Reducti	(B14) dor (C1) eres on Lived Iron (C4 on in Tille	•	Second	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (CS) inted or Stressed Plants (D1) omorphic Position (D2)
TDROLO Tetland Hy rimary Indi _ Surface _ High W:	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	ne is required	X Water-Sta Aquatic F. True Aqua Hydrogen Oxidized Presence Recent Iro Thin Mucl	nined Leavauna (B13 atic Plants Sulfide O Rhizosphe of Reduce on Reducti	(B14) dor (C1) eres on Lived Iron (C4) fron in Tille	4)	Second	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (CS)
Mater N Sedime ✓ Drift De Algal M Iron De Inundat	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	ne is required	X Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Mucl Gauge or	nined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce on Reducti c Surface (Well Data	(B14) dor (C1) eres on Lived Iron (C4) on in Tille (C7) (D9)	4)	Second	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (CS) inted or Stressed Plants (D1) omorphic Position (D2)
/DROLO /etland Hy rimary Indi _ Surface _ High W: \(\) Saturati \(\) Water N _ Sedime \(\) Drift De _ Algal M: _ Iron De _ Inundat _ Sparsel	rdrology Indicators: cators (minimum of of of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial I y Vegetated Concave	ne is required	X Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Mucl Gauge or	nined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce on Reducti c Surface (Well Data	(B14) dor (C1) eres on Lived Iron (C4) on in Tille (C7) (D9)	4)	Second	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (CS) inted or Stressed Plants (D1) omorphic Position (D2)
/DROLO /etland Hy rimary Indi Surface High Water N Sedime Drift De Algal M Iron De Inundat Sparsel ield Obser	redrology Indicators: cators (minimum of of Water (A1) cater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) cat or Crust (B4) posits (B5) con Visible on Aerial I by Vegetated Concave	ne is required magery (B7) e Surface (B8	X Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Mucl Gauge or	nined Leaver auna (B13 atic Plants Sulfide Or Reduce on Reductic Surface (Well Data plain in Reductin Reduction Redu	(B14) dor (C1) eres on Liv ed Iron (C4 on in Tille (C7) (D9) emarks)	4) d Soils (C6)	Second	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (CS) inted or Stressed Plants (D1) omorphic Position (D2)
YDROLO Vetland Hy Primary Indi Surface High Wa Saturati Your Water N Sedime Algal M Iron De Inundat Sparsel Gurface Wat	drology Indicators: cators (minimum of of of water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial I y Vegetated Concave rvations: ter Present?	magery (B7) e Surface (B8	X Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Irc Thin Mucl Gauge or Other (Ex	nined Leaver auna (B13 atic Plants Sulfide Or Reduce on Reductic Surface (Well Data plain in Reduches):	(B14) (B14) (dor (C1) (res on Liv (red Iron (C4) (r	4) d Soils (C6)	Second	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (CS) inted or Stressed Plants (D1) omorphic Position (D2)
YDROLO Vetland Hy Primary Indi Surface High Water M Sedime X Drift De Algal M Iron De Inundat Sparsel	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial I y Vegetated Concave rvations: ter Present? Y	magery (B7) e Surface (B8 es No	X Water-Sta	nined Leaver auna (B13 atic Plants Sulfide Or Reduce on Reduction Surface (Well Data plain in Reduction Re	(B14) dor (C1) eres on Lived Iron (C4 on in Tille (C7) (D9) emarks)	4) d Soils (C6)	Second Su Su Dry Cra C3) Stu X Ge X FA	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9 inted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
YDROLO Vetland Hy Irimary Indi Surface High Water Manager Sedime Manager Algal Manager Iron De Inundat Sparsel Veter Table Staturation Fencludes ca	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial I y Vegetated Concave rvations: ter Present? Present? Y	magery (B7) e Surface (B8 es No	X Water-Sta Aquatic F. Aquatic F. True Aqua Hydrogen Oxidized Presence Recent Iro Thin Mucl Gauge or Other (Ex	ained Leaver auna (B13 atic Plants Sulfide Or Reduce on Reduction Surface (Well Data plain in Reduction Reduction Reduction Surface (Well Data plain in Reduction Redu	(B14) (dor (C1) eres on Liv ed Iron (C4 on in Tille (C7) (D9) emarks)	4) d Soils (C6)	Second Su Su Su Cra Cra Cra Stu X Ge X FA	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) /-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9 unted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
YDROLO Vetland Hy Primary Indi Surface High Wa Saturati Sedime Algal M Iron De Inundat Sparsel Gield Obser Gurface Wai Vater Table Saturation F Includes ca	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial I y Vegetated Concave rvations: ter Present? Present? Y	magery (B7) e Surface (B8 es No	X Water-Sta Aquatic F. Aquatic F. True Aqua Hydrogen Oxidized Presence Recent Iro Thin Mucl Gauge or Other (Ex	ained Leaver auna (B13 atic Plants Sulfide Or Reduce on Reduction Surface (Well Data plain in Reduction Reduction Reduction Surface (Well Data plain in Reduction Redu	(B14) (dor (C1) eres on Liv ed Iron (C4 on in Tille (C7) (D9) emarks)	4) d Soils (C6)	Second Su Su Su Cra Cra Cra Stu X Ge X FA	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9 inted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
rDROLO retland Hy rimary Indi Surface High Water M Sedime Control Inundat Iron De Inundat Sparsel retled Observation Fencludes carescribe Re	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial I y Vegetated Concave rvations: ter Present? Present? Y	magery (B7) e Surface (B8 es No	X Water-Sta Aquatic F. Aquatic F. True Aqua Hydrogen Oxidized Presence Recent Iro Thin Mucl Gauge or Other (Ex	ained Leaver auna (B13 atic Plants Sulfide Or Reduce on Reduction Surface (Well Data plain in Reduction Reduction Reduction Surface (Well Data plain in Reduction Redu	(B14) (dor (C1) eres on Liv ed Iron (C4 on in Tille (C7) (D9) emarks)	4) d Soils (C6)	Second Su Su Su Cra Cra Cra Stu X Ge X FA	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
Property of the control of the contr	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial I y Vegetated Concave rvations: ter Present? Present? Y	magery (B7) e Surface (B8 es No	X Water-Sta Aquatic F. Aquatic F. True Aqua Hydrogen Oxidized Presence Recent Iro Thin Mucl Gauge or Other (Ex	ained Leaver auna (B13 atic Plants Sulfide Or Reduce on Reduction Surface (Well Data plain in Reduction Reduction Reduction Surface (Well Data plain in Reduction Redu	(B14) (dor (C1) eres on Liv ed Iron (C4 on in Tille (C7) (D9) emarks)	4) d Soils (C6)	Second Su Su Su Cra Cra Cra Stu X Ge X FA	lary Indicators (minimum of two requirface Soil Cracks (B6) ainage Patterns (B10) y-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (Canted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)

Project/Site: Riverpointe Public Infrastructure Project	С	ity/County:	St. Charle	es, St. Charles County Sampling Date: 5/21/2020
· -		, ,		State: MO Sampling Point: U
				nge: Section 08, Township 46 N, Range 5 E
Landform (hillslope, terrace, etc.): depression				
Slope (%): 1 Lat: 38.764229				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex, (_		
Are climatic / hydrologic conditions on the site typical for this t				
Are Vegetation, Soil, or Hydrologysig	-			
Are Vegetation, Soil, or Hydrology nat	turally prob	lematic?	(If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map sl	howing	samplin	g point lo	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No			e Sampled In a Wetlan	
Wetland Hydrology Present? Yes X No Remarks:				
VEGETATION – Use scientific names of plants.	A ba a luta	Danisant	Indicator	Daminana Tashuadahada
		Dominant Species?		Dominance Test worksheet: Number of Dominant Species
1. Populus deltoides	15	Υ	FAC	That Are OBL, FACW, or FAC:6 (A)
2. Acer saccharinum	15	Y	FACW	Total Number of Dominant
3. Acer negundo	10	Υ	FAC	Species Across All Strata: 6 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100.00 (A/B)
Sapling/Shrub Stratum (Plot size:15' radius)	40 =	= Total Cov	er	Prevalence Index worksheet:
1. Celtis occidentalis	5	Υ	FAC	Total % Cover of: Multiply by:
2.				OBL species 0 x 1 = 0
3.				FACW species24 x 2 =48
4.				FAC species32 x 3 =96
5				FACU species1 x 4 =4
Et mating	5 =	Total Cov	er	UPL species0 x 5 =0
Herb Stratum (Plot size: 5' radius)	_	V	EAC)4/	Column Totals:57 (A)148 (B)
Impatiens capensis Packera glabella	<u>5</u> 3	Y Y	FACW FACW	Prevalence Index = B/A = 2.60
2 Toyicodendron radicans		N N	FAC	Hydrophytic Vegetation Indicators:
4. Carex sp.		N	FACW	X Dominance Test is >50%
5. Humulus japonicus	4	N	FACU	X Prevalence Index is ≤3.0¹
6.				Morphological Adaptations ¹ (Provide supporting
7				data in Remarks or on a separate sheet)
8.				Problematic Hydrophytic Vegetation ¹ (Explain)
9				The disease of books on the order of books on the order of books of the order of th
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	12 =	= Total Cov	er	, , , , , , , , , , , , , , , , , , , ,
Woody Vine Stratum (Plot size: 30' radius) 1				Hydrophytic
2				Vegetation Present? Yes X No
	=	= Total Cov	er	
Remarks: (Include photo numbers here or on a separate sh	eet.)			<u> </u>

SOIL								On and the authority III
Profile Des	cription: (Describe	to the dept	h needed to docu	ment the i	ndicator	or confir	m the absence	Sampling Point: U
Depth	Matrix			ox Feature				,
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	10YR 3/2	80	7.5YR 4/6	20	С	M	not sand	clay silt
5-16	10YR 4/2	90	10YR 5/6	10	С	М	nost sand	clay loam
1Typo: C=C	oncentration, D=Dep	lotion DM=	Poducod Matrix C	S=Covered		d Sand G	Prains ² Lo	cation: PL=Pore Lining, M=Matrix.
Hydric Soil		ietion, Kivi–	Reduced Matrix, C	3-Covered	i di Coale	u Sanu C		for Problematic Hydric Soils ³ :
Histoso			Sandy	Gleyed Ma	trix (S4)			Prairie Redox (A16)
	pipedon (A2)			Redox (S5				langanese Masses (F12)
	istic (A3)			d Matrix (S	,			(Explain in Remarks)
Hydroge	en Sulfide (A4)		Loamy	Mucky Mir	eral (F1)			
	d Layers (A5)			Gleyed Ma				
	uck (A10)	(4.4.)	× Deplete					
	d Below Dark Surface ark Surface (A12)	e (A11)	X Redox	Dark Surfa ed Dark Su	` ,		3Indicator	s of hydrophytic vegetation and
	Mucky Mineral (S1)			Depression	, ,			d hydrology must be present,
	ucky Peat or Peat (S3	3)	\\	Depiessio	13 (1 0)			s disturbed or problematic.
	Layer (if observed):						1	
Type:								
· · ·								
Depth (in	iches):						Hydric Soi	Present? Yes X No
Depth (in Remarks:	nches):						Hydric Soi	Present? Yes X No
Remarks:							Hydric Soi	Present? Yes X No
Remarks:) OGY						Hydric Soi	Present? Yes X No
Remarks: HYDROLO Wetland Hy	OGY rdrology Indicators:							
Remarks: HYDROLO Wetland Hy Primary Indi	DGY rdrology Indicators: cators (minimum of o						Second	ary Indicators (minimum of two required
Remarks: HYDROLO Wetland Hy Primary Indi Surface	OGY rdrology Indicators: cators (minimum of o		X Water-Sta	ained Leav			Second Sur	ary Indicators (minimum of two required face Soil Cracks (B6)
HYDROLO Wetland Hy Primary Indi Surface High W	OGY rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2)		X Water-Sta	ained Leav auna (B13)			Second Sur X Dra	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10)
HYDROLO Wetland Hy Primary Indi Surface High W. X Saturati	oddy rdrology Indicators: cators (minimum of o water (A1) ater Table (A2) ion (A3)		X Water-Sta Aquatic F True Aqua	ained Leave auna (B13) atic Plants	(B14)		Second Sur Dra Dry	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2)
HYDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1)		X Water-Sta Aquatic F True Aqua Hydrogen	ained Leave auna (B13) atic Plants Sulfide Oc	(B14) dor (C1)	ing Poots	Second Sur X Dra Dry Cra	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8)
HYDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2)		X Water-Sta Aquatic F True Aqua Hydrogen Oxidized	ained Leave auna (B13 atic Plants Sulfide Oo Rhizosphe	(B14) dor (C1) res on Liv	_	Second Sur Dry Cra (C3) Sat	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9)
HYDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime X Drift De	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3)		X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence	ained Leave auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce	(B14) dor (C1) res on Liv d Iron (C4	1)	Second Sur Dra Cra Cra (C3) Sat Stu	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1)
HYDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime X Drift De Algal M	ody actors (minimum of one Water (A1) ater Table (A2) and (A3) Marks (B1) and Deposits (B2) posits (B3) at or Crust (B4)		X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iru	ained Leave auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti	(B14) dor (C1) res on Liv d Iron (C ² on in Tille	1)	Second Sur X Dra Dry Cra (C3) Sat Stu M Second	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
HYDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime X Drift De Algal M Iron De	rdrology Indicators: cators (minimum of of et Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	ne is requir	X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Ira Thin Mucl	ained Leave auna (B13) atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti k Surface ((B14) dor (C1) res on Liv d Iron (C ² on in Tilled	1)	Second Sur X Dra Dry Cra (C3) Sat Stu M Second	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1)
Remarks: HYDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime X Drift De Algal M Iron De Inundat	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In	ne is requir	X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iru Thin Mucl	ained Leave auna (B13) atic Plants Sulfide Oc Rhizosphe of Reduce on Reduction k Surface ((B14) dor (C1) res on Liv d Iron (C4 on in Tilled C7) (D9)	1)	Second Sur X Dra Dry Cra (C3) Sat Stu M Second	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
Remarks: HYDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime X Drift De Algal M Iron De Inundat	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In y Vegetated Concave	ne is requir	X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iru Thin Mucl	ained Leave auna (B13) atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti k Surface ((B14) dor (C1) res on Liv d Iron (C4 on in Tilled C7) (D9)	1)	Second Sur X Dra Dry Cra (C3) Sat Stu M Second	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
HYDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime X Drift De Algal M Iron De Inundat X Sparsel	rdrology Indicators: cators (minimum of of twater (A1) ater Table (A2) fon (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In y Vegetated Concave rvations:	ne is requir magery (B7 s Surface (E	X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iru Thin Mucl Gauge or Other (Ex	ained Leave auna (B13) atic Plants Sulfide Oo Rhizosphe of Reduce on Reduction k Surface (Well Data plain in Re	(B14) (B14) dor (C1) res on Liv d Iron (C ² on in Tilled C7) (D9) marks)	ł) d Soils (C	Second Sur X Dra Dry Cra (C3) Sat Stu M Second	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
HYDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime X Drift De Algal M Iron De Inundat X Sparsel Field Obser	orderology Indicators: cators (minimum of of extra (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In y Vegetated Concave revations: ter Present?	magery (B7 Surface (E	X Water-Sta	ained Leave auna (B13) atic Plants Sulfide Oo Rhizosphe of Reduce on Reductick Surface (Well Data plain in Re	(B14) (B14) dor (C1) res on Liv d Iron (C4 on in Tilled C7) (D9) marks)	ł) d Soils (C	Second Sur X Dra Dry Cra (C3) Sat Stu M Second	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)
Primary Indi Surface High W X Saturati X Water N Sedime X Drift De Algal M Iron De Inundat X Sparsel Field Obser Surface Water Table Saturation F	rdrology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In y Vegetated Concave rvations: ter Present? Ye	magery (B7 Surface (E	X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iru Thin Mucl Gauge or Other (Ex	ained Leave auna (B13) atic Plants Sulfide Oo Rhizosphe of Reduce on Reduction k Surface (Well Data plain in Re	(B14) (B14) dor (C1) res on Liv d Iron (C4 on in Tilled C7) (D9) marks)	t) d Soils (C	Second Sur X Dra Dry Cra (C3) Sat Stu 6) X Gee FAC	ary Indicators (minimum of two required face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) omorphic Position (D2)

Inundation depth (typical year): 2-5 feet

Remarks:

Project/Site: Riverpointe Public Infrastructure Project	(City/County: St. Charles, St. Charles County Sampling Date: 5/21/2020						
		State: MO Sampling Point: V						
Investigator(s): AMZ, ELH	;	Section, To	wnship, Ra	nge: Section 08, Township 46 N, Range 5 E				
Landform (hillslope, terrace, etc.): ridge								
Slope (%): 3 Lat: 38.763430								
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex		-						
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrologysi	-							
Are Vegetation, Soil, or Hydrologyn	aturally pro	blematic?	(If ne	eded, explain any answers in Remarks.)				
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.				
Hydrophytic Vegetation Present? YesX	oX		e Sampled in a Wetlar					
wetland to upland transition area; close to Missouri Riv	/er							
VEGETATION – Use scientific names of plants.								
To the state of th	Absolute			Dominance Test worksheet:				
	% Cover 20	Species?		Number of Dominant Species That Are OBL, FACW, or FAC:5 (A)				
Acer saccharinum Acer negundo		Y		That Are OBL, FACW, or FAC:5 (A)				
3.				Total Number of Dominant Species Across All Strata:6 (B)				
4				Percent of Dominant Species That Are OBL, FACW, or FAC: 83.33 (A/B)				
		= Total Cov	ver					
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet:				
1								
2.				FACW species 25 x 2 = 50				
3				FAC species 19 x 3 = 57				
4. 5.				FACU species 2 x 4 = 8				
J		= Total Cov		UPL species 0 x 5 = 0				
Herb Stratum (Plot size: 5' radius)		10101 001	0.	Column Totals: 46 (A) 115 (B)				
1			NI					
2. Ambrosia artemisiifolia	2	Y	FACU	Prevalence Index = B/A =2.50				
3. Symphyotrichum sp.		Y	FAC	Hydrophytic Vegetation Indicators:				
4. Solidago sp.		Y	FAC	X Dominance Test is >50%				
5				X Prevalence Index is ≤3.0¹				
6				Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)				
7				Problematic Hydrophytic Vegetation ¹ (Explain)				
8								
9				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
		= Total Cov	er	F. 200.11, d. 1000 diolated of problematic.				
Woody Vine Stratum (Plot size: 30' radius)	_	.,	= 4 0 14 /	Hadran had a				
Vitis riparia 2.		<u>Y</u>	FACW	Hydrophytic Vegetation Present? Yes X No				
	5	= Total Cov	ver					
Remarks: (Include photo numbers here or on a separate s	sheet.)							

onie Des	cription: (Describe	to the depth	needed to docu	ment the i	ndicator	or confirm	the absenc	e of indicate	ors.)	
epth	Matrix			ox Features						
nches)	Color (moist)	<u></u> %	Color (moist)	%	Type ¹	Loc ²	Texture	_	Remarks	
0-1.5	10YR 5/1	95	10YR 5/6	5	С	PL	sand	sand with	clay	
1.5-6	10YR 5/3	100					sand	_		
6-13	10YR 4/2	100					sand			
	concentration, D=Dep	oletion, RM=F	Reduced Matrix, C	S=Covered	or Coate	ed Sand Gra			Pore Lining, M	
	Indicators:								matic Hydric	Soils":
_ Histoso	` '			Gleyed Ma				st Prairie Red	lox (A16) Masses (F12)	
	pipedon (A2) istic (A3)			Redox (S5) ed Matrix (S				r (Explain in l	, ,	
	en Sulfide (A4)			Mucky Min			Out	i (Explain in	itemarks)	
	d Layers (A5)			Gleyed Ma						
	uck (A10)			ed Matrix (F						
_ Deplete	d Below Dark Surfac	ce (A11)		Dark Surfa	` '					
_	ark Surface (A12)			ed Dark Su)			nytic vegetation	
	Mucky Mineral (S1)	_,	Redox	Depression	ns (F8)			, ,,	must be prese	ent,
	ucky Peat or Peat (S						unles	ss disturbed o	or problematic.	
	Layer (if observed)									
	vohoo):						Uvdrio Co	il Brosont?	Voc	No
Depth (in emarks: rganic ma	acter present within	top layer, in	dicating layering	and depos	sition. Re	edox not pro		oil Present?	Yes	
Depth (in emarks: rganic ma fluence fr	atter present within om proximity to Mis	top layer, in	dicating layering	and depos	sition. Re	edox not pre				
Depth (in emarks: rganic mafluence fr	atter present within om proximity to Mis	top layer, ind ssouri River.	dicating layering	and depos	sition. Re	edox not pro				
Depth (in emarks: rganic mafluence fr	atter present within om proximity to Mison	top layer, in ssouri River.	dicating layering		sition. Re	edox not pre	esent throu	ıghout soil p	profile. Possib	le depos
Depth (in emarks: rganic mafluence fr DROLC etland Hy imary Indi	ntter present within om proximity to Mison	top layer, in ssouri River.	dicating layering	pply)		edox not pre	Second	ughout soil p	orofile. Possib	le depos
Depth (in emarks: rganic mafluence fr DROLO etland Hy imary Indi _ Surface	ntter present within om proximity to Misson	top layer, in ssouri River.	dicating layering d; check all that a	pply) ained Leave	es (B9)	edox not pre	Second	ughout soil publicatory Indicatory Indicator	orofile. Possib	le depos
Depth (in emarks: rganic ma fluence fr DROLO etland Hy imary Indi _ Surface _ High W.	ntter present within om proximity to Misson pr	top layer, in ssouri River.	dicating layering d; check all that a Mater-Sta	pply) ained Leave auna (B13)	es (B9)	edox not pro	Second S	dary Indicato urface Soil Crainage Patte	rs (minimum of acks (B6)	le depos
Depth (in emarks: rganic mafluence fr DROLC etland Hy rimary Indi _ Surface _ High W Saturati	atter present within om proximity to Misson pr	top layer, in ssouri River.	dicating layering d; check all that a Water-Sta Aquatic F True Aqu	pply) ained Leave auna (B13) atic Plants	es (B9)) (B14)	edox not pre	Second Su Dr Dr	dary Indicator urface Soil Creainage Pattery-Season Wa	rs (minimum of racks (B6) rns (B10) ater Table (C2)	le depos
Depth (in emarks: rganic mafluence fr DROLC etland Hy rimary Indi Surface High W. Saturati Water N	odes): Inter present within om proximity to Misson proximity to M	top layer, in ssouri River.	dicating layering d; check all that a Water-Sta Aquatic F True Aqu Hydroger	pply) ained Leave auna (B13) atic Plants i Sulfide Oc	es (B9)) (B14) dor (C1)		Second	dary Indicato Irface Soil Cr Iriainage Patte Iy-Season Wa	ers (minimum of cacks (B6) rns (B10) ater Table (C2) ws (C8)	le depos
Depth (in emarks: rganic mafluence fr DROLO etland Hy imary Indi Surface High W. Saturati Water M. Sedime	atter present within om proximity to Misson pr	top layer, in ssouri River.	dicating layering d; check all that a Water-Sta Aquatic F True Aqu Hydroger Oxidized	pply) ained Leave auna (B13) atic Plants i Sulfide Oc	es (B9)) (B14) dor (C1) res on Liv	ring Roots (C	<u>Secon</u> Su Dr Cr 33) Sa	dary Indicato urface Soil Cr ainage Patte ry-Season Wa ayfish Burrov	rs (minimum of racks (B6) rns (B10) ater Table (C2)	le depos
Depth (in emarks: rganic maffluence fr /DROLO /etland Hy rimary Indi _ Surface _ High W Saturati Water Now Sedime _ Drift De _ Drift De _ Depth (in emarks: _ Sedime	ordes): Interpresent within from proximity to Mission proximity to Miss	top layer, in ssouri River.	dicating layering d; check all that a Water-Sta Aquatic F True Aqu Hydroger Oxidized	pply) ained Leave auna (B13) atic Plants a Sulfide Oc Rhizospher of Reduce	es (B9)) (B14) dor (C1) res on Liv	ring Roots (C	<u>Secon</u> St Dr Cr C3) St	dary Indicato urface Soil Cr ainage Patte ry-Season Wa ayfish Burrov	rs (minimum of acks (B6) rns (B10) ater Table (C2) ws (C8) ole on Aerial Inssed Plants (D	le depos
rganic mafluence fr TDROLC Tetland Hyrimary Indi Surface High W. Saturati Water M Sedime Drift De Algal M	ntter present within om proximity to Misson proximity (A2) and (A3) Marks (B1) and Deposits (B2) posits (B3)	top layer, in ssouri River.	d; check all that a Water-Sta Aquatic F Arue Aqu Hydroger Oxidized Presence	pply) ained Leave auna (B13) atic Plants a Sulfide Oc Rhizospher of Reduce	es (B9)) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille	ring Roots (C	Second St	dary Indicato urface Soil Cr rainage Patte ry-Season Wa rayfish Burrov aturation Visib	rs (minimum of racks (B6) rns (B10) ater Table (C2) ws (C8) ble on Aerial In seed Plants (Dosition (D2)	le depos
Depth (in emarks: rganic marfluence fr DROLC etland Hy imary Indi _ Surface _ High W Saturati C Water N _ Sedime _ Drift De _ Algal M _ Iron De	oches): Inter present within om proximity to Misson proximity (A1) atter Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4)	top layer, in ssouri River.	dicating layering d; check all that a Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence Recent In Thin Muc	pply) ained Leave auna (B13) atic Plants I Sulfide Oc Rhizospher of Reduce on Reduction	es (B9)) (B14) dor (C1) res on Liv d Iron (C4 on in Tiller	ring Roots (C	Second St	dary Indicator urface Soil Creatinage Patter ry-Season Watersylvanted or Street unted or Street	rs (minimum of racks (B6) rns (B10) ater Table (C2) ws (C8) ble on Aerial In seed Plants (Dosition (D2)	le depos
Depth (in emarks: Taganic marfluence from the control of the cont	ditter present within om proximity to Misson proximity (A1) attention (A3) Marks (B1) attention (B2) posits (B3) attention proximity (B4) posits (B5)	top layer, incessouri River.	dicating layering d; check all that a Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence Recent In Thin Muc	pply) ained Leave auna (B13) atic Plants i Sulfide Oc Rhizospher of Reduce on Reductic k Surface (i	es (B9)) (B14) dor (C1) res on Liv d Iron (C4 on in Tille C7) (D9)	ring Roots (C	Second St	dary Indicator urface Soil Creatinage Patter ry-Season Watersylvanted or Street unted or Street	rs (minimum of racks (B6) rns (B10) ater Table (C2) ws (C8) ble on Aerial In seed Plants (Dosition (D2)	le depos
Depth (in permarks: Transport of the permarks: Transport	etter present within om proximity to Misson proximity (A2) and (A3) and (A3) and (A3) are the control of the co	top layer, incessouri River.	d; check all that a Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence Recent In Thin Muc	pply) ained Leave auna (B13) atic Plants i Sulfide Oc Rhizospher of Reduce on Reductic k Surface (i	es (B9)) (B14) dor (C1) res on Liv d Iron (C4 on in Tille C7) (D9)	ring Roots (C	Second St	dary Indicator urface Soil Creatinage Patter ry-Season Watersylvanted or Street unted or Street	rs (minimum of racks (B6) rns (B10) ater Table (C2) ws (C8) ble on Aerial In seed Plants (Dosition (D2)	le depos
rganic marfluence fr DROLC etland Hy imary Indi Surface High W. Saturati Water M Sedime Drift De Algal M Iron De Inundat Sparsel	inter present within from proximity to Mission (A2) and (A2) and (A3) are Table (A2) and (A3) are Table (A2) and (A3) are Table (A2) posits (B1) and or Crust (B4) posits (B3) at or Crust (B4) posits (B5) and or Visible on Aerial y Vegetated Concavervations:	top layer, inc ssouri River.	d; check all that a Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence Recent In Thin Muc	pply) ained Leave auna (B13) atic Plants a Sulfide Oc Rhizospher of Reduce on Reductio k Surface (Well Data	es (B9)) (B14) dor (C1) res on Liv d Iron (C4 on in Tiller C7) (D9) marks)	ring Roots (C 4) d Soils (C6)	Second St	dary Indicator urface Soil Creatinage Patter ry-Season Watersylvanted or Street unted or Street	rs (minimum of racks (B6) rns (B10) ater Table (C2) ws (C8) ble on Aerial In seed Plants (Dosition (D2)	le depos
Depth (in emarks: rganic ma fluence fr DROLC etland Hy rimary Indi Surface High W. Saturati Water N. Sedime Drift De Algal M. Iron De Inundat Sparsel eld Obser	inter present within om proximity to Misson proximity (A1) atter Table (A2) from (A3) Marks (B1) atter Trust (B4) posits (B3) atter Trust (B4) posits (B5) from Visible on Aerial by Vegetated Concavervations:	top layer, income is required limagery (B7) e Surface (B8)	dicating layering d; check all that a Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence Recent In Thin Muc Gauge or Other (Ex	pply) ained Leave auna (B13) atic Plants I Sulfide Oc Rhizospher of Reduce on Reduction k Surface (I Well Data Eplain in Re	es (B9)) (B14) dor (C1) res on Liv d Iron (C4 on in Tiller C7) (D9) marks)	ring Roots (C 4) d Soils (C6)	Second St	dary Indicator urface Soil Creatinage Patter ry-Season Watersylvanted or Street unted or Street	rs (minimum of racks (B6) rns (B10) ater Table (C2) ws (C8) ble on Aerial In seed Plants (Dosition (D2)	le depos
Depth (in emarks: rganic mafluence fr DROLC etland Hyrimary Indi Surface High W. Saturati Water M. Sedime Drift De Algal M. Iron De Inundat Sparsel	inter present within form proximity to Mission proximity to Mission proximity to Mission proximity to Mission (A) atter Table (A2) for (A3) Marks (B1) for Crust (B4) posits (B3) at or Crust (B4) posits (B5) for Visible on Aerial by Vegetated Concavervations: The Present?	top layer, incessouri River.	dicating layering d; check all that a Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence Recent In Thin Muc Gauge or Other (Ex	pply) ained Leave auna (B13) atic Plants i Sulfide Oc Rhizospher of Reduce on Reductio k Surface (i Well Data eplain in Re	es (B9)) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille (C7) (D9) marks)	ring Roots (C 4) d Soils (C6)	Second	dary Indicato urface Soil Cr ainage Patte ry-Season Wa ayfish Burrov aturation Visik unted or Stre eomorphic Po	rs (minimum of racks (B6) rns (B10) ater Table (C2) ws (C8) ble on Aerial In seed Plants (Dosition (D2)	le depos
Depth (in emarks: rganic marfluence fr DROLC etland Hy rimary Indi _ Surface _ High W Saturati C Water N _ Sedime _ Drift De _ Algal M _ Iron De _ Inundat _ Sparsel eld Observation Facuation	inter present within form proximity to Mission proximity to Mission proximity to Mission proximity to Mission (A) atter Table (A2) for (A3) Marks (B1) for Crust (B4) posits (B3) at or Crust (B4) posits (B5) for Visible on Aerial by Vegetated Concavervations: The Present?	Imagery (B7) e Surface (B8) /es No	dicating layering d; check all that a Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence Recent In Thin Muc Gauge or Other (Ex	pply) ained Leave auna (B13) atic Plants i Sulfide Oc Rhizospher of Reduce on Reductio k Surface (i Well Data eplain in Re	es (B9)) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille (C7) (D9) marks)	ring Roots (C4) d Soils (C6)	Second Se	dary Indicato urface Soil Cr ainage Patte ry-Season Wa ayfish Burrov aturation Visik unted or Stre eomorphic Po	rs (minimum of racks (B6) rns (B10) ater Table (C2) ws (C8) ble on Aerial In assed Plants (D bition (D2) est (D5)	le depos
Depth (in emarks: rganic marfluence fr DROLC etland Hy imary Indi _ Surface _ High W Saturati _ Water N _ Sedime _ Drift De _ Inundat _ Sparsel etld Observation Faculudes ca	inter present within form proximity to Mission proximity to Mission proximity to Mission proximity to Mission (A) atter Table (A2) for (A3) Marks (B1) for Crust (B4) posits (B3) at or Crust (B4) posits (B5) for Visible on Aerial by Vegetated Concavervations: The Present?	Imagery (B7) e Surface (B8) /es No	dicating layering d; check all that a Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence Recent In Thin Muc Gauge or Other (Ex	pply) ained Leave auna (B13) atic Plants i Sulfide Oc Rhizospher of Reduce on Reductio k Surface (i Well Data eplain in Re	es (B9)) (B14) dor (C1) res on Liv ed Iron (C4 on in Tille (C7) (D9) marks)	ring Roots (C4) d Soils (C6)	Second Se	dary Indicato urface Soil Cr ainage Patte ry-Season Wa ayfish Burrov aturation Visik unted or Stre eomorphic Po	rs (minimum of racks (B6) rns (B10) ater Table (C2) ws (C8) ble on Aerial In assed Plants (D bition (D2) est (D5)	le depos

Project/Site: Riverpointe Public Infrastructure Project	(City/County: St. Charles, St. Charles County Sampling Date: 5/21/2020						
Applicant/Owner: City of St. Charles		State: MO Sampling Point: W						
•				nge: Section 08, Township 46 N, Range 5 E				
Landform (hillslope, terrace, etc.): sandy ridge								
Slope (%): 1 Lat: 38.763653								
Soil Map Unit Name: 66126: Haynie-Treloar-Blake compl		_						
Are climatic / hydrologic conditions on the site typical for ti								
	-			"Normal Circumstances" present? Yes X No				
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?	(If ne	eded, explain any answers in Remarks.)				
SUMMARY OF FINDINGS - Attach site maj	showing	samplin	g point l	ocations, transects, important features, etc.				
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes Yes	No X		e Sampled in a Wetlar					
Remarks:		L						
VEGETATION – Use scientific names of plant								
VEGETATION – Ose scientific flames of plant	Absolute	Dominant	Indicator	Dominance Test worksheet:				
Tree Stratum (Plot size: 30' radius)		Species?		Number of Dominant Species				
1. Acer negundo	15	Y	FAC	That Are OBL, FACW, or FAC:5 (A)				
2. Acer saccharinum		Y		Total Number of Dominant				
3. Populus deltoides			FAC	Species Across All Strata:5 (B)				
4				Percent of Dominant Species				
5				That Are OBL, FACW, or FAC:100.00 (A/B)				
Sapling/Shrub Stratum (Plot size:15' radius)		= Total Cov	er er	Prevalence Index worksheet:				
1. Acer negundo	5	Y	FAC	Total % Cover of: Multiply by:				
2				OBL species 0 x 1 = 0				
3				FACW species15 x 2 =30				
4				FAC species 29 x 3 = 87				
5				FACU species 0 x 4 = 0				
Herb Stratum (Plot size:5' radius)	5	= Total Cov	er	UPL species 0 x 5 = 0				
1			NI	Column Totals:44 (A)117 (B)				
2. Alliaria petiolata	2	Υ	FAC	Prevalence Index = B/A =2.66				
3. Toxicodendron radicans		Υ	FAC	Hydrophytic Vegetation Indicators:				
4				X Dominance Test is >50%				
5				X Prevalence Index is ≤3.0 ¹				
6				Morphological Adaptations ¹ (Provide supporting				
7				data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)				
8				Troblematic rrydrophytic vegetation (Explain)				
9				¹ Indicators of hydric soil and wetland hydrology must				
10				be present, unless disturbed or problematic.				
Woody Vine Stratum (Plot size:30' radius)	4	= Total Cov	er					
1				Hydrophytic				
2.				Vegetation Present? Yes X No				
		= Total Cov	ver	165 <u>/</u> NO				
Remarks: (Include photo numbers here or on a separate	e sheet.)							
, , , , , , , , , , , , , , , , , , , ,	,							
I .								

rofile Desc								
	ription: (Describe	to the depth ne	eeded to document the indicator or co	onfirm the absence	e of indicators.)			
Depth	Matrix Color (moist)	% C	Redox Features color (moist) % Type ¹ Lo	oc ² Texture	Pomorko			
inches) 0-5	10YR 5/3		000 (moist)	sand	Remarks			
5-8	10YR 4/2	100		sand	sand and silt			
8-16	10YR 5/2	100			Sand and Sit			
0-10	1011 3/2			sand				
 Гуре: C=Cd	ncentration, D=Dep	 pletion, RM=Red	uced Matrix, CS=Covered or Coated Sa	nd Grains. ² Lo	cation: PL=Pore Lining, M=Matrix.			
ydric Soil I	ndicators:			Indicators	for Problematic Hydric Soils ³ :			
_ Histosol	(A1)		Sandy Gleyed Matrix (S4)		Prairie Redox (A16)			
	ipedon (A2)		Sandy Redox (S5)		Manganese Masses (F12)			
_ Black His			Stripped Matrix (S6)	Other	(Explain in Remarks)			
	n Sulfide (A4) I Layers (A5)		Loamy Mucky Mineral (F1)Loamy Gleyed Matrix (F2)					
2 cm Mu			Depleted Matrix (F3)					
Depleted	Below Dark Surfac	ce (A11)	Redox Dark Surface (F6)					
	rk Surface (A12)		Depleted Dark Surface (F7)		s of hydrophytic vegetation and			
	lucky Mineral (S1)	22)	Redox Depressions (F8)	wetland hydrology must be present, unless disturbed or problematic.				
		o3)		uniess	s disturbed or problematic			
	cky Peat or Peat (S				and an experience of			
estrictive L	ayer (if observed)				s alouation of production			
Type:	ayer (if observed)			Hydric Soi				
estrictive L Type: Depth (ind	ayer (if observed)			Hydric Soi				
Type:	ches):	:	y to Missouri River.	Hydric Soi				
Type: Depth (included) demarks: ossible dep	ches):	ee from proximit	y to Missouri River.	Hydric Soi				
Type: Depth (incommerks: ossible dep	ches): consitional influence GY drology Indicators	e from proximit			I Present? Yes No _X			
estrictive I Type: Depth (inc emarks: ossible dep /DROLO /etland Hyd rimary Indic	ches): cositional influence GY drology Indicators ators (minimum of comparison of comparis	e from proximit	check all that apply)	Second	I Present? Yes No _X			
rype: Depth (inc emarks: ossible dep /DROLO /etland Hyd rimary Indic _ Surface	ches):	e from proximit	check all that apply) Water-Stained Leaves (B9)	Second Sur	ary Indicators (minimum of two require face Soil Cracks (B6)			
rimary Indice Surface High Wa	ches):	e from proximit	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13)	<u>Second</u> Sur Dra	ary Indicators (minimum of two require face Soil Cracks (B6) inage Patterns (B10)			
rype: Depth (inc emarks: ossible dep /DROLO /etland Hyo rimary Indic Surface _ High Wa _ Saturatio	ches):	e from proximit	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14)	Second Sur Dra Dry	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10)			
rype: Depth (inc emarks: ossible dep /DROLO /etland Hyo rimary Indic Surface _ High Wa _ Saturatic Water M	ches):	e from proximit	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1)	Second Sur Dry Cra	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8)			
rype: Depth (inc emarks: ossible dep /DROLO /etland Hyo rimary Indic _ Surface _ High Wa _ Saturatic Water M _ Sedimer	ches):	e from proximit	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14)	Second Sur Dra Dry Cra coots (C3) Sat	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10)			
rype: Depth (inc emarks: ossible dep /DROLO /etland Hyd rimary Indic Surface High Wa Saturatic Water M Sedimer Drift Dep	ches):	e from proximit	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living R	Second Sur Dray Cra coots (C3) Sat Stu	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) uration Visible on Aerial Imagery (C9)			
rype: Depth (inc emarks: ossible dep /DROLO /etland Hyo rimary Indic Surface High Wa Saturatic \(\) Water M Sedimer Drift Dep Algal Ma	ches):	e from proximit	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living R Presence of Reduced Iron (C4)	Second Sur X Dra Dry Cra Sat Stu Stu Stu X Ger	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) urration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1)			
rype: Depth (inc emarks: ossible dep /DROLO /etland Hyo rimary Indic _ Surface _ High Wa _ Saturatic \(\) Water M \(\) Sedimer \(\) Drift Dep \(\) Algal Ma \(\) Iron Dep	ches):	ee from proximit	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living R Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soil	Second Sur X Dra Dry Cra Sat Stu Stu Stu X Ger	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) comorphic Position (D2)			
rype: Depth (inc emarks: ossible dep /DROLO /etland Hyo rimary Indic Surface High Wa Saturatic \(\) Water M \(\) Sedimer \(\) Drift Dep \(\) Algal Ma \(\) Iron Dep \(\) Inundation \(\) Sparsely	ches):	e from proximit cone is required; of	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living R Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soil Thin Muck Surface (C7)	Second Sur X Dra Dry Cra Sat Stu Stu Stu X Ger	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) comorphic Position (D2)			
Type: Depth (included) Type: Depth (included) Type: Depth (included) Type:	ches):	ee from proximit cone is required; of the surface (B8)	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living R Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soil Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks)	Second Sur X Dra Dry Cra Sat Stu Stu Stu X Ger	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) comorphic Position (D2)			
Type: Depth (inc emarks: OSSIBLE dep /DROLO /etland Hyo rimary Indic Surface High Wa Saturatic ✓ Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely ield Observ urface Water	ches):	ee from proximit : one is required; of lmagery (B7) re Surface (B8)	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living R Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soil Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks)	Second Sur X Dra Dry Cra Sat Stu Stu Stu X Ger	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) comorphic Position (D2)			
rype: Depth (inc emarks: ossible dep /DROLO /etland Hyd rimary Indic Surface High Wa Saturatic \(\) Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Sparsely ield Observire	ches):	te from proximit timagery (B7) re Surface (B8) res No res No	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living R Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soil Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks) Depth (inches): Depth (inches):	Second Sur X Dra Dry Cra Sat Stu Stu Stu FAt	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) comorphic Position (D2)			

Inundation depth (typical year): none; sediment deposit ring around trees

Print Form

Project/Site: Riverpointe Public Infrastructure Project	(City/County:	St. Charle	es, St. Charles County Sampling Date: 5/21/2020				
•		State: MO Sampling Point: X						
				nge: Section 08, Township 46 N, Range 5 E				
Landform (hillslope, terrace, etc.): ridge adjacent stream								
· · · · · · · · · · · · · · · · · · ·		.ong:90.491327 Datum: NAD 83						
		lopes, frequently flooded; hydric NWI or WWI classification: R2UBH						
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrologysi	-							
Are Vegetation, Soil, or Hydrology na	aturally prob	olematic?	(If ne	eded, explain any answers in Remarks.)				
SUMMARY OF FINDINGS - Attach site map s								
Hydrophytic Vegetation Present? Yes X No Yes X			e Sampled in a Wetlar					
Wetland Hydrology Present? Yes X No		With	iii a wetiai	163 _ 7 _ 110				
VEGETATION – Use scientific names of plants.								
Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:				
1. Acer negundo		Υ		Number of Dominant Species That Are OBL, FACW, or FAC:7 (A)				
2. Populus deltoides		Y						
3. Salix nigra		Υ		Total Number of Dominant Species Across All Strata: 7 (B)				
4								
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)				
Conline/Chrish Stratum (Plat circ) 15' radius	50	= Total Cov	er	Prevalence Index worksheet:				
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Acer saccharinum	5	Υ	FAC.W/	Total % Cover of: Multiply by:				
2.				OBL species10 x 1 =10				
3.				FACW species 14 x 2 = 28				
4.				FAC species 43 x 3 = 129				
5.				FACU species 0 x 4 = 0				
		= Total Cov		UPL species1 x 5 = 5				
Herb Stratum (Plot size: 5' radius)	_	.,	=.0	Column Totals:68 (A)172 (B)				
1. Impatiens capensis	5	<u>Y</u>	FACW	Prevalence Index = B/A = 2.53				
Packera glabella Toxicodendron radicans	3	Y	FACW FAC	Hydrophytic Vegetation Indicators:				
- <u>- </u>		N	UPL	X Dominance Test is >50%				
Euonymus rortunei Carex sp.		N	FACW	X Prevalence Index is ≤3.0¹				
6				Morphological Adaptations ¹ (Provide supporting				
7.				data in Remarks or on a separate sheet)				
8.				Problematic Hydrophytic Vegetation ¹ (Explain)				
9				1				
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
		= Total Cov	er	The property of the property o				
Woody Vine Stratum (Plot size: 30' radius) 1				Hydrophytic				
2				Vegetation				
	:	= Total Cov	rer					
Remarks: (Include photo numbers here or on a separate s	heet.)							

Profile Des	scription: (Describe t	o the denth	needed to docur	ment the i	indicator	or confirm	the absence	Sampling Point: X
Depth	Matrix	o the depti		x Feature		or commi	the absence	of marcators.)
(inches)	Color (moist)	%	Color (moist)	% realure:	Type ¹	Loc ²	Texture	Remarks
0-2	10YR 3/1	90	5YR 4/6	10	C	PL	not sand	silty clay
2-16	10YR 3/1	90	5YR 4/6	10		PL	not sand	silt loam
2-10	10113/1		31K 4/0				TIOL Salid	SILLIDAIII
				- ·				
¹ Typo: C=0	 Concentration, D=Depl 	otion DM-E	Poducod Matrix CS	S=Covered	d or Coato	d Sand Gr	oine ² Lo	cation: PL=Pore Lining, M=Matrix.
	il Indicators:	etion, Kivi-r	reduced Matrix, Co	3-Covered	J OI COALE	u Sanu Gi		s for Problematic Hydric Soils ³ :
Histoso			Sandy (Gleyed Ma	atrix (S4)			Prairie Redox (A16)
	Epipedon (A2)			Redox (S5				langanese Masses (F12)
	Histic (A3)			d Matrix (S	,			(Explain in Remarks)
	gen Sulfide (A4)			Mucky Mir				
	ed Layers (A5)			Gleyed Ma	, ,			
	Auck (A10)	(444)		d Matrix (I	,			
	ed Below Dark Surface Dark Surface (A12)	e (A11)	X Redox I	d Dark Suna	. ,		³ Indicator	s of hydrophytic vegetation and
	Mucky Mineral (S1)			Depression	, ,			d hydrology must be present,
-	/lucky Peat or Peat (S3	5)			(* 0)			s disturbed or problematic.
Restrictive	E Layer (if observed):							•
Type:								
Depth (i	inches):		<u></u>				Hydric Soi	Present? Yes X No
Remarks:								
IYDROLO	OCV							
IIDKOL								
	ydrology Indicators:							
Primary Inc	dicators (minimum of or	ne is require						ary Indicators (minimum of two required)
Primary Inc	dicators (minimum of or e Water (A1)	ne is require	X Water-Sta	ined Leav			X Sur	face Soil Cracks (B6)
Primary Inc Surface High W	dicators (minimum of or e Water (A1) Vater Table (A2)	ne is require	X Water-Sta Aquatic Fa	ined Leav)		<u>X</u> Sur <u>X</u> Dra	face Soil Cracks (B6) inage Patterns (B10)
Primary Inc Surface High W X Satura	dicators (minimum of or e Water (A1) Vater Table (A2) tion (A3)	ne is require	X Water-Sta Aquatic Fa True Aqua	ined Leav auna (B13 atic Plants) (B14)		<u>X</u> Sur <u>X</u> Dra Dry	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2)
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Inundation depth (typical year): 2-5 feet

(includes capillary fringe)

Remarks:

Reset Form Prir

Project/Site: Riverpointe Public Infrastructure Project		City/County: St. Charles, St. Charles County Sampling Date: 5/21/2020					
•		State: MO Sampling Point: Y					
				nge: Section 08, Township 46 N, Range 5 E			
Landform (hillslope, terrace, etc.): terrace							
Slope (%): 1 Lat: 38.762448							
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex,		-					
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation, Soil, or Hydrologysi	•	·					
Are Vegetation, Soil, or Hydrology na	aturally prob	olematic?	(If ne	eded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map s	howing	samplin	g point l	ocations, transects, important features, etc.			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes X No Y)		e Sampled in a Wetlar				
Remarks:	<u>' — — — </u>						
Much less hydrology indicators present in comparison VEGETATION – Use scientific names of plants.				·			
Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet: Number of Dominant Species			
1. Acer negundo		Υ	·	That Are OBL, FACW, or FAC:6 (A)			
Acer saccharinum 3.		Y		Total Number of Dominant Species Across All Strata: 7 (B)			
4. 5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 85.71 (A/B)			
Ocalica/Oback Otesture (Districts 45) redition	35	= Total Cov	er	Prevalence Index worksheet:			
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Celtis occidentalis	15	Υ	FAC	Total % Cover of: Multiply by:			
2.				OBL species0 x 1 =0			
3.				FACW species 26 x 2 = 52			
4.				FAC species 40 x 3 = 120			
5				FACU species5 x 4 =20			
		= Total Cov		UPL species 0 x 5 = 0			
Herb Stratum (Plot size: 5' radius)	F	V	EACW.	Column Totals:71 (A)192 (B)			
1. Packera glabella	<u>5</u> 5	<u>Y</u> Y	FACU FACU	Prevalence Index = B/A = 2.70			
Humulus japonicus Impatiens capensis		Y	FACW	Hydrophytic Vegetation Indicators:			
4. Toxicodendron radicans		Y	FAC	X Dominance Test is >50%			
5. Acer saccharinum		N	FACW	X Prevalence Index is ≤3.0 ¹			
6.				Morphological Adaptations ¹ (Provide supporting			
7.				data in Remarks or on a separate sheet)			
8				Problematic Hydrophytic Vegetation ¹ (Explain)			
9				The disease of booking at the desired booking at the second			
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
Woody Vine Stratum (Plot size: 30' radius)		= Total Cov					
1				Hydrophytic Vegetation			
2		= Total Cov	er	Present? Yes <u>X</u> No			
Remarks: (Include photo numbers here or on a separate si	heet.)						

rofile Des	cription: (Descri	be to the a	epth need	ded to docu	ment tne	indicator (or confirm	tne absenc	e of indicator	s.)	
Depth	Matrix	(_	Redo	ox Feature						
inches)	Color (moist)	%	Cold	or (moist)	%	Type ¹	Loc ²	Texture	_	Remarks	
0-5	10YR 3/1	90	7.	5YR 4/6	10	C	PL	not sand	clay loam; ı	redox more pr	ominen
5-16	10YR 4/2	60	10	0YR 6/4	_ 1		M	not sand	silt loam; re	edox not promi	inent
	10YR 3/2	39									
	-								-		
	· -					·			-		
	·								-		
									-		
	Concentration, D=D	epletion, R	M=Reduc	ed Matrix, C	S=Covere	d or Coate	d Sand Gra		ocation: PL=P		
-	Indicators:			Canaly	Olavia d Mi	-t-: (C4)				-	olis :
Histoso	pipedon (A2)				Gleyed Ma Redox (S5				t Prairie Redo: Manganese Ma		
	listic (A3)				d Matrix (S	,			r (Explain in R		
	en Sulfide (A4)				Mucky Mi			0110	(Explain in te	cmarko)	
	d Layers (A5)				Gleyed M						
	uck (A10)				ed Matrix (
	ed Below Dark Sur	face (A11)		X Redox							
Thick D	ark Surface (A12)			Deplete	ed Dark Su	urface (F7)		³ Indicato	rs of hydrophy	tic vegetation	and
	Mucky Mineral (S1			Redox	Depressio	ns (F8)		wetland hydrology must be present,			
	ucky Peat or Peat							unles	s disturbed or	problematic.	
estrictive	I aver (it cheerve	·η).									
	Layer (if observe	u).									
Туре:											
Туре:	nches):							Hydric So	il Present?	Yes X	No
Type: Depth (ir Remarks:	nches):							Hydric So	il Present?	Yes X	No
Type: Depth (in Remarks:	onches):							Hydric So	il Present?	Yes X	No
Type: Depth (ir Remarks: YDROLO Wetland Hy	OGY	rs:	uviradi aba	ook all that a	nole)						
Type: Depth (in Remarks: YDROLO Vetland Hy Primary Indi	OGY vdrology Indicato	rs:				(0.0)		Second	dary Indicators	: (minimum of	
Type: Depth (in Remarks: YDROLO Vetland Hy Primary Indi Surface	OGY /drology Indicato icators (minimum of	rs:	_	_ Water-Sta	ained Leav			Second	dary Indicators	s (minimum of cks (B6)	
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Type: Depth (in Remarks: YDROLO Vetland Hy Primary Indi Surface High W Saturat	OGY /drology Indicato icators (minimum of Water (A1) ater Table (A2) ion (A3)	rs:		_ Water-Sta _ Aquatic F _ True Aqua	ained Leav auna (B13 atic Plants	3) (B14)		<u>Second</u> Su Dr Dr	dary Indicators rface Soil Crad ainage Patterr y-Season Wat	cks (B6) ns (B10) er Table (C2)	
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Type: Depth (in Remarks: YDROLO Yetland Hy Primary Indi Surface High W Saturat X Water N Sedime Drift De	orches):	rs:	- - - -	Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence	ained Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce	B) (B14) dor (C1) eres on Livi ed Iron (C4	1)	<u>Second</u> Su Dr Dr Cr C3) Sa Sti	dary Indicators rface Soil Crac ainage Patterr y-Season Wat ayfish Burrows turation Visible unted or Stress	cks (B6) as (B10) er Table (C2) s (C8) e on Aerial Imsed Plants (D	two req
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Type: Depth (in Remarks: YDROLO Vetland Hy Primary Indi Surface High W Saturat X Water N Sedime Drift De Algal M _ Iron De Inundat Sparse Gield Obse Gurface Water Table	OGY /drology Indicato icators (minimum of the Water (A1) ater Table (A2) ion (A3) Marks (B1) and Deposits (B2) and or Crust (B4) posits (B5) ion Visible on Aeri ly Vegetated Concervations: ter Present?	al Imagery ave Surface Yes	(B7) e (B8) NoX	Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Ird Thin Mucl Gauge or Other (Ex	ained Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduct on Reduct k Surface Well Data plain in Re	(B14) (B14) (dor (C1) (eres on Livi (ed Iron (C4) (ion in Tilled (C7) (D9) (D9) (D9)	t) d Soils (C6)	Second Su Dr Cr C3) Sa St G6 X FA	dary Indicators Inface Soil Cranalinage Pattern y-Season Watayfish Burrows Ituration Visible United or Stress Comorphic Pos	s (minimum of cks (B6) ns (B10) er Table (C2) s (C8) e on Aerial Imaged Plants (D2) st (D5)	agery (
Type: Depth (in Remarks: YDROLO Vetland Hy Primary Indi Surface High W Saturat K Water N Sedime Drift De Inundat Sparse Geld Obse Gurface Water Table Saturation F	OGY Idrology Indicato icators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) and Deposits (B2) and or Crust (B4) posits (B5) ion Visible on Aeri ly Vegetated Concervations: ter Present? Present?	al Imagery ave Surface Yes	(B7) e (B8) NoX	Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iro Thin Mucl Gauge or Other (Ex	ained Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduct on Reduct k Surface Well Data plain in Re	(B14) (B14) (dor (C1) (eres on Livi (ed Iron (C4) (ion in Tilled (C7) (D9) (D9) (D9)	t) d Soils (C6)	Second Su Dr Cr C3) Sa St G6 X FA	dary Indicators rface Soil Crac ainage Patterr y-Season Wat ayfish Burrows turation Visible unted or Stress	s (minimum of cks (B6) ns (B10) er Table (C2) s (C8) e on Aerial Imaged Plants (D2) st (D5)	agery (
Type: Depth (in Remarks: YDROLO Vetland Hy Primary Indi Surface High W Saturat X Water N Sedime Drift De Inundat Sparse Field Obse Surface Wa Vater Table Saturation Fincludes ca	OGY /drology Indicato icators (minimum of the Water (A1) ater Table (A2) ion (A3) /darks (B1) and Deposits (B2) at or Crust (B4) posits (B5) ion Visible on Aeri ly Vegetated Concervations: ter Present?	al Imagery ave Surface Yes Yes Yes	(B7) e (B8) NoX NoX	Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Ird Thin Mucl Gauge or Other (Ex	ained Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce on Reduct k Surface Well Data plain in Re aches):	(B14) dor (C1) dor (C1) deres on Livi ed Iron (C4 dion in Tilled (C7) (D9) emarks)	d Soils (C6)	Second Su Dr Cr C3) Sa Sti G6 X FA	dary Indicators Inface Soil Cranalinage Pattern y-Season Watayfish Burrows Ituration Visible United or Stress Comorphic Pos	s (minimum of cks (B6) ns (B10) er Table (C2) s (C8) e on Aerial Imaged Plants (D2) st (D5)	agery (
Type: Depth (in Remarks: YDROLO Vetland Hy Primary Indi Surface High W Saturat X Water N Sedime Drift De Inundat Sparse Field Obse Surface Wa Vater Table Saturation Fincludes ca	OGY /drology Indicato icators (minimum of the Water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) ion Visible on Aeri ly Vegetated Concervations: ter Present? e Present? epillary fringe)	al Imagery ave Surface Yes Yes Yes	(B7) e (B8) NoX NoX	Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Ird Thin Mucl Gauge or Other (Ex	ained Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce on Reduct k Surface Well Data plain in Re aches):	(B14) dor (C1) dor (C1) deres on Livi ed Iron (C4 dion in Tilled (C7) (D9) emarks)	d Soils (C6)	Second Su Dr Cr C3) Sa Sti G6 X FA	dary Indicators Inface Soil Cranalinage Pattern y-Season Watayfish Burrows Ituration Visible United or Stress Comorphic Pos	s (minimum of cks (B6) ns (B10) er Table (C2) s (C8) e on Aerial Imaged Plants (D2) st (D5)	agery ((

Reset Form Print Form

Project/Site: Riverpointe Public Infrastructure Project	(City/County: St. Charles, St. Charles County Sampling Date: 5/21/2020					
•		State: MO Sampling Point: Z					
				nge: Section 08, Township 46 N, Range 5 E			
Landform (hillslope, terrace, etc.): terrace							
		Long: _90.492432 Datum: NAD 83 pes, frequently flooded; hydric NWI or WWI classification: PFO1A					
· -							
Are climatic / hydrologic conditions on the site typical for this Are Vegetation, Soil, or Hydrology si	-						
Are Vegetation, Soil, or Hydrologyn	aturally pro	blematic?	(If ne	eeded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.			
Hydrophytic Vegetation Present? Yes	oX		e Sampled in a Wetlar				
Remarks:	J						
VEGETATION – Use scientific names of plants.							
Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:			
1. Acer negundo	40	Y		Number of Dominant Species That Are OBL, FACW, or FAC:4 (A)			
2. Populus deltoides		Y					
3. Morus rubra	5	N	FACU	Total Number of Dominant Species Across All Strata:4 (B)			
4. Celtis occidentalis	5	N	FAC				
5		-		Percent of Dominant Species That Are OBL, FACW, or FAC:100.00 (A/B)			
	70	= Total Cov	ver .				
Sapling/Shrub Stratum (Plot size: 15' radius)	40		E40	Prevalence Index worksheet:			
1. Celtis occidentalis							
2				OBL species0 x 1 =0 FACW species1 x 2 =2			
3				FAC species 123 x 3 = 369			
4				FACU species 5 x 4 = 20			
5		= Total Cov		UPL species $0 \times 5 = 0$			
Herb Stratum (Plot size: 5' radius)		- Total Cov	CI	Column Totals: 129 (A) 391 (B)			
1. Alliaria petiolata	40	Y	FAC	(5)			
2. Toxicodendron radicans	5	N	FAC	Prevalence Index = B/A =3.03			
3. Viola sororia		N	FAC	Hydrophytic Vegetation Indicators:			
4. Impatiens capensis	1	N	FACW	X Dominance Test is >50%			
5		-		Prevalence Index is ≤3.0 ¹			
6				Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
7				Problematic Hydrophytic Vegetation (Explain)			
8							
9				¹ Indicators of hydric soil and wetland hydrology must			
10				be present, unless disturbed or problematic.			
Woody Vine Stratum (Plot size: 30' radius)		= Total Cov		Hydrophytic			
1				Vegetation			
2		= Total Cov	/er	Present? Yes <u>X</u> No			
Remarks: (Include photo numbers here or on a separate s	sheet.)						
Distinct difference in vegetation; less FACW species so	een in othe	r areas pre	esent.				

			Sampling Point: Z			
Profile Description: (Describe to the depth needed to document the inc	licator or confir	m the absence	e of indicators.)			
Depth Matrix Redox Features	12					
(inches) Color (moist) % Color (moist) %	Type ¹ Loc ²	<u>Texture</u>	Remarks			
0-8 10YR 3/2 95 10YR 4/6 5	M	not sand	clay silt; redox not prominent			
8-16 10YR 4/2 100		sand				
			-			
		<u> </u>				
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered of	or Coated Sand G	Grains ² Lo	ocation: PL=Pore Lining, M=Matrix.			
Hydric Soil Indicators:	o Coated Carlo C		s for Problematic Hydric Soils ³ :			
Histosol (A1) Sandy Gleyed Matri	Coas	t Prairie Redox (A16)				
Histic Epipedon (A2) Sandy Redox (S5)		Manganese Masses (F12)				
Black Histic (A3) Stripped Matrix (S6)		Other	(Explain in Remarks)			
Hydrogen Sulfide (A4) Loamy Mucky Minel	. ,					
Stratified Layers (A5) Loamy Gleyed Matr 2 cm Muck (A10) Depleted Matrix (F3						
Depleted Matrix (13 Depleted Below Dark Surface (A11) Redox Dark Surface						
Thick Dark Surface (A12) Depleted Dark Surface	` '	³ Indicator	rs of hydrophytic vegetation and			
Sandy Mucky Mineral (S1) Redox Depressions	(F8)	wetland hydrology must be present,				
5 cm Mucky Peat or Peat (S3)		unles	s disturbed or problematic.			
Restrictive Layer (if observed):						
Type:						
Depth (inches):		Hydric Soi	il Present? Yes No _X			
JVDBOLOGV						
IYDROLOGY						
Wetland Hydrology Indicators:		0				
Primary Indicators (minimum of one is required; check all that apply)	(D0)		lary Indicators (minimum of two require			
Surface Water (A1) Water-Stained Leaves High Water Table (A2) Aquatic Fauna (B13)	(B9)		rface Soil Cracks (B6) ainage Patterns (B10)			
Saturation (A3) True Aquatic Plants (B	14)		y-Season Water Table (C2)			
X Water Marks (B1) Hydrogen Sulfide Odo		-	ayfish Burrows (C8)			
Sediment Deposits (B2) Oxidized Rhizosphere:			turation Visible on Aerial Imagery (C9)			
Drift Deposits (B3) Presence of Reduced	•		unted or Stressed Plants (D1)			
Algal Mat or Crust (B4) Recent Iron Reduction	in Tilled Soils (C	6) <u> </u>	omorphic Position (D2)			
Iron Deposits (B5) Thin Muck Surface (C7	7)	FA	C-Neutral Test (D5)			
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D	9)					
Sparsely Vegetated Concave Surface (B8) Other (Explain in Rem	arks)					
Field Observations:						
Surface Water Present? Yes NoX Depth (inches):						
Water Table Present? Yes NoX Depth (inches):						
Saturation Present? Yes NoX_ Depth (inches): (includes capillary fringe)	Wet	land Hydrolog	gy Present? Yes <u>X</u> No			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, prev	ious inspections)	, if available:				
Remarks:						
Inundation depth (typical year): none; hydrology indicators not as pron	ninent in this wi	de. less inund	lated area.			

Project/Site: Riverpointe Public Infrastructure Project	(City/County: St. Charles, St. Charles County Sampling Date: 5/21/2020						
,	<u>.</u>	State: MO Sampling Point: AA						
Investigator(s): AMZ, ELH								
		Local relief (concave, convex, none): none						
Slope (%): 0 Lat: 38.759387								
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex		_						
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrologys	-							
Are Vegetation, Soil, or Hydrologyn	aturally pro	blematic?	(If ne	eeded, explain any answers in Remarks.)				
SUMMARY OF FINDINGS - Attach site map								
Hydrophytic Vegetation Present? Hydric Soil Present? Yes X No.	0		e Sampled in a Wetlar					
Wetland Hydrology Present? Yes X No	0							
VEGETATION – Use scientific names of plants.	Absolute	Dominant	Indicator	Dominance Test worksheet:				
Tree Stratum (Plot size: 30' radius)	% Cover			Number of Dominant Species				
1. Acer negundo	50	Y	FAC	That Are OBL, FACW, or FAC:4 (A)				
Platanus occidentalis			FACW	Total Number of Dominant Species Across All Strata:4 (B)				
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC:100.00 (A/B)				
Sapling/Shrub Stratum (Plot size: 15' radius)	60	= Total Cov	er	Prevalence Index worksheet:				
1. Acer negundo	5	Υ	FAC	Total % Cover of: Multiply by:				
2.				OBL species0 x 1 =0				
3.				FACW species13 x 2 =26				
4				FAC species58 x 3 =174				
5				FACU species0 x 4 =0				
Herb Stratum (Plot size: 5' radius)		= Total Cov	rer	UPL species0 x 5 =0 (B) Column Totals:71 (A)200 (B)				
1	2	Y	FAC	Prevalence Index = B/A = 2.82				
3. Impatiens capensis		Υ	FACW	Hydrophytic Vegetation Indicators:				
4.				X Dominance Test is >50%				
5				X Prevalence Index is ≤3.0 ¹				
6				Morphological Adaptations ¹ (Provide supporting				
7				data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)				
8				robernate riyarophytte vegetation (Explain)				
9				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Woody Vine Stratum (Plot size: 30' radius)	6	= Total Cov	er					
1.				Hydrophytic Vegetation				
2		= Total Cov	er	Present?				
		- Julia COV	<u></u>					
Remarks: (Include photo numbers here or on a separate s	sneet.)							

SOIL Sampling Point: AA

Profile Des	cription: (Describe	to the depth r	needed to docu	ıment the i	indicator	or confirn	n the absence	of indicators.)
Depth	Matrix			ox Feature		. 2		
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-6	10YR 3/2	90	7.5YR 4/6	10	C	PL	not sand	clay loam
6-16	10YR 4/2	95	10YR 4/6	_ 5	С	PL	not sand	clay loam
	-							
1- 0.0							. 2.	
	Concentration, D=Depl	letion, RM=Re	duced Matrix, C	S=Covered	d or Coate	d Sand Gi		cation: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils ³ :
Histoso			Sandy	Gloved Ma	ntriv (SA)			: Prairie Redox (A16)
	Epipedon (A2)			Gleyed Ma Redox (S5				Manganese Masses (F12)
	listic (A3)			ed Matrix (S				(Explain in Remarks)
	en Sulfide (A4)			Mucky Mir				
	ed Layers (A5)			Gleyed Ma				
I	uck (A10)	· (A11)		ed Matrix (l Dark Surfa	,			
	ed Below Dark Surface Park Surface (A12)	e (A11)		ed Dark Suna	. ,		³ Indicator	s of hydrophytic vegetation and
	Mucky Mineral (S1)			Depressio	. ,			nd hydrology must be present,
	ucky Peat or Peat (S3	3)		·	` ,			s disturbed or problematic.
Restrictive	Layer (if observed):							
Type:			_					
Depth (ir	nches):		_				Hydric Soi	I Present? Yes X No No
Remarks:							•	
HYDROLO								
_	drology Indicators:							
	icators (minimum of o	ne is required;						ary Indicators (minimum of two required)
	e Water (A1)		X Water-Sta		, ,			face Soil Cracks (B6)
	ater Table (A2)			auna (B13				ainage Patterns (B10)
Saturat X Water N	` '		True Aqu		` '		-	v-Season Water Table (C2)
<u> </u>	ent Deposits (B2)		Hydroger	Rhizosphe		na Poote		ayfish Burrows (C8) curation Visible on Aerial Imagery (C9)
	eposits (B3)		· 	of Reduce		•		Inted or Stressed Plants (D1)
l —	lat or Crust (B4)		Recent Ir				· 	omorphic Position (D2)
_	posits (B5)		Thin Muc			((-	C-Neutral Test (D5)
·——	tion Visible on Aerial I	magery (B7)	Gauge or					,
Sparse	ly Vegetated Concave	Surface (B8)	Other (Ex	oplain in Re	emarks)			
Field Obse	rvations:							
Surface Wa	ter Present? Ye	es No	X Depth (ii	nches):				
Water Table	e Present? Ye	es No	X Depth (ii	nches):				
Saturation F		es No	X Depth (ii	nches):		Wetl	and Hydrolog	gy Present? Yes X No
	pillary fringe) ecorded Data (stream	gauge monito	oring well aerial	nhotos nr	evious ins	nections)	if available.	
Describe 14	ecorded Data (Stream	gauge, monit	oning well, aerial	priotos, pr	evious iris	pections),	ii available.	
Remarks:								
i tomarks.								
Investor of the	alaméh //s!!	0.064	landa are ter U = 1					
inundation	depth (typical year):	: u-2 reet; nyd	irology indicate	ors not as	prominen	IT		

Project/Site: Riverpointe Public Infrastructure Project	(City/County	: St. Charle	es, St. Charles County Sampling Date: 5/21/2020
•				State: MO Sampling Point: BB
				nge: Section 08, Township 46 N, Range 5 E
Landform (hillslope, terrace, etc.): wide depression				
Slope (%): 2 Lat: 38.759102				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake comple		_		
Are climatic / hydrologic conditions on the site typical for the				
	-			Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?	(If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point le	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes X Yes X	No		e Sampled in a Wetlar	
Remarks:				
VEGETATION – Use scientific names of plants	S.			
Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1. Acer negundo	<u>76 Cover</u> 50		FAC	Number of Dominant Species That Are OBL, FACW, or FAC:5 (A)
Populus deltoides			FAC	
3. Platanus occidentalis	- 10		FACW	Total Number of Dominant Species Across All Strata:6(B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 83.33 (A/B)
Sapling/Shrub Stratum (Plot size:15' radius)	80	= Total Cov	/er	Prevalence Index worksheet:
1				Total % Cover of: Multiply by:
2.				OBL species0 x 1 =0
3				FACW species14 x 2 =28
4				FAC species 73 x 3 = 219
5				FACU species 3 x 4 = 12
Herb Stratum (Plot size: 5' radius)		= Total Cov	/er	UPL species 0 x 5 = 0
1.				Column Totals:90 (A)259 (B)
2. Campsis radicans	3	Y	FACU	Prevalence Index = B/A =2.88
3. Toxicodendron radicans	3	Υ	FAC	Hydrophytic Vegetation Indicators:
4. Packera glabella	2	Υ	FACW	X Dominance Test is >50%
5. Impatiens capensis	2	Y	FACW	X Prevalence Index is ≤3.0 ¹
6				Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
7				Problematic Hydrophytic Vegetation ¹ (Explain)
8				robernatic rivarophytic vegetation (Explain)
9				¹ Indicators of hydric soil and wetland hydrology must
10				be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:30' radius)	10	= Total Cov	/er	
1				Hydrophytic
2.				Vegetation Present? Yes X No
		= Total Cov	/er	165 / NO
Remarks: (Include photo numbers here or on a separate	sheet.)			
	• ,			
1				

SOIL Sampling Point: BB

Profile Des Depth	Matrix		Redo	x Feature	es .			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-15	10YR 4/1	90	7.5YR 4/6	10	С	PL	not sand	clay loam
15-20	10YR 4/1	90	10YR 6/4	10	С	М	not sand	silty loam
20-24	10YR 5/3	100					sand	
-				-				
					·			
	concentration, D=Dep	oletion, RM=	Reduced Matrix, C	S=Covere	d or Coate	d Sand G		cation: PL=Pore Lining, M=Matrix.
-	Indicators:							s for Problematic Hydric Soils ³ :
Histoso				Gleyed Ma				Prairie Redox (A16)
	pipedon (A2)			Redox (S				Manganese Masses (F12)
	istic (A3)			d Matrix (S			Other	(Explain in Remarks)
	en Sulfide (A4)			-	neral (F1)			
	d Layers (A5) uck (A10)			Gleyed M ed Matrix (
	ed Below Dark Surfac	· Δ (Δ11)		Dark Surfa				
	ark Surface (A12)	C (ATT)			urface (F7)		³ Indicator	s of hydrophytic vegetation and
	Mucky Mineral (S1)		X Redox					nd hydrology must be present,
	ucky Peat or Peat (S	3)	X NCGOX	Бергеззіо	113 (1 0)			s disturbed or problematic.
	Layer (if observed)	,					1	
Type:								
Depth (in Remarks:	iches):						Hydric Soi	I Present? Yes X No
Depth (in Remarks:	nches):						Hydric Soi	I Present? Yes X No
. ,	nches):						Hydric Soi	I Present? Yes <u>X</u> No
Remarks:							Hydric Soi	I Present? Yes <u>X</u> No
Remarks:)GY						Hydric Soi	I Present? Yes <u>X</u> No
Remarks: YDROLO Wetland Hy			ed; check all that a	pply)				ary Indicators (minimum of two require
YDROLO Wetland Hy Primary Indi	DGY rdrology Indicators:		ed; check all that ap		res (B9)		Second	
YDROLO Wetland Hy Primary Indi Surface	OGY rdrology Indicators: cators (minimum of c			ined Leav	` ,		Second Su	ary Indicators (minimum of two require
YDROLC Wetland Hy Primary Indi Surface High W	OGY rdrology Indicators: cators (minimum of control Water (A1) ater Table (A2)		X Water-Sta	ined Leav auna (B13	3)		Second Sur	ary Indicators (minimum of two require face Soil Cracks (B6) sinage Patterns (B10)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati	ogy rdrology Indicators: cators (minimum of of Water (A1) ater Table (A2) ion (A3)		X Water-Sta Aquatic Fa	ined Leav auna (B13 atic Plants	3) (B14)		Second Sui Dra Dry	ary Indicators (minimum of two require face Soil Cracks (B6) inage Patterns (B10) r-Season Water Table (C2)
YDROLO Wetland Hy Primary Indi Surface High W X Saturati X Water M	oddy rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1)		X Water-Sta Aquatic Fa True Aqua Hydrogen	ined Leav auna (B13 atic Plants Sulfide O	B) (B14) dor (C1)	ing Roots	Second Sun X Dra Dry Cra	ary Indicators (minimum of two require face Soil Cracks (B6) ninage Patterns (B10) r-Season Water Table (C2) nyfish Burrows (C8)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime	ody rdrology Indicators: cators (minimum of of the Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2)		X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I	ined Leav auna (B13 atic Plants Sulfide O Rhizosphe	B) (B14) dor (C1) eres on Liv	-	Second Sull Dry Cra (C3) Sal	ary Indicators (minimum of two require face Soil Cracks (B6) ninage Patterns (B10) r-Season Water Table (C2) nyfish Burrows (C8) nuration Visible on Aerial Imagery (C9)
YDROLO Vetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime Drift De	ody rdrology Indicators: cators (minimum of control of the Water (A1) ater Table (A2) fon (A3) Marks (B1) nt Deposits (B2) posits (B3)		X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence	ined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce	B) (B14) dor (C1) eres on Livied Iron (C4	·)	Second Sui Dry Cra (C3) Sai Stu	ary Indicators (minimum of two require face Soil Cracks (B6) ainage Patterns (B10) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9) and or Stressed Plants (D1)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime Drift De Algal M	rdrology Indicators: cators (minimum of control water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4)		X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro	ined Leavalined Leavalined (B13 atic Plants Sulfide ORhizospheon Reduction	B) (B14) dor (C1) eres on Livited Iron (C4) ion in Tilled	·)	Second Sui Dry Cra (C3) Sat Stu X Dra	ary Indicators (minimum of two require face Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9) and or Stressed Plants (D1) comorphic Position (D2)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime Drift De Algal M Iron De	rdrology Indicators: cators (minimum of of the Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	one is requir	X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck	ined Leavauna (B13 atic Plants Sulfide O Rhizosphe of Reduction Reduction	(B14) dor (C1) eres on Livied Iron (C4) ion in Tilled (C7)	·)	Second Sui Dry Cra (C3) Sat Stu X Dra	ary Indicators (minimum of two require face Soil Cracks (B6) ainage Patterns (B10) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9) and or Stressed Plants (D1)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime Drift De Algal M Iron De Inundat	rdrology Indicators: cators (minimum of of the Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial	one is requir	X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck Gauge or	ined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduction on Reduction Surface (Well Data	(B14) dor (C1) eres on Livi ed Iron (C4) ion in Tilled (C7) (C9)	·)	Second Sui Dry Cra (C3) Sat Stu X Dra	ary Indicators (minimum of two require face Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9) and or Stressed Plants (D1) comorphic Position (D2)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime Drift De Algal M Iron De Inundat X Sparsel	rdrology Indicators: cators (minimum of of the Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial y Vegetated Concav	one is requir	X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck Gauge or	ined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduction on Reduction Surface (Well Data	(B14) dor (C1) eres on Livi ed Iron (C4) ion in Tilled (C7) (C9)	·)	Second Sui Dry Cra (C3) Sat Stu X Dra	ary Indicators (minimum of two require face Soil Cracks (B6) sinage Patterns (B10) r-Season Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime Drift De Algal M Iron De Inundat X Sparsel	order of the control	one is requir Imagery (B7 e Surface (E	X Water-Sta Aquatic Fi True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck Gauge or Gas Other (Ex	ined Leave auna (B13 atic Plants Sulfide O Rhizosphe of Reduction Surface Well Data plain in Re	(B14) dor (C1) eres on Livied Iron (C4) ion in Tilled (C7) (D9) emarks)	H) Soils (Co	Second Sui Dry Cra (C3) Sat Stu X Dra	ary Indicators (minimum of two require face Soil Cracks (B6) sinage Patterns (B10) r-Season Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water N Sedime Drift De Algal M Iron De Inundat X Sparsel Field Obsel Surface Wa	ody rdrology Indicators: cators (minimum of of the Water (A1) ater Table (A2) fon (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial y Vegetated Concavervations: ter Present?	one is requir Imagery (B7 e Surface (E 'es N	X Water-Sta	ined Leave auna (B13 atic Plants Sulfide O Rhizosphe of Reduction Reduction Surface Well Data plain in Reduction Reduction Surface well Data plain in Reduction Reduction Reduction Surface well Data plain in Reduction	(B14) dor (C1) eres on Livi ed Iron (C4) dion in Tilled (C7) I (D9) emarks)	H) Soils (Co	Second Sui Dry Cra (C3) Sat Stu X Dra	ary Indicators (minimum of two require face Soil Cracks (B6) sinage Patterns (B10) r-Season Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime Drift De Algal M Iron De Inundat X Sparsel Field Obser	rdrology Indicators: cators (minimum of of the Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial y Vegetated Concavervations: ter Present?	Imagery (B7 e Surface (B	X Water-Sta Aquatic Fi True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck Gauge or Gas Other (Ex	ined Leave auna (B13 atic Plants Sulfide O Rhizosphe of Reduction Reduction Surface Well Data plain in Reduction Reduction Reduction Surface well Data plain in Reduction Reduct	(B14) (B14) (dor (C1) eres on Livi ed Iron (C4 ion in Tilled (C7) (C9) emarks)	d Soils (Co	Second Sur S	ary Indicators (minimum of two require face Soil Cracks (B6) sinage Patterns (B10) r-Season Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime Drift De Algal M Iron De Inundat X Sparsel Field Obser Surface Wa Water Table Saturation F	oddy rdrology Indicators: cators (minimum of of of other thanks) ater Table (A2) fon (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial y Vegetated Concavervations: ter Present? Present? Present? Yeresent? Yeresent?	Imagery (B7 e Surface (E 'es N 'es N	X Water-Sta	ined Leave auna (B13 atic Plants Sulfide O Rhizosphe of Reduction	(B14) (B14) (dor (C1) eres on Livi ed Iron (C4) ion in Tilled (C7) (C9) emarks)	d Soils (Co	Second	ary Indicators (minimum of two require face Soil Cracks (B6) ainage Patterns (B10) /-Season Water Table (C2) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9) anted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime Drift De Algal M Iron De Inundat X Sparsel Field Obser Surface Wa Water Table Saturation F	rdrology Indicators: cators (minimum of or Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial y Vegetated Concav rvations: ter Present? Present?	Imagery (B7 e Surface (E 'es N 'es N	X Water-Sta	ined Leave auna (B13 atic Plants Sulfide O Rhizosphe of Reduction	(B14) (B14) (dor (C1) eres on Livi ed Iron (C4) ion in Tilled (C7) (C9) emarks)	d Soils (Co	Second	ary Indicators (minimum of two require face Soil Cracks (B6) ainage Patterns (B10) /-Season Water Table (C2) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9) anted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime Drift De Algal M Iron De Inundat X Sparsel Field Obser Surface Wa Water Table Saturation F	oddy rdrology Indicators: cators (minimum of of of other thanks) ater Table (A2) fon (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial y Vegetated Concavervations: ter Present? Present? Present? Yeresent? Yeresent?	Imagery (B7 e Surface (E 'es N 'es N	X Water-Sta	ined Leave auna (B13 atic Plants Sulfide O Rhizosphe of Reduction	(B14) (B14) (dor (C1) eres on Livi ed Iron (C4) ion in Tilled (C7) (C9) emarks)	d Soils (Co	Second	ary Indicators (minimum of two require face Soil Cracks (B6) ainage Patterns (B10) /-Season Water Table (C2) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9) anted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
YDROLO Wetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime Drift De Algal M Iron De Inundat X Sparsel Field Obsel Surface Wa Water Table Saturation F includes ca Describe Re	oddy rdrology Indicators: cators (minimum of of of other thanks) ater Table (A2) fon (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial y Vegetated Concavervations: ter Present? Present? Present? Yeresent? Yeresent?	Imagery (B7 e Surface (E 'es N 'es N	X Water-Sta	ined Leave auna (B13 atic Plants Sulfide O Rhizosphe of Reduction	(B14) (B14) (dor (C1) eres on Livi ed Iron (C4) ion in Tilled (C7) (C9) emarks)	d Soils (Co	Second	ary Indicators (minimum of two require face Soil Cracks (B6) ainage Patterns (B10) A-Season Water Table (C2) ayfish Burrows (C8) auration Visible on Aerial Imagery (C9) anted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
YDROLO Vetland Hy Primary Indi Surface High W. X Saturati X Water M Sedime Drift De Algal M Iron De Inundat X Sparsel Gurface Wa Vater Table Saturation F includes ca Describe Re	oddy rdrology Indicators: cators (minimum of of of other thanks) ater Table (A2) fon (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial y Vegetated Concavervations: ter Present? Present? Present? Yeresent? Yeresent?	Imagery (B7 e Surface (E 'es N 'es N n gauge, mo	X Water-Sta	ined Leave auna (B13 atic Plants Sulfide O Rhizosphe of Reduction	(B14) (B14) (dor (C1) eres on Livi ed Iron (C4) ion in Tilled (C7) (C9) emarks)	d Soils (Co	Second	ary Indicators (minimum of two require face Soil Cracks (B6) ainage Patterns (B10) A-Season Water Table (C2) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9) anted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)

Print Form

Project/Site: Riverpointe Public Infrastructure Project	(City/County	St. Charle	es, St. Charles County Sampling Date: 5/21/2020
Applicant/Owner: City of St. Charles				State: MO Sampling Point: CC
•				nge: Section 08, Township 46 N, Range 5 E
Landform (hillslope, terrace, etc.): wide floodplain				
Slope (%): 1 Lat: 38.756642				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake comple		_		
· -				
Are Vegetation Soil or Hydrology	-			(If no, explain in Remarks.) Normal Circumstances" present? Yes X No No
Are Vegetation, Soil, or Hydrology				
				ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X	No	la 4h	- Cl-d	
Hydric Soil Present? Yes X			e Sampled in a Wetlar	
Wetland Hydrology Present? Yes X	No	With	iii a vvetiai	iu: Tes No
Remarks:				
VEGETATION – Use scientific names of plant	<u> </u>			
TEGETATION OSC SCIENTING HARMES OF PIANTS	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:30' radius)	% Cover	Species?	Status	Number of Dominant Species
1. Acer negundo		Y		That Are OBL, FACW, or FAC:6 (A)
2. Acer saccharinum		Y		Total Number of Dominant
3. Platanus occidentalis	10	<u>N</u>		Species Across All Strata:6 (B)
4. Populus deltoides	10	N	<u>FAC</u>	Percent of Dominant Species
5				That Are OBL, FACW, or FAC:100.00 (A/B)
Sapling/Shrub Stratum (Plot size: 15' radius)	55	= Total Cov	/er	Prevalence Index worksheet:
1. Acer negundo	5	Υ	FAC	Total % Cover of: Multiply by:
2.				OBL species 0 x 1 = 0
3.				FACW species 46 x 2 = 92
4.				FAC species46 x 3 =138
5.				FACU species1 x 4 =4
		= Total Cov		UPL species0 x 5 =0
Herb Stratum (Plot size: 5' radius)				Column Totals: 93 (A) 234 (B)
1. Packera glabella		<u>Y</u>	FACW	Dravalance Index - D/A - 2.52
2. Symphyotrichum sp.		Y	FAC	Prevalence Index = B/A = 2.52
3. Impatiens capensis		N	FACW	Hydrophytic Vegetation Indicators: X Dominance Test is >50%
4. Toxicodendron radicans		N	FAC	X Prevalence Index is ≤3.0¹
5. Urtica dioica 6. Humulus japonicus	4	N	FACU FACU	Morphological Adaptations ¹ (Provide supporting
			IACU	data in Remarks or on a separate sheet)
7 8				Problematic Hydrophytic Vegetation ¹ (Explain)
9.				
10				¹Indicators of hydric soil and wetland hydrology must
10:		= Total Cov	/er	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30' radius)		. 3.0. 001		
1. Vitis riparia	5	Υ	FACW	Hydrophytic
2				Vegetation
	5	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate	e sheet.)			1
1				

SOIL Sampling Point: <u>CC</u>

Profile Des	cription: (Describe	to the depth r	needed to docur	nent the i	ndicator	or confirn	n the absence	of indicators.)
Depth	Matrix		Redo	x Feature:	S			
(inches)	Color (moist)	<u></u> %	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 4/2	85	7.5YR 4/6	15	С	PL/M	not sand	silty clay
16-20+	10YR 5/2	90	7.5YR 4/6	10	С	PL	not sand	silty loam
l ———								
¹ Type: C=C	concentration, D=Dep	etion. RM=Re	duced Matrix. CS	S=Covered	or Coate	d Sand G	rains. ² Lo	cation: PL=Pore Lining, M=Matrix.
Hydric Soil			,					for Problematic Hydric Soils ³ :
Histosol	I (A1)		Sandy (Gleyed Ma	trix (S4)		Coast	Prairie Redox (A16)
	pipedon (A2)			Redox (S5			Iron-N	langanese Masses (F12)
	istic (A3)			d Matrix (S			Other	(Explain in Remarks)
	en Sulfide (A4)			Mucky Mir				
	d Layers (A5)			Gleyed Ma				
	uck (A10)	. (111)		d Matrix (I				
	d Below Dark Surface ark Surface (A12)	e (A11)		Dark Surfa d Dark Su	, ,		3Indicators	s of hydrophytic vegetation and
	Mucky Mineral (S1)			Depression	, ,			d hydrology must be present,
	ucky Peat or Peat (S3	3)			(- ()			s disturbed or problematic.
Restrictive	Layer (if observed):	<u>· </u>						
Type:			_					
Depth (in	iches):		_				Hydric Soi	Present? Yes X No
Remarks:								
HYDROLO	GY							
Wetland Hy	drology Indicators:							
Primary Indi	cators (minimum of o	ne is required;	check all that ap	ply)			Second	ary Indicators (minimum of two required)
Surface	Water (A1)		X Water-Sta	ined Leave	es (B9)		Sur	face Soil Cracks (B6)
High Wa	ater Table (A2)		Aquatic Fa	auna (B13))		X Dra	inage Patterns (B10)
Saturati	ion (A3)		True Aqua	itic Plants	(B14)		Dry	-Season Water Table (C2)
× Water N	/larks (B1)		Hydrogen	Sulfide Od	dor (C1)		Cra	yfish Burrows (C8)
Sedime	nt Deposits (B2)		Oxidized F	Rhizosphe	res on Livi	ing Roots	(C3) Sat	uration Visible on Aerial Imagery (C9)
Drift De	posits (B3)		Presence	of Reduce	d Iron (C4	·)		nted or Stressed Plants (D1)
_	at or Crust (B4)		Recent Iro			d Soils (Ce		omorphic Position (D2)
	posits (B5)		Thin Muck				<u>×</u> FA0	C-Neutral Test (D5)
	ion Visible on Aerial I		Gauge or					
	y Vegetated Concave	Surface (B8)	Other (Exp	olain in Re	marks)			
Field Obser								
Surface Wat			X Depth (in					
Water Table			X Depth (in			l l		
Saturation P		es No	X Depth (in	ches):		_ Wetl	and Hydrolog	y Present? Yes X No No
	pillary fringe) ecorded Data (stream	gauge monito	oring well aerial	photos pr	evious ins	pections)	if available:	
200000 1 10		94490,	g, aoa.	ро.сос, р	0110000	p = 0 o , ,		
Remarks:								
Inundation	depth (typical year)	2-5 feet						

Print Form

Project/Site: Riverpointe Public Infrastructure Project	C	ity/County:	St. Charle	es, St. Charles County Sampling Date: 5/21/2020
Applicant/Owner: City of St. Charles	-			State: MO Sampling Point: DD
Investigator(s): AMZ, ELH	S	Section, Tov	wnship, Rar	nge: Section 08, Township 46 N, Range 5 E
Landform (hillslope, terrace, etc.): small ridge				
Slope (%): 0 Lat: 38.755970				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex, 0		-		
Are climatic / hydrologic conditions on the site typical for this ti				
Are Vegetation, Soil, or Hydrologysign				
Are Vegetation, Soil, or Hydrology nat				eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sh				
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Yes X No Yes X No No			e Sampled in a Wetlan	
numerous downed trees surrounding data point.				
VEGETATION – Use scientific names of plants.				
		Dominant		Dominance Test worksheet:
		Species? Y		Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)
Acer negundo Morus rubra			FACU	
3.				Total Number of Dominant Species Across All Strata: 3 (B)
4. 5.				Percent of Dominant Species That Are OBL, FACW, or FAC:100.00 (A/B)
Capling/Chrub Stratum (Diet size) 15' radius	60 =	Total Cov	er	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: 15' radius) 1. Acer negundo	5	Υ	FAC	Total % Cover of: Multiply by:
2.				OBL species 0 x 1 = 0
3.				FACW species 10 x 2 = 20
4.				FAC species61 x 3 =183
5				FACU species10 x 4 =40
_		Total Cov	er	UPL species0 x 5 =0
Herb Stratum (Plot size: 5' radius)	40		E4014/	Column Totals:81(A)243(B)
Impatiens capensis Toxicodendron radicans	<u>10</u> 3	N N	FACW FAC	Prevalence Index = B/A = 3.00
Alliaria netiolata	2	N	FAC	Hydrophytic Vegetation Indicators:
4.				X Dominance Test is >50%
5.				X Prevalence Index is ≤3.0 ¹
6.				Morphological Adaptations ¹ (Provide supporting
7.				data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation ¹ (Explain)
9				Indicators of budgin call and watered budget and according
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Moody Vino Stratum (Plot size) 20' radius	16 =	Total Cov	er	
Woody Vine Stratum (Plot size: 30' radius) 1				Hydrophytic
2.				Vegetation Present? Yes X No
_		Total Cov	er	100
Remarks: (Include photo numbers here or on a separate she	eet.)			1

SOIL								Sampling Point: DD	
Profile Desc	ription: (Describe t	o the dep	th needed to docun	nent the	indicator o	or confirn	n the absence of i	ndicators.)	
Depth	Matrix		Redox	x Feature	s				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	

Depth Mat				x Feature		. 2		
(inches) Color (mois			or (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-10 10YR 4/1	93	1	0YR 5/6		C	M	not sand	silt loam
10-16 10YR 4/2	95	1	0YR 5/6	5	<u> </u>	M	not sand	silt loam
Гуре: C=Concentration, D=	Depletion,	RM=Reduc	ced Matrix, CS	S=Covered	d or Coate	d Sand G		cation: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils ³ :
Histosol (A1)			Sandy (Gleyed Ma	otriv (CA)			: Prairie Redox (A16)
Histic Epipedon (A2)				Redox (S5	. ,			Manganese Masses (F12)
Black Histic (A3)			_	d Matrix (S	,			(Explain in Remarks)
Hydrogen Sulfide (A4)				Mucky Mir	,			,
Stratified Layers (A5)				Gleyed Ma	, ,			
2 cm Muck (A10)				ed Matrix (,			
Depleted Below Dark Su	, ,			Dark Surfa	` '		31	o of budrophytic resetation and
Thick Dark Surface (A12 Sandy Mucky Mineral (S				ed Dark Su Depressio	ırface (F7)			s of hydrophytic vegetation and nd hydrology must be present,
5 cm Mucky Peat or Pea			IVERIOX	nchi c9910	113 (110)			s disturbed or problematic.
								•
<u> </u>	/ed):							
<u> </u>	/ed):							
Restrictive Layer (if observed) Type: Depth (inches):							Hydric Soi	I Present? Yes X No
Restrictive Layer (if observed Type:							Hydric Soi	I Present? Yes <u>X</u> No
Restrictive Layer (if observed type:							Hydric Soi	I Present? Yes <u>X</u> No
Restrictive Layer (if observed the control of the c	ors:	oquired: ch	eck all that ar	only)				
Restrictive Layer (if observed the control of the c	ors:				es (R9)		Second	ary Indicators (minimum of two requir
Restrictive Layer (if observed the control of the c	ors:		Water-Sta	ined Leav	, ,		Second	ary Indicators (minimum of two requir
Restrictive Layer (if observed Type:	ors:		Water-Sta Aquatic Fa	ined Leav auna (B13)		<u>Second</u> Sur Dra	ary Indicators (minimum of two requin face Soil Cracks (B6) ainage Patterns (B10)
Restrictive Layer (if observed Type:	ors:		Water-Sta Aquatic Fa True Aqua	ined Leav auna (B13 atic Plants	(B14)		Second Sui	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2)
Restrictive Layer (if observed Type:	ors:		Water-Sta Aquatic Fa True Aqua Hydrogen	ined Leav auna (B13 atic Plants Sulfide O	(B14) dor (C1)	ing Roots	Second Sui Dra Dry Cra	ary Indicators (minimum of two requirer face Soil Cracks (B6) ninage Patterns (B10) r-Season Water Table (C2) nyfish Burrows (C8)
Restrictive Layer (if observed Type:	ors:		Water-Sta Aquatic Fa True Aqua	ined Leav auna (B13 atic Plants Sulfide Oo Rhizosphe	(B14) dor (C1) eres on Liv	_	Second Sun Dra Dra Cra (C3) Sar	ary Indicators (minimum of two require face Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2)
Restrictive Layer (if observed Type:	ors:		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	ined Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce	(B14) (B14) dor (C1) eres on Liv ed Iron (C4	1)	Second Sui Dra Cra Cra (C3) Sai Stu	ary Indicators (minimum of two requir face Soil Cracks (B6) ninage Patterns (B10) r-Season Water Table (C2) nyfish Burrows (C8) curation Visible on Aerial Imagery (C9)
Restrictive Layer (if observed Type:	ors:		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence	ined Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti	(B14) dor (C1) eres on Lived Iron (C4 on in Tille	1)	Second	ary Indicators (minimum of two requirent face Soil Cracks (B6) ainage Patterns (B10) reseason Water Table (C2) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1)
Restrictive Layer (if observed Type:	ors: of one is re	- - - - - - - ((B7)	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro	ined Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti & Surface ((B14) dor (C1) eres on Lived Iron (C4) fron in Tiller	1)	Second	ary Indicators (minimum of two requirent face Soil Cracks (B6) sinage Patterns (B10) reseason Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
Restrictive Layer (if observed Type:	ors: of one is re	- - - - - - - ((B7)	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck	ined Leav auna (B13 atic Plants Sulfide O Rhizosphe of Reduce on Reducti & Surface (Well Data	(B14) dor (C1) eres on Lived Iron (C4) on in Tiller (C7) (D9)	1)	Second	ary Indicators (minimum of two requirent face Soil Cracks (B6) sinage Patterns (B10) reseason Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
Restrictive Layer (if observed Type:	ors: of one is re		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Leavauna (B13 atic Plants Sulfide Oc Rhizosphe on Reductic Surface (Well Data plain in Re	(B14) dor (C1) eres on Liv ed Iron (C4 fon in Tiller (C7) (D9) emarks)	t) d Soils (Ce	Second	ary Indicators (minimum of two requirent face Soil Cracks (B6) sinage Patterns (B10) reseason Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
Restrictive Layer (if observations: Type:	ors: of one is referred Imagery	/ (B7) ce (B8)	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Irc Thin Muck Gauge or Other (Exp	ined Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti & Surface (Well Data plain in Re	(B14) (B14) dor (C1) eres on Liv ed Iron (C4 don in Tiller (C7) (D9) emarks)	I) d Soils (Co	Second	ary Indicators (minimum of two requirent face Soil Cracks (B6) sinage Patterns (B10) reseason Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)
Restrictive Layer (if observed Type:	ors: of one is regarded in the second of the	/ (B7) ce (B8) No _>	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Leav auna (B13 atic Plants Sulfide Oo Rhizosphe of Reduce on Reducti a Surface (Well Data plain in Re ches): ches): ches):	(B14) (B14) dor (C1) eres on Liv ed Iron (C4) on in Tiller (C7) (D9) emarks)	t) d Soils (Co	Second Sur Dra Cra (C3) Sar Stu Ge X FA	ary Indicators (minimum of two requireface Soil Cracks (B6) ainage Patterns (B10) Y-Season Water Table (C2) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9) anted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
Restrictive Layer (if observed Type:	ors: of one is received and of the second se	/ (B7) ce (B8) No _> No _>	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or Other (Exp C Depth (in C Depth (in	ined Leav auna (B13 atic Plants Sulfide Oc Rhizosphe of Reduce on Reducti a Surface (Well Data plain in Re ches): ches): ches): ches):	(B14) (B14) dor (C1) eres on Liv ed Iron (C4 on in Tiller (C7) (D9) emarks)	d Soils (Co	Second Sui Dra Dry Cra (C3) Sai Stu Ge X FA	ary Indicators (minimum of two requirent face Soil Cracks (B6) sinage Patterns (B10) reseason Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)

Inundation depth (typical year): 0-2 feet; hydrology indicators not as prominent

Project/Site: Riverpointe Public Infrastructure Project	(City/County	St. Charle	es, St. Charles County Sampling Date: 5/21/2020
· -	<u> </u>			State: MO Sampling Point: EE
				nge: Section 08, Township 46 N, Range 5 E
Landform (hillslope, terrace, etc.): slight hillsope				
Slope (%): 2 Lat: 38.749325				
Soil Map Unit Name: 66126: Haynie-Treloar-Blake complex		_		
Are climatic / hydrologic conditions on the site typical for this				
Are Vegetation, Soil, or Hydrologys	-			
Are Vegetation, Soil, or Hydrology r	naturally prol	blematic?	(If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point le	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X N Hydric Soil Present? Yes X N	lo		e Sampled in a Wetlar	
Wetland Hydrology Present? Yes X N Remarks:				
VEGETATION – Use scientific names of plants.		Dominant	Indicator	Dominance Test weeksheets
Tree Stratum (Plot size:30' radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet: Number of Dominant Species
1. Acer negundo	20	Υ	FAC	That Are OBL, FACW, or FAC:5 (A)
2. Morus rubra	20	Y	FACU	Total Number of Dominant
3. Acer saccharinum	10	Y	FACW	Species Across All Strata: 7 (B)
4				Percent of Dominant Species
<u> </u>		= Total Cov	er	That Are OBL, FACW, or FAC: 71.43 (A/B)
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet:
1. Morus rubra				Total % Cover of: Multiply by:
2				OBL species x 1 = 0
3				FACW species 20 x 2 = 40
4				FAC species 24 x 3 = 72 FACU species 30 x 4 = 120
5				UPL species $0 \times 5 = 0$
Herb Stratum (Plot size:5' radius)		= Total Cov	rei	Column Totals: (A) (B)
1	2		FAC	Prevalence Index = B/A = 3.14
3. Alliaria petiolata		Y	FAC	Hydrophytic Vegetation Indicators:
4.				X Dominance Test is >50%
5.				Prevalence Index is ≤3.0 ¹
6.				Morphological Adaptations ¹ (Provide supporting
7				data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation ¹ (Explain)
9				¹ Indicators of hydric soil and wetland hydrology must
10				be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30' radius)	4	= Total Cov	ver .	
1. Vitis riparia	10	Υ	FACW	Hydrophytic
2				Vegetation Present? Yes X No
	10	= Total Cov	er	
Remarks: (Include photo numbers here or on a separate	sheet.)			

Profile Desc	cription: (Describ	e to the der	th neede	d to docur	nent the	indicator	or confirm	the abser	nce of indicator	rs.)	
Depth	Matrix	•			x Feature					,	
(inches)	Color (moist)	%	Color	(moist)	%	_Type ¹	Loc ²	Texture	<u> </u>	Remarks	
0-16	10YR 4/2	95	10`	YR 4/6	5	C	PL	not sand	silt loam		
					-						
									<u> </u>		
	-		-		-	·					
								-			
	oncentration, D=D	epletion, RM	=Reduce	d Matrix, CS	S=Covere	d or Coate	d Sand Gr		Location: PL=F		
Hydric Soil				Conduc	Diamad Ma	ntuin (CA)			ors for Problen	-	oolis :
Histosol	(A1) pipedon (A2)		_		Gleyed Ma Redox (S5				ast Prairie Redo n-Manganese M		
	istic (A3)		_		d Matrix (S	,			ner (Explain in R	, ,	
Hydroge	en Sulfide (A4)		_			neral (F1)			` '	,	
	d Layers (A5)		-		Gleyed Ma						
	uck (A10)	(044)	_		d Matrix (
	d Below Dark Surfa ark Surface (A12)	ace (ATT)	-		Dark Surfa d Dark Si	ace (F6) ırface (F7)	1	3Indica	tors of hydrophy	rtic vegetation	and
	/ucky Mineral (S1))	_		Depressio				land hydrology i	-	
	ucky Peat or Peat		_			, ,			ess disturbed or		
Restrictive	Layer (if observe	d):									
Type:											
Depth (in	ches):							Hydric S	Soil Present?	Yes X	No
HYDROLO											
_	drology Indicator										
-	cators (minimum o	f one is requ	ired; chec						ndary Indicators		two required
	Water (A1)			Water-Sta		. ,			Surface Soil Cra	, ,	
_	ater Table (A2)			Aquatic Fa					Orainage Patterr		
Saturati X Water N	larks (B1)			True Aqua Hydrogen		. ,			Ory-Season Wat Crayfish Burrow		
	nt Deposits (B2)			Oxidized F			ina Roots (Saturation Visibl	` ,	agery (C9)
	posits (B3)			Presence			_		Stunted or Stres		
	at or Crust (B4)			Recent Iro		`	,	· · · · · · · · · · · · · · · · · · ·	Geomorphic Pos	•	,
Iron De	posits (B5)			Thin Muck	Surface	(C7)		F	FAC-Neutral Tes	st (D5)	
Inundati	on Visible on Aeria	al Imagery (B	37)	Gauge or	Well Data	(D9)					
Sparsel	y Vegetated Conca	ave Surface ((B8)	Other (Exp	olain in Re	emarks)					
Field Obser	vations:										
Surface Wat	er Present?	Yes									
Water Table		Yes									
Saturation P	resent? pillary fringe)	Yes	No X	_ Depth (in	ches):		Wetla	and Hydrol	logy Present?	Yes X	No
	corded Data (strea	am gauge, m	onitoring	well, aerial	photos, pr	evious ins	pections),	if available:	<u> </u>		
	•	-	3		•						
Remarks:											

Inundation depth (typical year): 0-2 feet; hydrology indicators not as prominent

Project/Site: Riverpointe Public Infrastructure Project	(City/Count	y: St. Charle	s, St. Charles County	_ Sampling Dat	e: <u>5/21/20</u>	20
•				State: MO			
Investigator(s): AMZ, ELH							
Landform (hillslope, terrace, etc.): stream bank, depression							
Slope (%): 1 Lat: 38.752484				,			
Soil Map Unit Name: 66126: Haynie-Treloar-Blake comple		-					
Are climatic / hydrologic conditions on the site typical for the						00	
Are Vegetation, Soil, or Hydrology	-					<u>×</u> No	o
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?	(If ne	eded, explain any answe	ers in Remarks.)	
SUMMARY OF FINDINGS - Attach site map	showing	samplir	ng point lo	ocations, transects	s, important	feature	s, etc.
Hydrophytic Vegetation Present? Yes X	Nο			_			
Hydric Soil Present? Yes			he Sampled		No. V	,	
Wetland Hydrology Present? Yes X	No	Witi	nin a wenan	id? Yes	NO		
Remarks:		•					
Stream adjacent to quarry drains into wide depressio through culverts only during higher flow events.	n with stand	ling water	due to poor	drainage from culvert	s at downstrea	ım end. Flo	ow
VEGETATION – Use scientific names of plants	S.						
Tree Stratum (Plot size: 30' radius)			t Indicator	Dominance Test worl	ksheet:		
1. Acer saccharinum			FACW	Number of Dominant S That Are OBL, FACW,		7	(\(\)
2. Populus deltoides		•	FAC	That Ale Obl., I ACVV,	OFFAC.		(A)
3. Salix nigra		Y		Total Number of Domir Species Across All Stra		9	(B)
4							(D)
5				Percent of Dominant S That Are OBL, FACW,		77.78	(A/B)
	25	= Total Co	ver				(/
Sapling/Shrub Stratum (Plot size: 15' radius)			NII	Prevalence Index wo		Aire Is a less as	
1			NI ORI	Total % Cover of:		tiply by:	_
2. Salix nigra		Y		OBL species8 FACW species2			_
3				FAC species 1			_
4. 5.				FACU species 6			_
·		= Total Co	ver	·	0 x 5 =	0	_
Herb Stratum (Plot size: 5' radius)				Column Totals: 4		112	(B)
1. Packera glabella		Y	FACW				
2. Acer saccharinum	3	<u>Y</u>	FACW	Prevalence Index			_
3. Ambrosia artemisiifolia			FACU	Hydrophytic Vegetati			
4. Campsis radicans		Y		X Dominance Test isX Prevalence Index			
5				Morphological Ada		ide sunnor	tina
6					s or on a separ		9
7 8				Problematic Hydro	phytic Vegetation	on¹ (Explai	n)
9							
10.				¹ Indicators of hydric so be present, unless dist			nust
		= Total Co	ver	be present, unless dist	urbed of proble	matic.	
Woody Vine Stratum (Plot size: 30' radius)							
1. Vitis riparia		Y	FACW	Hydrophytic Vegetation			
2		= Total Co	ver		es X No		
Remarks: (Include photo numbers here or on a separate	e sheet.)						
a contraction of the contraction of the supplication of the contraction of the contractio	,						

Profile Desc								Sampling Point: FF
	ription: (Describe	to the depth	needed to docu	ment the	indicator	or confirm	the absence	of indicators.)
Depth	Matrix			ox Feature		. 2		
(inches)	Color (moist)	<u></u> %	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 5/3	100					sand	sandy silt with organic material
4-16	10YR 6/3	100					sand	sand/fine gravel
¹Type: C=Co	oncentration, D=Depl	etion, RM=R	leduced Matrix, C	S=Covere	d or Coate	d Sand Gr	ains. ² Lo	cation: PL=Pore Lining, M=Matrix.
Hydric Soil I			·				Indicators	s for Problematic Hydric Soils ³ :
Histosol	` '		Sandy	Gleyed M	atrix (S4)			Prairie Redox (A16)
	pipedon (A2)			Redox (S	*			Manganese Masses (F12)
Black His				d Matrix (Other	(Explain in Remarks)
	n Sulfide (A4) I Layers (A5)			Gleyed M	neral (F1)			
2 cm Mu				ed Matrix (
	Below Dark Surface	e (A11)		Dark Surf				
	ark Surface (A12)		Deplete	ed Dark S	urface (F7)		³ Indicator	s of hydrophytic vegetation and
-	lucky Mineral (S1)		Redox	Depression	ns (F8)			nd hydrology must be present,
	cky Peat or Peat (S3						unles	s disturbed or problematic.
	ayer (if observed):							
Type:			<u> </u>					
• • • • • • • • • • • • • • • • • • • •	- I \ .						Hydric Soi	I Present? Yes No X
• • • • • • • • • • • • • • • • • • • •	ches):							
• • • • • • • • • • • • • • • • • • • •	cnes):							
Depth (inc	gravel deposits like	ely from ups	stream developed	d areas. P	otentially	problema	tic	
Depth (inc	gravel deposits like	ely from ups	etream developed	d areas. P	otentially	problema	tic	
Depth (inc Remarks: Heavy sand/	gravel deposits like	ely from ups	tream developed	d areas. P	otentially	problema	tic	
Depth (inc Remarks: Heavy sand/ HYDROLO Wetland Hyd	gravel deposits like				otentially	problema		ary Indicators (minimum of two required)
Depth (inc Remarks: Heavy sand/ HYDROLO Wetland Hyd	gravel deposits like GY drology Indicators: eators (minimum of o			pply)		problema	<u>Second</u>	face Soil Cracks (B6)
Depth (inc Remarks: Heavy sand/ HYDROLO Wetland Hyd Primary Indic X Surface X High Wa	GY drology Indicators: eators (minimum of or		d; check all that a <u>X</u> Water-Sta Aquatic F	pply) ained Leav auna (B13	ves (B9)	problema	Second Su X Dra	face Soil Cracks (B6) ainage Patterns (B10)
Depth (incorporation) Remarks: Heavy sand/ HYDROLO Wetland Hyd Primary Indic X Surface X High Wa X Saturation	GY drology Indicators: eators (minimum of or Water (A1) ter Table (A2) on (A3)		d; check all that a X Water-Sta Aquatic F True Aqua	pply) ained Leav auna (B13 atic Plants	/es (B9) 3) 6 (B14)	problema	Second Su Dra Dry	rface Soil Cracks (B6) ninage Patterns (B10) r-Season Water Table (C2)
Depth (incorporate in the content of	GY drology Indicators: eators (minimum of or Water (A1) ter Table (A2) on (A3) arks (B1)		d; check all that a X Water-Sta Aquatic F True Aqua Hydrogen	pply) ained Leav auna (B13 atic Plants Sulfide C	/es (B9) 3) 5 (B14) dor (C1)		Second Su Su Dry Cre	rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8)
Depth (incorporation) Remarks: Heavy sand/ HYDROLO Wetland Hyo Primary Indicorporation X Surface X High Wa X Saturation X Water M Sedimen	GY drology Indicators: eators (minimum of or Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2)		d; check all that a X Water-Sta Aquatic F True Aqua Hydrogen Oxidized	pply) ained Leav auna (B13 atic Plants Sulfide C Rhizosphe	ves (B9) B) G (B14) Pdor (C1) eres on Livi	ng Roots (Second Sul Dry Cra Cra	rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8) curation Visible on Aerial Imagery (C9)
Depth (incomplete in the complete in the compl	GY drology Indicators: eators (minimum of or Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3)		d; check all that a X Water-Sta — Aquatic F — True Aqua — Hydrogen — Oxidized — Presence	pply) ained Leav auna (B13 atic Plants Sulfide C Rhizosphe of Reduc	ves (B9) B) G (B14) Podor (C1) Peres on Livi ed Iron (C4)	ng Roots (Second Su Dra Cra Cra CC3) X Sa Stu	rface Soil Cracks (B6) sinage Patterns (B10) r-Season Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1)
Depth (incorporate in the content of	GY drology Indicators: eators (minimum of or Water (A1) ter Table (A2) on (A3) arks (B1) on to Deposits (B2) oosits (B3) of tor Crust (B4)		d; check all that a X Water-Sta Aquatic F True Aquatic Hydrogen Oxidized Presence Recent Ira	pply) ained Leav auna (B13 atic Plants Sulfide C Rhizosphe of Reduc	ves (B9) B) G(B14) Corression Livi ed Iron (C4) Corression in Tilled	ng Roots (Second Su X Dra Dry Cra C3) X Sa Stu X Ge	rface Soil Cracks (B6) hinage Patterns (B10) r-Season Water Table (C2) hyfish Burrows (C8) huration Visible on Aerial Imagery (C9) hinted or Stressed Plants (D1) homorphic Position (D2)
Depth (incorporate in the company of	GY drology Indicators: eators (minimum of or Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3)	ne is require	d; check all that a X Water-Sta Aquatic F True Aqua Hydrogen Oxidized Presence Recent Iru Thin Mucl	pply) ained Leav auna (B13 atic Plants Sulfide C Rhizosphe of Reduct on Reduct k Surface	/es (B9) 3) 5 (B14) dor (C1) eres on Livi ed Iron (C4) ion in Tilleo	ng Roots (Second Su X Dra Dry Cra C3) X Sa Stu X Ge	rface Soil Cracks (B6) sinage Patterns (B10) r-Season Water Table (C2) syfish Burrows (C8) curation Visible on Aerial Imagery (C9) inted or Stressed Plants (D1)

Yes X No Depth (inches): 3

Yes X No Depth (inches): surface

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Inundation depth (typical year): 5-10 feet

(includes capillary fringe)

Remarks:

Water Table Present? Saturation Present?

Wetland Hydrology Present? Yes X No ___

Floristic Quality Assessement Riverpointe Public Infrastructure Project, St. Charles County, Missouri Resource: **Wetland B** Field Assessment: May 20-21, 2020 Practitioner: AMZ, ELH Community Type: forested wetland FQA DB Region: Missouri Ladd, D. and J.R. Thomas. 2015. Ecological Checklist of the Missouri Flora for Floristic Quality Assessment. Phytoneuron 2015-12: 1-274 FQA Publication: **FQA DB Description:** Conservatism-Based Metrics: 57.1 Total Mean C: 2 % C value 1-3: Native Mean C: 2.6 % C value 4-6: 19 Total FQI: 9.2 % C value 7-10: 0 Native FQI: 10.4 Native Tree Mean C: 2.6 Adjusted FQI: 22.7 Native Shrub Mean C: 3 % C value 0: 23.8 Native Herbaceous Mean C: 2.7 **Species Richness:** Species Wetness: **Total Species:** 21 Mean Wetness: -0.6 Native Species: 76.20% Native Mean Wetness: 16 -1.7 Non-native Species: 5 23.80% **Duration Metrics: Physiognomy Metrics:** 10 47.60% Annual: 3 14.30% Tree: 17 Shrub: 2 9.50% Perennial: 81% Vine: 3 14.30% Riennial: 4.80% 1 6 28.60% Native Annual: 2 9.50% Forb: 0 Grass: 0% Native Perennial: 14 66.70% Sedge: 0 0% Native Biennial: 0 0% Rush: 0 0% Fern: 0 0% Bryophyte: O 0% Species: Scientific Name **Family** Native? W **Duration** Common Name **Acronym** C **Physiognomy** Acer negundo Sapindaceae ACENEG native 1 0 tree perennial box elder 2 -3 Acer saccharinum Sapindaceae **ACESIL** silver maple native tree perennial Alliaria petiolata Brassicaceae ALLPET non-native 0 3 forb biennial garlic mustard Campsis radicans Bignoniaceae **CAMRAD** native 3 0 vine perennial trumpet creeper hackberry Celtis occidentalis Ulmaceae CELOCC 3 native 3 tree perennial Cephalanthus occidentalis Rubiaceae CEPOCC native 3 -5 shrub perennial buttonbush Fraxinus pennsylvanica var. **FRAPES** subintegerrima Oleaceae native 2 -3 tree perennial green ash Hibiscus laevis Malvaceae HIBLAE native 4 -5 forb perennial halberd-leaved rose mallow 0 Humulus japonicus Cannabaceae **HUMJAP** non-native 3 forb annual japanese hop IMPCAP 3 -3 Impatiens capensis Balsaminaceae forb orange jewelweed native annual Caprifoliaceae Lonicera maackii LONMAA non-native 0 5 shrub perennial amur honeysuckle Morus alba Moraceae **MORALB** non-native 0 3 tree perennial white mulberry Morus rubra Moraceae MORRUB 4 3 red mulberry native tree perennial Packera glabella Asteraceae **PACGLA** native 1 -3 forb annual butterweed 3 -3 Platanus occidentalis Platanaceae **PLAOCC** native tree perennial svcamore 2 0 Populus deltoides **POPDEL** native cottonwood Salicaceae tree perennial Salix nigra Salicaceae SALNIG native 2 -5 tree black willow perennial Toxicodendron radicans TOXRAD Anacardiaceae native 1 0 vine perennial poison ivy Ulmus americana Ulmaceae ULMAME native 4 0 tree american elm perennial Urtica dioica subsp. dioica Urticaceae URTDID non-native 0 0 forb perennial european nettle VITRIP Vitis riparia Vitaceae native 4 -3 vine perennial riverbank grape



Wetland and Other Waters of the United States Delineation Report

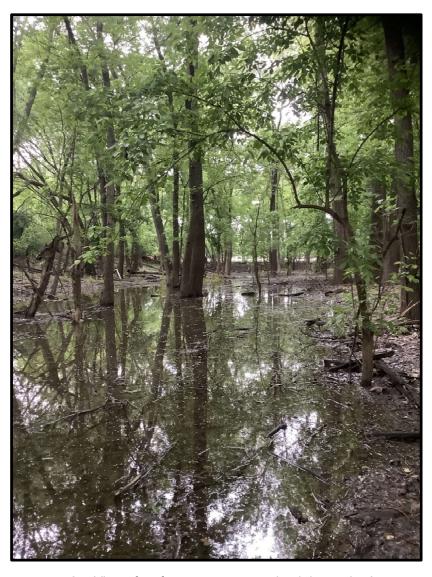
APPENDIX C: PHOTOGRAPHS







1. Overall view at wetland data point A.



2. View of surface water near wetland data point A.





3. Overall view at upland data point B.



4. Overall view at wetland data point C, a transitional area between wetlands and uplands.



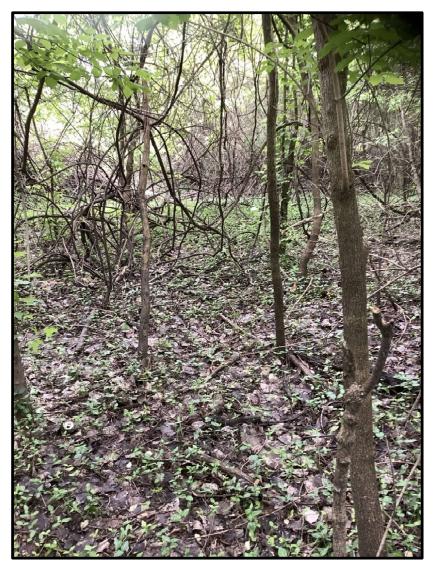


5. Overall view at wetland data point D, adjacent to Crystal Springs Creek.



6. Overall view at upland data point E.





7. Overall view at wetland data point F.



8. Overall view at upland data point G.





9. Overall view at wetland data point H.



10. View at upland data point I.





11. Overall view at wetland data point J, a transitional area between wetlands and uplands.

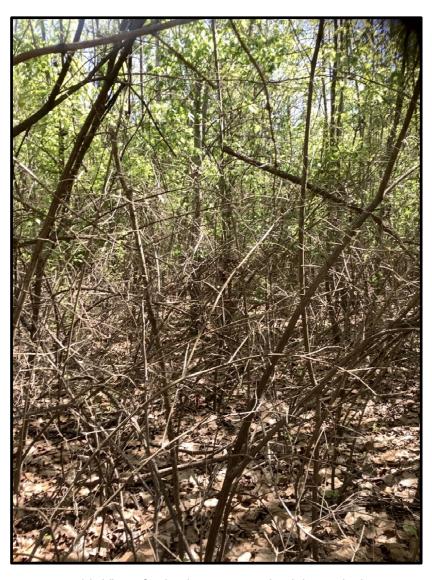


12. Overall view at wetland data point K, adjacent to Stream 2.





13. Overall view at upland data point L.



14. View of upland area near upland data point L.





15. Overall view at upland data point M.

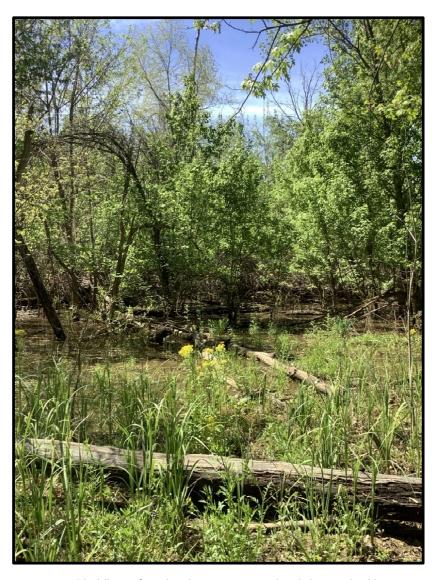


16. Overall view at wetland data point N.





17. View of soil cracks near wetland data point N.



18. View of wetland area near wetland data point N.





19. Overall view at upland data point O.



20. Overall view at wetland data point P.





21. Overall view at upland data point Q.



22. Overall view at wetland data point R.





23. Overall view at wetland data point S, a transitional area between wetlands and uplands.



24. Overall view at wetland data point T.



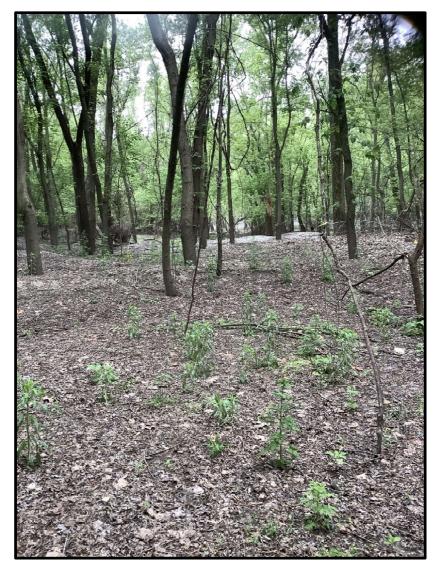


25. Overall view of surface water between wetland data points T and U.



26. Overall view and visible water marks at wetland data point U.





27. Overall view at upland data point V.



28. Overall view at upland data point W.





29. Overall view at wetland data point X.



30. Overall view at wetland data point Y, a transitional area between wetlands and uplands.





31. Overall view at wetland data point AA.



32. Overall view at wetland data point BB.





33. Overall view at wetland data point CC.



34. Overall view at wetland data point DD.





35. Overall view at wetland data point EE, a transitional area between wetlands and uplands.



36. Overall view at upland data point FF.





37. View of Crystal Springs Creek looking downstream.



38. View of Crystal Springs Creek looking downstream.



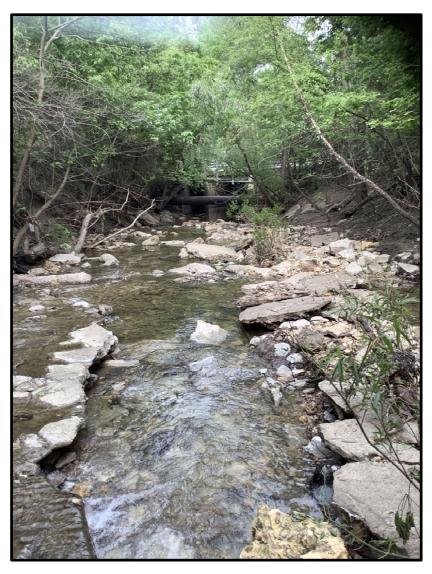


39. View of Crystal Springs Creek looking upstream.



40. View of Crystal Springs Creek looking downstream towards confluence with Stream 2.





41. View of Crystal Springs Creek looking downstream towards culvert under Old South River Rd.



42. View of Stream 2 looking upstream.





43. View of Stream 2 looking downstream.



44. View of Stream 2 looking upstream.





45. View of Stream 2 looking downstream.



46. View of Stream 2 looking downstream.





47. View of Stream 2 looking downstream.



48. View of Stream 2 looking downstream.





49. View of Stream 2 looking downstream.



50. View of Stream 2 looking upstream towards culvert outlet under South River Road.





51. View of Stream 3 at confluence with Crystal Springs Creek.



52. View of Stream 3 looking downstream towards confluence with Crystal Springs Creek.





53. View of Stream 3 looking downstream towards culvert under access road.



54. View of Stream 3 looking downstream.





55. View of Stream 3 looking upstream towards culvert outlet under the Katy Trail.



56. View of Stream 4 looking upstream towards outlet into standing water.





57. View of Stream 4 looking upstream.



58. View of Stream 4 looking upstream.





59. View of Stream 4 looking upstream.



60. View of Stream 4 looking upstream towards silted-in culvert outlet.





61. View of Pond 1 looking south from northwestern shore.



62. View of culvert and drainage swale looking north at the northern shore of Pond 1.





63. View of Pond 1 looking north from southern shore.



64. View of Pond 1 looking southwest from eastern shore.





65. View of pipe connection from Pond 1 to Pond 2.



66. View of Pond 2 looking northeast from western shore.





67. View of Pond 2 looking south from northern shore.



68. View of Pond 2 looking southeast from northern shore.





69. View of Pond 2 looking north from southern shore.



70. View of culvert outlet under the Katy Trail at the southern shore of Pond 2.



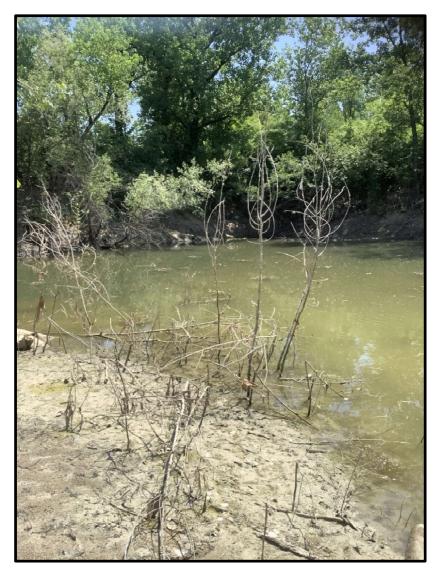


71. View of culvert outlet from Pond 2 and unnamed tributary (outside study area) to the Missouri River.



72. View of Pond 3 looking northeast from western shore.





73. View of Pond 3 looking southeast from northern shore.



74. View of Pond 3 looking north from southern shore.





75. View of Pond 4 looking southwest.



76. View of Pond 4 looking southeast.





77. View of Pond 4 looking east.



78. View of culvert inlet from Pond 4 under the Katy Trail.





79. View of culvert outlet from Pond 4 under the Katy Trail.



80. View of second culvert outlet from Pond 4 under the Katy Trail.





81. View of drainage from Pond 4 in undefined channel/swale within the larger forested wetland area.

Wetland and Other Waters of the United States Delineation Report

APPENDIX D: INITIAL WETLAND/HABITAT SUMMARY (2016)



Initial Field Wetland/Habitat Summery for Bangert Island:

On February 25-26, 2016 USACE biologists performed an initial wetlands field review at Bangert Island and located two separate potential wetlands that had all three wetland characteristics (soil, hydrology, & plants). Roughly 3% of the approximately 195 acres could be wetland. (About 5-7 acres along the ditch that flows along the northern boundary & roughly 1.0 acres within the interior.) Additional observations include, multiple marked bike/running trails that spider web the sites interior and they seem to have frequent use. Also, much of the habitat within the interior seems to have excellent Indiana &/or northern long-eared bat habitat. Old growth cottonwood & black willow as well as large silver maples are scatted throughout. Large standing dead trees (snags) are also prevalent with most having loose bark intact. Overall the tree canopy is fairly dense, 60-90% closer. With the size, species, and amount of shaggy bark living and dead standing trees, it is likely that a majority of the property is habitat that would be conducive to Indiana &/or northern long-eared bats. See GPS photos DSCN1049-1090 for wetland photos.

Other Observations:

Approximately half or more of the properties interior is large, mature sized trees. Living black willows and snags range between 15-20 inches in diameter. Living cottonwoods and snags range from 15-36 inches in diameter. There are patches of natural succession where large trees have fallen from flooding or wind actions resulting in open areas with many standing snags and a few 3-10 inch diameter trees have starting growing. Other areas with dense canopies and large mature trees have little to no mid or understory vegetation. See GPS photos DSCN1091-1145 for habitat photos.

Fish and wildlife observations include small fish or minnows, evidence of crayfish borrows, beaver and/or muskrat signs within the flowing ditch along the north boundary. Other beaver signs can also be seen along the banks of the Missouri River. Plentiful whitetail deer signs and game trail were seen throughout and well as active small mammal signs; likely raccoon, opossum, squirrel, and groundhogs/woodchuck. Many various song birds were also observed.

Besides the network of labeled running and biking trails for recreation, numerous portable hunting stands were observed as well. Most of these hunting stands seem to fairly new and likely from the previous winters hunting seasons.



Reset Form	Print Form

Project/Site: Bangert Island			City/County	; St. Charl	les Sampling Date: 25 Feb 2016		
					State: MO Sampling Point: 1-A		
			Section, Township, Range:				
_ ,, _					(concave, convex, none): concave		
•					Datum:		
					NWI or WWI classification: PFOE		
Are climatic / hydrologic conditions on the							
Are Vegetation, Soil, or	-				"Normal Circumstances" present? Yes X No		
Are Vegetation, Soil, or					eeded, explain any answers in Remarks.)		
					ocations, transects, important features, etc.		
Hydrophytic Vegetation Present?	Yes X	No	1- 41-	- 0	1 0		
Hydric Soil Present?	Yes X			e Sampled in a Wetlar			
Wetland Hydrology Present?	Yes X	No	W/(II)	iii a ttetiai	101 103 NO		
Remarks:							
Historic Channel Scar/Drainage							
VEGETATION – Use scientific r	names o f plan	its.					
Tree Charles (District	\		Dominant Species?		Dominance Test worksheet:		
Tree Stratum (Plot size:			Species?		Number of Dominant Species That Are OBL, FACW, or FAC:6 (A)		
		_	Y				
3. Platanus occidentalis				FACW	Total Number of Dominant Species Across All Strata:7 (B)		
4.							
5					Percent of Dominant Species That Are OBL, FACW, or FAC: 85.71 (A/B)		
		9	= Total Cov	er er			
Sapling/Shrub Stratum (Plot size:				510	Prevalence Index worksheet:		
1. Acer negundo							
2. <u>Salix nigra</u>			Y		FACW species 2 x 2 = 4		
3					FAC species 22 x 3 = 66		
5					FACU species5 x 4 =20		
J			= Total Cov		UPL species0 x 5 =0		
Herb Stratum (Plot size:)				Column Totals: 39 (A) 100 (B)		
1. carex		5	<u> </u>	FAC	5 1 1 50 550		
2					Prevalence Index = B/A =2.56		
3					Hydrophytic Vegetation Indicators: X Dominance Test is >50%		
4					X Prevalence Index is ≤3.0¹		
5					Morphological Adaptations¹ (Provide supporting		
6					data in Remarks or on a separate sheet)		
7 8					Problematic Hydrophytic Vegetation¹ (Explain)		
9							
10					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
			= Total Cov	er	Do processing almost distances of problemation.		
Woody Vine Stratum (Plot size:)						
1. Vitis aestivalis			Y	FACU	Hydrophytic Vegetation		
2					Present? Yes X No		
}		5	= Total Cov	er			
Remarks: (Include photo numbers he	re or on a separa	te sheet.)					
GPS Photo 1049-1053							
3F3 F110(0 1045*1033							

Sampling Point: 1-A

(inches)	Color (moist)	%	<u>Co</u> ld	or (moist)	%	Type ³	Loc ²	Texture	Remarks	
0-6	10YR3/1							SiCI		
	10YR3/2	10								
. =	10YR2/2									
				0)/D0/0				0:01	Occasio Metarial	
6-18	10YR3/1			0YR3/6	25	<u>D</u>	<u> </u>	SiCI	Organic Material	
	-		1	0YR5/6	5					
	·									
•	oncentration, D=D	epletion, RN	/i=Reduc	ed Matrix, CS	=Covered	or Coate	d Sand Gra		cation: PL=Pore Lining, M=Matrix.	
	Indicators:								for Problematic Hydric Soils ³ :	
_ Histoso	• •	,			ileyed Mat				Prairie Redox (A16)	
-	pipedon (A2) istic (A3)			•	edox (S5) Matrix (S				anganese Masses (F12) (Explain in Remarks)	
	en Sulfide (A4)				lucky Min	•		Ouler ((Схранти Кешаку)	
	d Layers (A5)				Sleyed Ma					
	uck (A10)				l Matrix (F					
_	d Below Dark Surf	ace (A11)		X Redox D	,	,				
-	ark Surface (A12)	, ,		Depleted	l Dark Sur	face (F7)		³ Indicators of hydrophytic vegetation and		
_ Sandy I	Mucky Mineral (S1))		Redox D	epression	ıs (F8)		wetland hydrology must be present,		
	ucky Peat or Peat	•						unless disturbed or problematic.		
	Layer (if observe	d):								
Type:										
								l Hardwin Chil	Droponto Von V No	
Depth (in emarks:	ches):							Hydric Soil	Present? Yes <u>X</u> No	
emarks:								nydric Soli	Plesent res No	
emarks:								nydric Soli	Plesent res No	
emarks: DROLO etland Hy	GY	5:	ired; che	ck all that app	oly)				ary Indicators (minimum of two require	
DROLO etland Hy imary Indi _ Surface	IGY drology Indicator cators (minimum o Water (A1)	5:		ck all that app _ Water-Stair		es (B9)		Seconda <u>X</u> Surf	nry Indicators (minimum of two require ace Soil Cracks (B6)	
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Project/Site: Bangert Island		City/County: St. Cha	arles Sampling Date: <u>25 Feb 2016</u>			
Applicant/Owner: USACE KCD			State: MO Sampling Point: 1-B			
		Section, Township, Range:				
Landform (hillslope, terrace, etc.): Floodplain						
·			V Datum:			
			NWI or WWI classification:			
Are climatic / hydrologic conditions on the site typic						
			e "Normal Circumstances" present? YesX No			
Are Vegetation, Soil, or Hydrology _			needed, explain any answers in Remarks.)			
			locations, transects, important features, etc.			
Hydrophytic Vegetation Present? Yes	X No	Is the Sample	and Area			
Hydric Soil Present? Yes	No <u>x</u>	within a Wet				
	K No	W				
Remarks:						
Edge of a historic channel scar/drainage						
VEGETATION - Use scientific names of	plants.					
Tree Stratum (Plot size:)		Dominant Indicator Species? Status				
1. Acer saccharinum		Y FACW	- Number of Dominant Species That Are OBL, FACW, or FAC:7(A)			
2. Morus alba		Y FAC				
3. Platanus occidentalis		Y FACW	Total Number of Dominant Species Across All Strata:7 (B)			
4. Populus deltoids			` `			
5			Percent of Dominant Species That Are OBL, FACW, or FAC:100 (A/B)			
		_ = Total Cover				
Sapling/Shrub Stratum (Plot size:	·	V 081	Prevalence Index worksheet:			
1. Salix nigra						
2. Acer negundo			FACW species 30 x 2 = 60			
3			FAC species x 3 = 150			
5			FACU species 0 x 4 = 0			
		_ = Total Cover	UPL species0 x 5 =0			
Herb Stratum (Plot size:)			Column Totals: <u>85</u> (A) <u>215</u> (B)			
1. polgonum		Y FAC	- Decoration as Indian in B(A in 2.52			
2. cares		Y FAC	Prevalence Index = B/A = 2.53 Hydrophytic Vegetation Indicators:			
3			X Dominance Test is >50%			
4			Prevalence Index is ≤3.0¹			
5			Morphological Adaptations¹ (Provide supporting			
6			data in Remarks or on a separate sheet)			
8			Problematic Hydrophytic Vegetation ¹ (Explain)			
9.			⁻ _			
10			Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
	30	_ = Total Cover	25 process, among distance of problemation			
Woody Vine Stratum (Plot size:	_ <i>,</i>		l linda and all a			
1			Hydrophytic Vegetation			
2			Present? Yes X No			
		_ = Total Cover				
Remarks: (Include photo numbers here or on a se	parate sheet.)					
GPS Photo 1049-1053						

Depth Matrix Redox Features (inches) Color (moist) % Color (moist) % Type Loc² Texture Remarks 0-10 10YR3/2 90 SiCl 10-18 10YR4/2 90 SiCl Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators: Histosol (A1)
10-10 10YR3/2 90 SiCl 10-18 10YR4/2 90 SiCl Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Location: PL=Pore Lining, M=Matrix lydric Soil Indicators:
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Tydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Hydrogen Sulfide (A4) Stratified Layers (A5) Loamy Mucky Mineral (F1) Stratified Layers (A5) Depleted Matrix (F2) 2 cm Muck (A10) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Dark Surface (F7) Sandy Mucky Mineral (S1) Redox Depressions (F8) wetland hydrology must be present, unless disturbed or problematic.
Fype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. PL=Pore Lining, M=Matrix Indicators for Problematic Hydric Soils³: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stripped Matrix (S6) Loamy Mucky Mineral (F1) Stratified Layers (A5) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Thick Dark Surface (A12) Sandy Mucky Peat or Peat (S3) PL=Pore Lining, M=Matrix Coast Prairie Redox (A16) Loamy Gleyed Matrix (S4) Loanty Redox (S5) Iron-Manganese Masses (F12) Other (Explain in Remarks) Other (Explain in Remarks) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
ydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Coast Prairie Redox (A16) Histic Epipedon (A2) Sandy Redox (S5) Histosol (A3) Stripped Matrix (S6) Hydrogen Sulfide (A4) Stratified Layers (A5) Loamy Mucky Mineral (F1) Stratified Layers (A5) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Wetland hydrology must be present, unless disturbed or problematic.
Adric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stripped Matrix (S6) Loamy Mucky Mineral (F1) Stratified Layers (A5) Community (F2) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Gleyed Matrix (S6) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Mucky Peat or Problematic Hydric Soils³: Indicators for Problematic Hydric Soils³: Iron-Manganese Masses (F12) Other (Explain in Remarks) Other (Explain in Remarks) Surface (Explain in Remarks) Indicators of the (Explain in Remarks) Indicators of Problematic the (Explai
ydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Coast Prairie Redox (A16) Histic Epipedon (A2) Sandy Redox (S5) Histosol (A3) Stripped Matrix (S6) Hydrogen Sulfide (A4) Stratified Layers (A5) Loamy Mucky Mineral (F1) Stratified Layers (A5) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Wetland hydrology must be present, unless disturbed or problematic.
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Adric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Indicators for Problematic Hydric Soils³: Coast Prairie Redox (A16) Iron-Manganese Masses (F12) Other (Explain in Remarks) Other (Explain in Remarks) Other (Explain in Remarks) Depleted Matrix (F2) Depleted Matrix (F3) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) wetland hydrology must be present, unless disturbed or problematic.
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Hydrogen Sulfide (A4) Stratified Layers (A5) Loamy Mucky Mineral (F1) Loamy Gleyed Matrix (F2) 2 cm Muck (A10) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sem Mucky Peat or Peat (S3) Loamy Mucky Mineral (F1) Loamy Mucky Mineral (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Wetland hydrology must be present, unless disturbed or problematic.
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2 cm Muck (A10)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Som Mucky Peat or Peat (S3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Wetland hydrology must be present, unless disturbed or problematic.
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Sandy Mucky Mineral (S1) Redox Depressions (F8) wetland hydrology must be present, unless disturbed or problematic.
estrictive Layer (if observed):
Type:
Depth (inches): No
emarks:
DROLOGY
etland Hydrology Indicators:
etland Hydrology Indicators: imary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required)
/etland Hydrology Indicators: Secondary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) _ Surface Water (A1) _ Water-Stained Leaves (B9) _ X Surface Soil Cracks (B6)
etland Hydrology Indicators: imary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required: check all that apply) Surface Water (A1) High Water Table (A2) Aquatic Fauna (B13) Secondary Indicators (minimum of two required: check all that apply) X Surface Soil Cracks (B6) Drainage Patterns (B10)
etland Hydrology Indicators: imary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Surface Water (A1) High Water Table (A2) Aquatic Fauna (B13) Saturation (A3) True Aquatic Plants (B14) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Mater Stating (B9) Mater Stating (B10) Drainage Patterns (B10) Dry-Season Water Table (C2)
etland Hydrology Indicators: imary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) X Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)
etland Hydrology Indicators: imary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) True Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) Secondary Indicators (minimum of two required; check all that apply) True Aquatic Fauna (B13) Drainage Patterns (B10) Crayfish Burrows (C8)
etland Hydrology Indicators: imary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Secondary Indicators (minimum of two required; check all that apply) Mater Table (A2) Aquatic Fauna (B13) True Aquatic Flants (B14) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) Drift Deposits (B3) Secondary Indicators (minimum of two required; check all that apply) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Ca) True Aquatic Plants (B14) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Ca) Stunted or Stressed Plants (D1)
Secondary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Secondary Indicators (minimum of two required; check all that apply) Water Marks (B2) Secondary Indicators (minimum of two required; check all that apply) Mater Fatined Leaves (B9) Aquatic Fauna (B13) True Aquatic Flants (B14) Dry-Season Water Table (C2) Water Marks (B1) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Surface Soil Cracks (B6) Drainage Patterns (B10) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Candidate) Stunted or Stressed Plants (D1) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2)
timary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Imary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Drainage Patterns (B10) Drainage Patterns (B10) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Candidated Iron (C4)) Sediment Deposits (B3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5)
etland Hydrology Indicators: imary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Imagery (B7) Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) X Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C4) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
Secondary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) True Aquatic Flants (B14) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) From Deposits (B5) Sparsely Vegetated Concave Surface (B8) Water Stained Leaves (B9) Water-Stained Leaves (B9) Aquatic Fauna (B13) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sediment Deposits (B2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C4) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)
etland Hydrology Indicators: imary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) True Aquatic Plants (B14) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Separsely Vegetated Concave Surface (B8) Secondary Indicators (minimum of two required; check all that apply) Mater Apply Secondary Indicators (minimum of two required; check all that apply) Mater Apply A Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C4) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)
timary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Separater Vater (A1) Recent Iron Reduction in Remarks) Eld Observations: Journal of two required; check all that apply) Secondary Indicators (minimum of two required; check all that apply) X Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) X Saturation Visible on Aerial Imagery (C2) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)
Secondary Indicators (minimum of one is required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Separsely Vegetated Concave Surface (B8) Water Stained Leaves (B9) Water Aguatic Plants (B13) Aquatic Plants (B14) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Sediment Imagery (C4) Recent Iron Reduction in Tilled Soils (C6) Iron Deposits (B5) Thin Muck Surface (C7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)

Reset Form	Print Form
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Project/Site: Bangert Island			City/County	St. Charl	les Sampling Date: 25 Feb 2016			
•			State: MO Sampling Point: 2-A					
——————————————————————————————————————			Section, Township, Range:					
Landform (hillslope, terrace, etc.): Flood	plain		(_ocal relief	(concave, convex, none): _concave			
•					Datum:			
Soil Map Unit Name:								
Are climatic / hydrologic conditions on the								
Are Vegetation, Soil, or H					"Normal Circumstances" present? Yesx No			
Are Vegetation, Soil, or H					eeded, explain any answers in Remarks.)			
				g point l	ocations, transects, important features, etc.			
Hydrophytic Vegetation Present?	Yes X		ls th	e Sampleo	d Area			
Hydric Soil Present?	Yes		with	in a Wetlai	nd? Yes <u>X</u> No			
Wetland Hydrology Present?	Yes X	No						
Remarks:								
Historic Channel Scar/Drainage								
VEGETATION – Use scientific na	ames of plant	s.						
			Dominant		Dominance Test worksheet:			
Tree Stratum (Plot size:			Species?		Number of Dominant Species That Are OBL, FACW, or FAC:3(A)			
					mat Are OBL, FACW, OF FAC.			
2					Total Number of Dominant Species Across All Strata:3 (B)			
4					(,,			
5					Percent of Dominant Species That Are OBL, FACW, or FAC:100 (A/B)			
		5	= Total Cov	er				
Sapling/Shrub Stratum (Plot size:			V	540	Prevalence Index worksheet: Total % Cover of: Multiply by:			
1. Acer negundo					OBL species x1 =0			
2					FACW species 5 x 2 = 10			
3 4					FAC species 30 x 3 = 90			
5					FACU species0 x 4 =0			
			= Total Cov	er	UPL species0 x 5 =0			
Herb Stratum (Plot size:)	_	v	540	Column Totals:35 (A)100 (B)			
1. carex		5		FAC	Prevalence Index = B/A =2.86			
2					Hydrophytic Vegetation Indicators:			
3 4					X Dominance Test is >50%			
5					X Prevalence Index is ≤3.01			
6					Morphological Adaptations ¹ (Provide supporting			
7.					data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)			
8					r-roblematic mydrophytic vegetation (Explain)			
9					¹ Indicators of hydric soil and wetland hydrology must			
10					be present, unless disturbed or problematic.			
Woody Vine Stratum (Plot size:	1	5	= Total Cov	er				
1. (Flot size					Hydrophytic			
2.					Vegetation Present? Yes X No			
			= Total Cov	er	Liepauri iep v ikn			
Remarks: (Include photo numbers here	or on a senarat	e sheet \						
remains. (moduce prioto numbers nere	o, on a separat	o onoct.						
GPS photo 1054-1059								

SOIL	Sampling Point: 2-A
SUIL	Sampling Point: 2:

Depth (inches)	•	•	needed to docur					,		
	<u>Matrix</u> Color (moist)		Redo Color (moist)	x Feature	Type ¹	Loc²	Texture	Remarks		
(inches)		80	10YR4/6	15	RM	Loc	SiCI			
0-6	10YR3/1							e Nigy (
6-10	10YR4/3		10YR5/6	40	RM		SSICI	SANDY		
			10YR4/6	30						
10-18	10YR4/1	90	10YR3/6	15	_RM_		SiCI			
	•									
		- 								
¹Tuno: C=C	oncentration, D=Dep	 Mation DM-E	Poducod Matrix CS	S=Covered		d Sand Gr	raine ² Lo	cation: PL=Pore Lining, M=Matrix.		
Hydric Soil I		secion, ixivi-i	reduced Matrix, Co	3-COVERE	1 OI COALE	u Sanu Ci		s for Problematic Hydric Soils ³ :		
Histosol			Sandy (Sleved Ma	trix (S4)			t Prairie Redox (A16)		
Histic Epipedon (A2)				Redox (S5				Manganese Masses (F12)		
Black His			X Stripped	l Matrix (S	6)		Other (Explain in Remarks)			
Hydroge	n Sulfide (A4)		Loamy I	Mucky Mir	eral (F1)					
X Stratified	l Layers (A5)			Gleyed Ma						
	ick (A10)			d Matrix (f						
	d Below Dark Surfac	e (A11)		Dark Surfa			3			
	ark Surface (A12)			d Dark Su	, .		Indicators of hydrophytic vegetation and			
	flucky Mineral (S1) icky Peat or Peat (S3	21	Redox i	Depression	is (Fo)		wetland hydrology must be present, unless disturbed or problematic.			
	_ayer (if observed):						dillos.	s distarbed of problematic.		
Type:										
· · · · · ·	ches):						Hydric Soi	Present? Yes X No		
Remarks:										
IVDBOI O	GV .							·		
								_		
Wetland Hyd	drology Indicators:		d: check all that an				Second	any Indicators (minimum of two required)		
Wetland Hyd Primary Indic	drology Indicators: cators (minimum of o				oe /BQ)			ary Indicators (minimum of two required)		
Wetland Hyd Primary Indic X Surface	drology Indicators: ators (minimum of o Water (A1)		🗶 Water-Stai	ned Leave			X Sur	face Soil Cracks (B6)		
Wetland Hyd Primary Indic X Surface ¹ High Wa	drology Indicators: ators (minimum of o Water (A1) ter Table (A2)		X Water-StainX Aquatic Fa	ned Leave una (B13)			X Sur	face Soil Cracks (B6) inage Patterns (B10)		
Wetland Hyder Primary Indic X Surface Manual High Wa X Saturation	drology Indicators: cators (minimum of o Water (A1) on (A3)		X Water-StainX Aquatic FaTrue Aqua	ned Leave una (B13) tic Plants	(B14)		X Sur X Dra Dry	face Soil Cracks (B6)		
Primary Indic X Surface High Wa X Saturatio Water M	drology Indicators: cators (minimum of o Water (A1) on (A3) arks (B1)		Water-StaiAquatic FaTrue AquaHydrogen	ned Leave iuna (B13) tic Plants Sulfide Oc	(B14) lor (C1)	ng Roots (X Sur X Dra Dry X Cra	face Soil Cracks (B6) ninage Patterns (B10) r-Season Water Table (C2) nyfish Burrows (C8)		
Wetland Hyd Primary Indic X Surface Well High Wa X Saturation X Water M X Sedimen	drology Indicators: cators (minimum of o Water (A1) her Table (A2) on (A3) arks (B1) ht Deposits (B2)		Water-StaiAquatic FaTrue AquaHydrogen	ned Leave una (B13) tic Plants Sulfide Oc Rhizospher	(B14) lor (C1) res on Livi		X Sur X Dra Dry X Cra (C3) X Sat	face Soil Cracks (B6) inage Patterns (B10) r-Season Water Table (C2)		
Wetland Hyd Primary Indic X Surface Wetland High Wa X Saturation X Water M X Sedimen X Drift Dep	drology Indicators: cators (minimum of o Water (A1) ster Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3)		X Water-Stai X Aquatic Fa True Aqua Hydrogen X Oxidized F	ned Leave una (B13) tic Plants Sulfide Oc Rhizospher of Reduce	(B14) lor (C1) res on Livi d Iron (C4)	X Sur X Dra Dry X Cra (C3) X Sat X Stu	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) nyfish Burrows (C8) uration Visible on Aerial Imagery (C9)		
Wetland Hyd Primary Indic X Surface 1 High Wa X Saturatio X Water M X Sedimen X Drift Dep X Algal Ma	drology Indicators: cators (minimum of o Water (A1) her Table (A2) on (A3) arks (B1) ht Deposits (B2)		X Water-Stai X Aquatic Fa True Aqua Hydrogen X Oxidized F Presence	ned Leave una (B13) tic Plants Sulfide Oc Rhizospher of Reduce n Reductic	(B14) lor (C1) res on Livi d Iron (C4 on in Tilled)	X Sur X Dra Dry X Cra X Sat X Stu X Geo	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) syfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1)		
Wetland Hyd Primary Indic X Surface Y High Wa X Saturatio X Water M X Sedimen X Drift Dep X Algal Ma Iron Dep	drology Indicators: cators (minimum of o Water (A1) ster Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4)	one is require	X Water-Stai X Aquatic Fa True Aqua Hydrogen X Oxidized F Presence of Recent Iro X Thin Muck	ned Leave una (B13) tic Plants Sulfide Oc Rhizospher of Reduce n Reductio Surface (G	(B14) lor (C1) res on Livi d Iron (C4 on in Tilled C7))	X Sur X Dra Dry X Cra X Sat X Stu X Geo	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) oyfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) comorphic Position (D2)		
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Wetland Hyd Primary Indic X Surface V High Wa X Saturatio X Water M X Sedimen X Drift Dep X Algal Ma Iron Dep X Inundatio X Sparsely Field Observ Surface Water Water Table Saturation Pr (includes cap	drology Indicators: cators (minimum of o Water (A1) offer Table (A2) on (A3) arks (B1) offer Deposits (B2) cosits (B3) offer Crust (B4) cosits (B5) on Visible on Aerial I offer Vegetated Concave vations: er Present? Present? Yesent? Yesent? Yesent? Yesent? Yesent?	Imagery (B7) e Surface (B8 fes No	X Water-Stai X Aquatic Fa True Aqua Hydrogen X Oxidized Fa Presence of Recent Iro X Thin Muck Gauge or V Other (Exp Depth (inc	ned Leave una (B13) tic Plants Sulfide Oc Rhizospher of Reduce n Reductic Surface (Well Data plain in Ref ches): ches):	(B14) lor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)) Soils (C6	X Sur X Dra Dry X Cra (C3) X Sat X Stu X Gec FAC	face Soil Cracks (B6) inage Patterns (B10) c-Season Water Table (C2) oyfish Burrows (C8) uration Visible on Aerial Imagery (C9) inted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)		
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Reset Form	Print Form

Project/Site: Bangert Island	с	ity/County:	St. Charl	es Sampling Date: 25 Feb 2016
Applicant/Owner: USACE KCD				State: MO Sampling Point: 2-B
Investigator(s): Chris Name, Rick Morrow	s	Section, Tov	vnship, Ra	nge:
Landform (hillslope, terrace, etc.): Floodplain			ocal relief	(concave, convex, none): _convex
Slope (%): _10 Lat: _38°45'14.72"N	L	ong: 90°3	0'0.50"W	Datum:
Soil Map Unit Name:		_		
Are climatic / hydrologic conditions on the site typical for this time				
Are Vegetation, Soil, or Hydrology signifi				
				eded, explain any answers in Remarks.)
Are Vegetation, Soil, or Hydrology nature SUMMARY OF FINDINGS – Attach site map sho			•	•
Hydrophytic Vegetation Present? Yes X No				
Hydric Soil Present? Yes No			Sampled	
Wetland Hydrology Present? Yes X No		Withi	n a wetiar	nd? Yes <u>X</u> No
Remarks:				
Edge of drainage path				
VEGETATION – Use scientific names of plants.				
		Dominant		Dominance Test worksheet:
		Species? Y	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:5(A)
O Assessment	40		FACW	That Ale OBL, FACW, BI FAC (A)
2. Acer saccharmum 3				Total Number of Dominant Species Across All Strata:5(B)
4				Species Across Air Strata.
5				Percent of Dominant Species That Are OBL, FACW, or FAC:100 (A/B)
		Total Cove	er	That Are OBL, FACEV, OF FAC. (A/B)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:
1. Acer saccharinum	50	<u> </u>	FACW	Total % Cover of: Multiply by:
2				OBL species0 x 1 =0
3				FACW species 100 x 2 = 200
4				FAC species 20 x 3 = 60
5				FACU species0 x 4 =0
Herb Stratum (Plot size:)	50 =	Total Cove	er	UPL species 0 x 5 = 0
1. carex	5	Y	FAC	Column Totals:120 (A)260 (B)
2. polygonum	 15		FAC	Prevalence Index = B/A =2.17
3				Hydrophytic Vegetation Indicators:
4				X Dominance Test is >50%
5				<u>x</u> Prevalence Index is ≤3.0 ¹
6				Morphological Adaptations ¹ (Provide supporting
7				data in Remarks or on a separate sheet)
8.				Problematic Hydrophytic Vegetation ¹ (Explain)
9				1. 5. 6. 1. 7. 1. 1. 1. 1. 1. 1. 1. 1.
10				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	20 =	Total Cove	ег	
Woody Vine Stratum (Plot size:)				Hydrophytic
1				Hydrophytic Vegetation
2		Tetal C-		Present? Yes X No
	<u> </u>	Total Cove	# 	
Remarks: (Include photo numbers here or on a separate sheet)		- 	
GPS photos 1054-1059				

Sampling P	oint: 2-B	

Depth		_	cument the indicator			
<u>(inches)</u> Cole	Matrix or (moist) %		edox Features % Type ¹	Loc² -	Texture	Remarks
	0YR3/2	COIOI (MOIOI)			SiCl	1101101110
					SiCl	. <u></u>
8-18 10	0YR4/2		 		<u> </u>	
						<u> </u>
						
¹ Type: C=Concentra	ation D=Depletion	, RM=Reduced Matrix,	CS=Covered or Coate	ed Sand Grains	. ² Location; P	L=Pore Lining, M=Matrix.
Hydric Soil Indicate				ı		elematic Hydric Soils³:
Histosol (A1)		Sand	ly Gleyed Matrix (S4)	-	Coast Prairie R	edox (A16)
Histic Epipedon	(A2)		ly Redox (S5)	.	Iron-Manganes	
Black Histic (A3)			ped Matrix (S6)	-	Other (Explain i	n Remarks)
Hydrogen Sulfid	•		ny Mucky Mineral (F1)			
Stratified Layers			ny Gleyed Matrix (F2)			
2 cm Muck (A10	r) Dark Surface (A11		eted Matrix (F3) ox Dark Surface (F6)			
Depleted Below Thick Dark Surfa	-	•	eted Dark Surface (F7)	;	3Indicators of hydro	phytic vegetation and
Sandy Mucky Mi	, ,		ox Depressions (F8)	,	•	gy must be present,
5 cm Mucky Pea		_	, , ,			d or problematic.
Restrictive Layer (if	f observed):				•	
Туре:	<u>.</u> .					
Depth (inches): _				H	ydric Soil Present	? Yes No <u>X</u>
	Indicators				······································	
HYDROLOGY Wetland Hydrology Primary Indicators (n		required: check all that	apply)		Secondary Indica	tors (minimum of <u>two required)</u>
Wetland Hydrology Primary Indicators (n	ninimum of one is	required; check all that				
Wetland Hydrology Primary Indicators (n Surface Water (/	nin <u>imum of one is</u> A1)	<u>X</u> Water-S	Stained Leaves (B9)		Surface Soil	Cracks (B6)
Wetland Hydrology Primary Indicators (n	nin <u>imum of one is</u> A1)	<u>x</u> Water-S Aquatic			Surface Soil Drainage Pat	Cracks (B6)
Wetland Hydrology Primary Indicators (n Surface Water (, High Water Tabl	ninimum of one is i A1) le (A2)	Water-SAquaticTrue Ac	Stained Leaves (B9) Fauna (B13)		Surface Soil Drainage Pat	Cracks (B6) terns (B10) Water Table (C2)
Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3)	ninimum of one is i A1) le (A2) 1)	Water-S Aquatic True Ac Hydrogo	Stained Leaves (B9) Fauna (B13) Juatic Plants (B14)	ing Roots (C3)	Surface Soil Drainage Pal Dry-Season \ Crayfish Burr	Cracks (B6) terns (B10) Water Table (C2)
Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3) Water Marks (B	ninimum of one is 1 A1) le (A2) 1) sits (B2)	Water-S Aquatic True Ac Hydrogo Oxidize	Stained Leaves (B9) Fauna (B13) quatic Plants (B14) en Sulfide Odor (C1)		Surface Soil Drainage Pal Dry-Season \ _ Crayfish Burr _ X Saturation Vi _ Stunted or St	Cracks (B6) terns (B10) Water Table (C2) rows (C8) sible on Aerial Imagery (C9) tressed Plants (D1)
Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3) Water Marks (B' Sediment Depos	ninimum of one is A1) le (A2) 1) sits (B2)	Water-SAquaticTrue AcHydrogoOxidizePresence	Stained Leaves (B9) Fauna (B13) guatic Plants (B14) en Sulfide Odor (C1) d Rhizospheres on Liv	4)	Surface Soil Drainage Pal Dry-Season V Crayfish Burr X Saturation Vi Stunted or SI Geomorphic	Cracks (B6) tterns (B10) Water Table (C2) ows (C8) sible on Aerial Imagery (C9) tressed Plants (D1) Position (D2)
Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3) Water Marks (B' Sediment Depos Drift Deposits (B Algal Mat or Cru Iron Deposits (B	ninimum of one is A1) le (A2) 1) sits (B2) (3) st (B4)	 Water-S Aquatic True Ac Hydrog Oxidize Presence Recent Thin Mu 	Stained Leaves (B9) Fauna (B13) quatic Plants (B14) en Sulfide Odor (C1) d Rhizospheres on Liv ce of Reduced Iron (C4 Iron Reduction in Tille uck Surface (C7)	4)	Surface Soil Drainage Pal Dry-Season \ _ Crayfish Burr _ X Saturation Vi _ Stunted or St	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) sible on Aerial Imagery (C9) tressed Plants (D1) Position (D2)
Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3) Water Marks (Bn Sediment Deposits (Bn Algal Mat or Cru Iron Deposits (Bn Inundation Visibi	ninimum of one is A1) le (A2) 1) sits (B2) (3) lst (B4) 5) le on Aerial Image	X Water-S Aquatic Aquatic True Ac Hydrog Oxidize Present Recent Thin Mury (B7) Gauge	Stained Leaves (B9) Fauna (B13) quatic Plants (B14) en Sulfide Odor (C1) d Rhizospheres on Liv ce of Reduced Iron (C4 Iron Reduction in Tille uck Surface (C7) or Well Data (D9)	4)	Surface Soil Drainage Pal Dry-Season V Crayfish Burr X Saturation Vi Stunted or SI Geomorphic	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) sible on Aerial Imagery (C9) tressed Plants (D1) Position (D2)
Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3) Water Marks (B' Sediment Deposits (B Algal Mat or Cru Iron Deposits (B M Inundation Visibl Sparsely Vegeta	ninimum of one is A1) le (A2) 1) sits (B2) (3) sit (B4) 5) le on Aerial Image ated Concave Surfi	X Water-S Aquatic Aquatic True Ac Hydrog Oxidize Present Recent Thin Mury (B7) Gauge	Stained Leaves (B9) Fauna (B13) quatic Plants (B14) en Sulfide Odor (C1) d Rhizospheres on Liv ce of Reduced Iron (C4 Iron Reduction in Tille uck Surface (C7)	4)	Surface Soil Drainage Pal Dry-Season V Crayfish Burr X Saturation Vi Stunted or SI Geomorphic	Cracks (B6) tterns (B10) Water Table (C2) ows (C8) sible on Aerial Imagery (C9) tressed Plants (D1) Position (D2)
Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3) Water Marks (B Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visibl Sparsely Vegeta Field Observations:	ninimum of one is A1) le (A2) 1) sits (B2) lst (B4) 5) le on Aerial Image	X Water-S Aquatic True Ac Hydrogo Oxidize Presence Recent Thin Musery (B7) Gauge Gauge Gauge Other (B8) Other (B7)	Stained Leaves (B9) Fauna (B13) quatic Plants (B14) en Sulfide Odor (C1) d Rhizospheres on Liv ce of Reduced Iron (C4 Iron Reduction in Tille uck Surface (C7) or Well Data (D9) Explain in Remarks)	4) d Soils (C6)	Surface Soil Drainage Pal Dry-Season V Crayfish Burr X Saturation Vi Stunted or SI Geomorphic	Cracks (B6) tterns (B10) Water Table (C2) ows (C8) sible on Aerial Imagery (C9) tressed Plants (D1) Position (D2)
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Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3) Water Marks (B' Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visibl Sparsely Vegeta Field Observations: Surface Water Present Saturation Present?	ninimum of one is A1) le (A2) A1) sits (B2) A3) lst (B4) 5) le on Aerial Image ated Concave Surfa : ent? Yes Yes Yes	X Water-S	Stained Leaves (B9) Fauna (B13) quatic Plants (B14) en Sulfide Odor (C1) d Rhizospheres on Liv ce of Reduced Iron (C4 Iron Reduction in Tille uck Surface (C7) or Well Data (D9) Explain in Remarks) (inches):	4) d Soils (C6)	Surface Soil Drainage Pal Dry-Season \ Crayfish Burr Saturation Vi Stunted or St Geomorphic FAC-Neutral	Cracks (B6) tterns (B10) Water Table (C2) ows (C8) sible on Aerial Imagery (C9) tressed Plants (D1) Position (D2)
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Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3) Water Marks (B Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Name Sparsely Vegeta Field Observations: Surface Water Present Saturation Present? (includes capillary fri	ninimum of one is A1) le (A2) 1) sits (B2) l3) st (B4) 5) le on Aerial Image ated Concave Surfa : ent? Yes Yes nge)	X Water-S Aquatic Aquatic True Ac Hydrogo Oxidize Presence Recent Thin Musery (B7) Gauge Other (B8) Other (B0) Depth No Depth Depth	Stained Leaves (B9) Fauna (B13) quatic Plants (B14) en Sulfide Odor (C1) d Rhizospheres on Liv ce of Reduced Iron (C4 Iron Reduction in Tille uck Surface (C7) or Well Data (D9) Explain in Remarks) (inches): (inches):	4) d Soils (C6)	Surface Soil Drainage Pal Dry-Season Notes and Season Notes are season Notes ar	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) sible on Aerial Imagery (C9) tressed Plants (D1) Position (D2) Test (D5)
Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3) Water Marks (B Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Inundation Visibl Sparsely Vegeta Field Observations: Surface Water Present Saturation Present? (includes capillary fri	ninimum of one is A1) le (A2) 1) sits (B2) l3) st (B4) 5) le on Aerial Image ated Concave Surfa : ent? Yes Yes nge)	X Water-S Aquatic Aquatic True Ac Hydrogo Oxidize Presence Recent Thin Musery (B7) Gauge Other (B8) Other (B0) Depth No Depth Depth	Stained Leaves (B9) Fauna (B13) quatic Plants (B14) en Sulfide Odor (C1) d Rhizospheres on Liv ce of Reduced Iron (C4 Iron Reduction in Tille uck Surface (C7) or Well Data (D9) Explain in Remarks) (inches): (inches):	4) d Soils (C6)	Surface Soil Drainage Pal Dry-Season Notes and Season Notes are season Notes ar	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) sible on Aerial Imagery (C9) tressed Plants (D1) Position (D2) Test (D5)
Wetland Hydrology Primary Indicators (n Surface Water (n High Water Tabl Saturation (A3) Water Marks (B Sediment Deposits (B Algal Mat or Cru Iron Deposits (B Name Sparsely Vegeta Field Observations: Surface Water Present Saturation Present? (includes capillary fridescribe Recorded I	ninimum of one is A1) le (A2) 1) sits (B2) l3) st (B4) 5) le on Aerial Image ated Concave Surfa : ent? Yes Yes nge)	X Water-S Aquatic Aquatic True Ac Hydrogo Oxidize Presence Recent Thin Musery (B7) Gauge Other (B8) Other (B0) Depth No Depth Depth	Stained Leaves (B9) Fauna (B13) quatic Plants (B14) en Sulfide Odor (C1) d Rhizospheres on Liv ce of Reduced Iron (C4 Iron Reduction in Tille uck Surface (C7) or Well Data (D9) Explain in Remarks) (inches): (inches):	4) d Soils (C6)	Surface Soil Drainage Pal Dry-Season Notes and Season Notes are season Notes ar	Cracks (B6) tterns (B10) Water Table (C2) rows (C8) sible on Aerial Imagery (C9) tressed Plants (D1) Position (D2) Test (D5)

Reset Form	Print Form
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Project/Site: Bangert Island	City/County: St. Charles	Sampling Date: 25 Feb 2016
Applicant/Owner: USACE KCD		State: MO Sampling Point: 3-A
Investigator(s): Chris Name, Rick Morrow	Section, Township, Range	:
Landform (hillslope, terrace, etc.): Floodplain		
Slope (%): 3 Lat: _38°45'22.13"N	•	,
Soil Map Unit Name:	-	
Are climatic / hydrologic conditions on the site typical for this time of		
Are Vegetation, Soil, or Hydrology significa		mal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally		ed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show		
Hydrophytic Vegetation Present? Yes X No	- Is the Sampled Are	20
Hydric Soil Present? Yes X No	within a Wetland?	1
Wetland Hydrology Present? Yes X No	_	
Remarks:		
Drainage path		
VEGETATION – Use scientific names of plants.		
Abso		ominance Test worksheet:
,		umber of Dominant Species
G. A		nat Are OBL, FACW, or FAC:3 (A)
	— — To	otal Number of Dominant becies Across All Strata:3(B)
	N FAC	pecies Across All Strata:3 (B)
5	P6	ercent of Dominant Species nat Are OBL, FACW, or FAC:100 (A/B)
	= Total Cover	INC. INC. INC. INC.
Sapling/Shrub Stratum (Plot size:)		revalence Index worksheet:
1		Total % Cover of: Multiply by:
2.		BL species 5 x 1 = 5
3		ACW species10 x 2 =20
4		AC species45 x 3 =135
5		ACU species0 x 4 =0 PL species0 x 5 =0
Herb Stratum (Plot size:)		blumn Totals: 60 (A) 160 (B)
1. polygonum 25		(A)(A)
2.		Prevalence Index = B/A =2.67
3	— 	ydrophytic Vegetation Indicators:
4		_ Dominance Test is >50%
5		Prevalence Index is ≤3.0¹
6		Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
7		Problematic Hydrophytic Vegetation ¹ (Explain)
8	•	
9	l in	ndicators of hydric soil and wetland hydrology must
10	= Total Cover	present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)		
1		drophytic
2		egetation esent? Yes <u>X</u> No
0	= Total Cover	
Remarks: (Include photo numbers here or on a separate sheet.)		
GPS Photos 1062-1068		

OIL								Sampling Point: 3-A
Profile Desci	ription: (Describe t	to the dep	th needed to docu	ment the i	indicator	or confirn	n the absence of in	ndicators.)
Depth	Matrix			x Feature		. 3		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-12	10YR3/1	80	10YR3/6	15	RM		SiCl	
					. ——			
_								
Type: C=Co	ncentration, D=Depl	etion, RM	=Reduced Matrix, C	S=Covered	d or Coate	d Sand Gr	ains. ² Location	n: PL=Pore Lining, M=Matrix.
ydric Soil lı	ndicators:						Indicators for F	Problematic Hydric Soils ³ :
Histosol ((A1)		Sandy	Gleyed Ma	atrix (S4)		Coast Prair	ie Redox (A16)
_ Histic Ep	ipedon (A2)		Sandy l	Redox (S5	i)		Iron-Manga	nese Masses (F12)
Black His	stic (A3)		Strippe	Matrix (S	66)		Other (Expl	ain in Remarks)
Hydroger	n Sulfide (A4)		Loamy	Mucky Mir	neral (F1)			
	Layers (A5)		Loamy	Gleyed Ma	atrix (F2)			
Stratified	• • •		X Deplete	d Matrix (f	F3)			
	ck (A10)		DOPIO	a manni (
2 cm Mud		(A11)		Dark Surfa	,			
2 cm Mud Depleted	ck (A10) Below Dark Surface rk Surface (A12)	(A11)	Redox I	Dark Surfa	,		³ Indicators of hy	ydrophytic vegetation and

HYDROLOGY

Type: _

Remarks:

Depth (inches): _

5 cm Mucky Peat or Peat (S3)

Restrictive Layer (if observed):

IIIDROLOGI				
Wetland Hydrology Indicators	:			1
Primary Indicators (minimum of	one is required;	check all that apply)		Secondary Indicators (minimum of two required)
Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial		 Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Livi Presence of Reduced Iron (C4 Recent Iron Reduction in Tilled Thin Muck Surface (C7) Gauge or Well Data (D9) Other (Explain in Remarks) 	ng Roots (C3)) I S oi ls (C6)	 X Surface Soil Cracks (B6) X Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) X Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) X Geomorphic Position (D2) FAC-Neutral Test (D5)
Field Observations:			<u>"</u>	
Surface Water Present?	Yes No _	Depth (inches):	_	
Water Table Present?	Yes No _	Depth (inches):	_	
Saturation Present? (includes capillary fringe)	YesX No _	Depth (inches): 0	_ Wetland H	ydrology Present? Yes <u>X</u> No
	n gauge, monito	ring well, aerial photos, previous ins	pections), if avai	lable:
Remarks:		····		

unless disturbed or problematic.

Hydric Soil Present? Yes X No ___

Reset Form	Print Form

Project/Site: Bangert Island ,		City/County	: St. Char	les Sampling Date: 25 Feb 2016
				State: MO Sampling Point: 3-B
Investigator(s): Chris Name, Rick Morrow				
				(concave, convex, none): convex
				V Datum:
				NWI or WWI classification:
Are climatic / hydrologic conditions on the site typical for				
Are Vegetation, Soil, or Hydrology	•			"Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology				eeded, explain any answers in Remarks.)
·				locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes Yes	No	4	e Sampled in a Wetla	
Remarks: Edge of a drainage				
VEGETATION – Use scientific names of plant	ts.			
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1. Populus deltoids		Y		Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2. Morus alba				
3. Acer saccharinum			FACW	Total Number of Dominant Species Across All Strata: 3 (8)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)
Conline / Chruth Ctratum / Diet aire)	35	= Total Cov	er	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size:) 1				
2				OBL species0 x 1 =0
3.				FACW species 5 x 2 = 10
4				FAC species45 x 3 =135
5				FACU species 5 x 4 = 20
	0	= Total Cov	ег	UPL species0 x 5 =0
Herb Stratum (Plot size:) 1. polygonum	15	Υ	FAC	Column Totals:55 (A)165 (B)
			TAC	Prevalence Index = B/A =3
2				Hydrophytic Vegetation Indicators:
4				X Dominance Test is >50%
5				Prevalence Index is ≤3.0¹
6				Morphological Adaptations¹ (Provide supporting
7				data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation¹ (Explain)
9				¹ Indicators of hydric soil and wetland hydrology must
10.				be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)	15	= Total Cov	er	
1. Vitis aestivalis	5	Y	FACU	Hydrophytic
2				Vegetation
		= Total Cov	 er	Present?
Remarks: (Include photo numbers here or on a separate				
GPS Photos 1062-1068				

Sampling Point: 3-B	3-B
---------------------	-----

Depth <u>Mat</u>			x Features				
(inches) Color (mois	t) %	Color (moist)	%	_Type ¹	Loc ²	Texture	Remarks
0-12 10YR3/2	90						_
		•					
		_					
							
Type: C=Concentration, D=	Depletion, RM	I=Reduced Matrix, C	S=Covered	l or Coate	d Sand Gr	ains. ² Locatio	on: PL=Pore Lining, M=Matrix.
lydric Soil Indicators:						Indicators for	Problematic Hydric Soils ³ :
Histosol (A1)		Sandy	Gleyed Ma	trix (S4)		Coast Pra	irie Redox (A16)
Histic Epipedon (A2)			Redox (S5)			-	janese Masses (F12)
Black Histic (A3)			d Matrix (S			Other (Ex	plain in Remarks)
Hydrogen Sulfide (A4)			Mucky Min				
Stratified Layers (A5)			Gleyed Ma				
2 cm Muck (A10) Depleted Below Dark Su	irfaco (A41)		d Matrix (F Dark Surfa				
Depreted Below Dark St Thick Dark Surface (A12			d Dark Suria			³ Indicators of	hydrophytic vegetation and
Sandy Mucky Mineral (S	•		Depression				drology must be present,
5 cm Mucky Peat or Pea			•	, ,			turbed or problematic.
Restrictive Layer (if observ							
Туре:							
						Lindaia Cail Da	esent? Yes _ No _ X
Depth (inches):Remarks:						Hydric Soil Pre	Sent Tes
Remarks:				2		nyuric Soli Pre	10 <u></u>
Remarks: YDROLOGY						Hydric Soli Pre	Sent Tes
Remarks: YDROLOGY Vetland Hydrology Indicat	ors:		ylqq				ndicators (minimum of two require
Remarks: YDROLOGY Vetland Hydrology Indicat	ors:			es (B9)		<u>Secondary</u>	17
Pemarks: YDROLOGY Vetland Hydrology Indicate Primary Indicators (minimum	ors:	ired; check all that ap	ined Leave	, ,		Secondary	ndicators (minimum of two require
Remarks: YDROLOGY Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1)	ors:	ired; check all that ar <u>X</u> Water-Sta — Aquatic Fa	ined Leave	, .		Secondary Surface Drainag	ndicators (minimum of two require Soil Cracks (B6)
YDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3)	ors:	ired; check all that ar <u>X</u> Water-Sta — Aquatic Fa	ined Leave auna (B13) itic Plants ((B14)		Secondary Surface Drainag Dry-Sea Crayfisl	ndicators (minimum of two require Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) n Burrows (C8)
YDROLOGY Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	ors:	ired; check all that ar <u>X</u> Water-Sta — Aquatic Fa — True Aqua	ined Leave auna (B13) atic Plants (Sulfide Od	(B14) lor (C1)	ng Roots (Secondary Surface Drainag Dry-Sea Crayfisl	ndicators (minimum of two require Soil Cracks (B6) ge Patterns (B10) gson Water Table (C2) n Burrows (C8) ion Visible on Aerial Imagery (C9)
YDROLOGY Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Unift Deposits (B3)	ors:	ired; check all that and the second of the s	ined Leave auna (B13) itic Plants (Sulfide Od Rhizospher of Reduced	(B14) lor (C1) es on Livi d Iron (C4)	Secondary I Surface Drainag Dry-Sea Crayfisl Saturati Stunted	ndicators (minimum of two require Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) in Burrows (C8) ion Visible on Aerial Imagery (C9) l or Stressed Plants (D1)
YDROLOGY Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	ors:	ired; check all that ar X Water-Sta — Aquatic Fa — True Aqua — Hydrogen — Oxidized Fa — Presence — Recent Iro	ined Leave auna (B13) itic Plants (Sulfide Od Rhizospher of Reduced in Reductio	(B14) lor (C1) es on Livi d Iron (C4 on in Tilled)	Secondary Surface Drainag Dry-Sea Crayfisl Stunted Geomo	ndicators (minimum of two requires soil Cracks (B6) pe Patterns (B10) peson Water Table (C2) peson Water Table (C2) peson Visible on Aerial Imagery (C9) or Stressed Plants (D1) rephic Position (D2)
Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Water Marks (B1) Sediment Deposits (B2) Mary Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	ors: of one is requ	ired; check all that as X Water-Sta — Aquatic Fa — True Aqua — Hydrogen — Oxidized Fa — Presence — Recent Iro — Thin Muck	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced in Reductic Surface (((B14) lor (C1) res on Livi d Iron (C4 on in Tilled)	Secondary Surface Drainag Dry-Sea Crayfisl Stunted Geomo	ndicators (minimum of two require Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) in Burrows (C8) ion Visible on Aerial Imagery (C9) l or Stressed Plants (D1)
Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Water Marks (B1) Constitution (B2) Marks (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Ae	ors: of one is requ rial Imagery (E	ired; check all that ar X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reducet on Reductic Surface ((Well Data ((B14) lor (C1) es on Livi d Iron (C4 on in Tilled C7) (D9))	Secondary Surface Drainag Crayfisl Saturate Stunted Geomo	ndicators (minimum of two requires soil Cracks (B6) pe Patterns (B10) peson Water Table (C2) peson Water Table (C2) peson Visible on Aerial Imagery (C9) or Stressed Plants (D1) rephic Position (D2)
YDROLOGY Wetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Ae Sparsely Vegetated Con	ors: of one is requ rial Imagery (E	ired; check all that ar X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reducet on Reductic Surface ((Well Data ((B14) lor (C1) es on Livi d Iron (C4 on in Tilled C7) (D9))	Secondary Surface Drainag Crayfisl Saturate Stunted Geomo	ndicators (minimum of two requires soil Cracks (B6) pe Patterns (B10) peson Water Table (C2) peson Water Table (C2) peson Visible on Aerial Imagery (C9) or Stressed Plants (D1) rephic Position (D2)
YDROLOGY Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Ae Sparsely Vegetated Confield Observations:	ors: of one is requ rial Imagery (E cave Surface	ired; check all that are X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 37) Gauge or (B8) Other (Exp	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced in Reductic Surface (C Well Data ((B14) lor (C1) es on Livi d Iron (C4 on in Tilled C7) (D9) marks)) I Soils (C6	Secondary Surface Drainag Crayfisl Saturate Stunted Geomo	ndicators (minimum of two requires soil Cracks (B6) pe Patterns (B10) peson Water Table (C2) peson Water Table (C2) peson Visible on Aerial Imagery (C9) or Stressed Plants (D1) rephic Position (D2)
YDROLOGY Vetland Hydrology Indicate Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) X Water Marks (B1) X Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Ae Sparsely Vegetated Conscield Observations:	ors: of one is requirial Imagery (Eacave Surface	ired; check all that ar X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Thin Muck Thin Muck GT) Gauge or (B8) Other (Exp	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduced in Reductic Surface (C Well Data (Dain in Rer	(B14) lor (C1) es on Livi d Iron (C4 on in Tilled (C7) (D9) marks)) I Soils (C6	Secondary Surface Drainag Crayfisl Saturate Stunted Geomo	ndicators (minimum of two requires soil Cracks (B6) pe Patterns (B10) peson Water Table (C2) peson Water Table (C2) peson Visible on Aerial Imagery (C9) or Stressed Plants (D1) rephic Position (D2)
YDROLOGY Vetland Hydrology Indicat Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) X Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Ae Sparsely Vegetated Con Field Observations:	ors: of one is requirial Imagery (Eacave Surface Yes Yes	ired; check all that as X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck S7) Gauge or (B8) Other (Exp	ined Leave auna (B13) atic Plants (Sulfide Od Rhizospher of Reduceto n Reductio surface (Well Data (blain in Rer ches): ches):	(B14) lor (C1) es on Livi d Iron (C4 on in Tilled (C7) (D9) marks)) I Soils (C6) — —	Secondary Surface Drainag Crayfisl Sturate Geomo FAC-Ne	ndicators (minimum of two require Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) in Burrows (C8) ion Visible on Aerial Imagery (C9) I or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLOGY Vetland Hydrology Indicate Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) X Water Marks (B1) X Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Ae Sparsely Vegetated Confield Observations: Surface Water Present? Vater Table Present? Saturation Present? Saturation Present?	ors: of one is requested in the second secon	ired; check all that ar X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Fa Fa Other (Exp No Depth (in	ined Leave auna (B13) tic Plants (Sulfide Od Rhizospher of Reduceto Reductic Surface ((Well Data (blain in Rer ches): ches):	(B14) lor (C1) es on Livi d Iron (C4 on in Tilled (C7) (D9) marks)) I Soils (C6)	Secondary Surface Drainag Dry-Sea Crayfisl Stunted Geomo FAC-Ne	ndicators (minimum of two requires soil Cracks (B6) pe Patterns (B10) peson Water Table (C2) peson Water Table (C2) peson Visible on Aerial Imagery (C9) or Stressed Plants (D1) rephic Position (D2)
Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Water Marks (B1) Constitution (B2) Marks (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Ae	ors: of one is requested in the second secon	ired; check all that ar X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Fa Fa Other (Exp No Depth (in	ined Leave auna (B13) tic Plants (Sulfide Od Rhizospher of Reduceto Reductic Surface ((Well Data (blain in Rer ches): ches):	(B14) lor (C1) es on Livi d Iron (C4 on in Tilled (C7) (D9) marks)) I Soils (C6)	Secondary Surface Drainag Dry-Sea Crayfisl Stunted Geomo FAC-Ne	ndicators (minimum of two require Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) in Burrows (C8) ion Visible on Aerial Imagery (C9) I or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLOGY Wetland Hydrology Indicate Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Weter Marks (B1) X Sediment Deposits (B2) X Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Ae Sparsely Vegetated Confield Observations: Surface Water Present? Water Table Present? Saturation Present? Saturation Present?	ors: of one is requested in the second secon	ired; check all that ar X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Fa Fa Other (Exp No Depth (in	ined Leave auna (B13) tic Plants (Sulfide Od Rhizospher of Reduceto Reductic Surface ((Well Data (blain in Rer ches): ches):	(B14) lor (C1) es on Livi d Iron (C4 on in Tilled (C7) (D9) marks)) I Soils (C6)	Secondary Surface Drainag Dry-Sea Crayfisl Stunted Geomo FAC-Ne	ndicators (minimum of two require Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) in Burrows (C8) ion Visible on Aerial Imagery (C9) I or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)

Reset Form	Print Form

Project/Site: Bangert Island			City/County	: St. Char	les Sampling Date: 25 Feb 2016		
Applicant/Owner: <u>USACE KCD</u>					State: MO Sampling Point: 3-C		
Investigator(s): Chris Name, Rick Mor	row		Section, Township, Range:				
Landform (hillslope, terrace, etc.): Floo	odplain		l	_ocal relief	(concave, convex, none): _convex		
, ,					V Datum:		
					NWI or WWI classification:		
Are climatic / hydrologic conditions on t							
Are Vegetation, Soil, or	•				"Normal Circumstances" present? Yes No		
Are Vegetation, Soil, or					eeded, explain any answers in Remarks.)		
				•	locations, transects, important features, etc.		
Hydrophytic Vegetation Present?	YesXN	No	le th	e Sampleo	1 Area		
Hydric Soil Present?	Yes N		k	in a Wetla			
Wetland Hydrology Present?	Yes X 1	40					
Remarks:							
Edge of a drainage							
VEGETATION - Use scientific	names of plants	i.					
Tree Stratum (Plot size:		Absolute % Cover	Dominant Species?		Dominance Test worksheet:		
	··············		Y_		Number of Dominant Species That Are OBL, FACW, or FAC:4 (A)		
O. Denvelve deltalde				FAC			
3					Total Number of Dominant Species Across All Strata: 5 (B)		
4					,		
5					Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)		
•			= Total Cov	er			
Sapling/Shrub Stratum (Plot size:					Prevalence Index worksheet:		
					Total % Cover of: Multiply by:		
2					OBL species x 1 = 0		
3					FACW species 30 x 2 = 60 FAC species 45 x 3 = 135		
4					FACU species		
5			= Total Cov		UPL species0 x5 =0		
Herb Stratum (Plot size:)		- Total Cov	eı	Column Totals: <u>85</u> (A) <u>235</u> (B)		
1. polygonum		25	Y	FAC	(1)		
2					Prevalence Index = B/A =2.76		
3					Hydrophytic Vegetation Indicators:		
4					X Dominance Test is >50%		
5					X Prevalence Index is ≤3.0¹		
6					Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)		
7					Problematic Hydrophytic Vegetation¹ (Explain)		
8							
9					¹ Indicators of hydric soil and wetland hydrology must		
10					be present, unless disturbed or problematic.		
Woody Vine Stratum (Plot size:)		= Total Cov	er			
1. Vitis aestivalis		10	Y	FACU	Hydrophytic		
2.					Vegetation Present? Yes X No		
		10	= Total Cov	er	100		
Remarks: (Include photo numbers he	re or on a separate	sheet.)			<u> </u>		
GPS Photos 1062-1068		,					

SOIL Sampling Point: 3-C Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Color (moist) Color (moist) % Type Loc Texture <u>(inches)</u> 0-6 10YR3/2 10YR4/2 6-12 ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils³: Coast Prairie Redox (A16) __ Histosol (A1) Sandy Gleyed Matrix (S4) __ Histic Epipedon (A2) ___ Iron-Manganese Masses (F12) ___ Sandy Redox (S5) ___ Black Histic (A3) __ Stripped Matrix (S6) Other (Explain in Remarks) ___ Hydrogen Sulfide (A4) ___ Loamy Mucky Mineral (F1) __ Stratified Layers (A5) Loamy Gleyed Matrix (F2) ___ 2 cm Muck (A10) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) _ Thick Dark Surface (A12) Depleted Dark Surface (F7) 3Indicators of hydrophytic vegetation and _ Sandy Mucky Mineral (S1) Redox Depressions (F8) wetland hydrology must be present, 5 cm Mucky Peat or Peat (S3) unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): _ Hydric Soil Present? Yes No_ Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) ___ Surface Soil Cracks (B6) Surface Water (A1) ___ Water-Stained Leaves (B9) __ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Drainage Patterns (B10) __ Saturation (A3) ___ True Aquatic Plants (B14) ___ Dry-Season Water Table (C2) Water Marks (B1) _ Hydrogen Sulfide Odor (C1) _ Crayfish Burrows (C8) X Sediment Deposits (B2) X Saturation Visible on Aerial Imagery (C9) Oxidized Rhizospheres on Living Roots (C3) ___ Stunted or Stressed Plants (D1) Drift Deposits (B3) Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D5) X Inundation Visible on Aerial Imagery (B7) ___ Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks) Field Observations:

Surface Water Present?

(includes capillary fringe)

Water Table Present?

Saturation Present?

Remarks:

Yes ____ No ___ Depth (inches):

Yes _____ No ____ Depth (inches): _

Yes _____ No ____ Depth (inches): ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Wetland Hydrology Present? Yes X No

Reset Form	Print Form

Project/Site: Bangert Island		City/County	: St. Char	les Sampling Date: 25 Feb 2016			
Applicant/Owner: USACE KCD		State: MO Sampling Point: 3-C					
Investigator(s): Chris Name, Rick Morrow		Section, Township, Range:					
				(concave, convex, none): convex			
				V Datum:			
				NWI or WWI classification:			
Are climatic / hydrologic conditions on the site typical f							
Are Vegetation, Soil, or Hydrology				"Normal Circumstances" present? Yes No			
Are Vegetation, Soil, or Hydrology	-			eeded, explain any answers in Remarks.)			
			,	locations, transects, important features, etc.			
Hydric Soil Present? Yes	No No No		e Sampleo in a Wetla				
Remarks: Edge of a drainage							
VEGETATION – Use scientific names of pla	ants.			<u> </u>			
T Olut (B) (Dominant		Dominance Test worksheet:			
Tree Stratum (Plot size:) 1. Platanus occidentalis		Species?		Number of Dominant Species That Are OBL, FACW, or FAC:4 (A)			
2. Populus deltoids		Y		mat Are OBL, PACW, of PAC.			
3.				Total Number of Dominant Species Across All Strata:5 (B)			
4.							
5				Percent of Dominant Species That Are OBL, FACW, or FAC:80 (A/B)			
	40	= Total Cov	er				
Sapling/Shrub Stratum (Plot size:		v	E40	Prevalence Index worksheet:			
1. Acer negundo							
3				FACW species 30 x 2 = 60			
4				FAC species45 x 3 =135			
5.				FACU species10 x 4 =40			
		= Total Cov		UPL species0 x 5 =0			
Herb Stratum (Plot size:)				Column Totals: <u>85</u> (A) <u>235</u> (B)			
1. polygonum		<u> </u>	<u>FAC</u>	Developes lades = D/A = 2.76			
2.				Prevalence Index = B/A = 2.76 Hydrophytic Vegetation Indicators:			
3				Dominance Test is >50%			
4				X Prevalence Index is ≤3.0¹			
6				Morphological Adaptations¹ (Provide supporting			
7				data in Remarks or on a separate sheet)			
8.				Problematic Hydrophytic Vegetation ¹ (Explain)			
9							
10				Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
	25	= Total Cove	er .				
Woody Vine Stratum (Plot size:)	40			I badaa - bada			
<u>Vitis aestivalis</u>		<u>Y</u> .	FACU	Hydrophytic Vegetation Present? Yes X No			
		= Total Cove	∋r	Present? Yes <u>X</u> No			
Remarks: (Include photo numbers here or on a separ	rate sheet.)						
GPS Photos 1062-1068							

Profile Description: (Describe to the depth needed to document the indicator or competing the indicator of competing the indicato	Texture Remarks				
Color (moist) % Color (moist) % Type¹ Loc² 0-6 10YR3/2 6-12 10YR4/2 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sano Hydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5)	d Grains. ² Location: PL=Pore Lining, M=Matrix.				
1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Sandy Redox (S5)	d Grains. ² Location: PL=Pore Lining, M=Matrix.				
1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Sandy Redox (S5)					
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Hydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5)					
Hydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5)					
Hydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5)					
Hydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5)					
Hydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5)					
Hydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5)					
Hydric Soil Indicators: Histosol (A1) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5)					
Histosol (A1) Histic Epipedon (A2) Sandy Gleyed Matrix (S4) Sandy Redox (S5)	indicators for Problematic Hydric Solls :				
Histic Epipedon (A2) Sandy Redox (S5)	•				
	Coast Prairie Redox (A16)				
Black Histic (A3) · Stripped Matrix (S6)	Iron-Manganese Masses (F12) Other (Explain in Remarks)				
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1)	Other (Explain in recinality)				
Stratified Layers (A5) Loamy Gleyed Matrix (F2)					
2 cm Muck (A10) Depleted Matrix (F3)					
Depleted Below Dark Surface (A11) Redox Dark Surface (F6)					
Thick Dark Surface (A12) Depleted Dark Surface (F7)	³ Indicators of hydrophytic vegetation and				
Sandy Mucky Mineral (S1) Redox Depressions (F8)	wetland hydrology must be present, unless disturbed or problematic.				
5 cm Mucky Peat or Peat (S3) Restrictive Layer (if observed):	unless disturbed of problematic.				
Type:					
Depth (inches):	Hydric Soil Present? Yes NoX				
Remarks:					
YDROLOGY					
Netland Hydrology Indicators:					
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)				
Surface Water (A1) Water-Stained Leaves (B9)	Surface Soil Cracks (B6)				
High Water Table (A2) Aquatic Fauna (B13)	Drainage Patterns (B10)				
Saturation (A3) True Aquatic Plants (B14)	Dry-Season Water Table (C2)				
Water Marks (B1) Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)				
X Sediment Deposits (B2) Oxidized Rhizospheres on Living Roc					
✓ Drift Deposits (B3) Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)				
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils	FAG-Neutral Test (115)				
Iron Deposits (B5) Thin Muck Surface (C7)	FAC-Neutral Test (D5)				
Iron Deposits (B5) Thin Muck Surface (C7) X Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)					
Iron Deposits (B5) Thin Muck Surface (C7) X Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)					
Iron Deposits (B5) Thin Muck Surface (C7) Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks) Field Observations:					
Iron Deposits (B5) Thin Muck Surface (C7) Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks) Field Observations: Surface Water Present? Yes No Depth (inches):					
Iron Deposits (B5) Thin Muck Surface (C7) Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks) Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes Depth (inches):					
Iron Deposits (B5) Thin Muck Surface (C7) X Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks) Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present?	Vetland Hydrology Present? Yes X No				
Iron Deposits (B5) Thin Muck Surface (C7) Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks) Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches):	√etland Hydrology Present? Yes <u>X</u> No				

Reset Form	Print Form

Project/Site: Bangert Island		City/County	; St. Charl	les Sampling Date: 26 Feb 2016				
Applicant/Owner: USACE KCD		State: MO Sampling Point: 4-A						
Investigator(s): Chris Name, Rick Morrow		Section, Township, Range:						
Landform (hillslope, terrace, etc.): Floodplain		Local relief (concave, convex, none): concave						
Slope (%): _3		Long: <u>90°</u> :	29'19.93"W	V Datum:				
Soil Map Unit Name:			•	NWI or WWI classification: PFOE				
Are climatic / hydrologic conditions on the site typical for								
Are Vegetation, Soil, or Hydrology				"Normal Circumstances" present? Yes X No				
Are Vegetation, Soil, or Hydrology				eeded, explain any answers in Remarks.)				
				ocations, transects, important features, etc.				
Hydrophytic Vegetation Present? YesX	No	1						
Hydric Soil Present? Yes X	No		e Sampled in a Wetlar					
Wetland Hydrology Present? Yes X	No	With	ili a Wellai	101 162 110				
Remarks:		•						
Floodplain depression								
VEGETATION – Use scientific names of pla	ınts.							
Tree Stratum (Diet size)	Absolute			Dominance Test worksheet:				
Tree Stratum (Plot size:) 1. Salix nigra		Species? Y		Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)				
2. Acer saccharinum			FACW					
3.				Total Number of Dominant Species Across All Strata:1 (B)				
5,				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)				
		= Total Cov	er	Prevalence Index worksheet:				
Sapling/Shrub Stratum (Plot size:				Total % Cover of: Multiply by:				
1				OBL species25 x 1 =25				
3.				FACW species5 x 2 =10				
4.				FAC species0 x 3 =0				
5.				FACU species0 x 4 =0				
		= Total Cov	er	UPL species0 x 5 =0				
Herb Stratum (Plot size:)			•	Column Totals:(A)(B)				
1			·	Prevalence Index = B/A =1.17				
3.				Hydrophytic Vegetation Indicators:				
4				X Dominance Test is >50%				
5.				X Prevalence Index is ≤3.01				
6				Morphological Adaptations¹ (Provide supporting				
7				data in Remarks or on a separate sheet)				
8				Problematic Hydrophytic Vegetation ¹ (Explain)				
9				¹ Indicators of hydric soil and wetland hydrology must				
10				be present, unless disturbed or problematic.				
Woody Vine Stratum (Plot size:)		= Total Cov	er					
1				Hydrophytic				
2.				Vegetation				
		= Total Cov	er	Present? Yes X No				
Remarks: (Include photo numbers here or on a separ	rate sheet)							
GPS Photos 1069,1071-1075								

SOIL								Sampling Point: 4-A		
Profile Desc	ription: (Descr	ibe to the dep	oth needed to docu			or confire	n the absence of	indicators.)		
Depth (inches)	Matr			ox Feature		Loc ²	Texture	Remarks		
(inches)	Color (moist		Color (moist)	%	. Type'	LOC		Remarks		
0-12	10YR2/1	90	10YR3/6	10	RM		SiCI			
12-18	10YR3/2		10YR3/6		RM		SiCI			
	10YR3/1	30			·					
				_						
				_	· ——-					
1Type: C=Cc	ncontration D-	Donlotion PM:	=Reduced Matrix, C	S-Covere	d or Coato	d Sand G	rains ² l ocati	on: PL=Pore Lining, M=Matrix.		
Hydric Soil I		Depletion, Nivi-	-reduced Matrix, C	3-Covere	d or Coate	u Sanu G		r Problematic Hydric Soils ³ :		
Histosol			Sandy	Gleyed Ma	atrix (S4)			nirie Redox (A16)		
	pipedon (A2)			Redox (S5				ganese Masses (F12)		
Black His			·	d Matrix (S	-			plain in Remarks)		
Hydroge	n Sulfide (A4)			Mucky Mir			`			
	l Layers (A5)			Gleyed Ma						
2 cm Mu				ed Matrix (
	J Below Dark Sur			Dark Surfa			31			
	irk Surface (A12) lucky Mineral (S1			ed Dark Su Depressio	ırface (F7)		Indicators of hydrophytic vegetation and wetland hydrology must be present,			
	cky Peat or Peal	•	i\edox	Debiessio	115 (1-0)		unless disturbed or problematic.			
	ayer (if observe	1 ,								
Туре:	-	•								
Depth (inc	:hes):						Hydric Soil Pro	esent? Yes <u>X</u> No		
Remarks:							7 .,			
IYDROLO	GY									
Wetland Hyd	Irology Indicate	rs:								
Primary Indic	ators (minimum	of one is requi	red; check all that ar	oply)			Secondary	ndicators (minimum of two required)		
Surface \	Water (A1)		🗶 Water-Sta	ined Leave	es (B9)		X Surface	Soil Cracks (B6)		
High Wat	ter Table (A2)		Aquatic Fa	auna (B13))		🗶 Drainag	je Patterns (B10)		
Saturatio	, ,		True Aqua	tic Plants	(B14)		Dry-Sea	ason Water Table (C2)		
X Water Ma	arks (B1)		Hydrogen	Sulfide Od	dor (C1)		Crayfisl	n Burrows (C8)		
	t Deposits (B2)		Oxidized F	,		•	—	ion Visible on Aerial Imagery (C9)		
Z Drift Dep	` ,		Presence					or Stressed Plants (D1)		
	t or Crust (B4)		Recent Iro			Soils (C6	· —	rphic Position (D2)		
Iron Dep			Thin Muck	•	•		FAC-Ne	eutral Test (D5)		
	on Visible on Aer		· —							
	Vegetated Cond	ave Surface (I	38) Other (Exp	plain in Re	marks)					
Field Observ										
Surface Wate			No Depth (in			_				
Water Table I			No Depth (in			I				
Saturation Pro (includes cap Describe Rec	illary fringe)		No Depth (in-					resent? Yes X No		
Journal Mad	Data (30C	gaago, mo	g Hon, acriai	, pr		. Journal 10/1	a vandara.			
Remarks:								•		
. tomains.										

Reset Form	Print Form

Project/Site: Bangert Island		City/County:	St. Char	les Sampling Date: 26 Feb 2016			
Applicant/Owner: USACE KCD				State: MO Sampling Point: 4-B			
Investigator(s): Chris Name, Rick Morrow		Section, Township, Range:					
Landform (hillslope, terrace, etc.): Floodplain							
Slope (%): _10				,			
Soil Map Unit Name:							
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation, Soil, or Hydrology signs.							
Are Vegetation, Soil, or Hydrology na	-			·			
SUMMARY OF FINDINGS – Attach site map s			,	eeded, explain any answers in Remarks.) ocations, transects, important features, etc.			
Hydrophytic Vegetation Present? Yes No		la 4h	. 6				
Hydric Soil Present? Yes No	<u> </u>		e Sampleo n a Wetlar				
Wetland Hydrology Present? Yes X No		***************************************	ii a vvenai	16810			
Remarks:							
Edge of a floodplain depression							
VEGETATION – Use scientific names of plants.				-			
	Absolute	Dominant Species?		Dominance Test worksheet:			
		Species? Y	OBL Status	Number of Dominant Species			
Salix nigra Acer saccharinum	20		FACW	That Are OBL, FACW, or FAC:3(A)			
3			IAOII	Total Number of Dominant Species Across All Strata:4 (B)			
4							
5				Percent of Dominant Species That Are OBL, FACW, or FAC:			
		= Total Cov	er	mac Are OBE, I AGW, OF I AC			
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:			
1. Acer saccharinum	15	Y	FACW	Total % Cover of: Multiply by:			
2				OBL species x 1 = 20			
3				FACW species 35 x 2 = 70			
4			-	FAC species x 3 = 0			
5				FACU species 5 x 4 = 20			
Herb Stratum (Plot size:)	15	= Total Cove	er	UPL species			
1.				Column Totals:60 (A)110 (B)			
2				Prevalence Index = B/A =1.83			
3.				Hydrophytic Vegetation Indicators:			
4				<u>✗</u> Dominance Test is >50%			
5				X Prevalence Index is ≤3.0¹			
6				Morphological Adaptations¹ (Provide supporting			
7				data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)			
8				Problematic Hydrophytic Vegetation (Explain)			
9				¹ Indicators of hydric soil and wetland hydrology must			
10				be present, unless disturbed or problematic.			
Woody Vine Stratum (Plot size:)	0	= Total Cove	er				
1. Vitis aestivalis	5	Y	FACU	Hydrophytic			
2				Vegetation			
		= Total Cove	er	Present? Yes X No			
Pomarke: (Indude phote numbers here as an accessing the				<u></u>			
Remarks: (Include photo numbers here or on a separate sh	ieet.)						
GPS Photos 1069,1071-1075							

SOIL							Sampling Point: 4-B
Profile Des	cription: (Describe	e to the depth	needed to document the	indicator	or confirm	n the absence o	of indicators.)
Depth	<u>Matrix</u>		Redox Feature	s			
(inches)	Color (moist)	_ <u> </u>	Color (moist) %	Type ¹	<u>Loc²</u>	<u>Texture</u>	Remarks
0-10	10YR3/2	90					<u> </u>
10-18	10YR4/2	80					
	10YR3/1	30					
							
	oncentration, D=De Indicators:	pletion, RM=R	educed Matrix, CS=Covere	d or Coate	d Sand Gr		or Problematic Hydric Soils ³ :
-			Sandy Clayed Me	ntaio /C/A			•
Histoso	pipedon (A2)		Sandy Gleyed Ma Sandy Redox (St				rairie Redox (A16) nganese Masses (F12)
	listic (A3)		Stripped Matrix (S				Explain in Remarks)
	en Sulfide (A4)		Loamy Mucky Mi				,
	d Layers (A5)		Loamy Gleyed M				
2 cm M	uck (A10)		Depleted Matrix (F3)			
	d Below Dark Surfa	ce (A11)	Redox Dark Surfa			3	
	ark Surface (A12)		Depleted Dark Su				of hydrophytic vegetation and
_	Mucky Mineral (S1) ucky Peat or Peat (S	331	Redox Depressio	iis (F6)			hydrology must be present, listurbed or problematic.
	Layer (if observed)					7	motoriodo de problemato.
_							
	ches):		_			Hydric Soil F	resent? Yes NoX
Remarks:							<u> </u>
YDROLO	GY						
Wetland Hy	drology Indicators	:					
Primary Indi	cators (minimum of	one is required	i; check all that apply)			Secondar	Indicators (minimum of two required
Surface	Water (A1)		X Water-Stained Leav	es (B9)		Surfa	ce Soil Cracks (B6)
High Wa	ater Table (A2)		Aquatic Fauna (B13)		Drain:	age Patterns (B10)
Saturati	оп (А3)		True Aquatic Plants	(B14)		Dry-S	eason Water Table (C2)
X Water N	• •		Hydrogen Sulfide O				ish Burrows (C8)
	nt Deposits (B2)		Oxidized Rhizosphe		•	·	ation Visible on Aerial Imagery (C9)
X Drift De			Presence of Reduce				ed or Stressed Plants (D1)
-	at or Crust (B4)		Recent Iron Reducti		Soils (C6	· —	norphic Position (D2)
	posits (B5)	l (D7)	Thin Muck Surface (,		FAC-I	Neutral Test (D5)
	on Visible on Aerial		Gauge or Well Data	• •			
Sparser Field Obser	y Vegetated Concav	e Surrace (Bo	Other (Explain in Re	marks)			
		√ge N∧	Depth (inches):				
ouriace wai Water Table		·	Depth (inches):		_		
						and Hudrology	Present? Yes X No
Saturation P (includes ca	resent? pillary fringe)	140	Depth (inches):		- wetia	ana nyarotogy	Lieseliti ies NO
		n gauge, monit	toring well, aerial photos, pr	evious insp	ections), i	if available:	·-
Remarks:							

Reset Form	Print Form

Project/Site: Bangert Island	City/County: St. Char	rles Sampling Date: 26 Feb 2016	
Applicant/Owner: USACE KCD	State: MO Sampling Point: 5-A		
Investigator(s): Chris Name, Rick Morrow	ange:		
Landform (hillslope, terrace, etc.): Floodplain			
Slope (%): _3 Lat:38°45'43.06"N	Long: <u>90°29'17.29"V</u>	VDatum:	
Soil Map Unit Name:			
Are climatic / hydrologic conditions on the site typical for this time of y			
Are Vegetation, Soil, or Hydrology significantly		"Normal Circumstances" present? Yes X No	
Are Vegetation, Soil, or Hydrology naturally pr	oblematic? (If n	eeded, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing	g sampling point l	locations, transects, important features, etc.	
Hydrophytic Vegetation Present? YesX No	le the Complet	4.000	
Hydric Soil Present? Yes No	within a Wotla		
Wetland Hydrology Present? Yes No	Willia a tretta	163	
Remarks:			
GPS Photo 1080-1090			
VEGETATION – Use scientific names of plants.			
Absolute		Dominance Test worksheet:	
	Species? Status Y OBL	Number of Dominant Species	
	Y FAC	That Are OBL, FACW, or FAC:2 (A)	
3		Total Number of Dominant Species Across All Strata: 2 (B)	
4			
5		Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)	
	_ = Total Cover		
Sapling/Shrub Stratum (Plot size:)		Prevalence Index worksheet:	
1			
2		FACW species 0 x 2 = 0	
3		FAC species 5 x 3 = 15	
5		FACU species0 x 4 =0	
· · ·	= Total Cover	UPL species0 x 5 =0	
Herb Stratum (Plot size:)	=	T i	
· · · · · · · · · · · · · · · · · ·		Column Totals:25 (A)35 (B)	
1.			
1		Prevalence Index = B/A =1.4	
1			
1		Prevalence Index = B/A =1.4 Hydrophytic Vegetation Indicators:	
1		Prevalence Index = B/A =	
1		Prevalence Index = B/A =	
1		Prevalence Index = B/A =	
1		Prevalence Index = B/A =	
1		Prevalence Index = B/A =	
1		Prevalence Index = B/A =	
1	= Total Cover	Prevalence Index = B/A =	
1	= Total Cover	Prevalence Index = B/A =	
1	= Total Cover	Prevalence Index = B/A =	
1	= Total Cover	Prevalence Index = B/A =	

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)	SOIL			Sampling Point: 5-A
	Profile Descr	iption: (Describe to the d	lepth needed to document the indicator or confirm the absenc	e of Indicators.)

Depth	Matrix			x Feature:				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	_Loc²	Texture	Remarks
0-6	10YR2/1	90					SiCl	- <u> </u>
6-18	10YR4/2		10YR3/6	10	D	M	SiCl	<u> </u>
		. 						
Tuno: C=C	oncontration D-Day	lotion DM-E	Poducod Matrix CS			d Sand Cr		cation: PL=Pore Lining, M=Matrix.
lydric Soil	oncentration, D=Der Indicators:	neuon, rivi~r	reduced Matrix, Co	2-Coveler	J OI COALE	ų Saliu Gi		s for Problematic Hydric Soils ³ :
Histosol			Sandy (Sleyed Ma	trix (S4)			t Prairie Redox (A16)
	oipedon (A2)			Redox (S5				Manganese Masses (F12)
 Black Hi				l Matrix (S				(Explain in Remarks)
 Hydroge	n Sulfide (A4)			Mucky Min				,
	Layers (A5)		Loamy	Gleyed Ma	atrix (F2)			
2 cm Mu	ick (A10)		X Deplete					
	d Below Dark Surfac	e (A11)		Dark Surfa				
	ark Surface (A12)		•	d Dark Su				rs of hydrophytic vegetation and
	lucky Mineral (S1)	۵١	Redox I	Depression	ns (F8)			nd hydrology must be present,
	cky Peat or Peat (S _aver (if observed)						unles	s disturbed or problematic.
Type:	,							
••							 Uduta Cat	H Dynamica Van V No
Depth (inc	cnes):						myaric 50i	il Present? Yes <u>X</u> No
Remarks:								
	GY							
/DROLO	GY drology Indicators:							
/DROLO			d; check all that ap	ply)			Second	lary Indicators (minimum of two require
/DROLO /etland Hydrimary Indic	drology Indicators:		d; check all that ap <u>X</u> Water-Stai	•	es (B9)			lary Indicators (minimum of two require
/DROLO /etland Hydrimary Indic _ Surface	drology Indicators: ators (minimum of c			ned Leave			<u>x</u> Su	
/DROLO /etland Hydrimary Indic _ Surface _ High Wa	drology Indicators: ators (minimum of c Water (A1) ter Table (A2)		X Water-Stai	ned Leave una (B13)			<u>X</u> Sur <u>X</u> Dra	rface Soil Cracks (B6)
YDROLO Vetland Hydrimary Indic Surface High Wa	drology Indicators: eators (minimum of o Water (A1) iter Table (A2) on (A3)		<u>X</u> Water-Stai Aquatic Fa	ned Leave una (B13) tic Plants ((B14)		<u>X</u> Sur <u>X</u> Dra Dry	rface Soil Cracks (B6) ainage Patterns (B10)
YDROLO Vetland Hydrimary Indic Surface High Wa C Saturatic Water M	drology Indicators: eators (minimum of o Water (A1) iter Table (A2) on (A3)		Water-StaiAquatic FaTrue Aqua	ned Leave una (B13) tic Plants (Sulfide Od	(B14) lor (C1)	ng Roots ((<u>X</u> Sur <u>X</u> Dra Dry Cra	rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2)
YDROLO Vetland Hydrimary Indic Surface High Wa C Saturatic Water M C Sedimer	drology Indicators: eators (minimum of o Water (A1) eter Table (A2) on (A3) arks (B1) et Deposits (B2)		Water-StaiAquatic FaTrue AquaHydrogen	ned Leave una (B13) tic Plants (Sulfide Od thizospher	(B14) lor (C1) res on Livi		<u>X</u> Sur <u>X</u> Dra Dry Cra C3) <u>X</u> Sar	rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8)
/DROLO /etland Hydrimary Indic _ Surface _ High Wa (Saturatic (Water M (Sedimer	drology Indicators: eators (minimum of o Water (A1) eter Table (A2) on (A3) arks (B1) et Deposits (B2)		X Water-StaiAquatic FaTrue AquaHydrogenOxidized Fa	ned Leave luna (B13) tic Plants (Sulfide Od thizospher of Reduce	(B14) (br (C1) res on Livi d Iron (C4)		rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9)
YDROLO Vetland Hydrimary Indic Surface High Wa C Saturatio Water M C Sedimer C Drift Dep Algal Ma	drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3)		 Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence 	ned Leave una (B13) tic Plants (Sulfide Od thizospher of Reduced n Reduction	(B14) lor (C1) res on Livi d Iron (C4 on in Tilled)		rface Soil Cracks (B6) ainage Patterns (B10) /-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1)
/DROLO /etland Hydrimary Indic Surface High Wa / Saturatio / Water M / Sedimer / Drift Dep Algal Ma Iron Dep	drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4)	one is require	Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence G Recent Iro	ned Leave una (B13) tic Plants (Sulfide Od thizospher of Reduced n Reductic Surface (C	(B14) for (C1) res on Livi d Iron (C4 on in Tilled)		rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) omorphic Position (D2)
/DROLO /etland Hydrimary Indic _ Surface _ High Wa (Saturatio (Water M (Sedimer (Drift Dep _ Algal Ma _ Iron Dep	drology Indicators: cators (minimum of o Water (A1) Iter Table (A2) on (A3) arks (B1) It Deposits (B2) cosits (B3) It or Crust (B4) cosits (B5)	ne is require	Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence G Recent Iro Thin Muck Gauge or V	ned Leave una (B13) tic Plants (Sulfide Od thizospher of Reduce n Reductic Surface (Well Data ((B14) lor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9))		rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) omorphic Position (D2)
/DROLO /etland Hydrimary Indic Surface High Wa (_ Saturatio (_ Water M (_ Sedimer (_ Drift Dep Algal Ma Iron Dep (_ Inundatio (_ Sparsely	drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) ot Deposits (B2) osits (B3) of or Crust (B4) osits (B5) on Visible on Aerial of Vegetated Concave	ne is require	Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence G Recent Iro Thin Muck Gauge or V	ned Leave una (B13) tic Plants (Sulfide Od thizospher of Reduce n Reductic Surface (Well Data ((B14) lor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9))		rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) omorphic Position (D2)
YDROLO Vetland Hyd Irimary Indic Surface High Wa Saturatio Water M Sedimer C Orift Dep Algal Ma Iron Dep Inundatio Sparsely ield Obser	drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aerial or Vegetated Concavi	magery (B7)	Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence G Recent Iro Thin Muck Gauge or V	ned Leave una (B13) tic Plants (Sulfide Od thizospher of Reducei n Reductic Surface ((Well Data ((B14) lor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)) Soils (C6)		rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) omorphic Position (D2)
/DROLO /etland Hydrimary Indic Surface High Wa / Saturatio / Water M / Sedimer / Drift Dep Algal Ma Iron Dep / Inundatio / Sparsely ield Observ	drology Indicators: eators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial of Vegetated Concave vations: er Present?	magery (B7) e Surface (B8	Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Gallerent Iro Thin Muck Gauge or Male	ned Leave nuna (B13) tic Plants (Sulfide Od Rhizospher of Reduced n Reductic Surface (C Well Data (blain in Rer	(B14) lor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)) Soils (C6)		rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) omorphic Position (D2)
YDROLO Vetland Hydrimary Indic Surface High Wa K Saturatio K Water M C Sedimer Algal Ma Iron Dep K Inundatio K Sparsely ield Observator Table aturation Pr	drology Indicators: eators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) on Deposits (B2) oosits (B3) of or Crust (B4) oosits (B5) on Visible on Aerial of Vegetated Concave vations: er Present? Present? Y	magery (B7) e Surface (B8 es No	Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence of Recent Iro Thin Muck Gauge or V Other (Exp	ned Leave una (B13) tic Plants (Sulfide Od thizospher of Reduce on Reductic Surface (Well Data (blain in Rer ches):	(B14) dor (C1) des on Livi d Iron (C4 on in Tilled C7) (D9) marks)) Soils (C6) 		rface Soil Cracks (B6) ainage Patterns (B10) r-Season Water Table (C2) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) omorphic Position (D2)
YDROLO Vetland Hyd Primary Indic Surface High Wa X Saturatio X Water M X Sedimer Algal Ma Iron Dep X Inundatio X Sparsely Geld Observiolation Princludes cap	drology Indicators: eators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) on Deposits (B2) oosits (B3) of or Crust (B4) oosits (B5) on Visible on Aerial of Vegetated Concave vations: er Present? Present? Y	magery (B7) e Surface (B8 es No es No es No	Water-Stai Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence of Recent Iro Thin Muck Gauge or V Other (Exp	ned Leave una (B13) tic Plants (Sulfide Od thizospher of Reduce on Reductic Surface (Well Data (blain in Rer ches): ches):	(B14) lor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)) Soils (C6) 		rface Soil Cracks (B6) pinage Patterns (B10) pr-Season Water Table (C2) payfish Burrows (C8) puration Visible on Aerial Imagery (C9) purted or Stressed Plants (D1) pomorphic Position (D2) C-Neutral Test (D5)
YDROLO Vetland Hyde Primary Indic Surface High Wa X Saturatio X Water M X Sedimer Algal Ma Iron Dep X Inundatio X Sparsely Field Obsen Surface Water Vater Table Saturation Princludes cap	drology Indicators: eators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial of Vegetated Concave vations: er Present? Present? Y resent? Y resent? Y	magery (B7) e Surface (B8 es No es No es No	Water-Stai Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence of Recent Iro Thin Muck Gauge or V Other (Exp	ned Leave una (B13) tic Plants (Sulfide Od thizospher of Reduce on Reductic Surface (Well Data (blain in Rer ches): ches): ches):	(B14) lor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)) Soils (C6) 		rface Soil Cracks (B6) sinage Patterns (B10) r-Season Water Table (C2) syfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
YDROLO Vetland Hyde Primary Indic Surface High Wa X Saturatio X Water M X Sedimer Algal Ma Iron Dep X Inundatio X Sparsely Field Obsen Surface Water Vater Table Saturation Princludes cap	drology Indicators: eators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial of Vegetated Concave vations: er Present? Present? Y resent? Y resent? Y	magery (B7) e Surface (B8 es No es No es No	Water-Stai Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence of Recent Iro Thin Muck Gauge or V Other (Exp	ned Leave una (B13) tic Plants (Sulfide Od thizospher of Reduce on Reductic Surface (Well Data (blain in Rer ches): ches): ches):	(B14) lor (C1) res on Livi d Iron (C4 on in Tilled C7) (D9) marks)) Soils (C6) 		rface Soil Cracks (B6) sinage Patterns (B10) r-Season Water Table (C2) syfish Burrows (C8) turation Visible on Aerial Imagery (C9) unted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
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Reset Form	Print Form
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Project/Site: Bangert Island		City/County: St. Cha	rles	Sampling Date: 26 Feb 2016
Applicant/Owner: <u>USACE KCD</u>		Sampling Point: 5-B		
Investigator(s): Chris Name, Rick Morrow	Section, Township, Range:			
Landform (hillstope, terrace, etc.): Floodplain		Local relie	f (concave, convex, none)	; convex
Slope (%): <u>3</u> Lat: <u>38°45'43.34"N</u>		Long: 90°29'17.87"\	N	Datum:
Soil Map Unit Name:			NWI or WWI	classification:
Are climatic / hydrologic conditions on the site ty	pical for this time of ye	ear? Yes <u>x</u> No	(If no, explain in I	Remarks.)
Are Vegetation, Soil, or Hydrolog	y significantly	/ disturbed? Are	"Normal Circumstances"	present? Yes No
Are Vegetation, Soil, or Hydrolog	y naturally pr	oblematic? (If n	needed, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS – Attach s	ite map showing	g sampling point	locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Yes	X No	Is the Sample	d Area	
	No <u></u>			NoX
	No	***************************************		
Remarks:				
Edge of a floodplain depression				
VEGETATION – Use scientific names	of plants.			
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Indicator Species? Status	Dominance Test world	
1. Populus deltoids	40		Number of Dominant S That Are OBL, FACW,	
2. Acer saccharinum				,
3. Salix nigra	5		Total Number of Domin Species Across All Stra	
4			Barrant of Daminant C	
5		<u> </u>	Percent of Dominant S That Are OBL, FACW,	or FAC:75 (A/B)
Sapling/Shrub Stratum (Plot size:		_ = Total Cover	Prevalence Index wor	kshoot.
1			Į.	Multiply by:
2.				5 x 1 =5
3.			FACW species1	
4.			FAC species1	0 x 3 = <u>30</u>
5			FACU species5	x 4 =20
Hart Otatus (Blatsins	0	_= Total Cover	UPL species	
Herb Stratum (Plot size:)			Column Totals:3	0 (A) <u>75</u> (B)
2.			Prevalence Index	: = B/A = <u>2.5</u>
3			Hydrophytic Vegetati	
4.			X Dominance Test is	>50%
5.			X Prevalence Index	s ≤3.0 ¹
6.				ptations ¹ (Provide supporting
7.			1	s or on a separate sheet)
8			Floblematic Hydro	phytic Vegetation¹ (Explain)
9			¹ Indicators of hydric so	il and wetland hydrology must
10			be present, unless dist	
Woody Vine Stratum (Plot size:		_ = Total Cover		
1. Vitis aestivalis	<i>'</i>	Y FACU	Hydrophytic	
•			Vegetation	- V N-
		= Total Cover	Present? Ye	s <u>X</u> No
Remarks: (Include photo numbers here or on a		-		
, ,	ooparate sneet.)			
Trees 15-20" diameter GPS Photos 1080-1090				

SOIL

Sampling Point: 5-B

Pepth Matrix nches) Color (moist) %	Redox Features Color (moist) % Type ¹	1 2 - 1	ъ .
	Color (moist) % Type ¹	Loc ² Texture	Remarks Remarks
0-6 10YR3/2			
6-12 10YR4/2			
12-18 10YR3/2	·		
		_	
	· ·	,	
vne: C=Concentration D=Depletion RM	M=Reduced Matrix, CS=Covered or Coated	I Sand Grains ² I	ocation: PL=Pore Lining, M=Matrix.
dric Soil Indicators:	Troused mains, 90 Gararda di Godico		rs for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Gleyed Matrix (S4)		st Prairie Redox (A16)
Histic Epipedon (A2)	Sandy Redox (S5)		Manganese Masses (F12)
Black Histic (A3)	Stripped Matrix (S6)	Othe	er (Explain in Remarks)
Hydrogen Sulfide (A4)	Loamy Mucky Mineral (F1)		
Stratified Layers (A5)	Loamy Gleyed Matrix (F2)		
_ 2 cm Muck (A10) _ Depleted Below Dark Surface (A11)	<pre> Depleted Matrix (F3) Redox Dark Surface (F6)</pre>		
Thick Dark Surface (A11)	Redox Dark Surface (F6) Depleted Dark Surface (F7)	³ Indicate	ors of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Redox Depressions (F8)		and hydrology must be present,
5 cm Mucky Peat or Peat (S3)	_ , , ,		ss disturbed or problematic.
strictive Layer (if observed):			
Type:			
,		I	11 D 10 17 11 11 11
Depth (inches):emarks:		Hydric Sc	il Present? Yes No _ X
Depth (inches):marks:		Hydric Sc	DI Present? Yes NoA
Depth (inches):marks: DROLOGY		Hydric Sc	DIPresent? Yes NoX
Depth (inches): marks: DROLOGY etland Hydrology Indicators:		· · · · · · · · · · · · · · · · · · ·	
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Depth (inches):	Water-Stained Leaves (B9)	Secon <u>X</u> Su	dary Indicators (minimum of two require
Depth (inches): marks: DROLOGY tland Hydrology Indicators: mary Indicators (minimum of one is requi Surface Water (A1) High Water Table (A2)	Water-Stained Leaves (B9) Aquatic Fauna (B13)	Secon <u>*</u> Su Dr	dary Indicators (minimum of two require rrface Soil Cracks (B6) ainage Patterns (B10)
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Riverpointe Public Infrastructure Project

APPENDIX C: CULTURAL RESOURCES DOCUMENTATION





MISSOURI DEPARTMENT OF NATURAL RESOURCES **DIVISION OF STATE PARKS**

STATE HISTORIC PRESERVATION OFFICE

SECTION 106 PROJECT INFORMATION FORM (PAGE 1 OF 2)

Submission of a completed Project Information Form with adequate information and attachments constitutes a request for a review pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended). We reserve the right to request more information. Please refer to the CHECKLIST on Page 2 to ensure that all basic information relevant to the project has been included. For further information, refer to our website at: http://dnr.mo.gov/shpo and

iollow the links to Section 106 Review.				
NOTE: Section 106 regulations provide for a 30-day	response time by the Missouri State	Historic Prese	rvation Office from the	date of receipt.
PROJECT NAME				
Riverpointe Public Infrastructure Project				
FEDERAL AGENCY PROVIDING FUNDS, LICENSE, OR PERMIT		OTHER INVOLVED	AGENCY	
USACE				
CONTACT PERSON				TELEPHONE
Ellen Hogrebe				314-571-9103
CONTACT EMAIL - (this will be used for digital response regarding yo	ur project)			
ehogrebe@cmtengr.com				
CONTACT ADDRESS				
One Memorial Drive, Suite 500				
CITY			STATE	ZIP
St. Louis			MO	63102
LOCATION OF PROJECT				
COUNTY	STREET ADDRESS			
St. Charles	N/A			
CITY	LATITUDE/LONGITUDE		UTM - NORTHING/EASTI	,
St. Charles	38.752542, -90.502603		717020mE, 429	2278mN NAD83, zone15
LEGAL DESCRIPTION OF PROJECT AREA (TOWNSHIP, RANGE, SECTION	N, ¼ SECTIO	N)	
TOWNSHIP	RANGE		SECTION	
46 North	5 East		08/05	
PROJECT INFORMATION CHECKLIST				
TO THE BEST OF YOUR KNOWLEDGE, IS THE PROJECT LOCATED AN AREA PREVIOUSLY SURVEYED FOR HISTORIC PROPERTIES	D IN ANY OF THE FOLLOWING? A NATIONAL REGISTER DIST	RICT	☐ A LOCAL HIS	TORIC DISTRICT
WHAT ARE THE DATES OF CONSTRUCTION OR DATES OF ADDIT	IONS FOR BUILDINGS OR STRUCTURES IN	THE PROJECT ARE	EA?	
According to parcel search, residential stru	uctures: 1930, 1940, 1950, 1	955, 1959; d	commercial wareho	use: 1991
HAS THE GROUND INVOLVED BEEN GRADED, BUILT ON, BORRO	WED, OR OTHERWISE DISTURBED?		■ YES	□NO
WILL THE PROJECT REQUIRE FILL MATERIAL?			■ YES	☐ NO
IF YES, INDICATE PROPOSED BORROW AREAS (SOURCE OF FILE	L MATERIAL) ON PROJECT AREA MAP			
Disturbed and undisturbed ground is prese	ent within the project study a	rea.		
As seen on the attached Riverpointe Phas stream channel, which will provide stormw	• .		•	-
ARE YOU AWARE OF ARCHAEOLOGICAL SITES ON OR ADJACEN	T TO PROJECT AREA?		☐ YES	■ NO
IF YES, IDENTIFY THEM ON THE TOPOGRAPHIC MAP (see addition	nal requirements)			



MISSOURI DEPARTMENT OF NATURAL RESOURCES

DIVISION OF STATE PARKS

STATE HISTORIC PRESERVATION OFFICE SECTION 106 PROJECT INFORMATION FORM (PAGE 2 OF 2)

PROJECT DESCRIPTION

DESCRIBE THE OVERALL PROJECT IN DETAIL. IF IT INVOLVES EXCAVATION, INDICATE HOW WIDE, HOW DEEP, ETC. IF THE PROJECT INVOLVES DEMOLITION OF EXISTING BUILDINGS, MAKE THAT CLEAR. IF THE PROJECT INVOLVES REHABILITATION, DESCRIBE THE PROPOSED WORK IN DETAIL. USE ADDITIONAL PAGES IF NECESSARY.

The City of St. Charles is proposing a new, multi-phase riverfront development project along South River Road located south of Interstate 70 (I-70) to the Family Arena within the City of St. Charles. The project consists of three phases of development along Bangert Island and the Missouri River (see attached project phasing map). Phase 1 of the project consists of a 22-acre mixed-use development located adjacent to I-70 and South Main St. Phase 2 of the project consists of an 80-acre mixed-use and office space development near the Family Arena. Phase 3 of the project consists of a 20-acre development along South River Rd. connecting Phases 1 and 2. The development will provide recreational, employment, entertainment, and retail opportunities along approximately 1.6 miles of riverfront. Additional information about the full project can be found at https://www.riverpointe-stc.com.

Extensive excavation and fill will be required throughout the project area to construct the proposed improvements. The width and depth of excavation will vary widely throughout the project area. Approximately five residences along South River Road and Arena Parkway will be demolished for the project; along with all of the structures at the aggregate materials plant at the southern end of the project area. Phased construction is anticipated to begin in Fall 2020 and be completed in Fall 2022.

An archaeology survey and magnetometer survey is underway for the portion of the project site planned for the water quality basin through a USACE Civil Works project. Correspondence for these surveys has begun between Dr. Gina Powell with Kansas City USACE and Amy Rubingh with MO SHPO. The reports documenting the results of these surveys are planned to be provided to MO SHPO for review and concurrence of findings.

ADDITIONAL REQUIREMENTS

Map Requirements: Attach a map depicting the project area, <u>and</u>, if necessary, a large scale project map. If project involves **ground disturbance**, the project footprint must be clearly delineated on the map. Please do not send an individual map with each structure or site. While a topographic map is preferred, a map from online map providers is acceptable. For a list of sites from which to order, download or print the required USGS 7.5 min. topographic maps at little or no cost, consult http://dnr.mo.gov/shpo/sectionrev.htm.

Photography Requirements: Clear black and white or color photographs (minimum 3" x 5") are acceptable. Polariods, photocopies, emailed or faxed photographs are not acceptable. Images do not need to be printed on photo paper, standard 8x11 paper is fine. Clear and good quality photographs are important for expeditious project review. Photographs of neighboring or nearby buildings are also helpful. All photographs should be labeled and keyed to one map of the project area. Images captured from Google Earth are not acceptable as they fail to provide the most current view of the area.

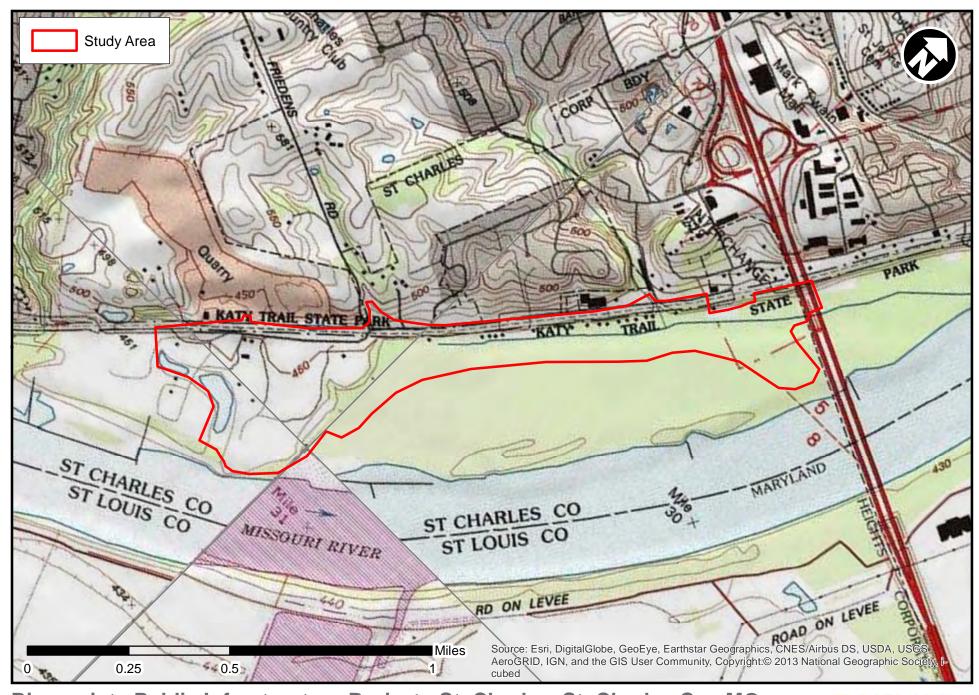
DID YOU PROVIDE THE FOLLOWING INFORMATION?

- PROJECT AREA MAP (per project, not structure)
- THOROUGH PROJECT DESCRIPTION (ALL PROJECTS)
- □ PHOTOGRAPHS OF ALL STRUCTURES AND OVERVIEW PHOTOGRAPHS FOR ARCHAEOLOGY NOTE: all photographs should be labeled and keyed to one map of the project area

- OTHER SUPPORTING DOCUMENTS (If necessary to explain the project)
- ☐ FOR NEW CONSTRUCTION, REHABILITATIONS, ETC., ATTACH WORK WRITE-UPS, PLANS, DRAWINGS, ETC.
- DATES OF CONSTRUCTION OF STRUCTURES IN THE PROJECT AREA

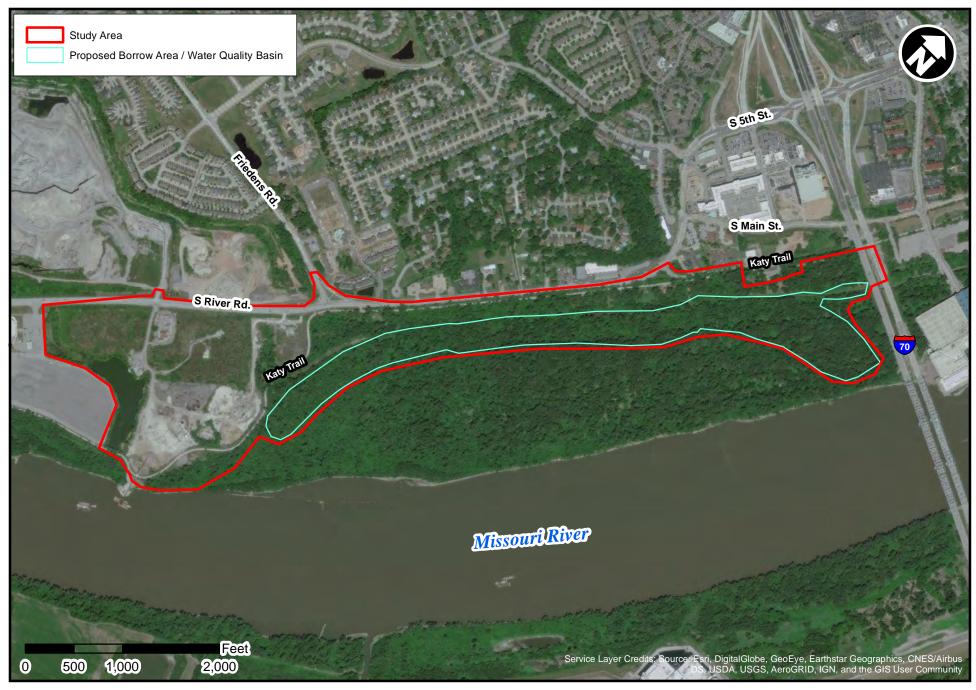
RETURN THIS FORM AND ATTACHMENTS TO:

MISSOURI DEPARTMENT OF NATURAL RESOURCES STATE HISTORIC PRESERVATION OFFICE Attn: Section 106 Review P.O. BOX 176 JEFFERSON CITY, MISSOURI 65102-0176



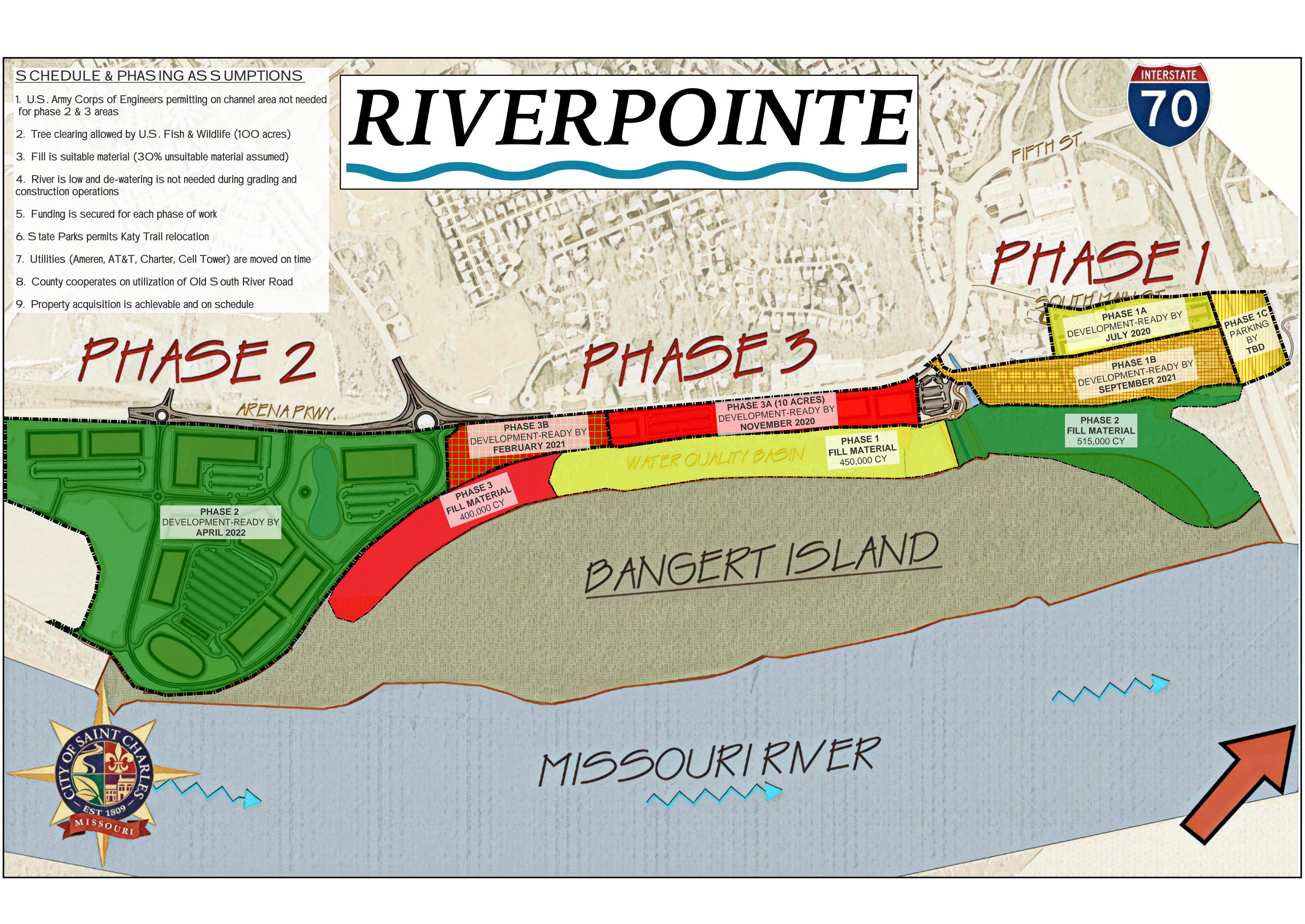
Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO USGS Topographic Map - St. Charles, Kampville, Chesterfield, and Creve Coeur, MO Quadrangles





Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO **Aerial**





July 30, 2020

Crawford, Murphy, and Tilly Attn: Ellen Hogrebe One Memorial Dr., Suite 500 St. Louis, MO 63102

RE: SHPO Number: 093-SC-20 – Riverpointe Public Infrastructure Project Bangert Island,

St. Charles County, Missouri

Dear Ellen Hogrebe:

Thank you for submitting information about the above-referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources.

The State Historic Preservation Office (SHPO) received the information submitted by your office on July 6, 2020. As stated in your information our office is working with Gina Powell with the US Army Corps of Engineers (USACE) regarding a survey and magnetometer survey of your project area. Based on a conference call between USACE and our office on July 17, 2020, the report is still being written and will then go to USACE for review, and then be submitted to our office for review. Upon receipt of this information the SHPO review of your project will proceed.

If you have any questions please write Missouri Department of Natural Resources, State Historic Preservation Office, Attn: Review and Compliance, P.O. Box 176, Jefferson City, Missouri 65102, or call Amy Rubingh (573) 751-4589. Please be sure to include the **SHPO Project Number** (093-SC-20) on all future correspondence relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Toni M. Prawl, PhD Director and Deputy

State Historic Preservation Officer

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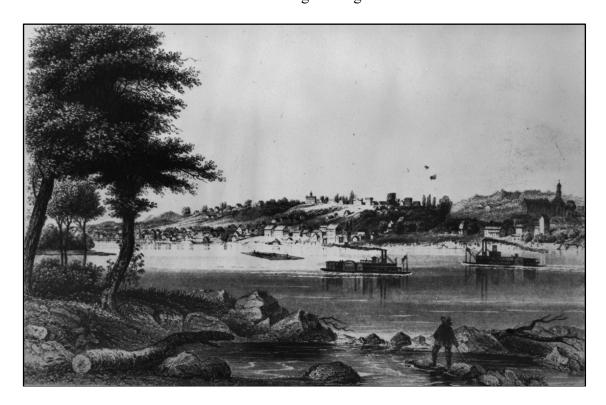
C: Gina Powell, USACE



A SHIPWRECK MAGNETOMETER SURVEY ON BANGERT ISLAND, ST. CHARLES, MISSOURI

by Dustin A. Thompson, Neal H. Lopinot, and Sarah J. Reid

Prepared for
The Kansas City District
U.S. Army Corp of Engineers
&
HDR Engineering



Research Report No. 1690

Center for Archaeological Research Missouri State University 901 South National Springfield, Missouri 65897

August 2020



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ABSTRACT

The Center for Archaeological Research, Missouri State University undertook background research and a magnetometer survey for the City of St. Charles and the Kansas City District, U.S. Army Corp of Engineers. The survey was undertaken under a contract with HDR Engineering with the purpose of determining if any buried steamboat wrecks would be disturbed as the result of the proposed re-excavation of a historic channel of the Missouri River. The channel once separated Bangert Island from the western shore of the Missouri River.

Based on a partial magnetometer survey, historic records about shipwrecks in the area, a large suite of historic maps and aerial photographs, and the geomorphological history of Bangert Island, it appears to be extremely unlikely that any buried steamboat wrecks dating to the nineteenth century are located within the project area. In fact, seven of the eight vessels of concern in this report were wrecked on or before 1879, or when an 1879 map and previous maps show the main river channel well to the east of the APE. Therefore, it seems impossible to expect the remains of any of these seven vessels to occur within or even near the Bangert Island APE. In addition, historical documentation indicates that the remaining vessel of concern, the *Ella Kimbrough*, was shipwrecked in 1884 downstream from the APE and appears to have been at least partially salvaged.

We believe that our report has sufficiently addressed the likelihood that buried steamboat wrecks are <u>not</u> located within the APE. Therefore, it is recommended that the proposed clearing of the former channel of the Missouri River on Bangert Island should be allowed to proceed as planned, provided that the following conditional stipulations are met. However, should a portion or portions of such vessel wreckage be encountered during the course of chute development, construction should cease immediately and the Kansas City District archaeologist and Missouri State Historic Preservation Office should be contacted.

ACKNOWLEDGMENTS

First and foremost, the authors of this report would like to express our deep gratitude to Dr. Gina Powell of the Kansas City District of USACE for overseeing our efforts throughout the course of this project. Charles Brown at the Herman T. Pott National Inland Waterways Library within the St. Louis Mercantile Library at the University of Missouri–St. Louis provided research assistance. We would also like to thank John Denlinger of HDR Engineering for his patience and assistance, along with that of Daniel Mann of the City of St. Charles. Jennifer Rideout assisted in the collection of historical information, as well as the conduct of the fieldwork. Dustin Thompson directed the magnetometer survey and was also assisted in the field by Brandon Ives, Alan O'Conner, and Grace Smith

Neal H. Lopinot Principal Investigator

INTRODUCTION

The Center for Archaeological Research (CAR), as a consulting group working for HDR Engineering, undertook a steamboat wreck magnetometer survey for the Kansas City District, U.S. Army Corps of Engineers (USACE). The field survey was undertaken on November 18–21, 2019, supplemented by borings and test pits documented in early 2020 by Reitz & Jens, Inc. for HDR Engineering. CAR services were provided in accord with the tasks identified in the ACE Statement of Work titled *Bangert Island Flood Risk & Riverfront Transformation Project Section 22 of WRDA 1974 Planning Assistance to States*. The purpose of the survey was to determine if any buried steamboat wrecks would be disturbed as the result of the proposed re-excavation of the historic channel separating Bangert Island from the shoreline (Figure 1).

A Brief History of Steamboating on the Missouri River

River transportation opened the trans-Appalachian West to large-scale immigration and commercial development, particularly during the period of ca. 1820–1870 or prior to the development of an extensive network of railroads. During this period, the steamboat provided rapid transportation for products and people in a vast area that was characterized by a very poor, nascent road system. As Chittenden (1903:73) stated, "Then there were no railroads to speak of west of the Mississippi, nor, for that matter, any other roads worthy of mention. The river was the great, and almost the only, highway of travel and commerce." Steamboat construction and traffic during this period grew exponentially, creating great labor demands involving both the construction and operation of steamboats. These jobs ranged from those for shipwrights, joiners, and glass suppliers to iron ore miners and foundry workers to woodcutters and lumbermen to steamboat clerks, agents, operators, and merchants to insurance agents (e.g., Hunter 1949:382–383; Kane 2004:19–22).

The first steamboat to ply the Missouri River was the *Independence*, which travelled up the Missouri from St. Louis to Franklin and Chariton, Missouri in late May and early June of 1819 (McDonald 1927a:218). It left St. Louis on May 13, 1819 and arrived in St. Charles two days later (Brink 1875:11). It carried passengers as well as cargo that included flour, whiskey, sugar, nails, castings, and other merchandise for local merchants (Gould 1889:114: Lass 2008:48). Within a few months, a government-sponsored expedition consisting of a flotilla of four steamboats and nine keelboats headed up the Missouri River with the Yellowstone as its destination (Gould 1889:114). Although some steamboats began plying the Missouri River shortly thereafter, "the first regular service between St. Louis and Fort Leavenworth, by packet, is said to have been introduced in 1829" (Hunter 1949:47), and the "flush times of Missouri River steamboating fell within the twenty-five-year period from 1845 to 1870" (Hunter 1949:48).

The life span for a steamboat was relatively short. The average life spans differ for the various river systems and the period of study, but most lasted no more than five years and nearly one-fourth of steamboats were irreparably damaged as the result of some disaster (Hunter 1949:101). The Missouri River was particularly treacherous at times, which varied seasonally and whether a vessel was moving upriver or downriver. Approximately 400 vessels were sunk or disabled on the Missouri River during the steamboating period (Lass 2008:32). Hunter (1949:101) notes:

On the Missouri River, where conditions were particularly difficult, it was reported in 1849 that a good boat would not last over three years . . . The longevity of western steamboats improved materially in later years as the result of technical advances, river improvements, and the operation of the steamboat inspection system.

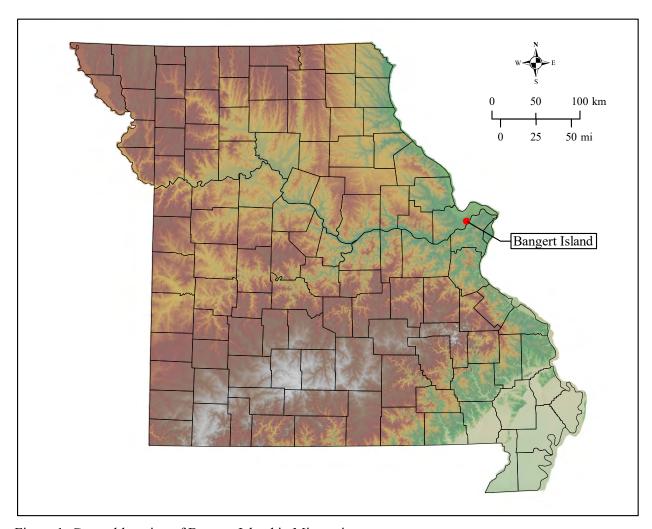


Figure 1. General location of Bangert Island in Missouri.

Hunter (1949:102) provides a good listing of the conditions that resulted in the short lifespan for western steamboats:

Floating logs, driftwood and ice, raking snags, powerful engines operating at excessive pressures, direct landings at riverbanks, frequent groundings at low water, the strain of getting off and over bars, rot and deterioration from exposure to sun and air when stranded or beached during the low-water season—all these told heavily on lightly framed and planked hulls . . . Gross overloading, hard driving, carelessness in handling, and the widespread practice of undertaking and forcing through trips in disregard of low water and ice produced strain and distortion in hull members and intensified the wear of planking, engines, and machinery.

Snags were the most common reason for inland shipwrecks prior to the Civil War (Hunter 1949:272–289; Lass 2008:32). Of the 1,166 shipwrecks documented by Paskoff (2007) for the period of 1821–1860, snags were cited as the cause for 463 or nearly 40% (Table 1.1). Hunter (1949:Table 10) also noted that snags accounted for 576 or almost 58% of 995 steamboat accidents on the western waters during the period of 1811–1852. Paskoff (2007) presents additional shipwreck data to 1900. The data indicate a sharp decline in shipwrecks from 1871 to 1885. This

is likely related to the increase in rail transportation and a concomitant decrease in steamboat transportation, although there was again a nearly fourfold increase in shipwrecks during 1886–1890. It is suspected that this coincides with a revival of river traffic involving a surge in the use of barges, principally for hauling grain and mining products (e.g., coal). By about 1890, gasoline power also began to replace steam power.

For the Missouri River itself, McDonald (1927c:607) documented 411 shipwrecks on the Missouri River, of which more than half (N=240) were caused by snags. The remaining causes consisted of ice (n=79), fire (n=49), bridges (n=17), explosion (n=10), and other (N=72). The Missouri River was notorious for snags.

The conditions of the Missouri River bore many similarities to those of the lower Mississippi. Flowing through a bed of alluvial soils, it was prone to meander and became notorious for its many snags and obstructions. [Kane 2004:31]

Beginning in 1824, the federal government committed funding for snag removal along the Missouri and other rivers (Hunter 1949:192–193), but snags continued to be a major problem due to the meandering, erosive nature of the Missouri River. Steamboats were generally their own worst enemy since they burned immense amounts of wood fuel, obtained from wood sold by farmers periodically along the Missouri riverbanks. The clearance of the bottomland forests for agriculture in turn contributed to increased runoff and even greater erosion, particularly during the springtime when the Missouri River and its tributaries were fed by the most intense rainfall and melting snow and ice. As erosion occurred, large trees bordering the rivers were lost and new snags were created in addition sometimes to new channel segments.

Snags were of two types—*planters* and *sawyers*. Both involved large trees that lost most or all of their limbs and had become partially, if not entirely waterlogged. The massive rootwads of such trees would become embedded in the riverbed. A planter was regarded as a snag in a fixed position, whereas a sawyer would bob up and down. Since such snags would be pointed downriver, steamboats traveling upriver were more vulnerable than those traveling downriver. Lass (2008:21) provides an excellent description of snags:

Sawyers—entire trees with soils still enclosing their roots—bobbed up and down near the bank. While aggravating to boats, they did not cause wrecks. But sometimes they blocked the most navigable channel and forced boats into shallow waters. Over time, water action and the annual ice-outs transformed some of the sawyers into [fixed] snags. Released from a collapsed bank and stripped of smaller branches, the base of a tree would become embedded in the streambed. All snags came from large trees, because only they had sufficient weight to cause their roots to become firmly fixed in the bottom. Snags stood alone or in clusters below timbered points. New snags often retained some large branches and, as the wood was bleached by sun and water, resembled an array of ghost trees.

As they aged, snags became more dangerous. Everything above or slightly below the waterline was broken off, and the sharpened ends of the remnant trunks were often undetectable in the murky water. Pilots had to be constantly on the alert for small ripples, a telltale sign of snags just under the water.

The next most-common reason for steamboat wrecks during this period was simply burning as a result of boiler explosions, carelessness, or even arson. Of the 1,166 shipwrecks on the western waters documented by Paskoff (2007), 320 or 27.4% cases were due to burning. Given that steamboats were constructed largely of wood and given that torches and lamps (in addition to tobacco smoking) would have been common aboard such vessels, many steamboats were lost as the result of

accidental fires. However, boiler explosions also were not uncommon. In addition, the burning of steamboats was enhanced by disasters. Of particular significance was the wind-driven 1849 St. Louis riverfront fire that destroyed 23 steamboats, three barges, a canal boat, and 500 buildings in a fifteen-square-block area (Lass 2001:7).

River transportation was the lifeblood of commerce and immigration during at least four to five decades of the nineteenth century, but this mode of transportation was rapidly eclipsed during the latter half of the nineteenth century by the growing network of relatively straight, overland railroads. According to Lass (2008:259), "From 1868 to 1873, rapidly advancing railroads drastically changed ... Missouri River steamboating and the scope of the St. Louis hinterland." Unlike the steamboat industry, the railroads benefitted greatly from free land grants and supplemental financing through the issuance of government bonds. Furthermore, railroad bridges provided major obstacles for steamboats, particularly when river levels were high and the water moved swiftly, making navigation more difficult. Hunter (1949:596) noted, "Hiram M. Chittenden, writing at the close of the [nineteenth] century, asserted that on the Missouri River bridges were more dreaded by pilots than all the other obstacles combined." Lass (2008:363) notes that the only "regular long-trade Packet" to ply the lower Missouri River in 1895 was the *Benton*.

BANGERT ISLAND HISTORICAL BACKGROUND

The Bangert Island project area is located in a silted-in channel separating Bangert Island from the shoreline along the west bank of the Missouri River in St. Charles, Missouri, just south of the Interstate 70 bridge. In fact, it will be shown that the entirety of Bangert Island is a relatively recent landform, created since the 1950s. As with much of the Missouri River, this stretch of the river has had a very active channel and a number of steamboat wrecks noted to occur within close proximity to Bangert Island. A series of maps and aerial photographs made between 1854 and 1955, after which the river settled into its current channel, illustrate just how much movement there has been.

The earliest historic maps dating to 1854, 1875, and 1879 clearly show the main channel of the Missouri River being situated well to the east of the Bangert Island APE (Figures 3–5). The earliest General Land Office (GLO) plat map dating to 1854 depicts the main channel of the river along the eastern side of the valley, not the western side of the valley where St. Charles is located (Figure 3). There is an island on the west side of the main channel with a slough on the west side of that island. The project area is located on land on the west bank of that slough. The 1875 and 1879 maps (Figures 4–5) also show the project area on land away from the river, although the slough or flood chute that created St. Charles Island occurred nearby. However, the island apparently was larger and extended further to the east than that depicted on the 1854 plat map. The 1879 map is a detailed river map that labels the island as St. Charles Island and the main channel to the east as St. Charles Bend, also called Penn's Bend after a landing on the east side of the river on Dr. Penn's land (Figure 6).

A major shift in the channel location is recorded on the 1894 Missouri River channel map (Figure 6). The channel apparently was deliberately shifted to the west side of the valley to protect the Wabash Railroad at the north end of St. Charles Bend. Structures were built in the river to force the channel to migrate west away from the east bank. This area subsequently silted in as the channel moved, leaving a large sand and silt flat behind. At the end of the nineteenth century, the river had not completely moved to the base of the bluff. A narrow strip of bottom land was still present. The north half of the APE would have been located on this strip of land, whereas the south half would have been mostly within the new river channel.

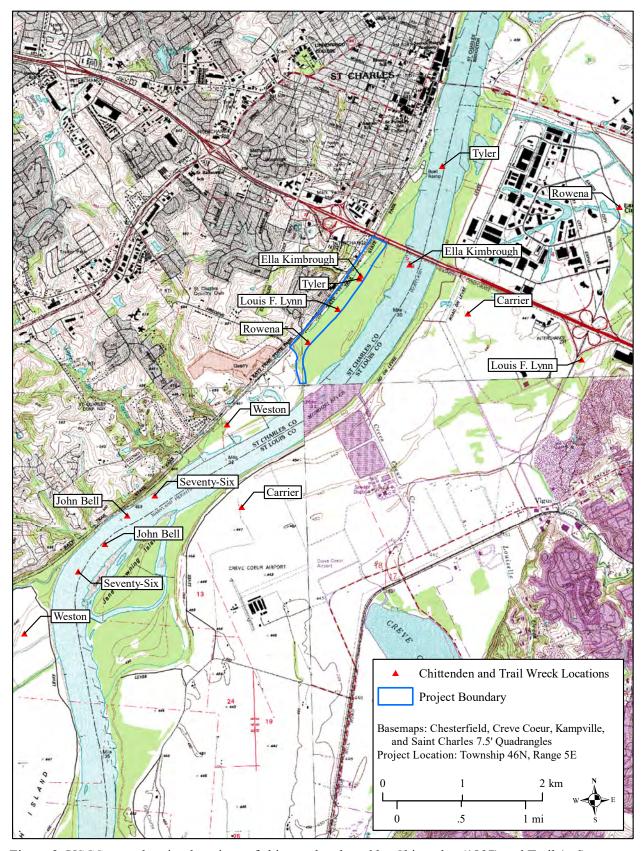


Figure 2. USGS map showing locations of shipwrecks plotted by Chittenden (1897) and Trail (n.d).

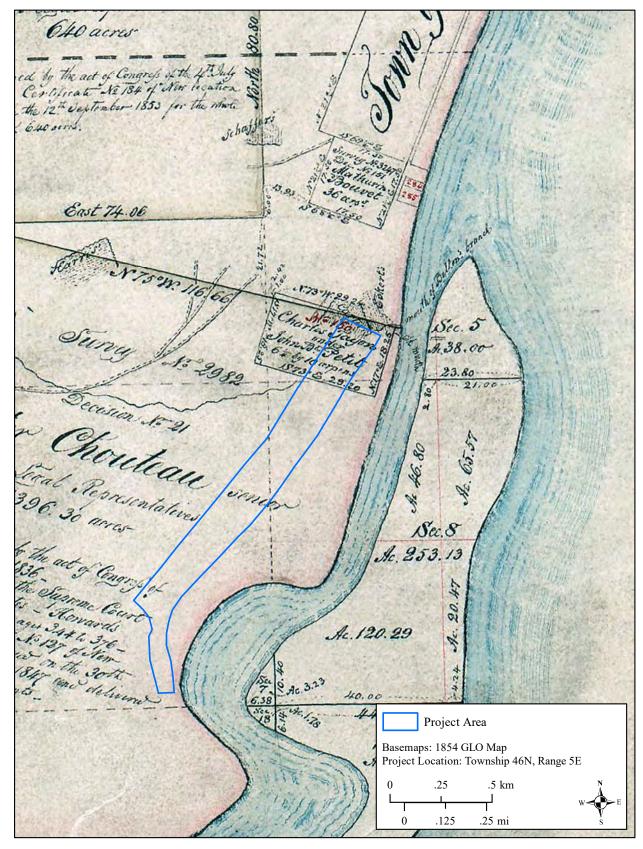


Figure 3. Excerpt from 1854 General Land Office (GLO) plat map showing APE and the Missouri River.

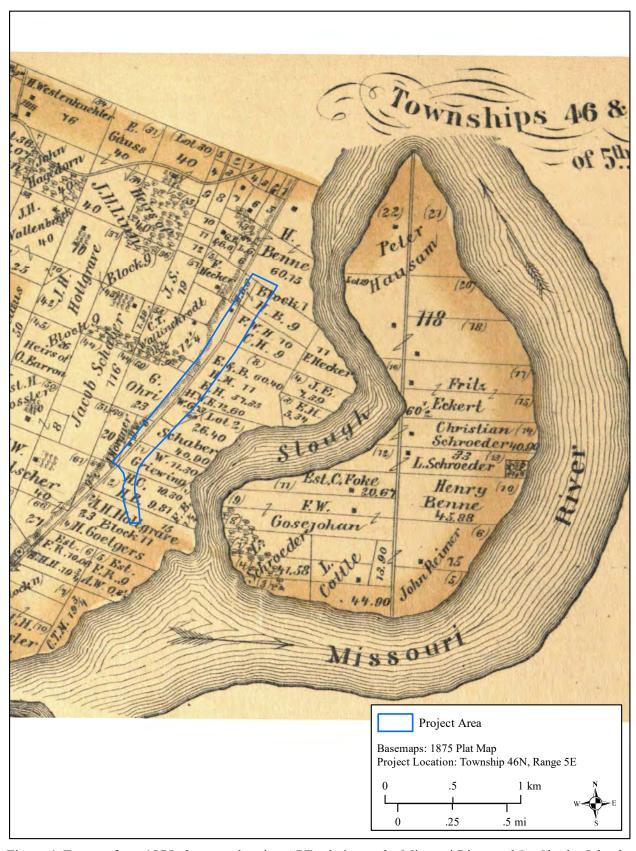


Figure 4. Excerpt from 1875 plat map showing APE relative to the Missouri River and St. Charles Island.

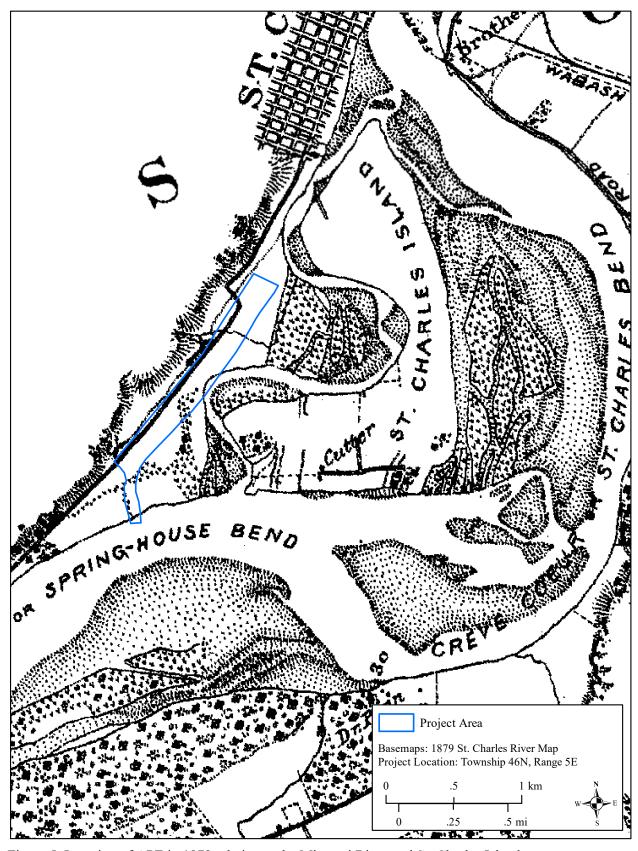


Figure 5. Location of APE in 1879 relative to the Missouri River and St. Charles Island.

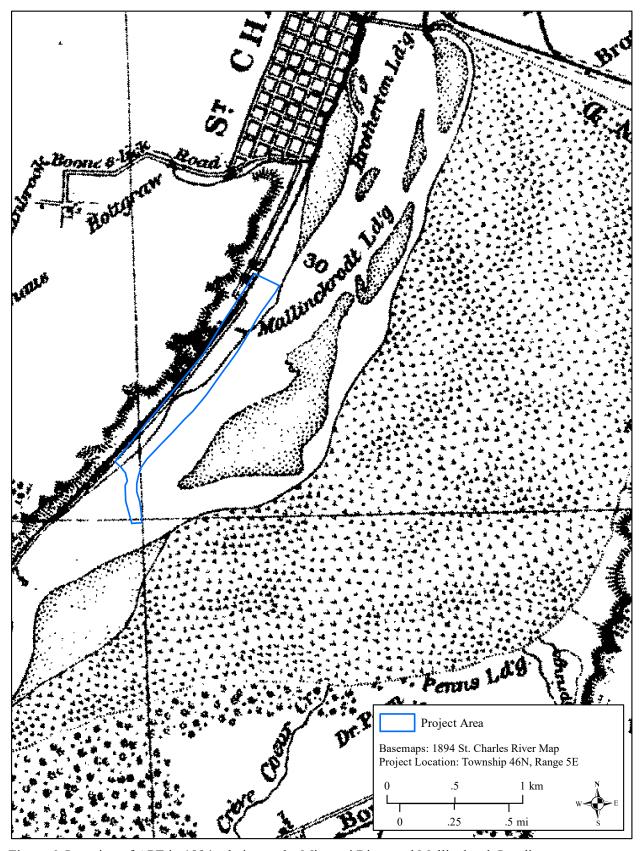


Figure 6. Location of APE in 1894 relative to the Missouri River and Mallinckrodt Landing.

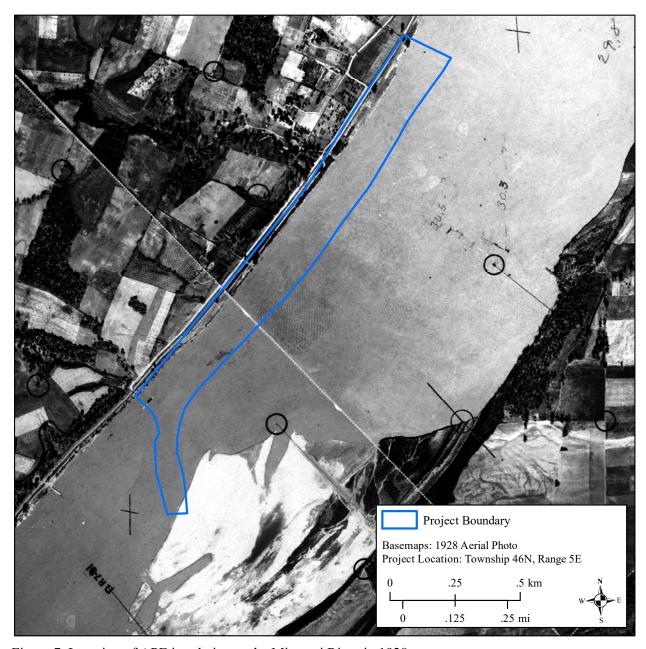


Figure 7. Location of APE in relation to the Missouri River in 1928.

Between 1894 and 1928, the river had migrated even further westward toward the bluff line. All but a portion of the APE located on the toe slope adjacent to where the railroad was located occurred within the river at the time. This is evident in a 1928 aerial photo of the area (Figure 7). This is the earliest aerial of the area and clearly shows that the main river channel was flowing through the great majority of the APE by then. Additional aerial photos and maps dating between 1937 and 1958 (Figures 8–11) illustrate the stability of the channel for another 20–25 years.

USGS 7.5' topographic maps dating to 1954 (Figure 9) show that the river had expanded to the east and nearly doubled in width since 1945. Two small islands were present by then in the middle of the channel east of the project area. These represent the beginning of Bangert Island's formation. It was shortly before this time that the U.S. Army Corps of Engineers began channelization projects

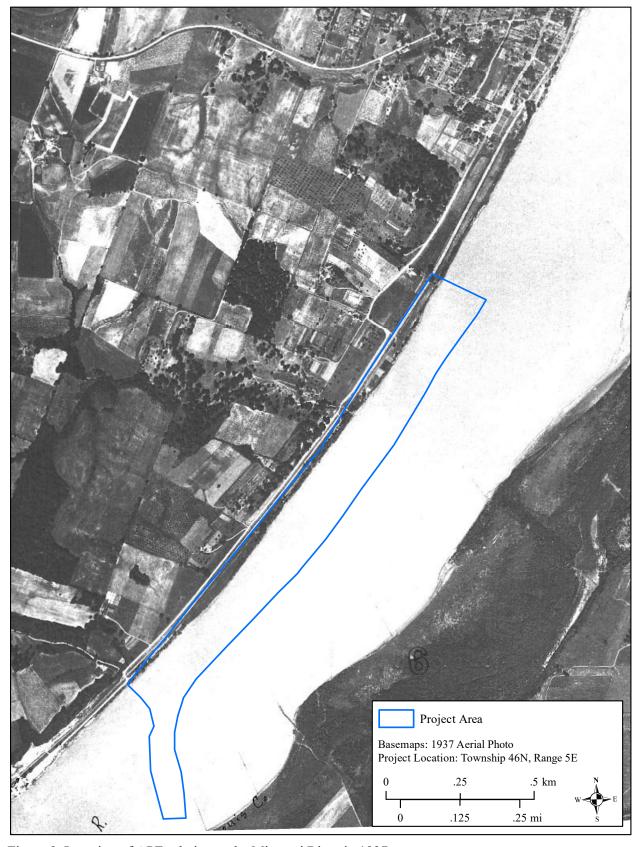


Figure 8. Location of APE relative to the Missouri River in 1937.

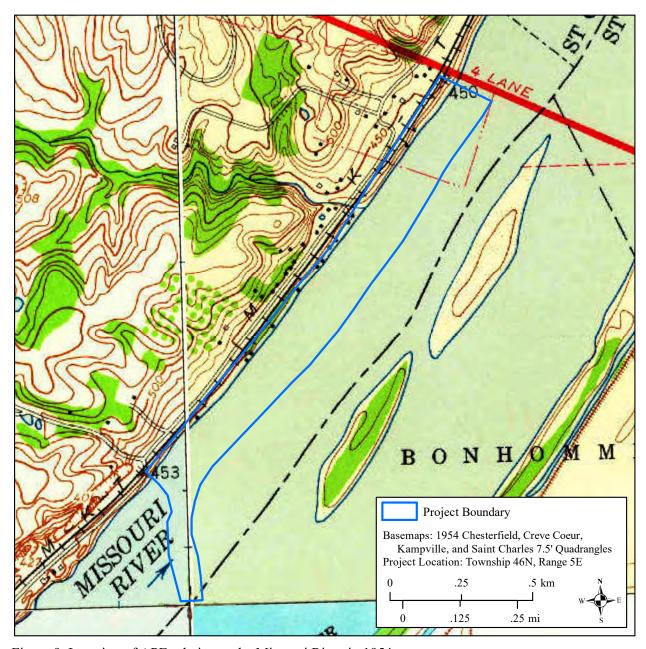


Figure 9. Location of APE relative to the Missouri River in 1954.

up and down the Missouri River to create a more narrow and deeper navigation channel. This was accomplished by the construction of dams, wing dikes, and bank stabilization projects.

An aerial photo from 1955 shows the continued siltation in the west half of the channel (Figure 10), leaving the east half to become the main channel. The two small islands had coalesced by then into one larger island, although there were still small sloughs running through it. The project area at this time was located in a backwater channel area away from the main channel. This backwater channel was still present in 1958, whereas the rest of the island became larger and more established (Figure 11).

A bridge for the newly constructed Mark Twain Expressway, later designated Interstate 70, is also evident on the 1958 aerial. The planning of this bridge likely influenced the relocation of the

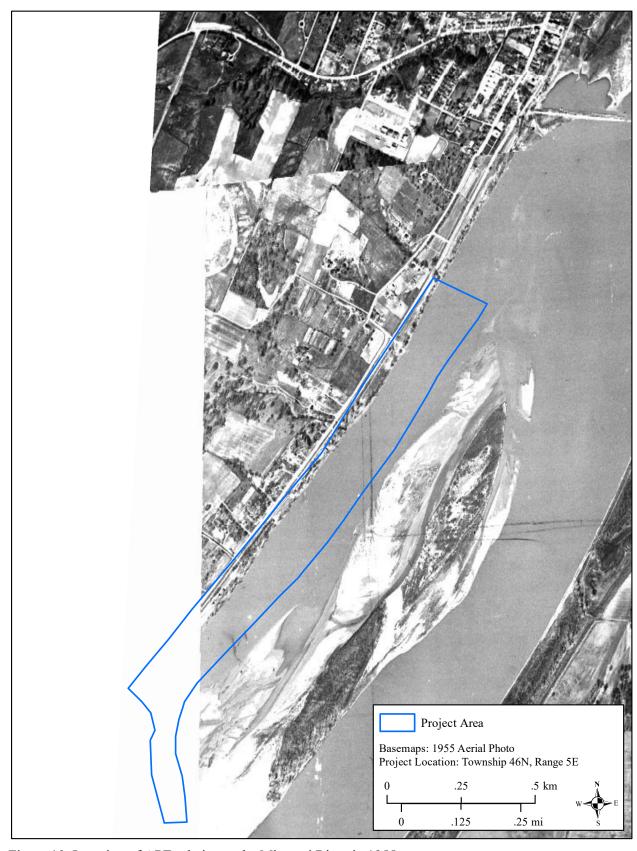


Figure 10. Location of APE relative to the Missouri River in 1955.

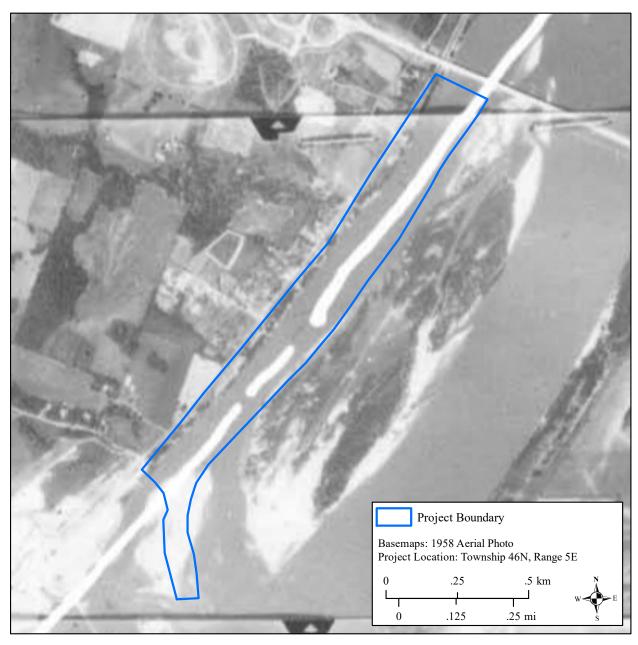


Figure 11. Location of APE relative to the Missouri River in 1958 (white dashed line represents county boundary).

channel into its now, relatively permanent position. Construction of the bridge began in March of 1955 before Bangert Island had formed completely. However, the main truss span of the bridge, with its widely spaced piers, only crosses the east half of the river, whereas the western span uses a girder bridge with smaller more closely spaced piers. A photograph of the bridge during construction in 1957 shows the completed piers and continued accumulation of sediment at the north end of the island (Figure 12). It is unclear when the old channel west of Bangert Island completely silted in, but it was effectively no longer an island by 1994 (see Figure 2). A small permanent tributary of the Missouri River, which drains the uplands south of downtown St. Charles, adopted the old channel along the north end of Bangert Island and drained northward to the river.



Figure 12. I-70 bridge construction over the Missouri River at St. Charles in 1957, view to the west (photo by Reynold Ferguson, St. Louis Post Dispatch).

SHIPWRECKS OF CONCERN

Reported locations of shipwrecks within 1 mi of the project APE are based on maps prepared by Chittenden (1897) and Trail (n.d). The locations for the same vessels generally do not agree and should be regarded as approximate. Previous documentary research and magnetometer surveys by CAR on Jameson and Cora islands (Lopinot and Thompson 2013a) and Cranberry Bend (Lopinot and Thompson 2013b) on the lower Missouri River have revealed the imprecise nature of these

Table 1.	Basic	: Information	n on Eight	t Shipwrecks	s of Concern.
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Vessel Name	Date of Wreck	Cause of Wreck	Fate of Vessel
Weston	1843	Fire	Uncertain
Lewis (Louis) F. Lynn	1848/1849	Snag	Uncertain
Rowena	March 11, 1850	Snag	Loss; passengers saved
Carrier	October 15, 1858	Snag	Raised
John Bell	September 24, 1863	Snag	Loss
Seventy-Six	1876	Unknown	Unknown
Tyler	1878/1879	Unknown	Unknown
Ella Kimbrough	September 20, 1884	Snag	Loss; some cargo saved

historical maps of shipwrecks. In those studies, no steamboat wrecks were found at or in close proximity to any of the locations marked on both sets of maps. However, a deeply buried steamboat wreck was found where none was mapped. Previous research also has emphasized the importance of in-depth historical background research since some vessels marked on the Chittenden and Trail maps suffered from disasters (e.g., boiler explosions), but did not sink, while others were raised and/or salvaged.

Research was undertaken to locate historical information concerning six vessels mapped as having wrecked within 1 mi of the project area. The principle sources were McDonald (1927a, 1927b, and 1927c) and Way (1994), both of whom provide brief descriptions of vessels. In most cases, the two sources largely concur, but some vessels are only documented by one of the authors. Digitized nineteenth-century newspapers were also used when available to fill in details for some of the vessels and these sometimes provide contradicting reports. The mapped locations of six shipwrecks and historic river channels are shown in Figure 2. Two additional shipwrecks (*John Bell* and *Seventy-Six*) are mapped upstream within a few miles of the APE and are also evaluated here. Table 1 contains basic information about each of these eight shipwrecks. Additional information for each is provided below.

Weston: Side-wheel packet, Captain William Littlejohn [Littleton]. Destroyed by fire in 1843. The hold caught fire and the crew battened down the hatches and intentionally ran aground at the head of St. Charles Island. None of the nearly 70 passengers were injured and the cabin furniture, vessel books, and all lives were saved. The cargo had been primarily hemp, tobacco, and wheat, and was insured for \$8,000. [McDonald 1927c:605]

The *Boon's Lick Times* reported that the fire occurred four miles above St. Charles (Boon's Lick Times 1843:2). The same paper reported the *Weston* colliding with the *Alliquippa* the night of March 17, 1844 on the Mississippi River about 95 miles below St. Louis, with the *Weston* being a total loss (Boon's Lick Times 1844:2).

Lewis F. Linn (Louis F. Lynn): Side-wheel packet, wood hull, 163 tons, built in 1844 in Pittsburgh, Pennsylvania. Presumably, named for U.S. Senator Lewis F. Linn (1796–1843) from Missouri. Captain M. Kennett operated her on the upper Mississippi. Worked in tandem with J.M White for a record fast run from New Orleans to Galena, Illinois in April 1844, with the Lewis F. Linn taking the cargo and passengers from St. Louis to Galena. Captain W. C. Jewett snagged at the head of St. Charles Island in 1848 or 1849. [McDonald 1927b:476; Way 1994:284]

An ad dated April 10, 1847 for the *Lewis F. Linn* captained by M. Kennett runs in the *Boon's Lick Times* until October 2 (Boon's Lick Times 1847:4). Ads for the *Rowena* captained by W.

C. Jewett in the same paper begin in 1847 and continue until the last issue in September 1848, and then run in the succeeding paper the *Glasgow Weekly Times* throughout 1849 and 1950 until the wreck of the *Rowena* (see below).

Rowena: Side-wheel packet, wood hull, 230 tons, 200 feet long, built in 1847 in Elizabeth, Pennsylvania. Snagged and sunk up to the hurricane roof in Penn's Bend, just above St. Charles on either March 12 or 14, 1850 with a total loss of cargo. [McDonald 1927c:592; Way 1994:403]

The *Glasgow Weekly Times* reported Captain W. C. Jewett wrecking on March 11, 1850, noting: "a few miles above St. Charles, she ran on a rack heap at the head of an island, which so shattered her hull, that she went down in about three minutes." The wind then swung the vessel around and settled down on the larboard (left) side to the hurricane roof. The passengers were all rescued by the *Fayaway* and some had to escape by cutting holes in the roof. The papers and cabin furniture were saved, but all the cargo was lost. The boat was insured for \$8,000 and Captain Jewett reportedly made arrangements for another boat. [Glasgow Weekly Times 1850:2]

Carrier: Side-wheel packet, wood hull, 250 tons, 215-x-33 feet, built in 1855 at Howard Yard in Jeffersonville, Indiana. It had a double stern with stern posts 10 feet apart. According to John Howard, of the Howard Yard, the Carrier was built for Captain Draffin and cost \$34,000, and in a 32-day trip made \$5,200. Captain Draffin made two runs to New Orleans and then sold the Carrier for \$5,000 more than he had paid. She was running St. Louis to Glasgow, MO under Captain William C. Postal in April 1856. She snagged at the head of Penn's Bend on either October 12 or 15, 1858 under Captain McPherson. McDonald (1927a:232) gives this wreck as a total loss, but Way (1994:74) gives the Carrier as sinking again at Island 25 on the Mississippi on February 21, 1861 and finally being lost at St. Charles on September 12, 1861. [McDonald 1927a:232; Way 1994:74]

Contrary to McDonald and Way, the *Glasgow Weekly Times* reported on October 21, 1851 that the *Carrier* had snagged near Herman, Missouri (Glasgow Weekly Times 1958a:3). On November 4, 1858 she had been raised and taken to St. Louis for repairs (Glasgow Weekly Times 1958b:3). The *Glasgow Weekly Times* ran ads throughout 1860 stating the *Carrier* had been repaired and would run a weekly packet between St. Louis and Glasgow under Captain Henry McPherson (Glasgow Weekly Times 1860:2). The last issue published of the *Glasgow Weekly Times* reported the *Carrier* in port at Glasgow on August 17, 1861(Glasgow Weekly Times 1861:2).

John Bell: Stern-wheel packet, wood hull, 209 tons, built in Louisville, Kentucky in 1855. It was snagged and lost at St. Charles on September 24, 1863. [Way 1994:250]

Seventy-Six: Side-wheel packet, 181-x-25.5 feet; had two engines and was captained by John Gonsaullis. Sunk by rocks one-half mile above Spring House, Missouri in 1876. [McDonald 1927c:594]

Tyler: Stern-wheel packet, piloted by Captain Al Dodd. Sank just above St. Charles in 1878 or 1879 from unknown causes. [McDonald 1927c:600]

Ella Kimbrough: Stern-wheel packet, wood hull, 243 tons, 145-x-28-x-4 feet, built in 1877 at Barmore Yard in Jeffersonville, Indiana (Figure 13) for the U.S. as the *General Sherman*. She had two engines, 15½ inches x 4½ feet, and two boilers, 22 feet x 38 inches, allowing a working pressure of 145 pounds. The *General Sherman* was built for the Yellowstone River but the U.S.

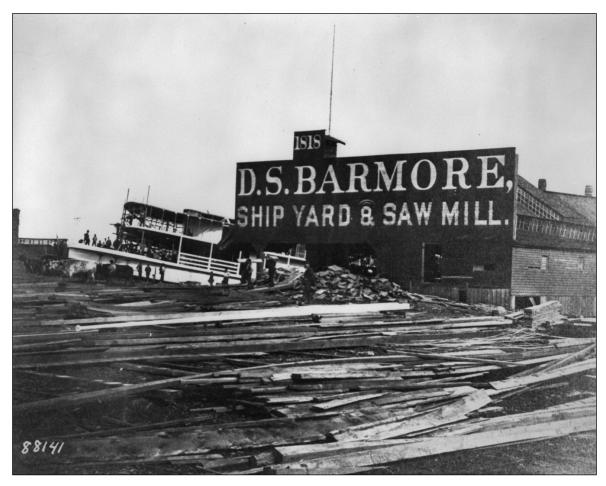


Figure 13. A steamboat on dry dock being built by D.S. Barmore Ship Yard & Saw Mill at Jeffersonville, Indiana, ca. 1861–1864 (from University of Wisconsin-La Crosse, Murphy Library, Special Collections; Image Negative No. 31510, available at https://digital.library.wisc.edu/1711.dl/GWWDJYYQALBFN8B).

U.S. sold her to Captain Peter M. Manion, who then sold her to Captain T. M. Kimbrough, who renamed her after his wife. The *Ella Kimbrough* snagged in the St. Charles Chute on September 20, 1884 while carrying a load 3,000 sacks of wheat insured for \$8,000. The ferry *John L. Ferguson* (Figure 4) recovered the cargo but the *Ella Kimbrough* was lost. The loss was reported as \$12,000. [McDonald 1927a:241; Way 1994:146]

Three days after hitting the snag the *St. Louis Globe-Democrat* reported "the wreckers are at work on her" (St. Louis Globe-Democrat 1884:10). Heckman (1914) reported that the *Ella Kimbrough* lay across from the waterworks. The 1905 plat map shows the waterworks north of the project area.

The earliest of the documented steamboat wrecks was that of the *Weston* (see Table 1). Despite being mapped in the vicinity upriver from the APE, there is good reason to assume that this vessel was damaged but not lost. The *Boon's Lick Times* reported that the fire occurred four miles above St. Charles (Boon's Lick Times 1843:2). The same newspaper reported that the *Weston* later collided with the *Alliquippa* the night of March 17, 1844 on the Mississippi River about 95 miles below St. Louis, with the *Weston* being a total loss (Boon's Lick Times 1844:2). So, it appears that the vessel was repaired and put back in service after the 1843 fire.

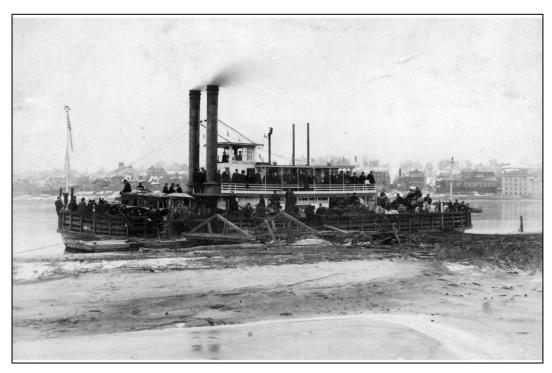


Figure 14. Steamboat ferry *John L. Ferguson* across river from St. Charles, ca. 1860–1900 (from the State Historical Society of Missouri, John J. Buse Collection, Image No. S1083_1729, available at https://digital.shsmo.org/digital/collection/imc/id/37849).

As for a few other vessels, the *Lewis F. Lynn* was documented as having been snagged at "the head of St. Charles Island" in 1848 or 1849 (Way 1994:284). The *Glasgow Weekly Times* noted that the 1850 wreck of the *Rowena* occurred: "... a few miles above St. Charles, [where] she ran on a rack heap at the head of an island, which so shattered her hull, that she went down in about three minutes." For the *Carrier*, there are conflicting stories about the actual location of the 1858 wreck, but it was raised and put back into service. In fact, the last issue published of the *Glasgow Weekly Times* reported the *Carrier* in port at Glasgow, Missouri upriver from St. Charles on August 17, 1861 (Glasgow Weekly Times 1861:2). We know very little about the *John Bell*, except that it was "snagged and lost at St. Charles" in 1863 (Way 1994:250). Information of the *Seventy-Six* is even more scant. Whereas both Chittenden and Trail depict the wreck of this vessel as occurring upstream from the Bangert Island APE, McDonald (1927c:594) indicates that it was "sunk by rocks one-half mile above Spring House, Mo. in 1876." This location is uncertain, although it likely refers to a location associated with "Spring-House Bend," as shown on the 1879 river map just upriver from St. Charles Island (see Figure 5). The only thing we know about the *Tyler* is that it sank above St. Charles in 1878 or 1879 from unknown causes (McDonald 1927c:600).

That only leaves the *Ella Kimbrough*, which sank five years after the 1879 river map (Figure 5) and 10 years before the subsequent river map of 1894 (Figure 6) was prepared. At some point during the interval of 1879–1894, the river indeed shifted westward to near the base of the St. Charles bluffline where the APE is located. It is recorded that the *Ella Kimbrough* snagged in the "St. Charles Chute" on September 20, 1884 while carrying a load 3,000 sacks of wheat insured for \$8,000. The ferry *John L. Ferguson* (Figure 14) recovered the cargo, but the *Ella Kimbrough* was lost (McDonald 1927a:241; Way 1994:146). Three days after hitting the snag, however, the *St. Louis Globe-Democrat* reported "the wreckers are at work on her" (St. Louis

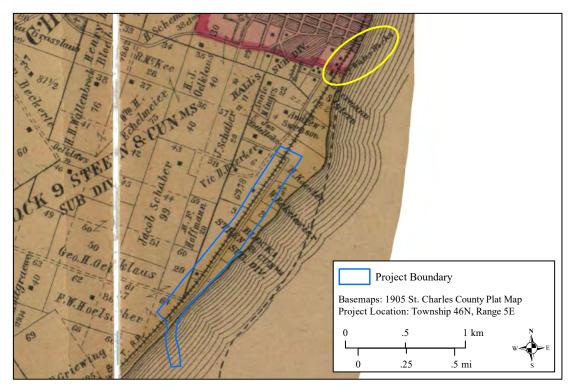


Figure 15. Plat map (1905) showing the location of the Water Works downriver from the APE.

Globe-Democrat 1884:10), which suggests that at least some salvage of machinery was likely undertaken. Heckman (1914) also later reported that the *Ella Kimbrough* lay across from the Water Works, which would place the wreck north of the project area or downriver according to the location of the waterworks on a 1905 plat of St. Charles (Figure 15).

Of the eight vessels of concern, seven of them wrecked on or before 1879, or when the 1879 river map was prepared (see Figure 5). Given the accuracy of the maps dating up to 1879, it seems impossible to expect the remains of any of these vessels to occur even near the Bangert Island APE, although parts could have been redeposited after the main channel of the river shifted westward sometime between 1879 and 1894. The *Weston* is clearly not in the APE and the *Ella Kimbrough* was downstream from the APE and appears to have been at least partially salvaged. The *Lewis F. Linn* and *Rowena* wrecked at the head of St. Charles Island, making them very unlikely to be in the project area. The *Carrier* clearly did not have a fatal wreck in 1858, although it may have done so in 1861. The actual locations for the *John Bell* and *Seventy-Six* are less certain, but they too were wrecked before the river had shifted to the left bank. One landing, Mallinckrodt Landing, is depicted within the project area on the 1894 river map (see Figure 6), though no further information on it could be located.

SURVEY METHODOLOGY

The Bangert Island survey involved the use of a (Geometrics) G-858 cesium vapor magnetometer strapped to the back and front of a surveyor (Figure 16). As with all magnetometers, the G-858 measures the intensity of the earth's magnetic field and anomalies often represent the presence of some ferromagnetic materials within that field. That is, the anomalies represent



Figure 16. Photo showing the G-858 cesium magnetometer.

deflections in the earth's magnetic field. The G-858 is highly sensitive and has an integrated submeter GPS system. It is designed for walking and its high data sample rates (up to 10 samples per second) allow one to walk at a relatively rapid pace. However, one magnetic reading per second (approximately one reading per meter) is more than adequate for a steamboat wreck survey. A handheld Trimble GeoXH submeter GPS instrument was used to locate waypoints for specific preprogrammed transects located over the proposed project area. The post-acquisition data processing was undertaken using MagMap2000, MagPick, Surfer, and ArcMap.

A base station was not used to correct for diurnal changes in the magnetic field. Such was not deemed necessary. The signature of the anomalies we expected should be between 50 and 100 gammas or more over a relatively small area (20–50 m). Diurnal variation of about 20 gammas over a 24-hour period would not affect the readings significantly.

Unfortunately, very little information has yet been found pertaining to the actual weight of engines, boilers, stacks, and other metallic machinery and piping present in steamboats. Instead, it

Table 2. Estimated Magnetic Signatures for Different Size Object(s) and Distances.¹

Size (tons)	Distance (feet)	Anomaly (gammas)
1	30	40
	60	4.6
	90	1.4
2	30	74
	60	9
	90	2.7
4	30	148
	60	18
	90	5.5

¹Based on formula: T=M/r³, where T is in gammas, M is magnetization, and r is distance from magnetometer.

is common to find the overall tonnage, the length and diameter of the boilers, the number of boilers. and the diameter of the cylinder(s) and the length of the stroke (e.g., 20 in x 5 ft), whether the engines were low pressure or high pressure. Although we know the boilers were typically made of riveted ¼-inch cast-iron plates (Hunter 1949:155), we also have not found data pertaining to the weights of different sizes of boilers. Hunter (1949:129) indicates that the weight of machinery in the 403-ton *Washington*, considered the first great steamboat on western waters, was 4–5 tons. For the same vessel, Kane (2001:57) put the weight of the engine at a generally equivalent 9,921 lbs. This was a relatively large steamboat (403 tons) in comparison to most nineteenth-century steamboats. Not including the weight of nails, bolts, tackle, the hog chain, smokestacks, etc., it is suggested that a good approximation for the weight of the engine, boiler(s), and other operational machinery in the various unsalvaged shipwrecked vessels in this study would be 3–4 tons.

Larson (2008:2) provides a table of information pertaining to the magnetic signatures at different distances for items ranging from 1 to 4 tons in weight. The table is reproduced here (Table 2). A 15-m transect interval was used for the Bangert Island survey. The transect spacing of 15 m provides about 33 ft of coverage in all directions from the magnetometer.

The formulae provided by Larson (2008:2; footnote in Table 2) can be used to calculate the magnetic expectations for shipwrecks with 3–4 tons of metal. It is assumed that one ton of iron has the magnetization of 1 x 10⁶. Given that and a distance of 33 feet, it is estimated that 3 tons should yield a minimum 83-gamma anomaly and 4 tons should yield a minimum 111-gamma anomaly. In general, steamboat wrecks at depths of 45 ft should yield an anomaly on the order of at least 80–110 gammas using transects of 15 m. If the objects are closer to the magnetometer, then they should yield more intense gamma spikes.

Field Conditions at Bangert Island

The magnetometer survey was undertaken on November 18–21 by Project Supervisors Dustin Thompson and Jennifer Rideout with assistance from U.S. Army Corps of Engineers, Kansas City District archaeologist Dr. Gina Powell and field technicians Brandon Ives, Alan O'Conner, and Grace Smith. Bangert Island is covered with a mix of bottomland forest, flooded and muddy remnant channel sloughs, a gravel parking lot, and masses of flood-deposited downed trees. Most of the project area is within Bangert Island, which is a relatively recent formation (post-1950s) consisting of ridge-and-swale deposits (Figure 17) in the old Missouri River Channel. The island

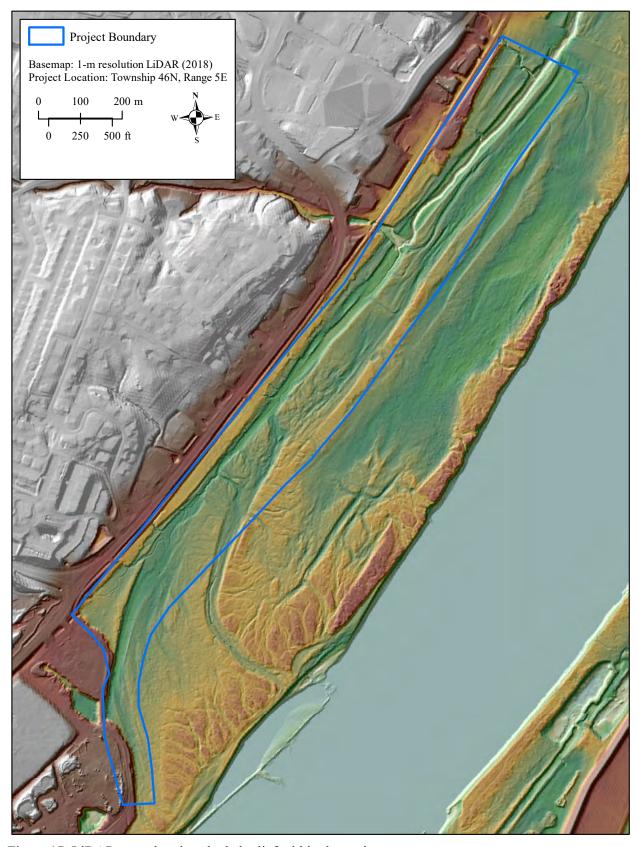


Figure 17. LiDAR map showing shaded relief within the project area.

is separated from a higher terrace (toeslope) remnant along the base of the upland ridge to the west by a slough (Figure 18), which was the last part of the old channel to silt in. The north half of this slough has since been captured by a permanent stream that drains the uplands south of I-70 and east of Highway 94 (see Figure 17). Nearly the entire project area is covered in bottomland forest vegetation (e.g., cottonwood, sycamore, and willow) and most of the project area has never been developed apart from a few park trails. However, there have been a few fishing cabins/houses built along the old terrace remnant along the base of the bluff.

The 1994 St. Charles 7.5' topographic quadrangle depicts 17 such structures along the west boundary of the project area (Figure 19). The location of the two northernmost structures, which are no longer extant, occur within the APE. One of these properties, purchased by the city and razed in 2019, offered a significant obstruction to the magnetometer survey. Aerial photos show and city employees confirmed (Daniel Mann, personal communication) that the area northwest of the previous house location was covered with old cars, boats, and miscellaneous trash. Most of the debris was removed or buried when the house was razed. However, there is still a significant amount of metal trash scattered across the project area west of the slough (Figures 20–21). This includes old tires with steel rims, metal buckets, boards with nails, metal fencing, etc. Compounding the problem in this area is the old railroad track along the west edge of the project area and a cell tower compound surrounded by a chain-link fence (Figure 22). The Interstate 70 bridge is also located at the northeast end of the project area. This continuous bridge has steel reinforced concrete piers and large steel girders supporting the deck (Figure 23).

The south end of the project area also was covered with masses of large downed trees (Figure 24) that apparently were knocked down by a tornado that passed through the APE in 2013. Unfortunately, this made it impossible to maintain evenly spaced transects in this area. Every effort was made to stay on the original transect spacing of 15 m, but it was not always possible. Alternate paths were made around the downed trees and returned to the original transects as quickly as possible. Data collection was continued on the alternate paths.

The U.S. Department of Agriculture soil map for Bangert Island characterized the soil as Haynie-Treloar-Blake complex, 0 to 2 percent slopes, frequently flooded with a typical profile having an Ap horizon of 0–18 cm of silt loam overlaying a C horizon, 18–60+ cm of stratified, very fine sandy loam to silt loam. This is consistent with a soil profile that was recorded on the terrace west of the slough. It consisted of an Ap horizon of silt loam (10YR 2/2) measuring 0–19 in thickness overlying; a stratified C horizon of sandy silt loam (10YR 4/2) at 19–46 cm; a sandy loam (10YR 5/2) at 46–84 cm; a sandy loam (10YR 4/4) at 84–98 cm; a sand (10YR 5/3) at 98–130 cm; a sandy clay loam (10YR 5/3) at 130–140 cm; and a sandy clay loam (10YR 4/6) at 140–190 cm.

Field Survey Methods

The survey of Bangert Island began with a shovel test survey of the high terrace along the northwest side of the project area. This was undertaken to identify any prehistoric or historic artifacts or features. Shovel tests were excavated at 20-m intervals along two transects spaced 20 m apart. These transects began south of the gravel parking lot in the northwest portion of the project area and extended 200 m to the southwest. Twenty shovel tests were excavated to a depth of at least 30 cm and the fills were screened through ½-in hardware cloth. In addition, one shovel test on Transect B was continued to a depth of 1.9 m below surface using a bucket auger. All shovel tests were negative.

The magnetometer survey generally requires walking relatively straight parallel transects. Therefore, the collection of magnetometer data was obtained along transects that were created in ArcMap, loaded into the Trimble XH, and marked in the field. Guided by the Trimble GPS unit,



Figure 18. Slough in north half of the APE, a remnant of the former channel of the Missouri River.

survey transects were marked with a patch of orange surveyor's paint at intervals of 3–5 m after clearing brush and overhanging branches to a height of eight feet (Figure 24). In areas covered with brush and thickets, machetes and loppers were used to clear small trees, the lower limbs of saplings, and weedy undergrowth along each transect. There were also flooded and muddy areas that were impassable with the magnetometer. When these areas were reached, data collection on that transect was ended and was resumed once the transect was past the impediment.

The transects were roughly parallel to the western edge of the project area. They were spaced 15 m apart. Figure 25 is an aerial photograph illustrating a model of our planned investigations in the Bangert Island project area. Fifteen transects oriented northeast to southwest and spaced 15 m apart were planned for the 210-m wide and 1,750-m long main portion of the APE. An additional

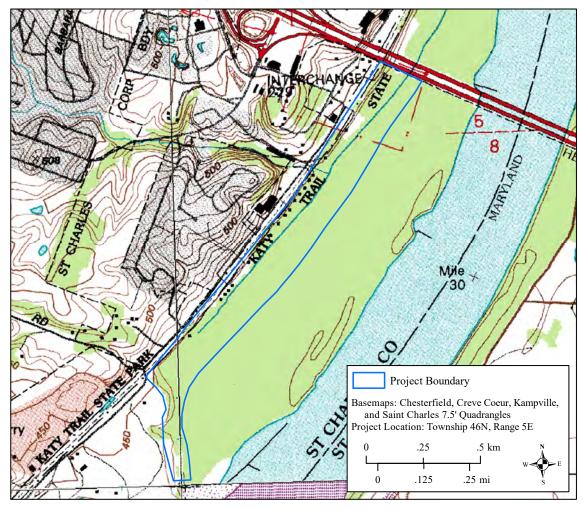


Figure 19. Excerpt of the 1994 St. Charles 7.5' topographic quadrangle depicting 17 structures along the west boundary of the APE.

five shorter transects oriented roughly north-south were planned for the shorter 90-m wide and 350-m long dogleg at the south end of the project area. However, only limited survey of the south half of the project area was completed owing to technical problems with the magnetometer.

Given technical issues with the magnetometer, nearly impenetrable mats of downed trees, the occurrence of some inundated areas, and also threats from local landowners, we had covered as much of the area as possible at the time. Additionally, it was concluded that there was a low probability of finding any historic shipwrecks within the project area after research into landform creation in the APE in relation to the timing of documented historic steamship wrecks. Therefore, the magnetometer survey portion of the project was halted before the survey of the south half of the project area was completed. Figures 26–27 illustrate what was completed and what was not completed.

DATA ANALYSIS

All collected data were downloaded from the magnetometer using Magmap 2000 software. The resulting .dat files were then opened in Microsoft Excel and all dropouts (data points with a zero reading) were subsequently removed. The resulting data were then formatted and imported



Figure 20. Scattered metal trash and wheels along northwest edge of APE.

into ArcMap 10.5 to search for anomalies. To find anomalies, individual point data were plotted and color-coded by magnetic strength. Due to the fact that some of the transects extended up to 1.7 km, the data were divided into smaller blocks that were easier to process. Due to the amount of modern debris that created large spikes in the data, this was the most efficient method to identify smaller anomalies. These smaller blocks of data were then imported into Surfer to create topographic and color relief maps using the gamma readings to better visualize potential anomalies.

Two minor issues in the data can be ignored with respect to the search for large, deeply buried objects such as steam engines, boilers, etc. First, the long staff holding the sensor for the G-858 is heavy and prone to bouncing during survey, adding minor noise to the data (Ernenwein and Hargrave 2009:72). This bouncing effect can create minor anomalies of less than about 4–5



Figure 21. Photo of additional scattered metal trash and wheels along west edge of APE.

gammas and are not an issue in distinguishing larger anomalies. Second, very small isolated pieces of ferrous metal near the floodplain surface, such as tin cans, nails in boards, and nuts or bolts from farm machinery, will yield magnetic data-point-specific spikes (i.e., cases where one point varied greatly from all the surrounding points) and therefore they can be excluded based on their magnetic extent.

A third problem that does require attention was the missplotting of data points. Although the survey was undertaken during the winter leaf-off season, dense tree cover still made it difficult for the internal GPS of the magnetometer to receive an accurate signal in places. Most of the data points follow the outlined transects. However, there are several data points clearly plotted incorrectly. This is most evident in the east central portion of the survey. If a point was incorrectly plotted into an adjoining transect that was surveyed during a different day or time of day, it would give the



Figure 22. Old railroad track (now the KATY Trail) and cell tower compound along west edge of APE.

false reading of an anomaly due to diurnal drift. An attempt was made to "clean up" such bad data by relocating obviously scattered points back into the correct location using the sequential number assigned to each point when generated.

Anomalies greater than 40 gammas, the minimum expected peak for a buried shipwreck, were further evaluated as to their depth and size. To calculate the depth of the anomalies, Peter's Half-Slope Method was used (see Burger et al. 2006:485–487). Contour maps for each of the analyzed magnetic anomalies were created using Surfer 18. The slope and half-slope of the anomaly was calculated using these maps. Using the half-slope distance, an approximation of the distance of the object from the sensor was calculated using the formula d=1.6h, where d is the half-slope distance, h is the distance to the anomaly, and 1.6 is an average value of a magnetic body. Once the distance



Figure 23. Continuous span I-70 girder bridge at the northeast end of the APE.

was calculated, an approximation of the anomaly size could be made in tons. This was undertaken using the formula provided by Larson ($M=T/r^3$), where M is magnetization (assumed that one ton of iron has the magnetization of 1 x 10⁶), T is gammas, and r is distance from the magnetometer. Finally, the depth below ground surface was calculated by subtracting the height of the magnetometer sensor above ground (.75 m) from the distance to the anomaly.

BANGERT ISLAND SURVEY RESULTS

As expected, the area west of the slough yielded numerous peaks in the magnetometer data (Figure 28). Most of these peaks are clustered around the location of the house and lot where the



Figure 24. Downed trees at the south end of the APE showing an orange-painted survey transect.

old cars and boats were kept for many years. Some of the peaks along the western edge can be attributed to the old railroad tracks that extend along the western boundary of the project area. The cell tower complex is represented by an extreme low in the data (-7,970 gammas) and the bridge along the northeast end of the project area caused all the transects to dip as much as -1,900 gammas below the normal background level. There are other scattered anomalies outside the main cluster that represent metal trash that was noted on the surface during the survey (Figures 28–29). Because of the nature of these anomalies, they were not analyzed further. It should also be noted that if there was a buried shipwreck in this area, it's magnetic signature would be masked by the large amount of surface anomalies and would not be detectable.

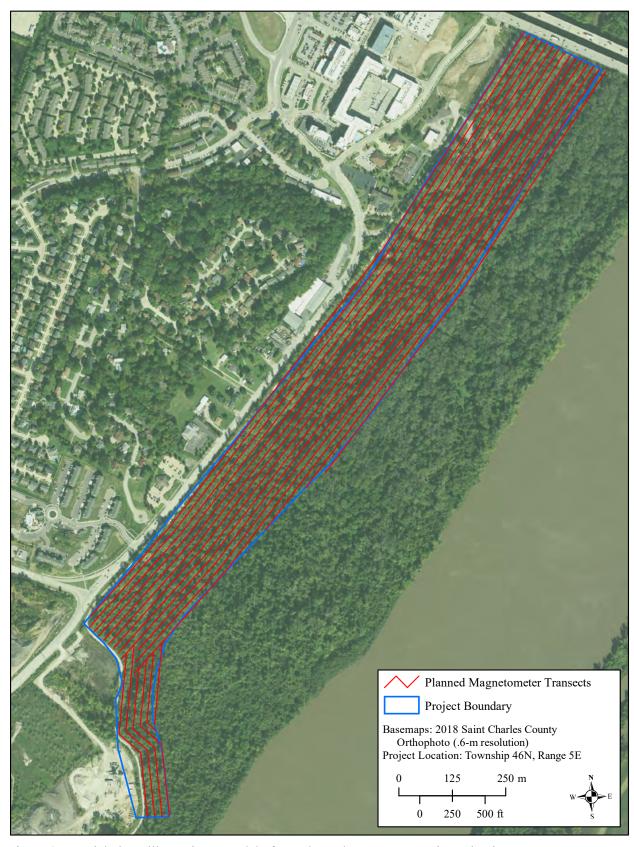


Figure 25. Aerial photo illustrating a model of our planned magnetometry investigations.

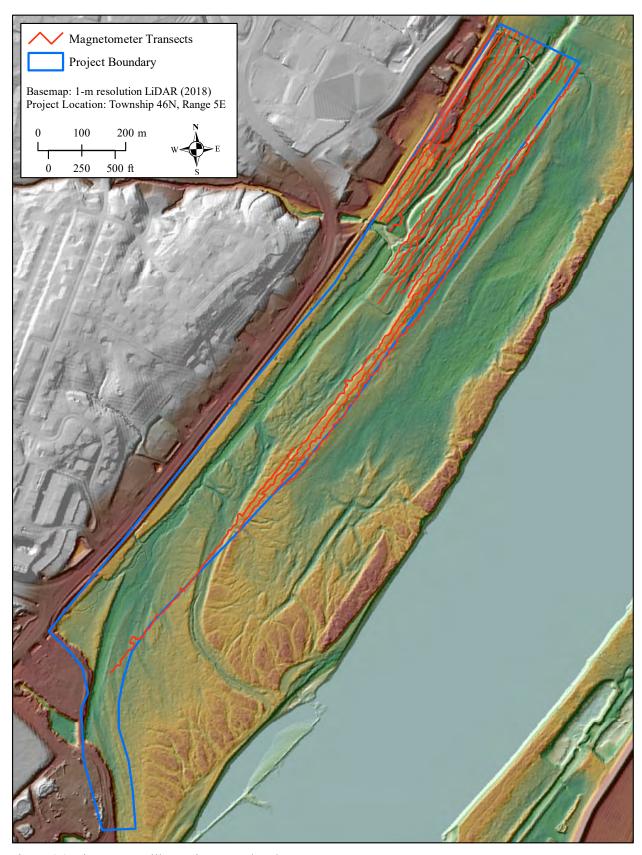


Figure 26. LiDAR map illustrating completed magnetometry transects.

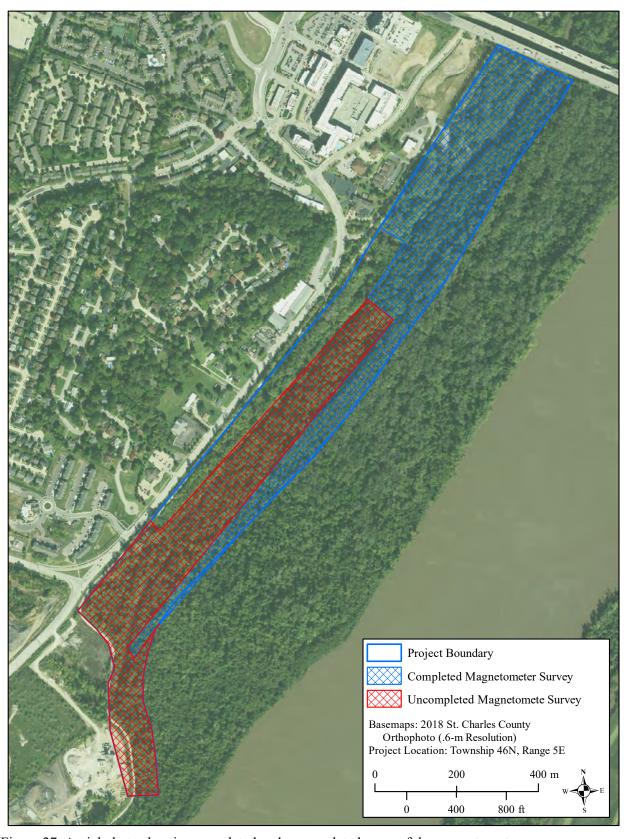


Figure 27. Aerial photo showing completed and uncompleted areas of the magnetometry survey.

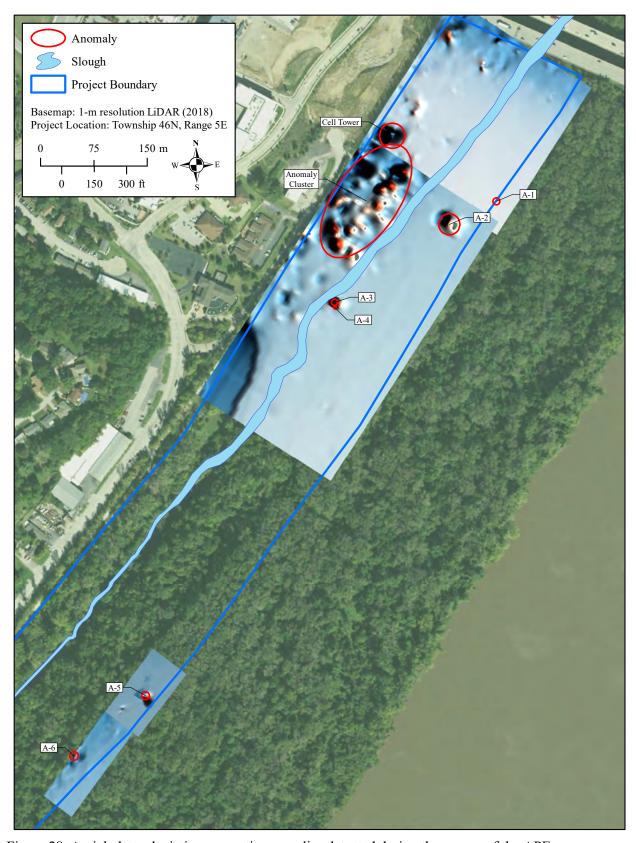


Figure 28. Aerial photo depicting magnetic anomalies detected during the survey of the APE.

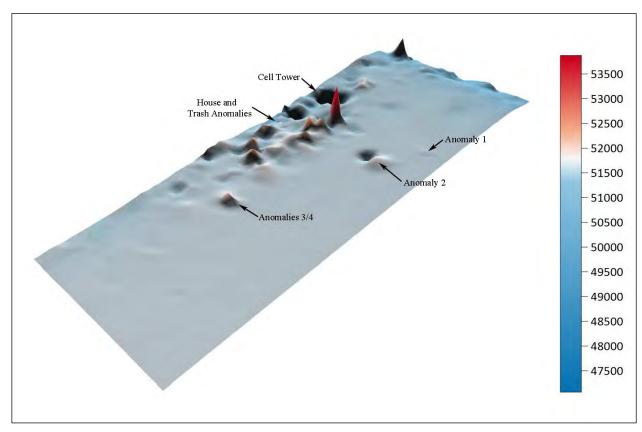


Figure 29. Three-dimensional depiction of anomalies at north end of the APE.

There are six remaining anomalies in the surveyed area east of the slough. Although, none of these anomalies appeared to have the expected attributes of a shipwreck, all six were analyzed so they could either be ruled out or be considered for further study. These anomalies are numbered 1–6 from north to south (see Figures 29–30).

Anomaly 1: Anomaly 1 is located along the eastern border of the project area approximately 200 m from the northeast end (Figure 28). It yielded a peak of 147 gammas (Figure 30), which does fall within the range expected for a buried shipwreck. However, the peak is only about 4 m in diameter. Using Peter's Half-Slope Method, the approximate depth of the anomaly is calculated to be 0.5 m below ground surface and the size of the anomaly is approximately 20 lbs.

Anomaly 2: Anomaly 2 is located in a swale in the north half of the project area (Figures 28–29). The anomaly has a peak of 2,900 gammas (Figure 31) with a diameter of 5 m. The distance to the anomaly is calculated to be approximately 1.25 m of the magnetometer or 0.5 m below ground surface with a weight of around 400 lbs.

Anomaly 3: This anomaly is located on the east bank of the slough in the north half of the project area (Figure 28–29). It consists of a peak of 2,860 gammas with a diameter of 4 m. It calculates to an object with a depth of approximately 0.25 m below ground surface and a weight of 138 lbs.

Anomaly 4: Anomaly 4 is located just a few meters south of Anomaly 3 near the slough (Figure 28). Like Anomaly 1, this anomaly is within the gamma range of a buried shipwreck with a peak of 125 gammas. However, the diameter of the anomaly is only 4.25 m and it is apparently about 0.5 m below ground surface with a weight of around 17 lbs.

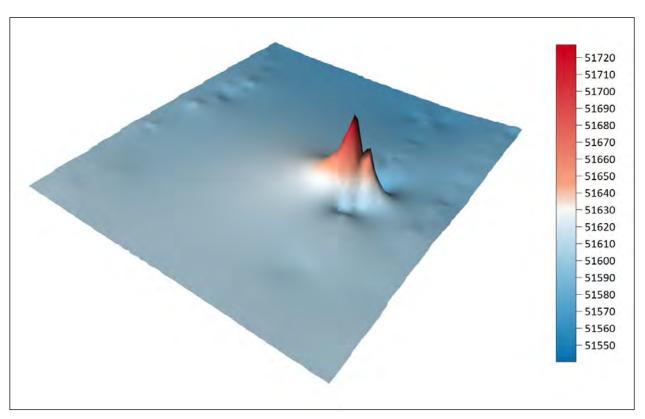


Figure 30. Three-dimensional surfer image of Anomaly 1.

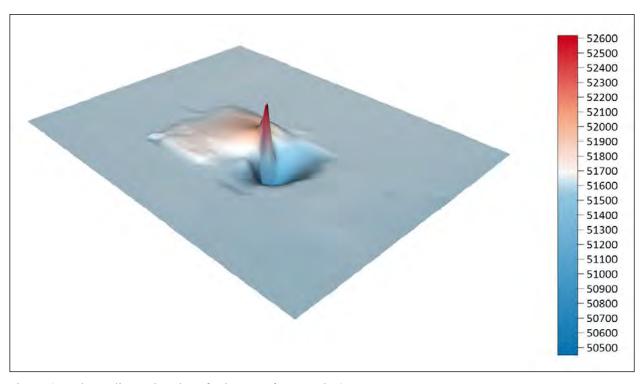


Figure 31. Three-dimensional surfer image of Anomaly 2.

Anomaly 5: Anomaly 5 is located on a ridge in the south half of the project area (Figure 28). This is another large spike with a peak of 1,100 gammas with a diameter of 6 m. That makes the object around 325 lbs at a depth of 0.85 m below ground surface.

Anomaly 6: The final anomaly is also located on a ridge in the south half of the project area, 120 m south-southwest of Anomaly 5 (Figure 28). It has a peak of 175 gammas, which is within the range expected for a buried shipwreck. However, the peak is only about 9 m in diameter. Using Peter's Half-Slope Method, the approximate depth of the anomaly is calculated to be 1.75 m below ground surface and the size of the anomaly is approximately 193 lbs.

Three of the six recorded anomalies had gamma spikes over 1,000. The spikes are indicative of relatively shallow iron objects. The remaining three anomalies were all within the gamma range (40–200) expected for a buried shipwreck. However, the diameter of an anomaly in this range needs to be between 20–40 m, which would indicate the buried object is at a sufficient depth to possibly represent a buried steamboat wreck. All of the detected anomalies were less than 10 m in diameter, meaning the magnetometer only began to detect the source within a few meters of passing over them. Although the calculated depths and weights of the anomalies are based on averages that can vary somewhat, it is clear that none of the anomalies represent large, deeply buried objects that could represent steamboat wrecks.

OTHER CONSIDERATIONS

Once the main channel of the Missouri River shifted to the left bank of the valley toward the end of the nineteenth century, the only remaining uneroded land within the project area would have been the linear apron of colluvial toeslope or terrace deposits bordering the western edge of the APE. The main channel remained in this location until at least 1954, based on a series of historic maps and aerials dating to 1921, 1928, 1937, 1940, 1946, and 1951, as well as its depicted location on the USGS St. Charles 7.5' Quadrangle (see Figure 9). By the time the photo-revised USGS quadrangle was prepared in 1968 and 1974, the Missouri River had moved eastward. This likely occurred during the late 1950s, but it had already begun by 1955 as an aerial photo from that year depicts (Figure 10).

In February, March, and early April of 2020, 20 borings and five test pits also were excavated in the APE. Figure 32 illustrates their location. Since the backhoe-excavated test pits only extended to 10 ft below surface (bs) and invariably ended in sands (n=3), sandy silt (n=1), and clayey silt, they are not very informative. However, it is notable that the profiles of those test pits illustrate relatively sharp boundaries with little or no welding between them, indicating very short-term and recent episodic deposition resulting from either ponding or swift current from floodwaters.

The depth of the borings ranged from 15.8 ft to 39 ft bs. Of the 20 borings, 14 were terminated upon encountering limestone bedrock or boulders. These consisted of B-1 (32 ft bs), B-4 (24.6 ft bs), B-5 (28 ft bs), B-6 (24.25 ft bs), B-8 (20.6 ft bs), B-9 (24 ft bs), B-11 (18.9 ft bs), B-12 (20.6 ft bs), B-13 (33.2 ft bs), C-1 (21 ft bs), C-2 (22.6 ft bs), C-3 (18.11 ft bs), C-4 (15.8 ft bs), and C-15 (17 ft bs). The two deepest borings (B-14 and B-15) extended to depths of 39 ft bs, but were terminated in sand. As is evident in Figure 32, both of the deepest borings were taken in the thalweg of the Missouri River by the early twentieth century, if not before. This would have been the deepest part of the river with the strongest current. If there ever was a shipwreck in the general vicinity, it would have surely washed away by the 1950s. Of the four other borings (B-2, B-3, B-7, and B-10) that did not encounter bedrock/boulders, all were stopped at 20 ft bs in fine to medium sand or silty sand, one of which had clay seams.

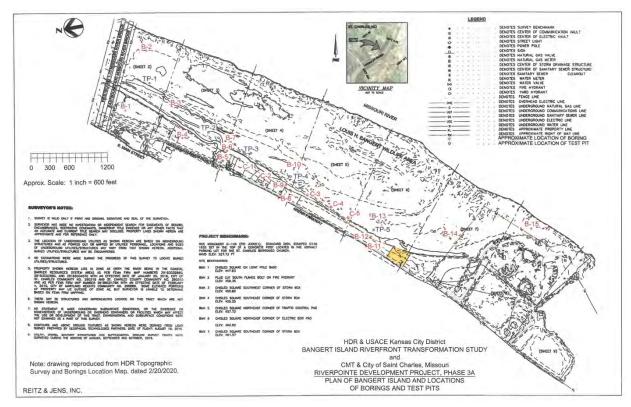


Figure 32. Plan map showing locations of borings (B- and C-) and test pits (TP-).

Due to the ridge-and-swale topography characterizing Bangert Island, it is noted that the depth-to-bedrock data found on the boring logs are not directly comparable. Table 3 was prepared to normalize the data somewhat and provide a better basis for evaluating conditions within and near the project area. The starting elevations of the 20 cores varied by 15 ft. To compensate for this, the depth of each core was subtracted from the core elevation to give the elevation of the bedrock at each core location. Cores in which bedrock was not reached provide a maximum elevation for bedrock. The buried bedrock surface appears to be very irregular, varying in elevation from 411.5 to 440.5 ft amsl, a difference of at least 29 ft. However, the bedrock is generally higher along the western edge of the island near the bluff line, and it becomes deeper closer to the current channel of the Missouri River.

It is evident that all of the strata in all 20 borings were deposited rapidly from floodwaters of variable mobility and/or force. That is, the major breaks in all of the strata illustrate rapid accretion and lack any stable soil development, except at the tops of the profiles or at/near the surface. The deeper borings—B-1, B-13, B-14, and B-15—contained 20–25 ft or more of silty sands and fine-to-coarse sands before encountering bedrock/boulders and being terminated in sand. This reflects deposition by still-rapidly moving water in the former channel of the Missouri River as it moved back eastward during the middle of the twentieth century.

CONCLUSIONS AND RECOMMENDATIONS

As for cultural resource management projects of this type, it is generally impossible to anticipate what may or may not be found in the absence of relatively intensive historical research.

Table 3. Summary of Boring Data from Bangert Island.

			Total		Elevation of
Bore No.	Date Drilled	Core Elevation	Depth (ft)	Termination Material	Bedrock (ft amsl)
B-1	2/18/20	443.5	32	Bedrock/Boulder	411.5
B-2	3/17/20	445.0	20	Sand	below 425
B-3	3/17/20	440.5	20	Sand	below 440.5
B-4	2/18/20	446.5	20.5	Bedrock/Boulder	426
B-5	2/18/20	448.0	28	Bedrock/Boulder	420
B-6	4/1/20	440.0	24.25	Bedrock/Boulder	415.75
B-7	3/17/20	444.0	20	Sand	below 424
B-8	2/18/20	450.5	20.5	Bedrock/Boulder	430
B-9	3/17/20	439.0	24	Bedrock/Boulder	415
B-10	3/17/20	442.0	20	Sand	below 422
B-11	2/18/20	454.0	18.75	Bedrock/Boulder	435.25
B-12	4/2/20	443.0	20.5	Bedrock/Boulder	422.5
B-13	4/2/20	445.0	33.2	Bedrock/Boulder	411.8
B-14	4/2/20	445.0	39	Sand	below 406
B-15	4/2/20	451.0	39	Sand	below 412
C-1	2/18/20	445.0	21	Bedrock/Boulder	424
C-2	2/18/20	445.0	22.5	Bedrock/Boulder	422.5
C-3	4/1/20	439.0	18.9	Bedrock/Boulder	420.1
C-4	4/2/20	439.0	15.7	Bedrock/Boulder	423.3
C-5	4/2/20	439.0	17	Bedrock/Boulder	422

Such research generally cannot be undertaken prior to recommendations for Section 106 investigations. Furthermore, we are typically hampered by the reality that the reported locations of shipwrecks prepared by Chittenden (1897) and Trail (n.d) are only approximations, which requires remote sensing to determine if shipwrecks may be present in a particular project area. Chittenden in particular (but also Trail) did not have the kind of mapping and historical research tools, including access to a considerable volume of digital source material, that modern-day investigators have at our disposal. With this in mind, we have evaluated the likelihood that any shipwrecks may remain buried within the Bangert Island APE and might be subject to disturbance in the future.

Based on the partial magnetometer survey, the researched historic records of shipwrecks in the area, and the geomorphological history of Bangert Island, it appears to be extremely unlikely that any buried steamboat wrecks dating to the nineteenth century are located within the APE. It was our contention that additional magnetometer surveying within the APE would not be beneficial from a time and monetary standpoint, and that an interim report (Lopinot and Thompson 2020) and this report has sufficiently addressed the likelihood that buried steamboat wrecks are not located within the APE. However, a magnetometer survey cannot adequately detect the partial remains of shipwrecks that had salvaged engines and boilers, nor of flatboats and barges constructed with very little iron or other metals. Therefore, it is recommended that the proposed clearing of the former channel of the Missouri River on Bangert Island should be allowed to proceed as planned, provided that the following conditional stipulations are met.

1. If the current project boundaries change to include other previously unsurveyed areas that have a moderate to high probability for containing buried steamboat wrecks or other types of archaeological sites, additional archaeological investigations should be required.

2.	If previously unrecorded buried cultural resources are encountered during project construction, the ground-disturbing activities must cease in the immediate area and the Kansas City USACE District Archaeologist and the Missouri SHPO must be notified immediately.								

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October 26, 2020

U.S. Army Corps of Engineers Kansas City District, Attn: Gina Powell 601 East 12th Street, RM 402 Kansas City, MO 64103

Re: SHPO Project Number: 093-SC-20 – Riverpointe Public Infrastructure Project Bangert Island Flood Risk & Riverfront Transformation Project, St. Charles County, Missouri

Dear Ms. Powell:

Thank you for submitting information about the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources.

We have reviewed the report A Shipwreck Magnetometer Survey on Bangert Island, St. Charles, Missouri, by the Center for Archaeological Research, submitted to our office on August 25, 2020, concerning the above referenced project. Based on this review it is evident that a thorough and adequate cultural resources survey has been conducted of the proposed project area. We concur with your recommendation that there will be **no historic properties affected** for the area covered by the survey, and therefore, we have no objection to the initiation of project activities.

If project plans change, please send additional information documenting the revisions for further review. In the event that cultural materials are encountered during project activities, all construction should be halted, and this office notified as soon as possible in order to determine the appropriate course of action.



Gina Powell

Page 2

If you have any questions, please write to State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call Amy Rubingh (573) 751-4589. Please be sure to include the SHPO Log Number (093-SC-20) on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Joni m. Drawl

Toni M. Prawl, Ph.D.

Director and Deputy State Historic Preservation Officer

CC: Ellen Hogrebe - Crawford, Murphy, and Tilly

Ellen Hogrebe

From: Rubingh, Amy <Amy.Rubingh@dnr.mo.gov>
Sent: Wednesday, November 4, 2020 10:30 AM

To: Ellen Hogrebe

Cc: Powell, Gina S CIV USARMY CENWK (US) **Subject:** RE: 093-SC-20 Bangert Island Development

External Message: This email was sent from someone outside of CMT. Please use caution with links and attachments from unknown senders or receiving unexpected emails.

Hi Ellen,

I took a look at the new boundary for the project and I will be sending you a letter that we concur with a No Historic Properties Affected determination. If the project extends to the south for the portion of the project that is labeled as phase 2 on the original project maps then that will need to be resubmitted to my office for comment and since there are archaeological sites within that project area and the current condition of them is unknown, we would likely request a survey of the area.

If you have any questions let me know.

Thank you, Amy Rubingh Archaeologist/Records Management Missouri SHPO PO Box 176 Jefferson City, MO 65102 (573)751-4589

We'd like your feedback on the service you received from the Missouri Department of Natural Resources. Please consider taking a few minutes to complete the department's Customer Satisfaction Survey at https://www.surveymonkey.com/r/MoDNRsurvey. Thank you.

From: Ellen Hogrebe <ehogrebe@cmtengr.com>
Sent: Wednesday, October 28, 2020 9:42 AM
To: Rubingh, Amy <Amy.Rubingh@dnr.mo.gov>
Cc: Heather Lacey <hlacey@cmtengr.com>

Subject: RE: 093-SC-20 Bangert Island Development

Thank you Amy. I understand that the letter of comment applies only to areas within the magnetometer survey area. The original Section 106 coordination packet I submitted in July (attached) included a project study area that extended beyond the limits of the magnetometer survey. The development has since scaled back its project limits and is mostly covered by the magnetometer survey, with exception to areas along South River Road and Old South River Road. Will Mo SHPO be issuing a separate, or additional letter of comment for the additional areas outside the magnetometer survey area?

Thank you! Please let us know if you have any questions or need additional information,

ELLEN HOGREBE | Environmental Scientist **Crawford, Murphy & Tilly** w 314.571.9103 | m 419.350.1271

From: Rubingh, Amy < Amy.Rubingh@dnr.mo.gov>

Sent: Tuesday, October 27, 2020 10:59 AM

To: Powell, Gina S CIV USARMY CENWK (US) < Gina.S.Powell@usace.army.mil>; Ellen Hogrebe

<ehogrebe@cmtengr.com>

Subject: 093-SC-20 Bangert Island Development

External Message: This email was sent from someone outside of CMT. Please use caution with links and attachments from unknown senders or receiving unexpected emails.

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources. Our formal letter of comment is attached. Please retain a copy of this letter for your records as no physical copies will be mailed.

If you have any questions, please respond to Amy.rubingh@dnr.mo.gov or call 573/751-4589.

Best,

Amy Rubingh Archaeologist/Records Management Missouri SHPO PO Box 176 Jefferson City, MO 65102 (573)751-4589

We'd like your feedback on the service you received from the Missouri Department of Natural Resources. Please consider taking a few minutes to complete the department's Customer Satisfaction Survey at https://www.surveymonkey.com/r/MoDNRsurvey. Thank you.



Riverpointe Public Infrastructure Project - St. Charles, St. Charles Co., MO **Aerial**



Ellen Hogrebe

From: Rubingh, Amy <Amy.Rubingh@dnr.mo.gov>

Sent: Friday, November 6, 2020 12:43 PM

To: Ellen Hogrebe

Cc: Powell, Gina S CIV USARMY CENWK (US)

Subject: 093-SC-20 Riverpointe Public Infrastructure project APE Revision

Attachments: 093SC20.pdf

External Message: This email was sent from someone outside of CMT. Please use caution with links and attachments from unknown senders or receiving unexpected emails.

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources. Our formal letter of comment is attached. Please retain a copy of this letter for your records as no physical copies will be mailed.

If you have any questions, please respond to Amy.rubingh@dnr.mo.gov or call 573/751-4589.

Best,

Amy Rubingh Archaeologist/Records Management Missouri SHPO PO Box 176 Jefferson City, MO 65102 (573)751-4589

We'd like your feedback on the service you received from the Missouri Department of Natural Resources. Please consider taking a few minutes to complete the department's Customer Satisfaction Survey at https://www.surveymonkey.com/r/MoDNRsurvey. Thank you.

CULTURAL RESOURCE ASSESSMENT Section 106 Review

CONTACT PE	RSON/ADDRESS:		C:			
Ellen Hogrebe One Memorial St. Louis, MO	Drive, Suite 500		Gina Powell – USACE St. Louis			
PROJECT:						
Riverpointe Pu	blic Infrastructure Project – Project Area Revision					
FEDERAL AG	ENCY:	C	COUNTY:			
USACE		S	St. Charles			
	storic Preservation Office has reviewed the informated on this review, we have made the following dete					
X	Adequate documentation has been provided as outlined in 36 CFR Section 800.11. After review of the initial submission, the project area has no known historic properties present and a low potential for the occurrence of cultural resources. We concur with a determination of No Historic Properties Affected .					
	An adequate cultural resource survey of the project area has been previously conducted; therefore, SHPO concurs with your determination of No Historic Properties Affected .					
	An adequate cultural resource survey has been conducted for this project titled, , by . Based on this survey and its negative findings, SHPO concurs with your determination of No Historic Properties Affected.					
For the above checked reason, the State Historic Preservation Office has no objection to the initiation of project activities. PLEASE BE ADVISED THAT, IF THE CURRENT PROJECT AREA OR SCOPE OF WORK CHANGES, A BORROW AREA IS INCLUDED IN THE PROJECT, OR CULTURAL MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, APPROPRIATE INFORMATION MUST BE PROVIDED TO THIS OFFICE FOR FURTHER REVIEW AND COMMENT. Please retain this documentation as evidence of compliance with Section 106 of the National Historic Preservation Act, as amended.						
By: Toni M. P	rawl. Ph.D., Deputy State Historic Preservation Officer		November 4, 2020			

MISSOURI DEPARTMENT OF NATURAL RESOURCES STATE HISTORIC PRESERVATION OFFICE P.O. Box 176, Jefferson City, Missouri 65102 For additional information, please contact Amy Rubingh, (573) 751-4589.

Please be sure to refer to the project number: 093-SC-20

Riverpointe Public Infrastructure Project

APPENDIX D: ENDANGERED SPECIES DOCUMENTATION





United States Department of the Interior

FISH AND WILDLIFE SERVICE

Missouri Ecological Services Field Office 101 Park Deville Drive Suite A

Columbia, MO 65203-0057 Phone: (573) 234-2132 Fax: (573) 234-2181



In Reply Refer To: April 16, 2020

Consultation Code: 03E14000-2020-SLI-1940

Event Code: 03E14000-2020-E-04889

Project Name: Riverpointe Public Infrastructure Project

Subject: List of threatened and endangered species that may occur in your proposed project

location, and/or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.).

Threatened and Endangered Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Refer to the Midwest Region <u>S7 Technical Assistance</u> website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects: projects in developed areas, HUD, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Federally Listed Bat Species

Indiana bats, gray bats, and northern long-eared bats occur throughout Missouri and the information below may help in determining if your project may affect these species.

Gray bats - Gray bats roost in caves or mines year-round and use water features and forested riparian corridors for foraging and travel. If your project will impact caves, mines, associated riparian areas, or will involve tree removal around these features particularly within stream corridors, riparian areas, or associated upland woodlots gray bats could be affected.

Indiana and northern long-eared bats - These species hibernate in caves or mines only during the winter. In Missouri the hibernation season is considered to be November 1 to March 31. During the active season in Missouri (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags 5 inches diameter at breast height (dbh) for Indiana bat, and 3 inches dbh for northern long-eared bat, that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Tree species often include, but are not limited to, shellbark or shagbark hickory, white oak, cottonwood, and maple. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, Indiana bats or northern long-eared bats could be affected.

Examples of <u>unsuitable</u> habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas;
- Trees found in highly-developed urban areas (e.g., street trees, downtown areas);
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees; and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

- 1. If IPaC returns a result of "There are no listed species found within the vicinity of the project," then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.
- 2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project other than bats (see #3 below) then project proponents can conclude the proposed activities **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species through the S7 Technical Assistance website.
- 3. If IPac returns a result that one or more federally listed bat species (Indiana bat, northern long-eared bat, or gray bat) are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** these bat species **IF** one or more of the following activities are proposed:
 - a. Clearing or disturbing suitable roosting habitat, as defined above, at any time of year;
 - b. Any activity in or near the entrance to a cave or mine;
 - c. Mining, deep excavation, or underground work within 0.25 miles of a cave or mine;
 - d. Construction of one or more wind turbines; or
 - e. Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on listed bat species. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.

If any of the above activities are proposed in areas where one or more bat species may be present, project proponents can conclude the proposed activities **may affect** one or more bat species. We recommend coordinating with the Service as early as possible during project planning. If your project will involve removal of over 5 acres of <u>suitable</u> forest or woodland habitat, we recommend you complete a Summer Habitat Assessment prior to contacting our office to expedite the consultation process. The Summer Habitat Assessment Form is available in Appendix A of the most recent version of the <u>Range-wide Indiana Bat Summer Survey</u> Guidelines.

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's <u>Wind Energy Guidelines</u>. In addition, please refer to the Service's <u>Eagle Conservation Plan Guidance</u>, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

Next Steps

Should you determine that project activities **may affect** any federally listed species or trust resources described herein, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern.

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

04/16/2020 Event Code: 03E14000-2020-E-04889

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Karen Herrington

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Missouri Ecological Services Field Office 101 Park Deville Drive Suite A Columbia, MO 65203-0057 (573) 234-2132

Project Summary

Consultation Code: 03E14000-2020-SLI-1940

Event Code: 03E14000-2020-E-04889

Project Name: Riverpointe Public Infrastructure Project

Project Type: DEVELOPMENT

Project Description: St. Charles, St. Charles County, MO. Riverfront development.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.757345567255115N90.49712457615198W



Counties: St. Charles, MO

Endangered Species Act Species

No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7162

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gray Bat <i>Myotis grisescens</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened
Fishes	
NAME	STATUS
Pallid Sturgeon Scaphirhynchus albus	Endangered

04/16/2020 Event Code: 03E14000-2020-E-04889

Flowering Plants

NAME

Decurrent False Aster Boltonia decurrens

Threatened

No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7705

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

Palustrine

RIVERINE

Riverine



Missouri Department of Conservation

Missouri Department of Conservation's Mission is to protect and manage the forest, fish, and wildlife resources of the state and to facilitate and provide opportunities for all citizens to use, enjoy and learn about these resources.

Natural Heritage Review <u>Level Three Report: Species Listed Under the Federal Endangered Species Act</u>

There are records for species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the the defined Project Area. <u>Please contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.</u>

Foreword: Thank you for accessing the Missouri Natural Heritage Review Website developed by the Missouri Department of Conservation with assistance from the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, Missouri Department of Transportation and NatureServe. The purpose of this website is to provide information to federal, state and local agencies, organizations, municipalities, corporations and consultants regarding sensitive fish, wildlife, plants, natural communities and habitats to assist in planning, designing and permitting stages of projects.

PROJECT INFORMATION

Project Name and ID Number: Riverpointe Public Infrastructure Project #7356

User Project Number: 19043402-00

Project Description: The City of St. Charles is proposing a new, multi-phase riverfront development project along South River Road located south of Interstate 70 to the Family Arena within the City of St. Charles. The Missouri River is located adjacent to the project area and Crystal Springs Creek is located within the project area. (Lat 38.761279, Long -90.491744) The project consists of three phases of development along Bangert Island and the Missouri River. Phase 1 of the project consists of an approx. 22-acre mixed-use development located adjacent to I-70 and South Main Street. Phase 1 would also include a water-quality basin at the outflow of Crystal Springs Creek. Phase 2 of the project consists of an approx. 80-acre mixed-use and office space development near the Family Arena. Phase 3 of the project consists of an approx. 20-acre development along South River Road connecting Phases 1 and 2. The development will provide recreational, employment, entertainment, and retail opportunities along approximately 1.6 miles of riverfront.

Project Type: Residential, Commercial and Governmental Building Development

Contact Person: Ellen Hogrebe

Contact Information: ehogrebe@cmtengr.com or 3145719103

Report Created: 6/12/2020 10:49:38 AM

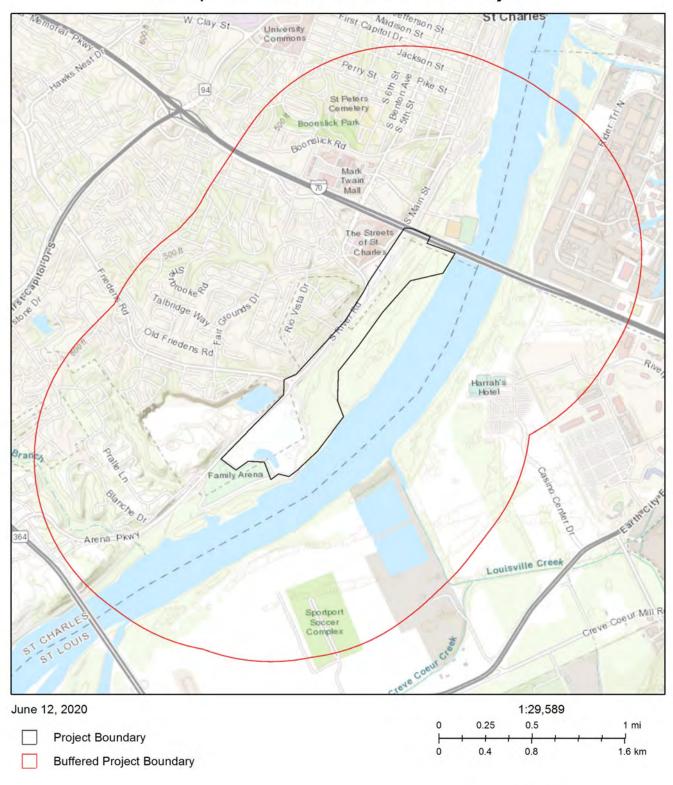
Disclaimer: The NATURAL HERITAGE REVIEW REPORT produced by this website identifies if a species tracked by the Natural Heritage Program is known to occur within or near the area submitted for your project, and shares suggested recommendations on ways to avoid or minimize project impacts to sensitive species or special habitats. If an occurrence record is present, or the proposed project might affect federally listed species, the user must contact the Department of Conservation or U.S. Fish and Wildlife Service for more information. The Natural Heritage Program tracks occurrences of sensitive species and natural communities where the species or natural community has been found. Lack of an occurrence record does not mean that a sensitive plant, animal or natural community is not present on or near the project area. Depending on the project, current habitat conditions, and geographic location in the state, surveys may be necessary. Additionally, because land use conditions change and animals move, the existence of an occurrence record does not mean the species/habitat is still present. Therefore, Reports include information about records near but not necessarily on the project site.

The Natural Heritage Report is not a site clearance letter for the project. It provides an indication of whether or not public lands and sensitive resources are known to be (or are likely to be) located close to the proposed project. Incorporating information from the Natural Heritage Program into project plans is an important step that can help reduce unnecessary impacts to Missouri's sensitive fish, forest and wildlife resources. However, the Natural Heritage Program is only one reference that should be used to evaluate potential adverse project impacts. Other types of information, such as wetland and soils maps and on-site inspections or surveys, should be considered. Reviewing current landscape and habitat information, and species' biological characteristics would additionally ensure that Missouri Species of Conservation Concern are appropriately identified and addressed in planning efforts.

U.S. Fish and Wildlife Service – Endangered Species Act (ESA) Coordination: Lack of a Natural Heritage Program occurrence record for federally listed species in your project area does not mean the species is not present, as the area may never have been surveyed. Presence of a Natural Heritage Program occurrence record does not mean the project will result in negative impacts. The information within this report is not intended to replace Endangered Species Act consultation with the U.S. Fish and Wildlife Service (USFWS) for listed species. Direct contact with the USFWS may be necessary to complete consultation and it is required for actions with a federal connection, such as federal funding or a federal permit; direct contact is also required if ESA concurrence is necessary. Visit the USFWS Information for Planning and Conservation (IPaC) website at https://ecos.fws.gov/ipac/ for further information. This site was developed to help streamline the USFWS environmental review process and is a first step in ESA coordination. The Columbia Missouri Ecological Field Services Office may be reached at 573-234-2132, or by mail at 101 Park Deville Drive, Suite A, Columbia, MO 65203.

Transportation Projects: If the project involves the use of Federal Highway Administration transportation funds, these recommendations may not fulfill all contract requirements. Please contact the Missouri Department of Transportation at 573-526-4778 or www.modot.mo.gov/ehp/index.htm for additional information on recommendations.

Riverpointe Public Infrastructure Project



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Species or Communities of Conservation Concern within the Area:

There are records for species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the the defined Project Area. Please contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

MDC Natural Heritage Review Resource Science Division P.O. Box 180 Jefferson City, MO 65102-0180

Phone: 573-522-4115 ext. 3182 NaturalHeritageReview@mdc.mo.gov U.S. Fish and Wildlife Service Ecological Service 101 Park Deville Drive Suite A Columbia, MO 65203-0007

Phone: 573-234-2132

Other Special Search Results:

The project occurs on or near public land, First Missouri State Capitol State Historic Site, please contact DNR.

Project Type Recommendations:

New construction, maintenance and remodeling, including government, commercial and residential buildings and other structures. Fish, forest, and wildlife impacts can be avoided by siting projects in locations that have already been disturbed or previously developed, where and when feasible, and by avoiding alteration of areas providing existing habitat, such as wetlands, streams, forest, native grassland, etc. The project should be managed to minimize erosion and sedimentation/runoff to nearby wetlands, streams and lakes, including adherence to any "Clean Water Act Permit" conditions. Project design should include stormwater management elements that assure storm discharge rates to streams for heavy rain events will not increase from present levels. Revegetate areas in which the natural cover is disturbed to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Annual ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crownvetch and sericea lespedeza. Pollutants, including sediment, can have significant impacts far downstream. Use silt fences and/or vegetative filter strips to buffer streams and drainages, and monitor the site after rain events and until a well-rooted ground cover is reestablished.

Project Location and/or Species Recommendations:

Endangered Species Act Coordination - Indiana bats (Myotis sodalis, federal- and state-listed endangered) and Northern long-eared bats (Myotis septentrionalis, federal-listed threatened) may occur near the project area. Both of these species of bats hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in wooded areas, often riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana bats or Northern long-eared bats, especially from September to April. If any trees need to be removed for your project, please contact the U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 ext. 100 for Ecological Services) for further coordination under the Endangered Species Act.

The project location submitted and evaluated is within the geographic range of nesting Bald Eagles in Missouri. Bald Eagles (*Haliaeetus leucocephalus*) may nest near streams or water bodies in the project area. Nests are large and fairly easy to identify. Adults begin nesting activity in late December and January and young birds leave the nest in late spring to early summer. While no longer listed as endangered, eagles continue to be protected by the federal government under the Bald and Golden Eagle Protection Act. Work managers should be alert for nesting areas within 1500 meters of project activities, and follow federal guidelines at: http://www.fws.gov/midwest/MidwestBird/EaglePermits/index.html if eagle nests are seen.

The project location submitted and evaluated is within the known range of the Decurrent False Aster (*Boltonia decurrens*, federal-listed threatened and state-listed endangered) in Missouri. The plant may occur in your project area if suitable habitat conditions exist. Decurrent False Aster is a big river floodplain species that grows in wetlands and on the borders of marshes, lakes, oxbows, and sloughs. It also may be found in old fields, roadsides, agricultural fields, and on levees. It favors sites characterized by moist soil and regular disturbance, preferably periodic flooding, which maintains open areas with high light levels. Today it is found in areas where succession is prevented and sunlight is allowed to reach the seedlings. It is a perennial plant that blooms from August through October. Visit http://mdc.mo.gov/discover-nature/field-guide/decurrent-false-aster for more information on this plant species.

The project location submitted and evaluated is within the range of the Gray Myotis (i.e., Gray Bat) in Missouri. Depending on habitat conditions of your project's location, Gray Myotis (*Myotis grisescens*, federal and state-listed endangered) could occur within the project area, as they forage over streams, rivers, lakes, and reservoirs. Avoid entry or disturbance of any cave inhabited by Gray Myotis and when possible retain forest vegetation along the stream and from the cave opening to the stream. See http://mdc.mo.gov/104 for best management recommendations.

The project location submitted and evaluated is located within or adjacent to the Mississippi or Missouri rivers. Pallid Sturgeons (*Scaphirhynchus albus*, federal- and state-listed endangered) are big river fish that range widely in the Mississippi and Missouri River system (including parts of some major tributaries). Any project that modifies big river habitat or impacts water quality should consider the possible impact to pallid sturgeon populations. See http://mdc.mo.gov/124 for Best Management Practices. Additional coordination with the U.S. Fish and Wildlife Service under the Endangered Species Act may be necessary (U.S. Fish and Wildlife Service, Ecological Services, 101 Park DeVille Drive, Suite A, Columbia, Missouri 65203-0007; phone 573-234-2132.)

Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment. Please inspect and clean equipment thoroughly before moving between project sites. See http://mdc.mo.gov//9633 for more information.

- Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
- Drain water from boats and machinery that have operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
- When possible, wash and rinse equipment thoroughly with hard spray or HOT water (?140° F, typically available at do-it-yourself car wash sites), and dry in the hot sun before using again.

Streams and Wetlands – Clean Water Act Permits: Streams and wetlands in the project area should be protected from activities that degrade habitat conditions. For example, soil erosion, water pollution, placement of fill, dredging, in-stream activities, and riparian corridor removal, can modify or diminish aquatic habitats. Streams and wetlands may be protected under the Clean Water Act and require a permit for any activities that result in fill or other modifications to the site. Conditions provided within the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 permit (http://www.nwk.usace.army.mil/Missions/RegulatoryBranch.aspx) and the Missouri Department of Natural Resources (DNR) issued Clean Water Act Section 401 Water Quality Certification (http://dnr.mo.gov/env/wpp/401/index.html), if required, should help minimize impacts to the aquatic organisms and aquatic habitat within the area. Depending on your project type, additional permits may be required by the Missouri Department of Natural Resources, such as permits for stormwater, wastewater treatment facilities, and confined animal feeding operations. Visit http://dnr.mo.gov/env/wpp/permits/index.html for more information on DNR permits. Visit both the USACE and DNR for more information on Clean Water Act permitting.

For further coordination with the Missouri Department of Conservation and the U.S. Fish and Wildlife Services, please see the contact information below.

MDC Natural Heritage Review Resource Science Division P.O. Box 180 Jefferson City, MO 65102-0180

Phone: 573-522-4115 ext. 3182

NaturalHeritageReview@mdc.mo.gov

U.S. Fish and Wildlife Service

Ecological Service 101 Park Deville Drive

Suite A Columbia, MO 65203-0007

Phone: 573-234-2132

Miscellaneous Information

FEDERAL Concerns are species/habitats protected under the Federal Endangered Species Act and that have been known near enough to the project site to warrant consideration. For these, project managers must contact the U.S. Fish and Wildlife Service Ecological Services (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132; Fax 573-234-2181) for consultation.

STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and that are protected under the Wildlife Code of Missouri (RSMo 3 CSR 1 0). "State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR 1 0-4.111. Species tracked by the Natural Heritage Program have a "State Rank" which is a numeric rank of relative rarity. Species tracked by this program and all native Missouri wildlife are protected under rule 3CSR 10-4.110 General Provisions of the Wildlife Code.

Additional information on Missouri's sensitive species may be found at http://mdc.mo.gov/discover-nature/field-guide/endangered-species. Detailed information about the animals and some plants mentioned may be accessed at http://mdc4.mdc.mo.gov/applications/mofwis/mofwis_search1.aspx. If you would like printed copies of best management practices cited as internet URLs, please contact the Missouri Department of Conservation.



Missouri Department of Conservation Natural Heritage Review Report

July 9, 2020 -- Page 1 of 4

Resource Science Division
P. O. Box 180
Jefferson City, MO 65102
Prepared by: Jordan Meyer
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(573) 522 – 4115 ext. 3182

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Crawford, Murphy, & Tilly
Engineers & Consultants
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St. Louis, MO 63102
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	(5.5)
Project type:	Land Development
Location/Scope:	T46N R05E S05, 08
	Land Grants 150, 2982, 3280
County:	St. Charles
Query reference:	Riverpointe Public Infrastructure Project
Query received:	6/12/2020

This NATURAL HERITAGE REVIEW is <u>not</u> a site clearance letter. Rather, it identifies public lands and sensitive resources known to have been located close to and/or potentially affected by the proposed project. On-site verification is the responsibility of the project. Natural Heritage records were identified at some date and location. This report considers records near but not necessarily at the project site. Animals move and, over time, so do plant communities. To say "there is a record" does not mean the species/habitat is still there. To say that "there is no record" does not mean a protected species will not be encountered. These records only provide one reference and other information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Look for additional information about the biological and habitat needs of records listed in order to avoid or minimize impacts. More information is at http://mdc.mo.gov/discover-nature/places-go/natural-areas and mdc.mo.gov/applications/mofwis/mofwis_search1.aspx.

Level 3 issues: Records of <u>federal-listed</u> (these are also state-listed) species or critical habitats near the project site:

<u>Mississippi River:</u> The Mississippi River (together with its tributary mouths) is home to a number of aquatic species of state and federal concern, including federal-listed Pallid Sturgeon, several mussel species in the pooled reaches upstream of the Missouri confluence, and Interior least terns in the lower Mississippi; and state-listed Lake Sturgeon, and Flathead Chubs. All these are sampled at points but must be assumed to be present in suitable habitats through extended river reaches. Bluffs, banks, and floodplains may also include habitat used by listed gray bats, Indiana bats and bald eagles.

- Terrestrial projects that manage construction and include operation plans to avoid runoff of sediment or pollutants are unlikely to affect the aquatic species.
- Regulations enforced by other agencies to protect water quality and human health are generally adequate to protect the needs of wildlife as well.
- Projects that place fill in or discharge water to the river are subject to federal permits, and strict observance of conditions required in those permits is important to minimize risk of damage to endangered species.
- See General Recommendations for additional information on ways to minimize impacts to aquatic resources.

Natural Heritage Records indicate Federal-listed Endangered Pallid Sturgeon (*Scaphirhynchus albus*) approximately 0.08 miles from the project area.

<u>Pallid Sturgeon:</u> Pallid Sturgeons (*Scaphirhynchus albus*, federal and state-listed endangered) are big river fish that range widely in the Mississippi and Missouri River system (including parts of major tributaries). Any project that modifies big river habitat or impacts water quality should consider the possible impact to Pallid Sturgeon populations. See

https://mdc.mo.gov/sites/default/files/downloads/Pallid%20Sturgeon.pdf for Best Management Practices.

FEDERAL LIST species/habitats are protected under the Federal Endangered Species Act. Contact the U.S. Fish and Wildlife Service (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; 573-234-2132) for Endangered Species Act coordination and concurrence information).

Level 2 issues: Records of <u>state-listed</u> (not federal-listed) endangered species AND / OR <u>state-ranked</u> (not state-listed endangered) species and natural communities of conservation concern. The Department tracks these species and natural communities due to population declines and/or apparent vulnerability.

Natural Heritage records indicate the following State-listed Endangered species near the project area: American Bittern (*Botaurus lentiginosus*) approximately 2.47 miles from the project area.

Scientific Name	Common Name	Proximity (miles)
Acipenser fulvescens	Lake Sturgeon	0.01
Botaurus lentiginosus	American Bittern	2.47
Platygobio gracilis	Flathead Chub	0.01

<u>Lake Sturgeon:</u> Lake Sturgeon (*Acipenser fulvescens*) are widely distributed in North America. In Missouri, they are found in the Mississippi and Missouri Rivers but have also been known to occur in the larger tributaries of those two rivers. Lake Sturgeon are listed as either threatened or endangered throughout most of its original range in the United States. Over-harvest appears to have been responsible for the greatest decline in abundance of the Lake Sturgeon. Pollution and restriction of migratory movements due to construction of dams have compounded the problems of over-exploitation. Best management for this species can be found at https://mdc.mo.gov/sites/default/files/downloads/9547.pdf.

American Bitterns (Botaurus lentiginosus) nest in permanent wetlands with tall, emergent vegetation such as bur-reed and bulrush. Breeding occurs between April and July. Protection and restoration of quality wetlands are important for many species, including the American Bittern. Project activities should not occur within 100 feet of wetland habitat between April 1 and July 31 to prevent disturbing nesting birds. Erosion and sediment controls should be implemented, maintained and monitored for the duration of the project. Disposal of wastes and garbage should be done in designated areas far from wetlands. Draining or destroying permanent, emergent wetland habitat should be avoided. See https://mdc.mo.gov/sites/default/files/downloads/AmericanBittern.pdf for best management practices regarding this species.

<u>Flathead Chub:</u> Flathead Chub's (*Platygobio gracilis*, State-listed Endangered), historical range included the entire length of the Missouri and Mississippi River to the Arkansas state line. Their habitat can vary from turbid waters in swift currents to clear pools and small creeks. See https://mdc.mo.gov/sites/default/files/downloads/Flathead%20Chub.pdf for Best Management Practices regarding this species.

Natural Heritage records indicate the following State-ranked species near the project area:

Scientific Name	Common Name	State Rank	Proximity (miles)
Carpiodes velifer	Highfin Carpsucker	S2	0.90
Echinodorus tenellus	Dwarf Burhead	S1	2.16
Hybognathus argyritis	Western Silvery Minnow	S2	0.16
Hybognathus placitus	Plains Minnow	S2	0.13
Macrhybopsis gelida	Sturgeon Chub	S3	0.01

Notropis buchanani	Ghost Shiner	S2	0.51
Paspalum setaceum var. setaceum	Slender Paspalum	S1	0.28
Percina shumardi	River Darter	S3	2.82
Schoenoplectiella saximontana	Rocky Mountain Bulrush	S1	0.44
Taxidea taxus	American Badger	S3	3.26

State Rank Definitions:

- S1: Critically imperiled in the state because of extreme rarity of or because of some factor(s)
 making it especially vulnerable to extirpation from the state. Typically, 5 or fewer occurrence
 or very few remaining individuals.
- S2: Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. (6 to 20 occurrences or few remaining individuals).
- S3: Vulnerable in the state means this species is rare and uncommon, or found only in a
 restricted range (even if abundant in some locations), or because of other factors making it
 vulnerable to extirpation. Typically, 21 to 100 occurrences or between 3,000 and 10,000
 individuals.
- S4: Uncommon but not rare, and usually widespread in the nation or state. Possibly of long-term concern. Usually more than 100 occurrences and more than 10,000 individuals.
- SU: Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

There are no regulatory requirements associated with this status, but we encourage voluntary stewardship for all these species to minimize the risk of further decline that could lead to listing

See http://mdc.mo.gov/145 for a complete list of species and communities of conservation concern.

STATE ENDANGERED species are listed in and protected under the Wildlife Code of Missouri (3CSR10-4.111).

General recommendations related to this project or site, or based on information about the historic range of species (unrelated to any specific Natural Heritage records):

- ➤ <u>Bald Eagles</u>: Bald Eagles (*Haliaeetus leucocephalus*) nest near streams or water bodies in the project area. Nests are large and fairly easy to identify. While no longer listed as endangered, eagles continue to be protected by the federal government under the Bald and Golden Eagle Protection Act. Work managers should be alert for nesting areas within 1500 meters of project activities, and follow federal guidelines at: https://www.fws.gov/midwest/eagle/permits/index.html if eagle nests are seen.
- Decurrent False Aster: Decurrent False Aster (*Boltonia decurrens*, federal-listed threatened and state-listed endangered) may occur in this area. Decurrent False Aster is a head floodplain species that grows in wetlands and on the borders of marshes, lakes, oxbows, and sloughs. It also may be found in old fields, roadsides, agricultural fields, and on levees. It favors sites characterized by moist soil and regular disturbance, preferably periodic flooding, which maintains open areas with high light levels. Today it is found in areas where succession is prevented, and sunlight is allowed to reach the seedlings. It is a perennial plant that blooms from August through October. Visit https://mdc.mo.gov/sites/default/files/downloads/Decurrent%20False%20Aster.pdf for more information on this plant species.

- ➤ <u>Gray Bats:</u> Gray Bats (*Myotis grisescens*, federal and state-listed endangered) occur in St. Charles County and could occur in the project area, as they forage over streams, rivers, and reservoirs. Avoid entry or disturbance of any cave inhabited by gray bats and when possible retain forest vegetation along the stream and from the gray bat cave opening to the stream.
- Indiana Bats and Northern Long-eared Bats occur in St. Charles County and could occur in the project area. Indiana Bats (Myotis sodalis, federal and state-listed endangered) and Northern Long-eared Bats (Myotis septentrionalis, federal-listed threatened) hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana Bats and/or Northern Long-eared Bats, especially from September to April. If any trees need to be removed by your project, please contact the U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 Ext. 100 for Ecological Services) for further coordination under the Endangered Species Act.
- ➤ Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment, so inspect and clean equipment thoroughly before moving between project sites.
 - Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
 - Drain water from boats and machinery that has operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
 - When possible, wash and rinse equipment thoroughly with hard spray or HOT water (≥140° F, typically available at do-it-yourself carwash sites), and dry in the hot sun before using again.
- <u>Karst:</u> St. Charles County has known <u>karst geologic features</u> (e.g. caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in Natural Heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are species of conservation concern) are influenced by changes to water quality, so check your project site for any karst features and make every effort to protect groundwater in the project area.
- Land Development: Construction should be managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Act Permit" conditions (Missouri DNR or US Army Corps of Engineers). Project design should include stormwater management elements that assure storm discharge rates to streams for heavy rain events will not increase from present levels. Revegetate disturbed areas to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Annual ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as Crown Vetch and Sericea lespedeza.

These recommendations are ones project managers might prudently consider based on a general understanding of species needs and landscape conditions. Natural Heritage records largely reflect sites visited by specialists in the last 30 years. Many privately owned tracts have not been surveyed and could host remnants of species once but no longer common.



Draft Report
Summer Acoustic
Survey

For the Riverpointe Public Infrastructure Project

St. Charles County, Missouri

Prepared for:



Prepared by:



1 Acronyms and Abbreviations

ESA Endangered Species Act

Kpro Kaleidoscope Pro

USFWS U.S. Fish and Wildlife Service

Executive Summary

- 2 The City of St. Charles is proposing the Riverpointe Public Infrastructure Project (Project), which
- 3 will be located along the Missouri River in St. Charles County, Missouri. The Project will include
- 4 mass grading, tree clearing, public sanitary and storm sewer relocations, and overhead electric
- 5 adjustments. Because the Project is within the range of the federally endangered Indiana bat
- 6 (Myotis sodalis) and the federally threatened northern long-eared bat (M. septentrionalis),
- 7 disturbance of forested habitat associated with the Project area may result in impacts to
- 8 summering populations of these species. Acoustic surveys were conducted in accordance with
- 9 U.S. Fish and Wildlife Service protocols to determine the presence or potential absence of Indiana
- 10 and/or northern long-eared bats within the Project area.
- 11 A total of five acoustic sites were surveyed from 23 to 25 June 2020. Survey efforts consisted of
- 12 four detectors deployed for two nights (one detector was moved to a new site after one night), for
- 13 a total of eight detector nights. Bat calls were analyzed using a software program approved by
- the U.S. Fish and Wildlife Service: Kaleidoscope Pro (KPro) Version 5.1.1. The only Federally
- 15 listed bat calls identified by KPro were from gray bats (*M. grisescens*). Calls identified as gray
- bats by KPro were manually verified. No Indiana or northern long-eared bat calls were recorded.

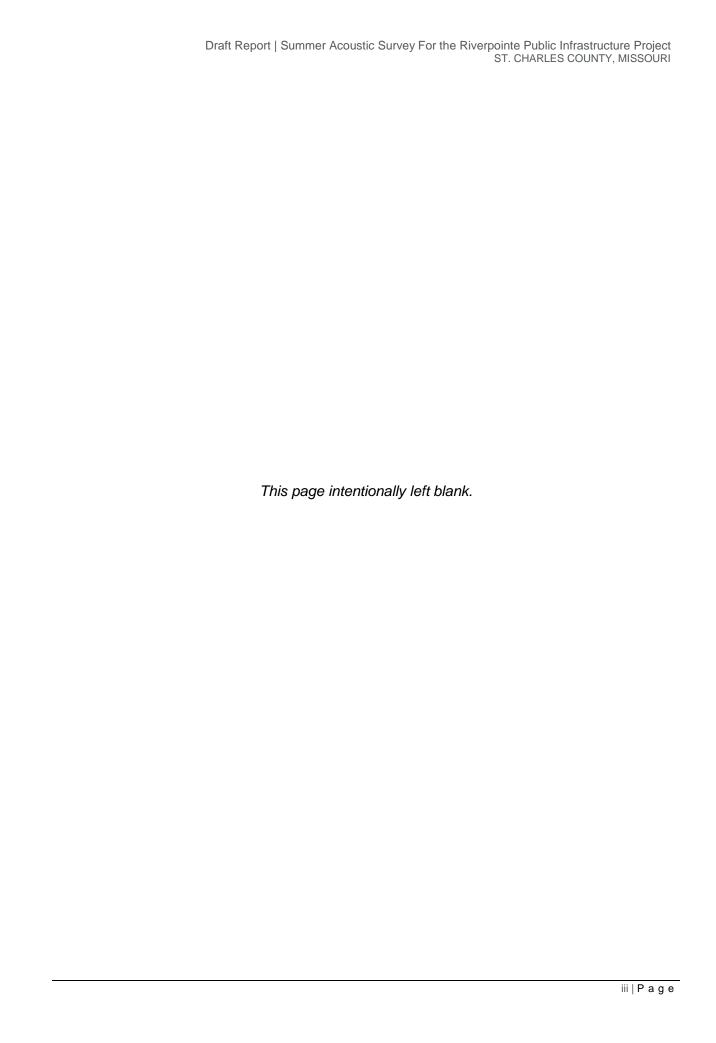


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1. Introduction

1

- 2 The City of St. Charles is proposing the Riverpointe Public Infrastructure Project (Project), which
- 3 will be located along the Missouri River. The Project will include mass grading, tree clearing (115
- 4 acres), public sanitary and storm sewer relocations, and overhead electric adjustments.
- 5 Pursuant to Section 7(a)(2) and Section 9 of the Endangered Species Act (ESA), clearing forested
- 6 land may impact summering populations of the Indiana (Myotis sodalis) and northern long-eared
- 7 bats (M. septentrionalis). Acoustic surveys were conducted to determine the presence or
- 8 probable absence of Indiana and/or northern long-eared bats within or near the Project Area. The
- 9 ESA was codified as law in 1973. This law provides for the listing, conservation, and recovery of
- 10 threatened and endangered plants and wildlife. The U.S. Fish and Wildlife Service (USFWS)
- 11 monitors and protects species listed under the ESA.
- 12 Acoustic surveys were conducted in accordance with USFWS protocols (USFWS 2020) and a
- 13 USFWS Columbia Field Office-approved Study Plan (Appendix C).

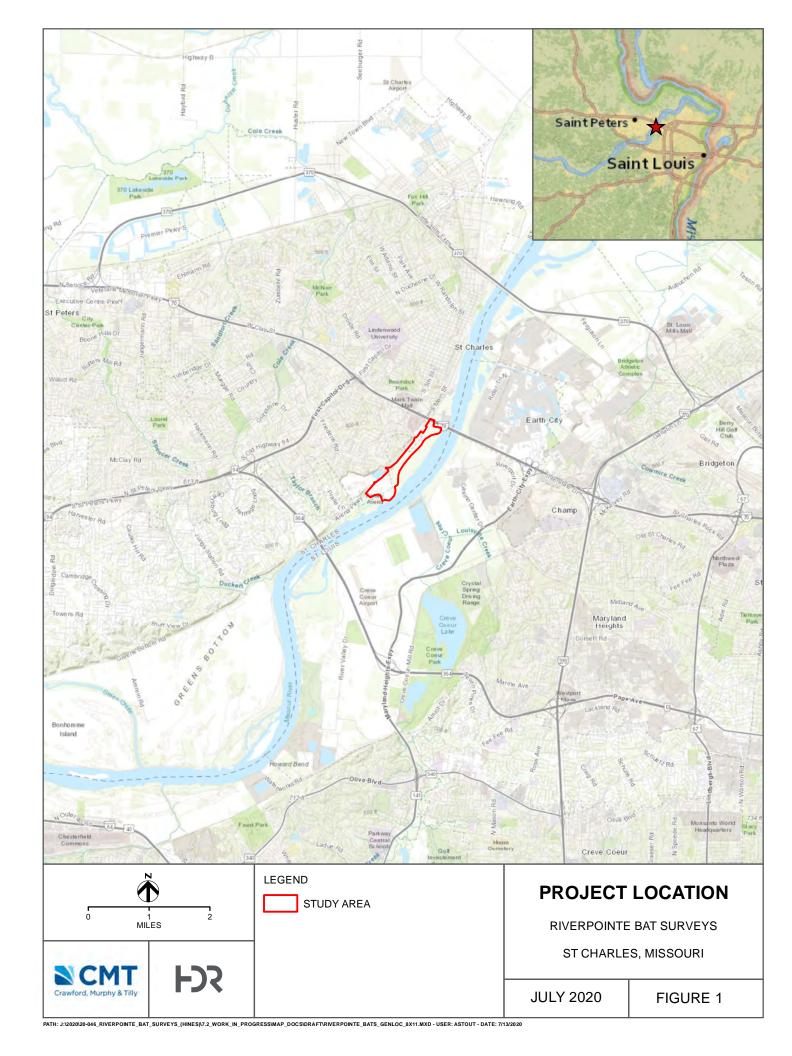
14 2. Project Location and Description

- 15 The Project is located adjacent to the Missouri River, in St. Charles County Missouri, near the
- 16 confluence of the Mississippi and Missouri Rivers (Figure 1). The Project site is in the west half
- of Section 7 and the east half of Section 8, Township 46 North, Range 5 East at River Mile (RM)
- 18 31.1 to RM 29.0 on the left descending bank of the Missouri River. Located north of the Project
- 19 area is the City's historic Main Street and Ameristar Casino and Hotel Complex, just west lies the
- 20 Streets of Saint Charles Development, and the southern end the Project area is bounded by the
- 21 Family Arena.

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- 22 The Project area includes Bangert Island. Bangert Island was once an island separated from the
- 23 bluff at Saint Charles by a side channel. However, river channel structures built on the Missouri
- 24 River in the 1930s and 1940s have gradually silted in the channel separating Bangert Island from
- 25 the shoreline. The deposition choked the original side channel entrance at the Missouri River to
- the point of closure by 1980 and effectively reattached Bangert Island to the bluff.
- 27 Bangert Island is considered a wetland according to the USFWS National Wetland Inventory
- 28 (NWI) mapping. NWI wetlands are primarily freshwater forested/shrub wetland temporarily
- 29 flooded. The remainder of the island is freshwater forested/shrub wetland seasonally flooded.
- 30 Vegetation throughout the Project area is comprised primarily of bottomland hardwood forest,
- 31 which includes cottonwood (*Populus deltoides*), silver maple (*Acer sachhirinum*), box elder (*Acer*
- 32 negundo), black willow (Salis nigra), and sycamore (Platanus occidentalis).



- 1 Bangert Island, purchased by St. Charles County from the Missouri Department of Conservation
- 2 in 2014, is currently being utilized as a park/recreation area. Within the park, there are
- 3 approximately four miles of natural surfaced trails utilized for hiking, biking, bird watching, etc.
- 4 The remainder of the land is maintained as a natural area comprised of habitats that primarily
- 5 consist of bottomland hardwood forest. The Katy Trail is located adjacent to the northwest
- 6 boundary of the Project. Immediately southwest of Bangert Island is an active guarry site owned
- 7 by LaFarge Aggregates, and southwest of that is the Family Arena. Along the western edge of
- 8 the Project area is a mixture of residential, industrial, and commercial properties. To the north of
- 9 Bangert Island is Interstate-70 (I-70) and the Ameristar Casino.

3. Methods

- 11 Based on desktop analysis and study plan approval from the USFWS Columbia Field Office, it
- was determined that four acoustic sites (eight detector nights) would serve as a sufficient level of
- 13 effort for the Project. Based on field reconnaissance, three sites were sampled for two nights and
- 14 sampling was conducted for one night at two different sites to maximize coverage of the Project
- 15 area.

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16 3.1 Acoustic Site Selection

- 17 HDR biologists conducted reconnaissance of the Project area to select appropriate detector sites
- prior to deploying acoustic monitoring equipment. Acoustic survey site requirements include, but
- 19 not are not limited to forest canopy openings, water sources, wooded fence lines that are adjacent
- 20 to large openings or connect two larger blocks of suitable habitat, blocks of recently logged forest
- 21 where some potential roost trees remain, road and/or stream corridors with open tree canopies
- or canopy height of more than 33 feet (10 meters), and woodland edges (Britzke et al. 2010,
- 23 USFWS 2020).
- 24 Five acoustic sampling sites were selected based on criteria set forth in the 2020 USFWS Range-
- 25 Wide Indiana Bat Survey Guidelines (USFWS 2020) and an expectation that the site would be
- used by bats and yield high quality search phase calls. Surveys were conducted from 23 to 25
- 27 June 2020. Survey effort consisted of five detectors set out for two nights, for a total of eight detector
- 28 nights. Figure 2 shows detector locations; Appendix A contains acoustic data sheets and site
- 29 photographs; and **Appendix B** contains a detailed table of acoustic results.

3.2 Acoustic Surveys

- 31 Bat calls collected during the acoustic surveys were analyzed using Kaleidoscope Pro Version
- 32 5.1.1. (KPro). For KPro, the appropriate regional bat species were included in the analysis (i.e.,
- 33 Species Set for Missouri) and then the species list was fine-tuned for the region. Call files
- 34 identified by the software program as Indiana or northern long-eared bats, as well as the entire
- 35 night's call data from those sites, were qualitatively reviewed by HDR biologist John Timpone.
- 36 Weather conditions were recorded during the survey to ensure compliance with USFWS survey
- 37 guidelines (USFWS 2020). Weather data included temperature, wind speed, cloud cover,
- 38 precipitation, and moon phase.

4. Results

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4.1 Acoustic Sites

- 3 The acoustic survey consisted of five sites (Table 1). The detector from Site #D2 was moved to
- 4 Site #D5 for the second sampling night to survey more of the project area. **Appendix A** contains
- 5 a habitat descriptions of the sites and photographs of the detectors.

Table 1. Riverpointe Public Infrastructure Project Acoustic Survey Locations

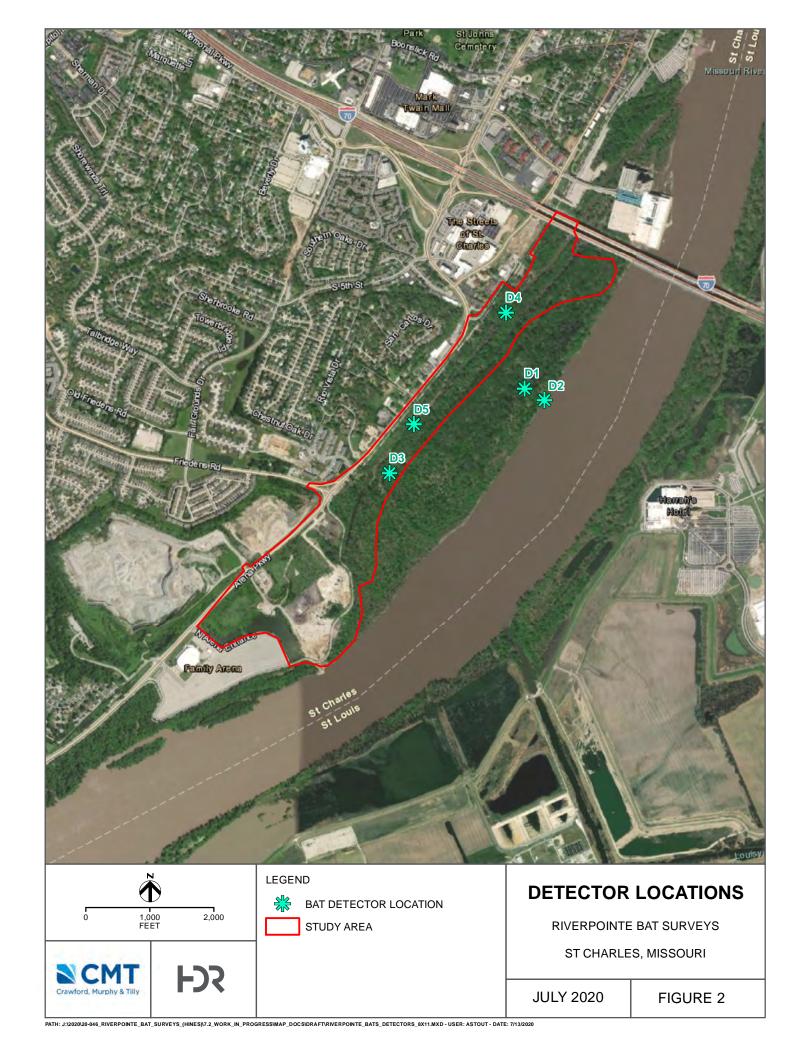
Detector Site Number	Latitude	Longitude	Survey Night (2020)
#D1	38.759406	-90.498076	June 23 and 24
#D2	38.758801	-90.489695	June 23
#D3	38.755768	-90.498274	June 23 and 24
#D4	38.762663	-90.491906	June 23 and 24
#D5	38.757861	-90.496941	June 24

4.2 Acoustic Survey

Ten species were identified by KPro as potentially being present: big brown bat (*Eptesicus fuscus*), red bat (*Lasiurus borealis*), silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*), evening bat (*Nycticeius humeralis*), gray bat (*Myotis grisescens*), little brown bat (*M. lucifugus*), Indiana bat, northern long-eared bat, and eastern pipistrelle (*Perimyotis subflavus*). However, of these ten species, only the big brown bat, red bat, hoary bat, evening bat, and gray bat were manually verified as being present. KPro identified a single call from both the Indiana bat and northern long-eared bat. The MLE p-values for these two species were 0.247 and 0.053, respectively, and do not meet the p-value threshold (P<0.05) set by the USFWS (2020). These calls were therefore discounted.

Acoustic data did provide evidence that federally listed gray bats are active within the Project area.

4 | Page



5. Conclusions

1

- 2 From June 23 June 25 2019, Indiana and northern long-eared bat acoustic surveys were
- 3 conducted in the Project area located on Bangert Island, St. Charles County, Missouri. No Indiana
- 4 bats or northern long-eared bats were recorded during surveys. Acoustic data did provide
- 5 evidence that federally listed gray bats are active within the project corridor. The gray bat is
- 6 considered a cave obligate (e.g., roosting in caves during year-round). There are no caves in the
- 7 project corridor although suitable foraging habitat is present.

6. Literature Cited

1

- Britzke, E.R., B.A. Slack, M.P. Armstrong, and S.C. Loeb. 2010. Effects of orientation and weatherproofing on the detection of bat echolocation calls. Journal of Fish and Wildlife Management 1(2):136-141.
- U.S. Fish and Wildlife Service. 20120. Range-Wide Indiana Bat Summer Guidelines. Accessed
 June 9, 2020 at:
- 7 <u>https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.ht</u> 8 <u>ml</u>



Acoustic Survey / Habitat Data Sheets and Photographs This page intentionally left blank

	PROJECT/SITE INFORMATION															
DEPLOY	ER: Jol	nn Timpo	one (JC	г)				SITE SELECTOR: John Timpone (JCT)								
PROJECT	T: Rive	rpoint De	evelop	ment	SITE: 1 -Bange	ert Isla	and			SURVEY	DATE(S):	6/2	3 – 6/24	-2020		
LATITUDE: 38.759406 LONGITUDE: -90.498076								STATE:	мо		COUNT	Y: St. 0	harles			
Start Recording: 2000 h End Recording: 0600 h Total Record						Total Recordi	ng Time: 10 h	r	Photos:	Attached	– Page 2	2				
	NOAA WEATHER SERVICE STATION DATA															
Moon Phase: New			ew	Waxing Crescent	First	Chiartar	Waxing Gibbous		Full		ning bous	Third	Quarter		ning scent	
Air Ten	Air Temp			6/23 – 5 mph at 20 Wind 6/24 – 3 mph at 20			2577		pitation: None	: Weather Comments: Clear to partly cloudy.						
C°: 6/24-65° at 0600 6/25-70° at 0600				Speed (mph):		6/24 – 3 mph at 0600 6/25– 6 mph at 0600		· III								
							DETECT	OR DATA								
Detector	r Bran	d/Mode	I: SM4E	BAT FS	Microphone I (circle): SMM		/Model	Directional			He	mispher	ical	Omnidirectional		
Weathe	rproof	ing? No		SENSITIVIT	Y: NA		SAMPLE R	ATE (MIN/M	AX):	256dB	Data	Division	Ratio:	Audio	Division F	tatio:
				Functioning Rubs): Yes	g (Finger		the found of the second of the	Trigger I	.evel	12dB	104.200		2	9800000		
							77	rigger Frequ	100000000000000000000000000000000000000		16	8	4	16	8	4
Gain:	Mic	Height ((m):		Distance from Nearest Vegetation or other Obstruction (m)(apart from veg. on ground)				Horizontal Orientation of Mic (1-360°):			l Orient 0° = hor	ation of izon):	Calls collected in:		
16dB		3m			5m					90°				Full Spectrum		

HABITAT DATA

Dominant Canopy Species:

Subdominant Canopy Species:

- 1. Silver maple (Acer saccharinum)
- 2. Cottonwood (Populus deltoides)
- 3. Green ash (Fraxinus pennsylvanicum)

- 1. Box elder (Acer negundo)
- 2. Silver maple (Acer saccharinum)



Recen	tly Logged Forest	
Ci	rop/Pasture Land	
Shr	ub/Scrub Swamp	
You	ng Upland Forest	
	Pine Plantation	
	Stream/River	
	Vernal Pool	
Matur	e Lowland Forest	Х
	Forest Edge	
Er	mergent Wetland	
Deep	water Lake/Pond	
Youn	g Lowland Forest	
	Old Field	
	Forest Swamp	X
	Other	

Site Description:

Detector deployed in Bangert Island Conservation Area in open area under bottomland forest canopy. Area was frequently flooded as no herbaceous vegetation was present.

	PROJECT/SITE INFORMATION													
DEPLOY	ER: Jo	hn Timpone (JC	T)			SITE SELECTOR: John Timpone (JCT)								
PROJECT	T: Rive	erpoint Develop	ment	SITE: 2 west	bank of MO River			SURVEY	DATE(S):	6/2	3 – 2020			
LATITUDE: 38.758801 LONGITUDE: -90.489695								STATE:	мо		COUNT	Y: St.	Charles	
Start Re	cordi	ng: 2000 h	Total Record	ing Time: 10	h	Photos:	Attached	– Page 1	2					
	NOAA WEATHER SERVICE STATION DATA													
Moon Phase: New			New	Waxing Crescent	First Quarter	Waxing Gibbous		Full		ning oous	Third	Quarter		ning scent
6/23 – 80° at 2000			000	Wind	6/23 – 5 mph at 20	000		ipitation: None	: Weather Comments: Clear to partly cloudy.					
C°: 6/24-65° at 0600			600	Speed (mph):	.00									
					DETEC	TOR DATA								
Detector	r Brai	n d/Model: SM4	BAT FS	Microphone (circle): SMM	ST CANON TO A CO DESCRIPTION OF THE OWNER.	Directional			Hemispherical			Omnidirectional		
Weathe	rproc	fing? No	SENSITIVIT	Y: NA	SAMPLE	RATE (MIN/N	/IAX):	Dat 256dB		Division	Ratio:	Audio	Division F	tatio:
			Functioning Rubs): Yes	g (Finger				AA						
			itabaj. 1es			Trigger	Level	12dB	16	8	4	16	8	4
					ï	Trigger Frequ	iency	10kHz						
Gain:	Mi	c Height (m):	Self-man and a service of		Vegetation or other om veg. on ground)	2004012100555555	Horizontal Orientation of Mic (1-360°):			l Orient 0° = hor	ation of izon):	Calls collected in:		
16dB		3m		3m	1		90°			0°		Fi	ull Spectri	ım

HABITAT DATA

Dominant Canopy Species:

- .
- 1. Silver maple (Acer saccharinum)
- 2. Cottonwood (Populus deltoides)

Subdominant Canopy Species:

- 1. Box elder (Acer negundo)
- 2. Silver maple (Acer saccharinum)
- 3. White mulberry (Morus alba)



	Recently Logged Forest
	Crop/Pasture Land
	Shrub/Scrub Swamp
	Young Upland Forest
	Pine Plantation
Х	Stream/River
	Vernal Pool
	Mature Lowland Forest
	Forest Edge
	Emergent Wetland
	Deepwater Lake/Pond
	Young Lowland Forest
	Old Field
	Forest Swamp
	Other

Site Description:

Detector deployed in Bangert Island Conservation Area on west bank of Missouri River facing north.

						P	ROJECT/SITE	INFORM <i>i</i>	AOITA							
DEPLOY	ER: John	Timpone	e (JCT)					SITE SELECTOR: John Timpone (JCT)								
PROJECT	PROJECT: Riverpoint Development SITE: 3 Bangert Island – trail oper							ing		SURVEY	DATE(S):	6/2	3 – 6/24	-2020		
LATITUD	LATITUDE: 38.755768 LONGITUDE: -90.498274									STATE:	МО		COUNT	Y: St. 0	harles	
Start Recording: 2000 h End Recording: 0600 h Total Reco							Total Recordi	ng Time: 10	h	Photos:	Attached	– Page 1	2	1		
	NOAA WEATHER SERVICE STATION DATA															
Moon Phase: New				ľ	Waxing Crescent	First	t Quarter	Waxing Gibbous		Full		ning oous	Third	Quarter		ning cent
6/23 – 80° at 2000 6/24 – 87° at 2000			X	Wind	100000000000000000000000000000000000000	3 – 5 mph at 20 4 – 3 mph at 20			ipitation: None	Weather Comments: Clear to partly cloudy.						
C°: 6/24–65° at 0600 6/25 – 70° at 0600				Speed (mph): 6/24 – 3 mph at 06 6/25 – 6 mph at 06			W.C.									
							DETECT	OR DATA								
Detector	r Brand/	'Model: S	M4BAT	「 Mini	Microphone I (circle): built						He	mispher	ical	Omnidirectional		
Weathe	rproofin	g? No	SE	ENSITIVITY	r: NA		SAMPLE F	RATE (MIN/N	IAX):	256dB	Data	Division	Ratio:	Audio I	Division R	atio:
				u <mark>nctioning</mark> ubs): Yes	g (Finger			# 10 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1		ASSESSMENT OF THE PROPERTY OF						
				•				Trigger	Levei	12dB	16	8	4	16	8	4
								Trigger Frequ	ency	10kHz						
Gain:	Mic H	Aic Height (m): Distance from Nearest Vegetation or other Obstruction (m)(apart from veg. on ground)						1555555555	tal Ori lic (1-3	entation 60°):		l Orient 0° = hor	ation of izon):	Calls collected in:		
16dB 3m 2m						90°				0°		Full Spectrum				

HABITAT DATA Subdominant Canopy Species: **Dominant Canopy Species:** 1. Black willow (Salix nigra) 1. Box elder (Acer negundo) 2. American elm (Ulmus americana) 2. Cottonwood (Populus deltoides) Recently Logged Forest Crop/Pasture Land Shrub/Scrub Swamp **Young Upland Forest Pine Plantation** Stream/River Vernal Pool **Mature Lowland Forest** X Forest Edge **Emergent Wetland** Deepwater Lake/Pond Young Lowland Forest Old Field **Forest Swamp** Other Site Description: Detector deployed in Bangert Island Conservation Area on hiking trail where there is an opening in the forest canopy.

					PR	ROJECT/SITE	INFORMA	ΠΟΙ							
DEPLOY	ER: Jo	hn Timpone (J	СТ)				SITE SELECTOR: John Timpone (JCT)								
PROJECT	Γ: Rive	erpoint Develo	pment	SITE: 4 Bange	ert Islan	d – creek			SURVEY	DATE(S):	6/2	3 – 6/24 -	2020		
LATITUD	E: 38	.762663		LONGITUDE:	-90.491	1906			STATE:	мо		COUNT	/: St. 0	Charles	
Start Re	cordii	ng: 2000 h	End Record	ling: 0600 h	86	Total Recordin	ng Time: 10 h		Photos:	Attached	– Page 2	2			
	NOAA WEATHER SERVICE STATION DATA														
Moon Phase: New				Waxing Crescent	First (Ougrtor	Waxing Gibbous		Full		ning oous	Third (Quarter		ning scent
Air Ten	6/23–80° at 2000 6/24 – 87° at 2000			Wind	100000000000000000000000000000000000000	– 5 mph at 200 – 3 mph at 200			pitation: None	: Weather Comments: Clear to partly cloudy.					
C°:				Speed (mph):		– 3 mph at 060 - 6 mph at 060	*****	·							
						DETECT	OR DATA								
Detecto	r Brar	n d/Model: SM4	4BAT FS	Microphone Brand/Model (circle): SMMU2			Directional			Hemispherical			Omnidirectional		onal
Weathe	rproo	fing? No	SENSITIVIT	Y: NA		SAMPLE R	ATE (MIN/M	AX):	256dB	Data	Division	Ratio:	Audio	Division F	Ratio:
			Functionin Rubs): Yes	g (Finger		98 SAP 40 47 18 TS 47 17 17 TEATH	Trigger Lo		12dB	16			15		
						7	rigger Freque	ency	10kHz	1 16	8	4	16	8	4
Gain:	Mi	c Height (m):	Distance from Nearest Vegetation or other Obstruction (m)(apart from veg. on ground				100000000000000000000000000000000000000	Horizontal Orientation of Mic (1-360°):			l Orient 0° = hor	ation of izon):	Calls collected in:		
16dB		3m		2m		90°				0°		Full Spectrum			

HABITAT DATA

Dominant Canopy Species:

Subdominant Canopy Species:

- 1. Box elder (Acer negundo)
- 2. Cottonwood (Populus deltoides)

- 1. Box elder (Acer negundo)
- 2. Silver maple (Acer saccharinum)



Recently Logged Forest Crop/Pasture Land Shrub/Scrub Swamp Young Upland Forest Pine Plantation	
Shrub/Scrub Swamp Young Upland Forest	
Young Upland Forest	
Pine Plantation	
Stream/River	Х
Vernal Pool	
Mature Lowland Forest	X
Forest Edge	Х
Emergent Wetland	
Deepwater Lake/Pond	
Young Lowland Forest	
Old Field	
Forest Swamp	
Other	
Site Description:	

Detector deployed in Bangert Island Conservation Area on creek/slough.

PROJECT/SITE INFORMATION																		
DEPLOYER: John Timpone (JCT)									SITE SELECTOR: John Timpone (JCT)									
PROJECT	Γ: Rive	rpoint D	evelop	ment	SITE: 5 Bange	rt Isla	nd – slough			SURVEY	DATE(S):	6/2	4 -2020	~				
LATITUDE: 38.757861					LONGITUDE:	96941			STATE:	мо		COUNT	Y: St. Charles					
Start Recording: 2000 h End Record					ling: 0600 h		Total Recordi	ng Time: 10	h	Photos:	Attached	– Page 1	2					
NOAA WEATHER SERVICE STATION DATA																		
Moon Phase: Ne			lew	Waxing Crescent		t Quarter	Waxing Gibbous		FOII		ning bous	Third	Quarter Waning Crescent					
Air Ten	6/24 – 87° at 2000		000	Wind	6/24	1−3 mph at 20	00	Precipitation: None		Weather Comments: Clear to partly cloudy.								
c°: 6/25 – 70° at 0			600	Speed (mph):		5–6 mph at 060	00											
							DETECT	OR DATA										
Detector Brand/Model: SM4BAT FS Microphone Brand/Model (circle): SMMU2					l/Model	Di	rection	ial	He	mispher	ical	Om	ınidirecti	onal				
Weatherproofing? No SENSIT		SENSITIVIT	Y: NA		SAMPLE F	RATE (MIN/N	1AX):	256dB	Data	Division	Ratio:	Audio	Division F	Ratio:				
			Functioning Rubs): Yes	g (Finger			Trigger Level		1									
			-			8920			12dB 10kHz	16	8	4	16	8	4			
				120 200				rigger Frequency Horizontal Orie							<u> </u>	12.5		
Gain:	Mic	Height	(m):	Selling and a service of	from Nearest on (m)(apart fr		ation or other eg. on ground):	200400000000000000000000000000000000000	ital Ori lic (1-3		100 A CONTRACTOR OF THE PARTY O	Orient O° = hor	ation of izon):	Call	s collecte	ed in:		
16dB		3m		2m					90°			0°		Full Spectrum				

HABITAT DATA

Dominant Canopy Species:

- 1. Silver maple (Acer saccharinum) 2. Black willow (Salix nigra)
- 3. Green ash (Fraxinus pennsylvanicum)

Subdominant Canopy Species:

- 1. Box elder (Acer negundo)
- 2. Silver maple (Acer saccharinum)



Recently Logged Forest	
Crop/Pasture Land	
Shrub/Scrub Swamp	
Young Upland Forest	
Pine Plantation	
Stream/River	Х
Vernal Pool	
Mature Lowland Forest	Х
Forest Edge	Х
Emergent Wetland	
Deepwater Lake/Pond	
Young Lowland Forest	
Old Field	
Forest Swamp	
Other	
Site Description:	

Detector deployed in Bangert Island Conservation Area on creek/slough.

В

Detailed Acoustic Survey Results Table This page intentionally left blank.

Table B-1. Detailed Acoustic Survey Results

Site	Date (2020)	Total Data Files	Bat Call Files	Noise Files	SPECIES (MAXIMUM LIKELIHOOD ESTIMATOR)											
					MYSO	MYSE	LABO	LACI	LANO	EPFU	MYGR	MYLU	NYHU	PESU	NOID	
#1	June 23	238	210	28	0	0	3 (0.017)	51 (0.000)	4 (1.000)	87 (0.000)	0	2 (0.295)	4 (0.100)	0	59	
#1	June 24	684	651	33	0	0	1 (0.935)	85 (0.000)	16 (1.000)	424 (0.000)	4 (0.000)	3 (0.026)	12 (0.000)	0	106	
#2	June 23	1,051	1,037	14	0	0	3 (0.038)	372 (0.000)	45 (1.000)	423 (0.000)	0	3 (0.107)	6 (0.011)	2 (0.124)	182	
	June 23	526	484	42	0	0	18 (0.000)	121 (0.000)	13 (1.000)	267 (0.000)	1 (0.005)	1 1.000)	7 (0.457)	2 (0.383)	54	
#3	June 24	678	622	56	1 (0.247)	1 (0.053)	9 (0.000)	143 (0.000)	4 (1.000)	399 (0.000)	3 (0.000)	0	1 (1.000)	3 (0.018)	58	
#4	June 23	467	449	18	0	0	17 (0.000)	196 (0.000)	7 (1.000)	150 (0.000)	0	(0.952)	8 (0.389)	2 (0.430)	66	
	June 24	870	852	18	0	0	14 (0.000)	172 (0.000)	14 (1.000)	535 (0.000)	0	5 (0.287)	17 (0.000)	2 (0.561)	93	
#5	June 24	498	476	22	0	0	3 (0.035)	134 (0.000)	14 (1.000)	252 (0.000)	2 (0.000)	1 (0.856)	7 (0.003)	1 (0.632)	62	

MYSO = Indiana bat, MYSE = northern long-eared bat, LABO = red bat, LACI = hoary bat, LANO = silver-haired bat, EPFU = big brown bat, MYGR = gray bat, MYLU = little brown bat, NYHU = evening bat, PESU = eastern pipistrelle, TABR = Brazilian free-tailed bat

C

Study Plan and USFWS COMO Field Office Concurrence Email This page intentionally left blank.



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Crawford, Murtipy & Tilly (CMT) | May 22, 2020
USFWS ACOUSTIC STUDY PLAN FOR THE CITY OF ST. CHARLES RIVERPOINTE DEVELOPMENT |
ST. CHARLES COUNTY, MISSOURI

May 22, 2020

U.S. Fish and Wildlife Service Ecological Services 101 park DeVille Drive, Suite A Columbia, MO 65203

USFWS ACOUSTIC STUDY PLAN FOR THE CITY OF ST. CHARLES RIVERPOINTEDEVELOPMENT | ST. CHARLES COUNTY, MISSOURI

Dear USFWS:

Please accept this letter as a study plan for HDR, Inc. (HDR) and our client Crawford, Murphy & Tilly (CMT), to complete a bat acoustic survey for the proposed Riverpointe Development project located in St. Charles County, MO.

Introduction

The City of St. Charles is proposing the Riverpointe Development Project (Project) which will be located along the Missouri River (Figure 1). The project will connect and enhance the surrounding investments in the City. Located north of the project area is Historic Main Street and Ameristar Casino and Hotel Complex, just west of the project lies the Streets of St. Charles Development, and on the southern end the project is bounded by the Family Arena. The proposed project will require vegetation clearing of approximately 115 acres prior to construction.

For projects or portions of projects that are not within known Indiana bat occurrence areas, the USFWS generally requires project proponents to either assume presence or conduct a summer presence/absence survey. Depending on multiple factors, including time, cost, and appropriate survey conditions, summer presence/absence surveys can include a mist net survey, an acoustic survey, or a combination of both. In response to the risk of reverse zoonosis of COVID-19 from humans to wild mammals, the USFWS and Missouri Department of Conservation have temporarily suspended authorizations for hands-on work with bats. Therefore, it was determined that a summer presence/absence acoustic survey would be conducted.

Level of Effort

The acoustic survey will be conducted in accordance with the latest protocols provided in the 2020 Range-wide Indiana Bat Summer Survey Guidelines, March 2020 (USFWS 2020 Guidelines), which are currently considered approved methods of surveying for Indiana bats. The USFWS Guidelines for acoustic surveys require all non-linear projects to utilize a minimum of eight detector nights per 123 acres (50 ha) of suitable summer habitat (i.e., forest). HDR determined the need for four survey sites (Figure 1), where each survey site will employ a minimum of two calendar nights of survey effort for a total of eight detector nights.



Crawford, Murhpy & Tilly (CMT) | May 22, 2020 USFWS ACOUSTIC STUDY PLAN FOR THE CITY OF ST. CHARLES RIVERPOINTE DEVELOPMENT | ST. CHARLES COUNTY, MISSOURI

Acoustic Site Selection

A qualified bat biologist will perform desktop and field reconnaissance to select optimal acoustic survey sites based on availability of suitable forest-canopy openings, water sources, wooded fence lines that are adjacent to large opening or connect two larger blocks of suitable habitat, blocks of recently logged forest where some potential roost trees remain, road and/or stream corridors with open tree canopies or canopy height of more than 33 feet (10 m), and woodland edges.

Methodology

Four acoustic sites (with a total of two detector nights per location) will be sampled for a total of eight detector nights. This level of effort is based upon review of project area maps showing potentially suitable habitat for both the Indiana bat and northern long-eared bat. Summer habitat for Indiana and northern long-eared bats consist of a variety of forested habitats utilized for roosting, foraging, and commuting. These habitats consist of forested blocks and linear features comprised of dense or loose aggregates of trees with variable amounts of canopy closure. Typical foraging habitat for the Indiana bat includes semi-open forested habitats. Northern long-eared bats foraging habitat is typically interior forested areas. Commuting habitat is used to travel between roosting and foraging areas, and typically includes forest edges and linear features, including riparian corridors and fencerows.

The acoustic survey will be conducted during the timeframe of June 25 through August 15, 2020, and will be performed in accordance with the USFWS 2020 Guidelines. Specific placement of detectors (Wildlife Acoustics, Maynard MA - SM4 BAT or SM4 BAT mini) will be determined by the micro-habitat of the project site. The sampling area of each detector will be assessed to determine the zone of detection around a given microphone. Detection distance, orientation and height of the microphone, and specific features such as vegetation, and other obstructions, will dictate the specific sampling area of each detector.

Features such as vegetation, water, and power lines can obstruct or reflect call sequences resulting in low-quality bat calls. To avoid this, detector microphones will be deployed at least 10 ft (3 m) in any direction from an obstruction, in areas without, or minimal vegetation within 100 ft (30 m) of directional microphones or 33 ft (10 m) from other microphones, parallel to woodland edges, and at least 49 ft (15 m) from known or suitable roosts. Detectors will be oriented horizontally to sample the majority of an identified flight path. At each acoustic survey site, the following information will be recorded: date, duration of survey, location coordinates, detection zone (habitat being sampled), and weather. Photographs depicting microphone orientation and habitat will be taken at each survey site.

After each night of sampling, data will be downloaded and checked to ensure a full sampling period was achieved. Bat calls will be analyzed using the latest version of a USFWS-approved software program (Kaleidoscope Pro Version 5.1.1). All target bat species call files identified by the software program(s) will be manually vetted by HDR bat biologists John Timpone (USFWS T&E Permit No. 120231-4) and Brooke Hines (USFWS T&E Permit No. 31355B-3).



Crawford, Murhpy & Tilly (CMT) | May 22, 2020
USPWS ACOUSTIC STUDY PLAN FOR THE CITY OF ST. CHARLES RIVERPOINTE DEVELOPMENT |
ST. CHARLES COUNTY, MISSOURI

Reporting

A report will be prepared summarizing the findings of the acoustic efforts. In addition, a copy of the raw acoustic data and auto-ID output, along with the report, will be submitted to USFWS.

If you have any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

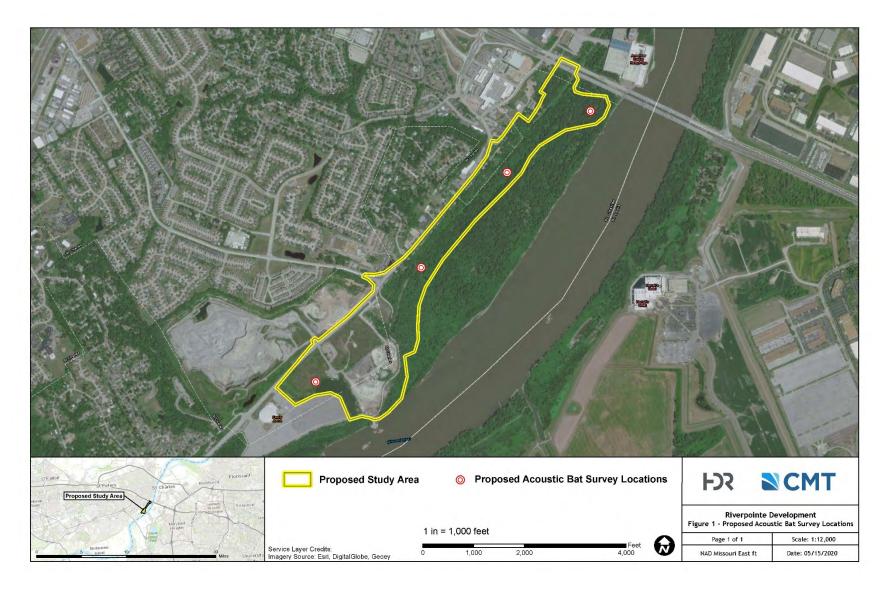
Brooke Hines

Sr. Environmental Scientist

HDR 2517 Sir Barton Way Lexington, KY 40509 D 859.629.4890 | M 502.330.4936

Brooke at three

brooke.hines@hdrinc.com



From: <u>Heather Lacey</u>
To: <u>Hines, Brooke</u>

Cc: <u>Ellen Hogrebe</u>; <u>Dennis Denby</u>; <u>Jay Rakers</u>

Subject: Fwd: [EXTERNAL] MVS-2019-606 - Survey Plan Review (UNCLASSIFIED)

Date: Tuesday, June 16, 2020 12:41:30 PM

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Brooke,

We have approval of your survey plan. Let us know what else you might need from us to get this on your calendar. Once you've had a chance to schedule, let us know when you plan on conducting the work and an approximate date for the report so we can advise the city.

Thanks! Heather Lacey (937) 307-0744

Begin forwarded message:

From: "Kuczynska, Iwona" <iwona_kuczynska@fws.gov>

Date: June 16, 2020 at 12:24:31 PM EDT

To: "Lamontagne, Chad M CIV USARMY CEMVS (USA)"

<Chad.M.Lamontagne@usace.army.mil>

Cc: Ellen Hogrebe <ehogrebe@cmtengr.com>, Heather Lacey

<hlacey@cmtengr.com>, "Weber, John S" <John_S_Weber@fws.gov>, "Herrington,

Karen" < karen herrington@fws.gov>

Subject: Re: [EXTERNAL] MVS-2019-606 - Survey Plan Review

(UNCLASSIFIED)

External Message: This email was sent from someone outside of CMT. Please use caution with links and attachments from unknown senders or receiving unexpected emails.

Good morning Chad,

Thank you for submitting your acoustic study plan for this summer. The Service approves the study plan as submitted on 6/16/2020. This email also serves as your site-specific authorization to conduct permitted activities.

Note on annual reporting: In addition to a traditional written report, federal permit holders are now required to submit their survey data using the standardized permit reporting spreadsheets available on the R3 Indiana Bat Summer Survey Guidance webpage

(http://www.fws.gov/midwest/Endangered/mammals/inba/inbasummersurveyguidance.html).

Let me know if you have any questions. Good luck with your survey.

Thank you,

Vona Kuczynska

Fish and Wildlife Biologist U.S. Fish and Wildlife Service Missouri Ecological Services Field Office 101 Park DeVille Drive, Suite A, Columbia, MO 65203 Office: 573-234-5011

From: Lamontagne, Chad M CIV USARMY CEMVS (USA)

<Chad.M.Lamontagne@usace.army.mil>
Sent: Tuesday, June 16, 2020 11:01 AM

To: Kuczynska, Iwona <iwona_kuczynska@fws.gov>

Cc: Ellen Hogrebe <ehogrebe@cmtengr.com>; Heather Lacey <hlacey@cmtengr.com>

Subject: [EXTERNAL] MVS-2019-606 - Survey Plan Review (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Vona.

Please find the attached habitat assessment and study plan for a proposed acoustic bat survey for a project in St. Charles County, Missouri. The St. Louis District has reviewed the habitat assessment and concurs with the findings from CMT Engineering that suitable habitat is present on site. Please review the plan at your convenience and report back any concerns you may have. Thank you.

Take care, Chad LaMontagne Regulatory Project Manager CEMVS, Regulatory Division 1222 Spruce Street St. Louis, Missouri 63103-2833 314-331-8044

CLASSIFICATION: UNCLASSIFIED

Riverpointe Public Infrastructure Project

APPENDIX E: ADJACENT PROPERTY OWNERS



Adjacent Property Owners

No.	Parcel No.	Owners Name	Address	City, State, Zip
1	6-014D-7421-00-0001.0000000	PINNACLE ENTERTAINMENT INC	6465 S RAINBOW BLVD	LAS VEGAS NV, 89118-3215
2	6-014D-7421-00-0003.0000000	PINNACLE ENTERTAINMENT INC	6465 S RAINBOW BLVD	LAS VEGAS NV, 89118-3215
3	6-014D-7421-00-0002.0000000	PINNACLE ENTERTAINMENT INC	6465 S RAINBOW BLVD	LAS VEGAS NV, 89118-3215
4	6-014D-8213-00-000A.0000000	IMPERIAL CATERING COMPANY INC	1410 S 5TH ST	ST CHARLES MO, 63301
5	6-014D-C615-00-0001.0000000	ST CHARLES - NOAH DEVELOPMENT LLC	420 N MAIN ST	EAST PEORIA IL, 61611
6	6-014D-C063-00-005C.0000000	ST CHARLES - NOAH DEVELOPMENT LLC	420 N MAIN ST	EAST PEORIA IL, 61611
7	6-014D-C063-00-005B.0000000	SCND BLOCK 1000 LLC	420 N MAIN ST	EAST PEORIA IL, 61611
8	6-014D-A930-00-00R2.0000000	PLAZA AT NOAHS ARK COMMUNITY IMPROVEMENT DISTRICT	1500 S 5TH ST	ST CHARLES MO, 63303
9	6-014D-C241-00-0004.0000000	SCND BLOCK 4000 LLC	420 N MAIN ST	EAST PEORIA IL, 61611
10	6-014D-C063-00-0003.0000000	PLAZA AT NOAHS ARK COMMUNITY IMPROVEMENT DISTRICT	1500 S 5TH ST	ST CHARLES MO, 63303
11	6-014D-3280-00-0025.1000000	BRIDGEWAY COUNSELING SERVICE	125 N 5TH ST	ST CHARLES MO, 63301
12	6-014D-3280-00-0025.3000000	BRIDGEWAY COUNSELING SERVICE	125 N 5TH ST	ST CHARLES MO, 63301
13	6-0023-S007-00-0001.0000000	ST CHARLES COUNTY	201 N 2ND ST RM 529	ST CHARLES MO, 63301
14	6-0023-S007-00-0002.0000000	ST CHARLES COUNTY	201 N 2ND ST RM 529	ST CHARLES MO, 63301
15	6-0023-S007-00-0037.1000000	ST CHARLES COUNTY	201 N 2ND ST RM 529	ST CHARLES MO, 63301
16	6-0023-S007-00-0014.1000000	1735 SOUTH RIVER ROAD LLC	1715 DEER TRACKS TRL STE 220	ST LOUIS MO, 63131-1855
17	6-0023-S007-00-0018.1000000	ST CHARLES SIGN AND ELECTRIC INC	527 1ST CAPITOL DR	ST CHARLES MO, 63301-2725
18	6-0023-S007-00-0019.0000000	DAVID SCHOLLE	12 ASHLAND PL	ST CHARLES MO, 63301
19	6-0023-S007-00-0022.0000000	JAMES L & LISA A BURNITT	1765 S RIVER RD	ST CHARLES MO, 63303
20	6-0023-S007-00-0014.3000000	CHERRY L BURNITT	1767 S RIVER RD	ST CHARLES MO, 63303-4122
21	6-0023-S007-00-0025.0000000	DENNIS E GROOMS	1769 S RIVER RD	ST CHARLES MO, 63303-4122
22	6-0023-S007-00-0026.0000000	DONALD & LINDA MILLER	2 BROOK VIEW CT	DARDENNE PRAIRIE MO, 63368-8204
23	6-0023-S007-00-0027.0000000	KEVIN L CHOWNING	1801 S RIVER RD	ST CHARLES MO, 63303-4124
24	6-0023-S007-00-0029.1000000	JOSEPH WOOMER & TANGIE PHILLIPS	3406 SUN LAKE DR	ST CHARLES MO, 63301
25	6-0023-S007-00-0029.0000000	FLOOD ELECTRIC LLC	2330 CANYON DR	ST CHARLES MO, 63303
26	6-0023-S007-00-0030.0000000	GRACE DOCTRINE CHURCH	1821 S RIVER RD	ST CHARLES MO, 63303
27	6-0023-S007-00-0031.0000000	ST CHARLES CONGREGATION OF JEHOVAHS WITNESSES	1831 S RIVER RD	ST CHARLES MO, 63303
28	6-0022-C273-00-000A.0000000	EDWARD ROSE MILLENNIAL DEVELOPMENT LLC	11611 N MERIDIAN ST STE 800	CARMEL IN, 46032
29	3-0162-2982-00-0028.2000000	METRO FILL DEVELOPMENT LLC	1515 DES PERES RD STE 300	ST LOUIS MO, 63131
30	3-0012-S007-00-0028.1110000	ARENA PARKWAY EAST LLC	1515 DES PERES RD STE 300	ST LOUIS MO, 63131-1853

