Draft Report

Summer Acoustic Survey

For the Riverpointe Public Infrastructure Project

St. Charles County, Missouri

Prepared for:

CMT
Crawford, Murphy & Tilly

Prepared by:

HDR

July 2020

1 Acronyms and Abbreviations

ESA	Endangered Species Act
Kpro	Kaleidoscope Pro
USFWS	U.S. Fish and Wildlife Service

Executive Summary

The City of St. Charles is proposing the Riverpointe Public Infrastructure Project (Project), which will be located along the Missouri River in St. Charles County, Missouri. The Project will include mass grading, tree clearing, public sanitary and storm sewer relocations, and overhead electric adjustments. Because the Project is within the range of the federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (*M. septentrionalis*), disturbance of forested habitat associated with the Project area may result in impacts to summering populations of these species. Acoustic surveys were conducted in accordance with U.S. Fish and Wildlife Service protocols to determine the presence or potential absence of Indiana and/or northern long-eared bats within the Project area.

A total of five acoustic sites were surveyed from 23 to 25 June 2020. 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 U.S. Fish and Wildlife Service: Kaleidoscope Pro (KPro) Version 5.1.1. The only Federally 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

The City of St. Charles is proposing the Riverpointe Public Infrastructure Project (Project), which will be located along the Missouri River. The Project will include mass grading, tree clearing (115 acres), public sanitary and storm sewer relocations, and overhead electric adjustments.

Pursuant to Section 7(a)(2) and Section 9 of the Endangered Species Act (ESA), clearing forested land may impact summering populations of the Indiana (*Myotis sodalis*) and northern long-eared bats (*M. septentrionalis*). Acoustic surveys were conducted to determine the presence or probable absence of Indiana and/or northern long-eared bats within or near the Project Area. The ESA was codified as law in 1973. This law provides for the listing, conservation, and recovery of threatened and endangered plants and wildlife. The U.S. Fish and Wildlife Service (USFWS) monitors and protects species listed under the ESA.

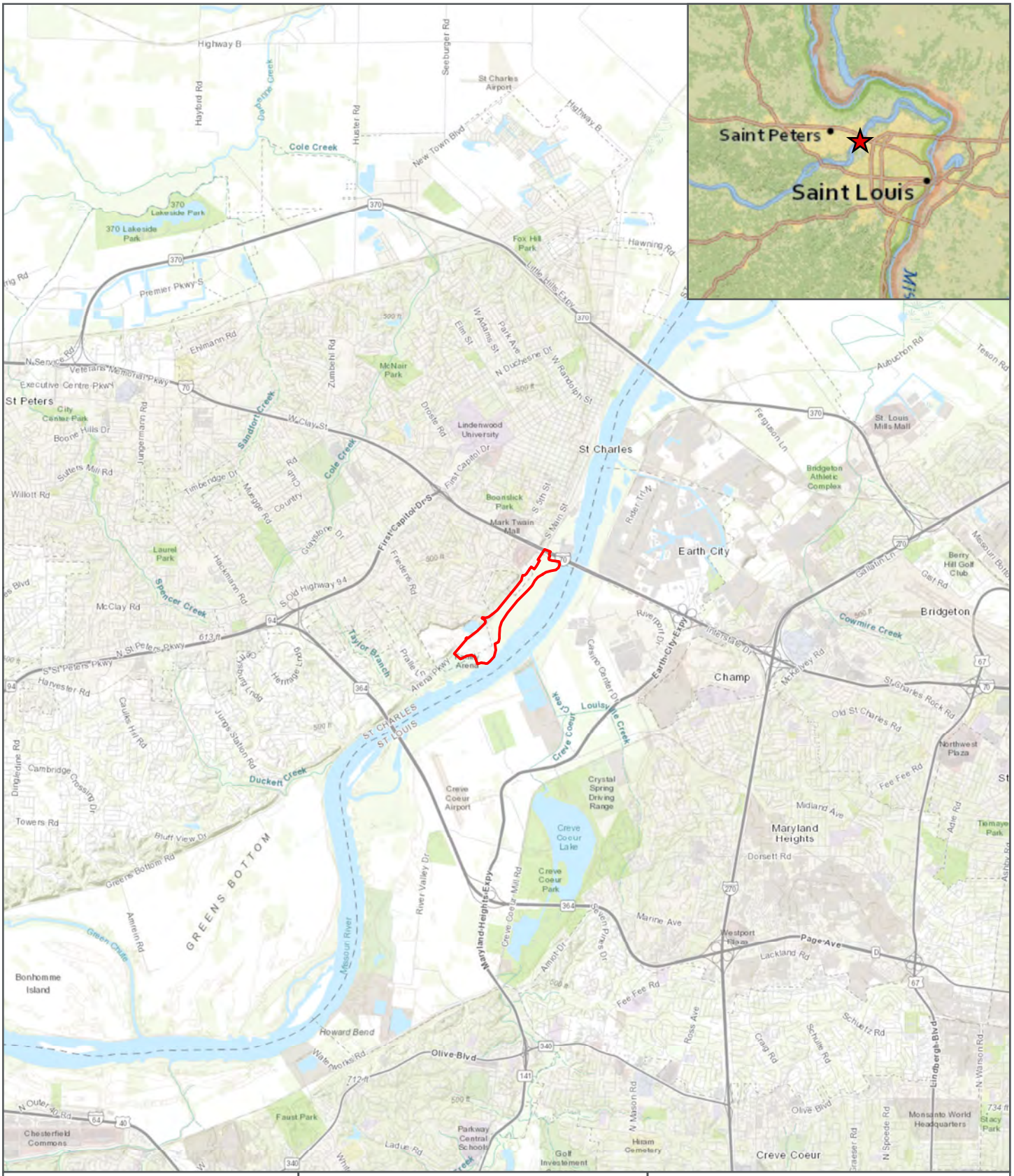
Acoustic surveys were conducted in accordance with USFWS protocols (USFWS 2020) and a USFWS Columbia Field Office-approved Study Plan (**Appendix C**).

2. Project Location and Description

The Project is located adjacent to the Missouri River, in St. Charles County Missouri, near the 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) 31.1 to RM 29.0 on the left descending bank of the Missouri River. Located north of the Project area is the City's historic Main Street and Ameristar Casino and Hotel Complex, just west lies the Streets of Saint Charles Development, and the southern end the Project area is bounded by the Family Arena.

The Project area includes Bangert Island. Bangert Island was once an island separated from the bluff at Saint 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 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.

Bangert Island is considered a wetland according to the USFWS National Wetland Inventory (NWI) mapping. NWI wetlands are primarily freshwater forested/shrub wetland temporarily flooded. The remainder of the island is freshwater forested/shrub wetland seasonally flooded. Vegetation throughout the Project area is comprised primarily of bottomland hardwood forest, which includes cottonwood (*Populus deltoides*), silver maple (*Acer sachhirinum*), box elder (*Acer negundo*), black willow (*Salis nigra*), and sycamore (*Platanus occidentalis*).



N

0 1 2

MILES

LEGEND

STUDY AREA

PROJECT LOCATION

RIVERPOINTE BAT SURVEYS

ST CHARLES, MISSOURI

JULY 2020

FIGURE 1

CMT Crawford, Murphy & Tilly

HDR

PATH: J:\2020\20-046_RIVERPOINTE_BAT_SURVEYS_(HINES)\7.2_WORK_IN_PROGRESS\MAP_DOCS\DRAFT\RIVERPOINTE_BATS_GENLOC_8X11.MXD - USER: ASTOUT - DATE: 7/13/2020

Bangert Island, purchased by St. Charles County from the Missouri Department of Conservation in 2014, is currently being utilized as a park/recreation area. Within the park, there are approximately four miles of natural surfaced trails utilized for hiking, biking, 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 is located adjacent to the northwest boundary of the Project. Immediately southwest of Bangert Island is an active quarry site owned by LaFarge Aggregates, and southwest of that is the Family Arena. Along the western edge of the Project area is a mixture of residential, industrial, and commercial properties. To the north of Bangert Island is Interstate-70 (I-70) and the Ameristar Casino.

3. Methods

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 effort for the Project. Based on field reconnaissance, three sites were sampled for two nights and sampling was conducted for one night at two different sites to maximize coverage of the Project area.

3.1 Acoustic Site Selection

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 not are not limited to forest canopy openings, water sources, wooded fence lines that are adjacent to large openings 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 meters), and woodland edges (Britzke et al. 2010, USFWS 2020).

Five acoustic sampling sites were selected based on criteria set forth in the 2020 *USFWS Range-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 June 2020. Survey effort consisted of five detectors set out for two nights, for a total of eight detector nights. **Figure 2** shows detector locations; **Appendix A** contains acoustic data sheets and site photographs; and **Appendix B** contains a detailed table of acoustic results.

3.2 Acoustic Surveys

Bat calls collected during the acoustic surveys were analyzed using Kaleidoscope Pro Version 5.1.1. (KPro). For KPro, the appropriate regional bat species were included in the analysis (i.e., Species Set for Missouri) and then the species list was fine-tuned for the region. Call files identified by the software program as Indiana or northern long-eared bats, as well as the entire night's call data from those sites, were qualitatively reviewed by HDR biologist John Timpone.

Weather conditions were recorded during the survey to ensure compliance with USFWS survey guidelines (USFWS 2020). Weather data included temperature, wind speed, cloud cover, precipitation, and moon phase.

4. Results

4.1 Acoustic Sites

The acoustic survey consisted of five sites (**Table 1**). The detector from Site #D2 was moved to Site #D5 for the second sampling night to survey more of the project area. **Appendix A** contains 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.

0 1,000 2,000 FEET

LEGEND

BAT DETECTOR LOCATION

STUDY AREA

DETECTOR LOCATIONS

RIVERPOINTE BAT SURVEYS

ST CHARLES, MISSOURI

JULY 2020

FIGURE 2

CMT Crawford, Murphy & Tilly

HDR

PATH: J:\2020\20-046_RIVERPOINTE_BAT_SURVEYS_(HINES)\7.2_WORK_IN_PROGRESS\MAP_DOCS\DRAFT\RIVERPOINTE_BATS_DETECTORS_8X11.MXD - USER: ASTOUT - DATE: 7/13/2020

5. Conclusions

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

6. Literature Cited

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: https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html

A

Acoustic Survey / Habitat Data Sheets and Photographs

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2020 ACOUSTIC SURVEY SITE DATA SHEET

PROJECT/SITE INFORMATION									
DEPLOYER: John Timpone (JCT)				**SITE SELECTOR:** John Timpone (JCT)					
PROJECT: Riverpoint Development		**SITE: 1** -Bangert Island			**SURVEY DATE(S):**		6/23 – 6/24 -2020		
LATITUDE: 38.759406		**LONGITUDE:** -90.498076			**STATE:**	MO	**COUNTY:**	St. Charles	
Start Recording: 2000 h	**End Recording:** 0600 h	**Total Recording Time:** 10 h		**Photos:** Attached – Page 2					

NOAA WEATHER SERVICE STATION DATA									
Moon Phase:	New	**Waxing Crescent**	**First Quarter**	**Waxing Gibbous**	**Full**	**Waning Gibbous**	**Third Quarter**	**Waning Crescent**	
Air Temp C°:	6/23– 80° at 2000 6/24 – 87° at 2000 6/24– 65° at 0600 6/25 – 70° at 0600	**Wind Speed (mph):**	6/23 – 5 mph at 2000 6/24 – 3 mph at 2000 6/24 – 3 mph at 0600 6/25– 6 mph at 0600	**Precipitation:** None	**Weather Comments:** Clear to partly cloudy.				

DETECTOR DATA											
Detector Brand/Model: SM4BAT FS		**Microphone Brand/Model (circle):** SMMU2		**Directional**		**Hemispherical**		**Omnidirectional**			
Weatherproofing? No	**SENSITIVITY:** NA **Functioning (Finger Rubs):** Yes	**SAMPLE RATE (MIN/MAX):**	**256dB**	**Data Division Ratio:**			**Audio Division Ratio:**		
		Trigger Level	**12dB**	16	8	4	16	8	4
		Trigger Frequency	**10kHz**						

Gain:	**Mic Height (m):**	**Distance from Nearest Vegetation or other Obstruction (m)(apart from veg. on ground):**	**Horizontal Orientation of Mic (1-360°):**	**Vertical Orientation of Mic (0° = horizon):**	**Calls collected in:**
16dB	3m	5m	90°	0°	Full Spectrum

2020 ACOUSTIC SURVEY SITE DATA SHEET

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*)

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	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.

2020 ACOUSTIC SURVEY SITE DATA SHEET

PROJECT/SITE INFORMATION									
DEPLOYER: John Timpone (JCT)				**SITE SELECTOR:** John Timpone (JCT)					
PROJECT: Riverpoint Development		**SITE: 2** west bank of MO River			**SURVEY DATE(S):**	6/23 – 2020			
LATITUDE: 38.758801		**LONGITUDE:** -90.489695			**STATE:**	MO	**COUNTY:**	St. Charles	
Start Recording: 2000 h	**End Recording:** 0600 h	**Total Recording Time:** 10 h			**Photos:** Attached – Page 2				

NOAA WEATHER SERVICE STATION DATA									
Moon Phase:	New	**Waxing Crescent**	**First Quarter**	**Waxing Gibbous**	**Full**	**Waning Gibbous**	**Third Quarter**	**Waning Crescent**	
Air Temp C°:	6/23– 80° at 2000 6/24– 65° at 0600	**Wind Speed (mph):**	6/23 – 5 mph at 2000 6/24 – 3 mph at 0600	**Precipitation:** None	**Weather Comments:** Clear to partly cloudy.				

DETECTOR DATA											
Detector Brand/Model: SM4BAT FS		**Microphone Brand/Model (circle):** SMMU2		**Directional**		**Hemispherical**		**Omnidirectional**			
Weatherproofing? No	**SENSITIVITY:** NA **Functioning (Finger Rubs):** Yes	**SAMPLE RATE (MIN/MAX):**	**256dB**	**Data Division Ratio:**			**Audio Division Ratio:**				
		Trigger Level	**12dB**	16	8	4	16	8	4		
		Trigger Frequency	**10kHz**								

Gain:	**Mic Height (m):**	**Distance from Nearest Vegetation or other Obstruction (m)(apart from veg. on ground):**	**Horizontal Orientation of Mic (1-360°):**	**Vertical Orientation of Mic (0° = horizon):**	**Calls collected in:**
16dB	3m	3m	90°	0°	Full Spectrum

2020 ACOUSTIC SURVEY SITE DATA SHEET

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	
Stream/River	X
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.

2020 ACOUSTIC SURVEY SITE DATA SHEET

PROJECT/SITE INFORMATION									
DEPLOYER: John Timpone (JCT)				**SITE SELECTOR:** John Timpone (JCT)					
PROJECT: Riverpoint Development		**SITE: 3** Bangert Island – trail opening			**SURVEY DATE(S):**		6/23 – 6/24 -2020		
LATITUDE: 38.755768		**LONGITUDE:** -90.498274			**STATE:**	MO	**COUNTY:**	St. Charles	
Start Recording: 2000 h	**End Recording:** 0600 h	**Total Recording Time:** 10 h		**Photos:** Attached – Page 2					

NOAA WEATHER SERVICE STATION DATA									
Moon Phase:	New	**Waxing Crescent**	**First Quarter**	**Waxing Gibbous**	**Full**	**Waning Gibbous**	**Third Quarter**	**Waning Crescent**	
Air Temp C°:	6/23– 80° at 2000 6/24 – 87° at 2000 6/24– 65° at 0600 6/25 – 70° at 0600	**Wind Speed (mph):**	6/23 – 5 mph at 2000 6/24 – 3 mph at 2000 6/24 – 3 mph at 0600 6/25– 6 mph at 0600	**Precipitation:** None	**Weather Comments:** Clear to partly cloudy.				

DETECTOR DATA												
Detector Brand/Model: SM4BAT Mini		**Microphone Brand/Model (circle):** built in ultrasonic mic		**Directional**		**Hemispherical**		**Omnidirectional**				
Weatherproofing? No	**SENSITIVITY:** NA		**SAMPLE RATE (MIN/MAX):**		**256dB**	**Data Division Ratio:**			**Audio Division Ratio:**			
	Functioning (Finger Rubs): Yes		**Trigger Level**		12dB	16	8	4	16	8	4	
			Trigger Frequency		10kHz							

Gain:	**Mic Height (m):**	**Distance from Nearest Vegetation or other Obstruction (m)(apart from veg. on ground):**	**Horizontal Orientation of Mic (1-360°):**	**Vertical Orientation of Mic (0° = horizon):**	**Calls collected in:**
16dB	3m	2m	90°	0°	Full Spectrum

2020 ACOUSTIC SURVEY SITE DATA SHEET

HABITAT DATA	
Dominant Canopy Species: 1. Black willow (*Salix nigra*) 2. Cottonwood (*Populus deltoides*)	**Subdominant Canopy Species:** 1. Box elder (*Acer negundo*) 2. American elm (*Ulmus americana*)

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.

2020 ACOUSTIC SURVEY SITE DATA SHEET

PROJECT/SITE INFORMATION									
DEPLOYER: John Timpone (JCT)				**SITE SELECTOR:** John Timpone (JCT)					
PROJECT: Riverpoint Development		**SITE: 4** Bangert Island – creek			**SURVEY DATE(S):**		6/23 – 6/24 -2020		
LATITUDE: 38.762663		**LONGITUDE:** -90.491906			**STATE:**	MO	**COUNTY:**	St. Charles	
Start Recording: 2000 h	**End Recording:** 0600 h	**Total Recording Time:** 10 h		**Photos:** Attached – Page 2					

NOAA WEATHER SERVICE STATION DATA									
Moon Phase:	New	**Waxing Crescent**	**First Quarter**	**Waxing Gibbous**	**Full**	**Waning Gibbous**	**Third Quarter**	**Waning Crescent**	
Air Temp C°:	6/23– 80° at 2000 6/24 – 87° at 2000 6/24– 65° at 0600 6/25 – 70° at 0600	**Wind Speed (mph):**	6/23 – 5 mph at 2000 6/24 – 3 mph at 2000 6/24 – 3 mph at 0600 6/25– 6 mph at 0600	**Precipitation:** None	**Weather Comments:** Clear to partly cloudy.				

DETECTOR DATA											
Detector Brand/Model: SM4BAT FS		**Microphone Brand/Model (circle):** SMMU2		**Directional**		**Hemispherical**		**Omnidirectional**			
Weatherproofing? No	**SENSITIVITY:** NA **Functioning (Finger Rubs):** Yes	**SAMPLE RATE (MIN/MAX):**	**256dB**	**Data Division Ratio:**			**Audio Division Ratio:**		
		Trigger Level	**12dB**	16	8	4	16	8	4
		Trigger Frequency	**10kHz**						

Gain:	**Mic Height (m):**	**Distance from Nearest Vegetation or other Obstruction (m)(apart from veg. on ground):**	**Horizontal Orientation of Mic (1-360°):**	**Vertical Orientation of Mic (0° = horizon):**	**Calls collected in:**
16dB	3m	2m	90°	0°	Full Spectrum

2020 ACOUSTIC SURVEY SITE DATA SHEET

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	
Stream/River	X
Vernal Pool	
Mature Lowland Forest	X
Forest Edge	X
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.

2020 ACOUSTIC SURVEY SITE DATA SHEET

PROJECT/SITE INFORMATION									
DEPLOYER: John Timpone (JCT)				**SITE SELECTOR:** John Timpone (JCT)					
PROJECT: Riverpoint Development		**SITE: 5** Bangert Island – slough			**SURVEY DATE(S):**	6/24 -2020			
LATITUDE: 38.757861		**LONGITUDE:** -90.496941			**STATE:**	MO	**COUNTY:**	St. Charles	
Start Recording: 2000 h	**End Recording:** 0600 h	**Total Recording Time:** 10 h			**Photos:** Attached – Page 2				

NOAA WEATHER SERVICE STATION DATA									
Moon Phase:	New	**Waxing Crescent**	**First Quarter**	**Waxing Gibbous**	**Full**	**Waning Gibbous**	**Third Quarter**	**Waning Crescent**	
Air Temp C°:	6/24 – 87° at 2000 6/25 – 70° at 0600	**Wind Speed (mph):**	6/24 – 3 mph at 2000 6/25– 6 mph at 0600	**Precipitation:** None	**Weather Comments:** Clear to partly cloudy.				

DETECTOR DATA											
Detector Brand/Model: SM4BAT FS		**Microphone Brand/Model (circle):** SMMU2		**Directional**		**Hemispherical**		**Omnidirectional**			
Weatherproofing? No	**SENSITIVITY:** NA **Functioning (Finger Rubs):** Yes	**SAMPLE RATE (MIN/MAX):**	**256dB**	**Data Division Ratio:**			**Audio Division Ratio:**				
		Trigger Level	**12dB**	16	8	4	16	8	4		
		Trigger Frequency	**10kHz**								

Gain:	**Mic Height (m):**	**Distance from Nearest Vegetation or other Obstruction (m)(apart from veg. on ground):**	**Horizontal Orientation of Mic (1-360°):**	**Vertical Orientation of Mic (0° = horizon):**	**Calls collected in:**
16dB	3m	2m	90°	0°	Full Spectrum

2020 ACOUSTIC SURVEY SITE DATA SHEET

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	X
Vernal Pool	
Mature Lowland Forest	X
Forest Edge	X
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.

B

Detailed Acoustic Survey Results Table

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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
	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

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Study Plan
Acoustic Bat Survey
Riverpointe Development
St. Charles County, MO
May 22, 2020

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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 RIVERPOINTE DEVELOPMENT | 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.

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).

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
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brooke.hines@hdrinc.com


Proposed Study Area
Proposed Study Area
Proposed Acoustic Bat Survey Locations
1 in = 1,000 feet
0
1,000
2,000
4,000
Feet
Service Layer Credits:
Imagery Source: Esri, DigitalGlobe, Geoey
HDR
CMT
Riverpointe Development
Figure 1 - Proposed Acoustic Bat Survey Locations
Page 1 of 1
Scale: 1:12,000
NAD Missouri East ft
Date: 05/15/2020

From: Heather Lacey
To: Hines, Brooke
Cc: Ellen Hogrebe; Dennis Denby; Jay Rakers
Subject: Fwd: [EXTERNAL] MVS-2019-606 - Survey Plan Review (UNCLASSIFIED)
Date: Tuesday, June 16, 2020 12:41:30 PM

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)**
>
>
>
> 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