DICKINSON WRIGHT PLLC

150 E. GAY STREET, 24TH FLOOR
COLUMBUS, OH 43215-3192
TELEPHONE: (614) 744-2570
FACSIMILE: (844) 670-6009
http://www.dickinsonwright.com

WILLIAM V. VORYS
WVorys@dickinsonwright.com
(614) 744-2936

September 25, 2017

Ms. Barcy F. McNeal, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, OH 43215

Re: Case Nos. 13-197-EL-BGN, 16-1687-EL-BGA, and 17-1099-EL-BGA
Trishe Wind Ohio, LLC
Notification of Compliance with Condition 16 – Mussel Survey

Dear Ms. McNeal:

Trishe Wind Ohio, LLC ("Applicant") is certified to construct a wind-powered electric generation facility in Paulding County, Ohio, in accordance with the December 16, 2013 Opinion, Order, and Certificate ("Certificate") issued by the Ohio Power Siting Board ("OPSB").

Condition 16 of the Certificate requires Applicant to obtain an Ohio Department of Natural Resources ("ODNR") approved malacologist to conduct a mussel survey. The Applicant is providing this letter to notify the OPSB that an ODNR-approved malacologist has conducted the mussel survey, which is attached hereto. Therefore, the Applicant has satisfied the requirements set forth in Condition 16.

We are available, at your convenience, to answer any questions you may have.

Respectfully submitted,

/s/ *William V. Vorys*
William V. Vorys (0093479)
Christine M.T. Pirik (0029759)
Terrence O'Donnell (0074213)
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, Ohio 43215
Phone: (614) 591-5461
Email: wvorys@dickinsonwright.com
cpirik@dickinsonwright.com
todonnell@dickinsonwright.com

Attorneys for Trishe Wind Ohio, LLC

Enclosure
COLUMBUS 73809-1 76382v1

Northwest Ohio Windfarm Project

Reconnaissance, Phase I, and Relocation Mussel Surveys Report

Paulding County, Ohio

September 22, 2017

Prepared By:
AllStar Ecology, LLC.
1582 Meadowdale Road
Fairmont, West Virginia 26554

For:
Starwood Energy Group
5 Greenwich Office Park, 2nd Floor
Greenwich, CT 06831

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Executive Summary

On September 6, 2017, reconnaissance (recon), Phase I, and relocation mussel surveys were conducted for four crossings on three streams for the Northwest Ohio Wind Farm Project (Project) (Figure 1). The four proposed crossing locations for the Project are located in the vicinity and just north of Haviland, Ohio in Paulding County. One crossing is proposed on Blue Creek which is classified as a Group 1 mussel stream, two crossings are proposed on Prairie Creek which is classified as a Group 1 mussel stream, and one crossing is proposed on Cunningham Creek which is an unlisted, potential mussel stream.

The recon, Phase I, and relocation mussel surveys conducted for the Project followed the 2016 Ohio Mussel Survey Protocols for unlisted streams and Waterline/Pipeline Corridor Disturbances on Group 1 streams (ODNR *et al*. 2016). The areas of direct impact (ADI) for the four proposed crossings are approximately 30 meters (m) long and less than 10 m wide. For the recon surveys, a 400 foot (ft) downstream buffer (DSB) and 200 ft upstream buffer (USB) were applied to each ADI. For the Phase I surveys, a 25 meter (m) DSB and a 10 m USB were applied to each ADI.

Recon surveys consisted of a minimum one-hour search for live or fresh dead freshwater mussel presence within the ADI and survey buffers. Presence of live mussels within the recon survey area at Prairie Creek Crossing #1 triggered a Phase I mussel survey. Phase I surveys consisted of timed searches within the ADI, DSB, and USB at each crossing location. Stream conditions at the time of the mussel surveys allowed for survey areas to be searched for freshwater mussels utilizing waterscopes.

A total of 10 live freshwater mussels representing three species were collected from the Prairie Creek Crossing #1 survey area during the Phase I and relocation surveys including *Amblema plicata*, *Lasmigona complanata*, and *Pyganodon grandis*. All live mussels from this location were collected from the salvage zone (SZ) and relocated upstream. A total of six live freshwater mussels representing four species were collected from the Prairie Creek Crossing #2 survey area during the Phase I and relocation surveys including *A. plicata*, *P. grandis*, *Quadrula pustulosa*, and *Quadrula quadrula*. All live mussels from this location were also collected from the SZ and relocated upstream. A total of 40 live freshwater mussels representing eight species were collected from the Blue Creek mussel survey area during the Phase I and relocation surveys including *L. complanata*, *Lampsilis siliquoidea*, *Leptodea fragilis*, *Potamilus alatus*, *P. grandis*, *Q. quadrula*, *Q. pustulosa*, and *Utterbackia imbecillis*. All 40 live mussels collected at this location were collected from the SZ and relocated upstream. No live, fresh dead, weathered dead, or relic freshwater mussels were located during the recon survey at the Cunningham Creek crossing.

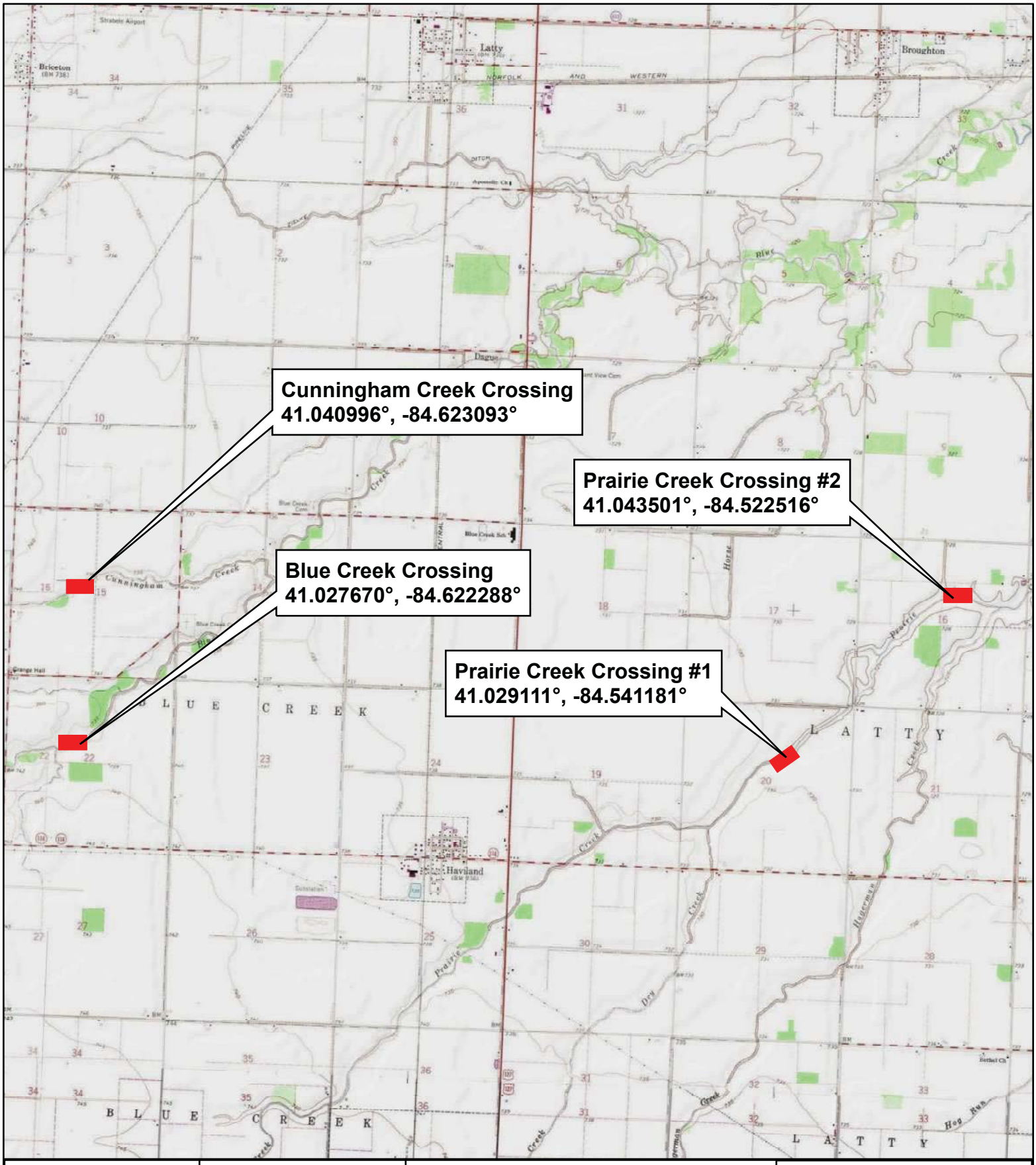
No rare, threatened, or endangered (RTE) species of freshwater mussels were located during Phase I or relocation surveys for the Project. In addition, no RTE species were found within relocation areas for the Project.

Introduction

AllStar Ecology, LLC (AllStar) was contracted by Starwood Energy Group (Starwood) to conduct freshwater mussel surveys for the Northwest Ohio Windfarm Project (Project). The Project proposes four stream crossings in Paulding County, Ohio and is necessary for the connection and development of wind farming facilities in the region. One crossing is proposed on Blue Creek, two crossings are proposed on Prairie Creek, and one crossing is proposed on Cunningham Creek (Figure 1, Table 1). The ADIs for each of the proposed crossings are approximately 30 m long and less than 10 m wide.

Blue Creek and Prairie Creek in Paulding County, Ohio are identified by the Ohio Department of Natural Resources (ODNR) as Group 1 mussel streams (ODNR, *et al*. 2016). Group 1 streams are listed by the ODNR as small to mid-sized streams known to support freshwater mussel populations where federally listed RTE mussel species are not expected. Cunningham Creek is an unlisted stream with a drainage area greater than 10 square miles at the proposed crossing location. Due to the instream activities associated with the proposed Project crossings, the ODNR requires mussel surveys and potential relocations be conducted to avoid possible impacts to potential mussel populations at the crossing locations. Starwood contracted AllStar to survey for potential freshwater mussel populations at each Project crossing location. The recon, Phase I, and relocation surveys followed the 2016 Ohio Mussel Survey Protocols for unlisted streams and Waterline/Pipeline Corridor Disturbances on Group 1 streams (ODNR *et al*. 2016).

The recon, Phase I, and relocation surveys for the Project were conducted September 6, 2017 and were led by Brian Carlson of AllStar (ODNR Scientific Collection Permit #20-035). At the time of the surveys, cloud cover was approximately 45 %. Within the seven days prior to the surveys, there had been 0.73 inches of reported rain accumulation within the vicinity of the Project. Each stream was surveyed at or near base flow conditions. Stream conditions at each survey area allowed for visual sampling efforts via waterscopes with visibility meeting the ODNR requirement of 0.5 m (approximately 20 inches) (ODNR *et al*. 2016).



ALLSTAR ECOLOGY
Natural Resource Specialists

Paulding County, Ohio

Latty USGS 7.5' Quad

Starwood Energy Group

Figure 1
Northwest Ohio Windfarm
Project Location Map

Date: 09/22/2017

Version: # 2

ALLSTAR ECOLOGY
Natural Resource Specialists

N
W E
S

0 850 1,700 3,400
Feet

Paulding County, Ohio

Area of Direct Impact

Downstream Buffer

Upstream Buffer

SZ

Relocation Area

Starwood Energy Group

Figure 2
Phase I Mussel Survey Map
Northwest Ohio Wind Farm
Paulding County, Ohio

Date: 9/22/2017

Index Map

FLOW

Prarie Creek

Center of Prarie Creek Crossing #1 ADI
41.029111°, -84.541181°

ALLSTAR ECOLOGY
Natural Resource Specialists

N
W
E
S

0 20 40 80
Feet

Paulding County, Ohio

Area of Direct Impact

Downstream Buffer

Upstream Buffer

Salvage Zone

Relocation Area

Starwood Energy Group

Figure 2
Phase I Mussel Survey Design Map
Northwest Ohio Wind Farm
Prarie Creek Crossing#2
Paulding County, Ohio

Date: 9/22/2017

Sheet 1

ALLSTAR ECOLOGY
Natural Resource Specialists

N
W E
S
0 20 40 80 Feet

Paulding County, Ohio

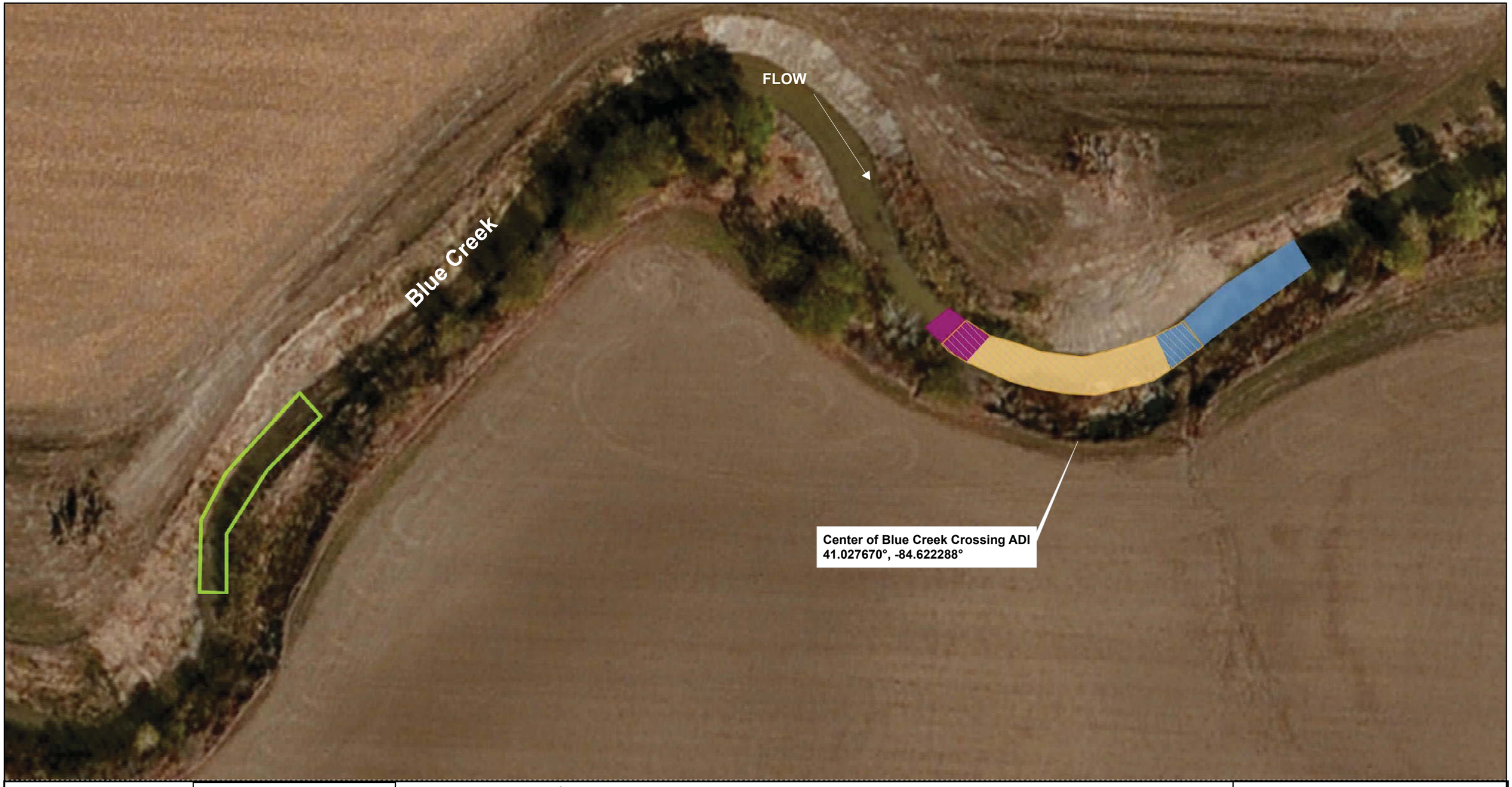
Area of Direct Impact
Downstream Buffer
Upstream Buffer
Salvage Zone
Relocation Area

Starwood Energy Group

Figure 2
Phase I Mussel Survey Design Map
Northwest Ohio Wind Farm
Prarie Creek Crossing #1
Paulding County, Ohio

Date: 9/22/2017

Sheet 2



ALLSTAR ECOLOGY
Natural Resource Specialists

N
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0 20 40 80
Feet

Paulding County, Ohio

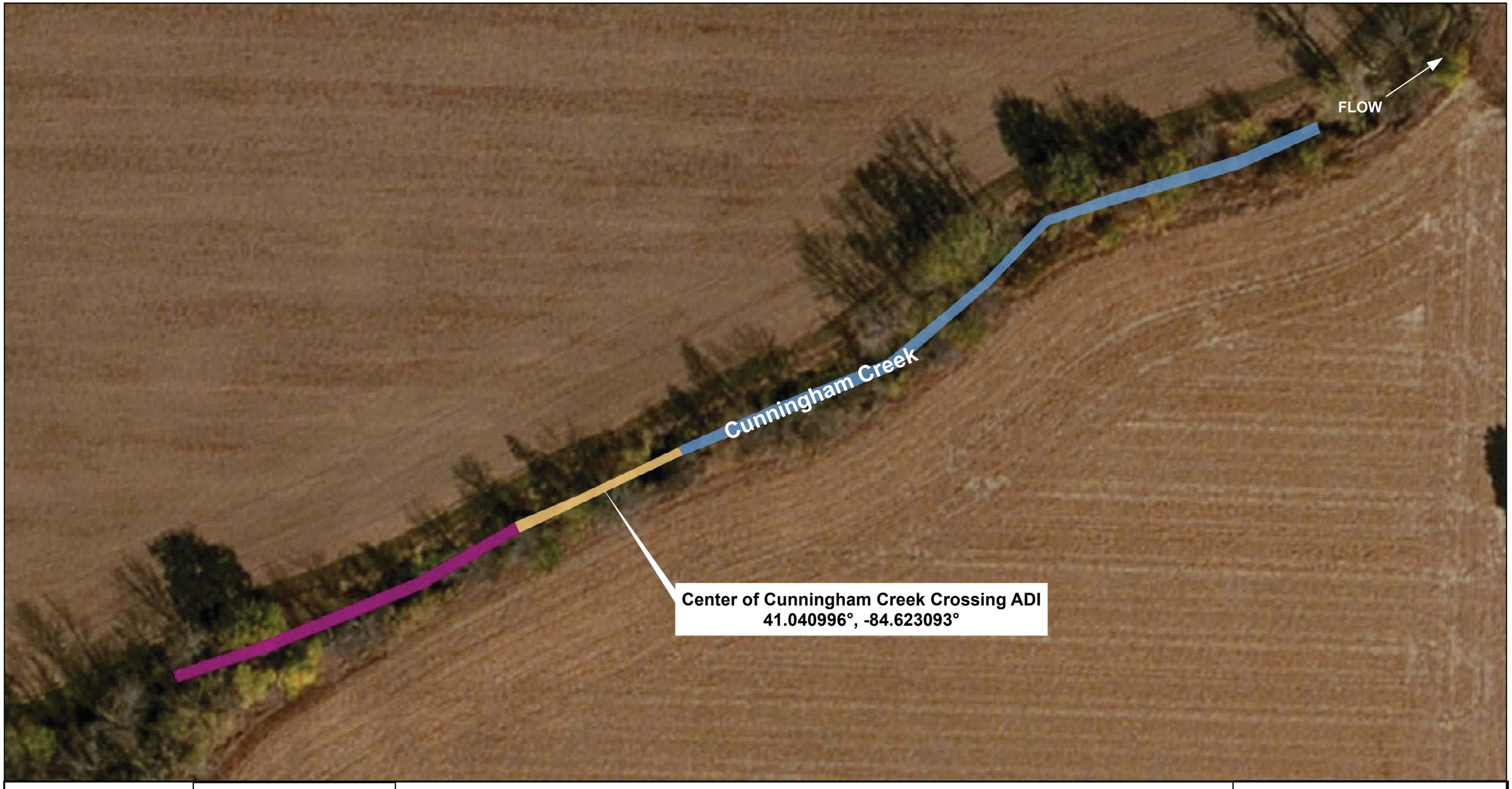
Area of Direct Impact
Downstream Buffer
Upstream Buffer
Salvage Zone
Relocation Area

Starwood Energy Group

Figure 2
Phase I Mussel Survey Design Map
Northwest Ohio Wind Farm
Blue Creek Crossing
Paulding County, Ohio

Date: 9/22/2017

Sheet 3



ALLSTAR ECOLOGY
Natural Resource Specialists

N
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0 20 40 80 Feet

Paulding County, Ohio

Area of Direct Impact

Downstream Recon Buffer

Upstream Recon Buffer

Starwood Energy Group

Figure 2
Mussel Recon Survey Map
Northwest Ohio Wind Farm
Cunningham Creek Crossing
Paulding County, Ohio

Date: 9/22/2017

Sheet 4

Methods

Reconnaissance Surveys

Recon survey design and execution followed the 2016 Ohio Mussel Survey Protocols for recon surveys on unlisted and Group 1 streams (ODNR *et al.* 2016). Cunningham Creek and Prairie Creek Crossing #1 were evaluated for freshwater mussel presence utilizing methods detailed within *Reconnaissance Survey for Unionid Mussels* (Appendix B) of the Ohio Mussel Survey Protocols (ODNR et al. 2016). At these crossing locations, the entire ADI, a 400 ft. DSB, and a 200 ft. USB were searched for the presence of live and/or fresh dead freshwater mussels. In addition, stream substrates, stream banks, and cobble/gravel bars were visually searched for shells, shell fragments, fresh dead, and live freshwater mussels.

Beginning at the lower limit of the DSB and moving upstream, stream habitats were visually inspected with extra effort spent on heterogeneous substrates where living mussels may be difficult to see (ONDR et al. 2016). Visual searches were conducted utilizing waterscopes. When indications of freshwater mussel presence were observed within a recon survey area, a Phase I survey was triggered and subsequently conducted.

Phase I Surveys

Phase I freshwater mussel survey design and execution followed the 2016 Ohio Mussel Survey Protocols for Waterline/Pipeline Corridor Disturbances on Group 1 streams (ODNR et al. 2016). The ADI at each crossing location was 30 m long and less than 10 m wide. A 25 m DSB and 10 m USB were applied to each ADI based on requirements outlined in Appendix G of the 2016 Ohio Mussel Survey Protocols (ODNR *et al*. 2016). Phase I survey designs are illustrated in the attached maps (Figure 2). Timed searches were conducted in each of the Phase I survey areas at a minimum rate of 20 minutes/100 m^2 in areas of heterogeneous habitat, and for an additional 30 minutes/100 m^2 if live mussels were found for a total minimum search effort of 50 minutes/100 m^2 (ODNR *et al*. 2016).

All Phase I visual searches included moving cobble and woody debris, hand sweeping away silt, sand, and/or small detritus, and disturbing/probing the upper 5 centimeters (cm) of substrate in order to better view any mussels which may have been present (ODNR et al. 2016). Any mussels observed were bagged for further processing and positive identification. Mussels were kept in the water at all times, except for the brief period that they needed to be out of the water to be measured or photographed, but no longer than one minute at a time. Photographs of all representative species were taken. All mussels were recorded per survey location and survey area with associated depth and habitat conditions.

Upon arriving at each crossing survey area, turbidity was measured using a HACH Turbidimeter. In addition, Oakton Handheld probes were used to test pH, temperature (Temp), dissolved

oxygen (DO), specific conductance (SpC), and total dissolved solids (TDS). Further, ODNR Ohio Mussel Habitat Assessment Forms were completed in their entirety and used to note weather, physical habitat conditions, etc.

Relocation

Freshwater mussel relocation surveys were conducted at crossing locations where live freshwater mussels were located within the SZ. The SZ was comprised of the ADI, a 5 m USB, and a 5 m DSB. For each relocation survey, depletion cells (≤ 100 m^2 in area) were surveyed using waterscopes within the SZ of each Phase I survey area where mussels were found. Two depletion cells were surveyed within the SZ at Prairie Creek Crossing #1, two depletion cells were surveyed within the SZ at Prairie Creek Crossing #2, and three depletion cells were surveyed within the SZ at the Blue Creek Crossing. The minimum search effort within each depletion cell was 1 minute/m^2 (0.5 minute/m^2 first pass, 0.5 minute/m^2 second pass). Multiple passes were made within each depletion cell until two or fewer mussels per 100 m^2 or less than 5 % of the original number collected were collected on the final pass. All relic and live freshwater mussels were recorded by cell and pass number. In addition, average depth and dominant substrate types were recorded for each depletion cell.

At each crossing location, a minimum 15-minute qualitative survey within the potential relocation area (at least 30 m upstream of each crossing) was conducted to delineate the mussel bed and suitable habitat. All observations of resident live freshwater mussels within the relocation area were recorded as were GPS coordinates in decimal degrees (Table 1). Freshwater mussels collected from a SZ were hand placed into suitable habitat within a relocation area (ODNR *et al.* 2016).

Table 1. Coordinates (decimal degrees) for the ADI, survey buffers, and relocation area by crossing location for the Project in Paulding County, Ohio.

Prairie Creek Crossing #1

Location	Latitude	Longitude
Upper Limit of USB	41.028928	-84.541468
Upper Limit of ADI	41.028975	-84.541355
Center of ADI	41.029111	-84.541181
Lower Limit of ADI	41.029184	-84.541115
Lower Limit of DSB	41.029398	-84.541021
Mussel Relocation Area	41.028449	-84.542614

Prairie Creek Crossing #2

Location	Latitude	Longitude
Upper Limit of USB	41.043425	-84.522907
Upper Limit of ADI	41.434440	-84.522784
Center of ADI	41.043501	-84.522516
Lower Limit of ADI	41.043444	-84.522407
Lower Limit of DSB	41.433270	-84.522152
Mussel Relocation Area	41.043323	-84.523586

Blue Creek Crossing

Location	Latitude	Longitude
Upper Limit of USB	41.027809	-84.622599
Upper Limit of ADI	41.027764	-84.622514
Center of ADI	41.027670	-84.622288
Lower Limit of ADI	41.027770	-84.622141
Lower Limit of DSB	41.027928	-84.621872
Mussel Relocation Area	41.027506	-84.623964

Cunningham Creek Crossing

Location	Latitude	Longitude
Upper Limit of USB	41.040753	-84.624002
Upper Limit of ADI	41.041001	-84.623330
Center of ADI	41.040996	-84.623093
Lower Limit of ADI	41.041128	-84.623010
Lower Limit of DSB	41.041660	-84.621762

Results

Prairie Creek Crossing #1

The recon, Phase I, and relocation mussel surveys at Prairie Creek Crossing #1 for the Project were conducted on September 6, 2017. The survey area is located at 41.029111˚, -84.541181˚ in Latty Township of Paulding County, Ohio. A recon survey at this location triggered a Phase I survey as a result of live freshwater mussel presence at the lower limit of the recon DSB.

Figure 3. A view upstream to the west of the ADI and USB at the Project location.

Prairie Creek at Prairie Creek Crossing #1 is a Group 1, low gradient, high quality perennial stream with both riparian corridors dominated by agriculture row crops (corn and soy, left and right descending banks, respectively). A narrow riparian corridor comprised of shrubs and intermittent trees was present along the river-left (descending) side of channel. Drainage area at this location was calculated to be 25.03 square miles (sq mi) (streamstats.usgs.gov). Cloud cover was approximately 45 % during the mussel surveys. The majority of the stream channel throughout the survey area was comprised of run habitat dominated by a shallow-slow flow regime. Brown attached algae was observed covering approximately 35 % of the substrates within the survey area. Prairie Creek was surveyed under base flow conditions. Local watershed erosion was categorized as moderate.

Turbidity at the time of the surveys at Prairie Creek Crossing #1 was 7.65 NTU, which converts to approximately 0.65 m of visibility. This value meets the visibility requirement for conducting freshwater mussel surveys set by the ODNR (ODNR *et al.* 2016). At the time of the survey, the USGS gauge on the Little Auglaize River at Melrose, Ohio (#04191058), approximately 10 miles east of the survey area, showed discharge near the seasonal average (Figure 7). All field gathered water chemistry parameters were within normal ranges for mid-order, high quality perennial streams (Table 2). Water and air temperature was 66.5˚F and 54˚F respectively. The sediment/substrates in and around the survey area were free of odor and surface oils. Prairie Creek was clear, free of odor, and was without surface oils. The top three dominant substrate types observed within the survey area were gravel, riprap, and sand, respectively. These inorganic substrates comprised approximately 40%, 30%, and 30% of the survey area, respectively. Average stream depth within the survey area ranged from 8 inches in the DSB to 1 ft throughout the remaining survey area (Table 3). Relic and live *Corbicula fluminea* (Asiatic clam) were observed within the Project survey area.

Upon beginning the recon survey at Prairie Creek Crossing #1, one live *L. complanata* and one fresh dead *P. grandis* were identified at the lower limit of the recon DSB. The recon survey ended, and a Phase I survey was triggered and subsequently conducted.

A total of nine freshwater mussels belonging to three species were collected during the Phase I mussel survey including *A. plicata*, *L. complanata*, and *P. grandis* (Table 4). During depletion cell surveys for the relocation survey, one additional *P. grandis* was collected from the SZ. Depletion cell search times and live freshwater mussels collected by depletion cell and pass number for the relocation survey are listed in Tables 5 – 6. All live freshwater mussels were collected within the SZ and required relocation upstream of the Project crossing location. No fresh dead mussels were found within the Phase I survey area; however, *A. plicata* and *P. grandis* relic shells were observed. No federal RTE mussel species were found during the Phase I or relocation surveys.

Total search effort for the Phase I survey was approximately 140 minutes (70 minutes x 2 surveyors). Catch per unit effort (CPUE) for the Phase I mussel survey was calculated to be one mussel for every 16 minutes of survey effort. Total search effort for the relocation survey was approximately 155 minutes (77 minutes x 2 surveyors). CPUE for the relocation was calculated to be one mussel for every additional 60 minutes of survey effort.

During the 15-minute qualitative search at the relocation area, a total of four live freshwater mussels belonging to three species were observed including *A. plicata*, *L. complanata*, and *P. grandis* (Table 7). The relocation area was of equal size to the SZ and featured similar habitat (flow regime and substrates). All 10 live freshwater mussels collected from the SZ were hand placed into suitable habitat in the relocation area approximately 100 m upstream of the Prairie Creek Crossing #1 survey area.

Prairie Creek Crossing #2

The Phase I and relocation mussel surveys at Prairie Creek Crossing #2 for the Project were conducted on September 6, 2017. The survey area is located at 41.043501˚, -84.522516˚ in Latty Township of Paulding County, Ohio. Because this survey area was downstream of the Prairie Creek Crossing #1 survey area where live freshwater mussels were found, a recon survey was foregone and a Phase I survey was immediately conducted.

Figure 4. A view upstream to the west of the ADI and USB at the Project location.

Prairie Creek at Prairie Creek Crossing #2 is a Group 1, low gradient, high quality perennial stream with both riparian corridors dominated by agriculture row crops. Drainage area at this location was calculated to be 26.90 sq mi (streamstats.usgs.gov). Cloud cover was approximately 85% during the Phase I and relocation surveys with intermittent light showers. The majority of the stream channel throughout the survey area was comprised of run habitat dominated by a shallow-slow flow regime. Green and brown attached algae were observed covering approximately 50 % of the substrates within the survey area. Prairie Creek was surveyed under base flow conditions. Local watershed erosion was categorized as moderate.

Turbidity at the time of the surveys at Prairie Creek Crossing #2 was 8.11 NTU, which converts to approximately 0.57 m of visibility. This value meets the visibility requirement for conducting freshwater mussel surveys set by the ODNR (ODNR *et al.* 2016). At the time of the survey, the USGS gauge on the Little Auglaize River at Melrose, Ohio (#04191058), approximately 10 miles east of the survey area, showed discharge near the seasonal average (Figure 7). All field gathered water chemistry parameters were within normal ranges for mid-order, high quality perennial streams (Table 2). Water and air temperature was 66.5˚F and 54˚F respectively. The sediment/substrates in and around the survey area were free of odor and surface oils. Prairie Creek was clear, free of odor, and was without surface oils. The top three dominant substrate types observed within the survey area were riprap, gravel and sand, respectively. These inorganic substrates comprised approximately 50%, 30%, and 20% of the survey area, respectively. Average stream depth within the survey area ranged from 8 inches in the DSB to 1.5’ throughout the remaining survey area (Table 8). Relic and live *Corbicula fluminea* (Asiatic clam) were observed within the Project survey area.

A total of four freshwater mussels belonging to four species were collected during the Phase I mussel survey including *A. plicata*, *P. grandis*, *Q. pustulosa*, and *Q. quadrula* (Table 9). During depletion cell surveys for the relocation survey, two additional mussels representing two species

were collected including *P. grandis* and *Q. pustulosa*. Depletion cell search times and live freshwater mussels collected by depletion cell and pass number for the relocation survey are listed in Tables 10 – 11. All live mussels were collected from the SZ and required relocation upstream of the Project crossing location. No fresh dead mussels were found during the Phase I or relocation surveys; however, *P. grandis* relic shells were observed. No federal RTE mussel species were found during the Phase I or relocation surveys.

Total search effort for the Phase I survey was approximately 150 minutes (75 minutes x 2 surveyors). CPUE for the Phase I mussel survey was calculated to be one mussel for every 38 minutes of survey effort. Total search effort for the relocation survey was approximately 140 minutes (70 minutes x 2 surveyors). CPUE for the relocation was calculated to be one mussel for every additional 50 minutes of survey effort.

During the 15-minute qualitative search at the relocation area, a total of three live freshwater mussels belonging to two species were observed including *A. plicata* and *P. grandis* (Table 12). The relocation area was of equal size to the SZ and featured better mussel habitat (less fine sediments, shallow/fast flow regime). All six live freshwater mussels collected from the SZ were hand placed into suitable habitat in the relocation area approximately 40 m upstream of the Prairie Creek Crossing #2 survey area.

Blue Creek Crossing

Figure 5. A view upstream to the west of the DSB and ADI at the Project location.

The Phase I and relocation mussel surveys at the Blue Creek Crossing for the Project were conducted on September 6, 2017. The survey area is located at 41.027670˚, -84.622288˚ in Blue Creek Township of Paulding County, Ohio. Freshwater mussel presence was immediately noted at this site, so a Phase I survey was performed.

Blue Creek at the Blue Creek Crossing is a Group 1, low-to-moderate gradient, high quality perennial stream with both riparian corridors dominated by agriculture row crops. Drainage area at this location was calculated to be 50.38 sq mi (streamstats.usgs.gov). Cloud cover was approximately 55% during the Phase I and relocation surveys. The majority of the stream channel throughout the survey area was comprised of run habitat dominated by a shallow-slow flow regime. Thick green and brown attached algae were observed covering approximately 90 % of the substrates within the survey area. Blue Creek was surveyed under base flow conditions. Local watershed erosion was categorized as moderate.

Turbidity at the time of the surveys at Blue Creek was 6.55 NTU, which converts to approximately 0.80 m of visibility. This value meets the visibility requirement for conducting freshwater mussel surveys set by the ODNR (ODNR *et al.* 2016). At the time of the survey, the USGS gauge on the Little Auglaize River at Melrose, Ohio (#04191058), approximately 11 miles east of the survey area, showed discharge near the seasonal average (Figure 7). All field gathered water chemistry parameters were within normal ranges for mid-order, high quality perennial streams (Table 2). Water and air temperature was 66.4˚F and 54˚F respectively. The sediment/substrates in and around the survey area were free of odor and surface oils. Blue Creek was clear, free of odor, and was without surface oils. The top three dominant substrate types observed within the survey area were cobble, sand, and silt, respectively. These inorganic substrates comprised approximately 70%, 20%, and 10% of the survey area, respectively. Average stream depth within the survey area ranged from 3 inches in the ADI to 1.0’ in the DSB and USB (Table 13). Relic and live *Corbicula fluminea* (Asiatic clam) were observed within the Project survey area.

A total of 39 freshwater mussels belonging to eight species were collected during the Phase I mussel survey including *L. complanata*, *L. siliquoidea*, *L. fragilis*, *P. alatus*, *P. grandis*, *Q. quadrula*, *Q. pustulosa*, and *U. imbecillis* (Table 14). During depletion cell surveys for the relocation survey, one additional *U. imbecillis* was collected. Depletion cell search times and live freshwater mussels collected by depletion cell and pass number for the relocation survey are listed in Tables 15 – 16. All live freshwater mussels were collected from the SZ and required relocation upstream of the Project crossing location. No fresh dead mussels were found during the Phase I or relocation surveys; however, *Fusconaia flava* and *U. imbecillis* relic shells were observed. No federal RTE mussel species were found during the Phase I or relocation surveys.

Total search effort for the Phase I survey was approximately 170 minutes (85 minutes x 2 surveyors). CPUE for the Phase I mussel survey was calculated to be one mussel for every 5 minutes of survey effort. Total search effort for the relocation survey was approximately 195 minutes (98 minutes x 2 surveyors). CPUE for the relocation was calculated to be one mussel for every additional 95 minutes of additional survey effort.

During the 15-minute qualitative search at the relocation area, a total of four live freshwater mussels belonging to three species were observed including *L. complanata*, *P. alatus*, and *P. grandis* (Table 17). The relocation area was of equal size to the SZ and Blue Creek became narrower further upstream. All 40 live freshwater mussels collected from the SZ were hand placed into suitable habitat in the relocation area approximately 150 m upstream of the Blue Creek Crossing survey area.

Cunningham Creek Crossing

The recon survey at the Cunningham Creek Crossing for the Project was conducted on September 6, 2017. The recon survey area is located at 41.040996˚, -84.623093˚ in Blue Creek Township of Paulding County, Ohio.

Figure 6. A view upstream to the west from the lower limit of the recon DSB at the Project location.

Cunningham Creek at the Cunningham Creek Crossing location is an unlisted, low gradient stream with both riparian corridors dominated by agriculture row crops. Drainage area calculated using streamstats.usgs.gov was calculated to be 4.37 sq mi. However, desktop analysis performed using ArcMap prior to the site visit showed that this crossing location could be much larger and surpass the 10 sq mi survey requirement. Cloud cover was approximately 55 % during the recon survey. The majority of the stream channel throughout the survey area was comprised of run habitat dominated by a shallow-slow flow regime. Brown attached algae was observed covering approximately 60 % of the substrates within the survey area. Cunningham Creek was surveyed under base flow conditions during the recon survey. Local watershed erosion was categorized as moderate.

Turbidity at the time of the recon survey at Cunningham Creek was 8.15 NTU, which converts to approximately 0.57 m of visibility. This value meets the visibility requirement for conducting freshwater mussel surveys set by the ODNR (ODNR *et al.* 2016). At the time of the survey, the USGS gauge on the Little Auglaize River at Melrose, Ohio (#04191058), approximately 11 miles east of the survey area, showed discharge near the seasonal average (Figure 7). All field gathered water chemistry parameters were within normal ranges for mid-order, high quality perennial streams (Table 2). Water and air temperature was 66.5˚F and 54˚F respectively. The sediment/substrates in and around the survey area were free of odor and surface oils. Cunningham was clear, free of odor, and was without surface oils. The top three dominant substrate types observed within the survey area were sand, cobble, and boulder, respectively. These inorganic substrates comprised approximately 90%, 5%, and 5% of the recon survey area, respectively. Average stream depth within the recon survey area ranged from 2 inches in the DSB to 4” throughout the remaining survey area. No relic or live *Corbicula fluminea* (Asiatic clam) were observed within the Project recon survey area.

Total search effort for the recon survey was 60 minutes (30 minutes x 2 surveyors). No live freshwater mussels, fresh dead freshwater mussels, or relic shells were found during the recon survey.

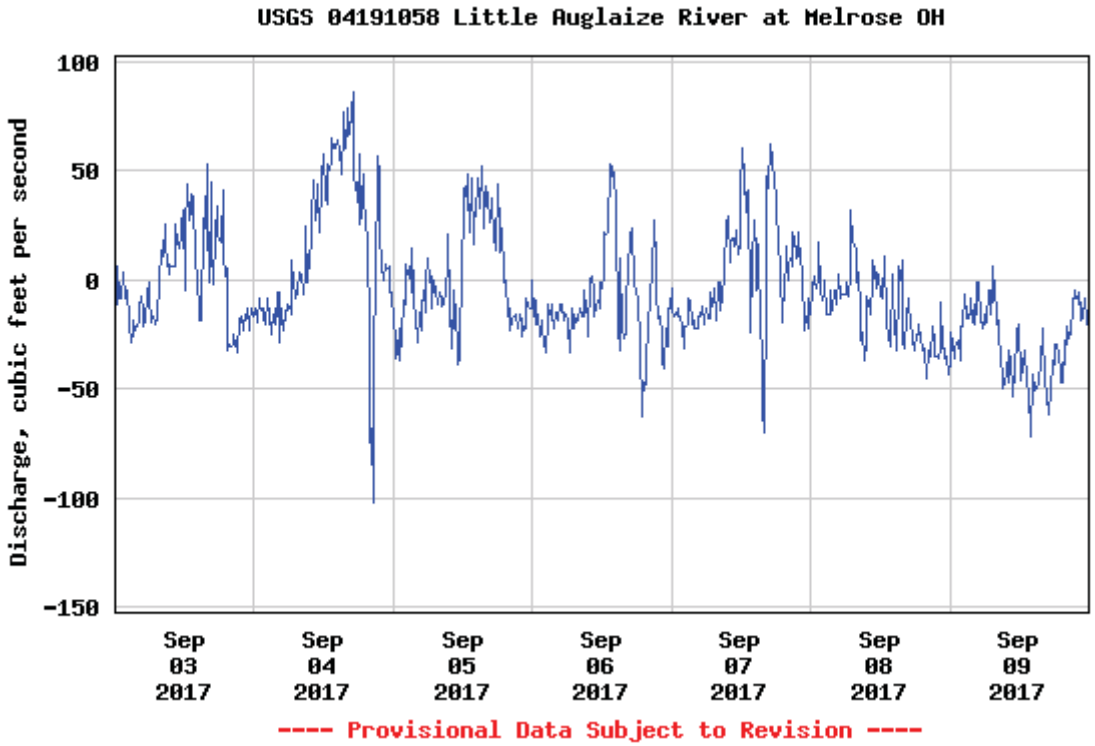


Figure 7. USGS hydrograph #04191058 depicting discharge in cublic feet per second (cfs) on the Little Auglaize River at Melrose, Ohio from September 3, 2017 to September 9, 2017. Date of the recon, Phase I, and relocation surveys for the Project was September 6, 2017.

Table 2. Field collected water chemistry parameters using Oakton Handheld probes and a HACH Turbidimeter on September 6, 2017.

Variable (Units)	Prairie Creek #1	Prairie Creek #2	Cunningham Creek	Blue Creek
pH (S.U.)	7.22	7.48	7.33	8.01
Temp (°C)	19.2	19.2	25.2	19.1
DO (mg/L)	9.55	9.40	9.10	11.71
SpC (µS/cm)	812	805	625	529
TDS (ppm)	405	402	313	265
Turbidity (NTU)	7.65	8.11	8.15	6.55

Table 3. Summary of survey effort, field observed average depths, and dominant substrate types by survey area for the Phase I freshwater mussel survey at Prairie Creek Crossing #1 in Paulding County, Ohio.

Survey Area	Area (m^2)	Total Search Effort (min)	Average Depth	Dominant / SubDominant Substrate Types (%)
DSB	100	20	1.0'	Gravel (50) / RipRap (40)
DSB SZ	25	15	8"	Gravel/Sand (40) / RipRap (20)
ADI	150	80	1.0'	Gravel (40) / RipRap/Sand (30)
USB SZ	25	15	1.0'	Gravel (40) / RipRap/Sand (30)
USB	25	10	1.0'	Sand/Silt (40) / RipRap (20)

Table 4. Freshwater mussel species abundance by survey area for the Phase I mussel survey at Prairie Creek Crossing #1 in Paulding County, Ohio.

Species	ADI	USB	DSB
A. plicata	5	0	0
L. complanata	1	0	0
P. grandis	1	2	0
TOTAL	**7**	**2**	**0**

Table 5. Summary of survey effort, field observed average depths, and dominant substrate types by depletion cell for the mussel relocation survey at Prairie Creek Crossing #1 in Paulding County, Ohio.

Cell #	Survey Area	Cell Size (m^2)	Total Search Effort (min)	Average Depth	Dominant / SubDominant Substrate Types (%)
1	ADI	75	75	1.0'	Gravel (40) / RipRap/Sand (30)
2	ADI	75	80	1.0'	Gravel (40) / RipRap/Sand (30)

Table 6. Freshwater mussel species abundance by depletion cell and pass number for the relocation survey at Prairie Creek Crossing #1 in Paulding County, Ohio.

Cell #	Pass #	Species	# Collected
1	1	*A. plicata*	3
1	1	*L. complanata*	1
1	1	*P. grandis*	3
1	2	N/A	-
2	1	*A. plicata*	2
2	2	*P. grandis*	1

Table 7. Freshwater mussel species abundance observed within the Project relocation area for Prairie Crossing #1 in Paulding County, Ohio.

Species	Count
A. plicata	2
L. complanata	1
P. grandis	1

Table 8. Summary of survey effort, field observed average depths, and dominant substrate types by survey area for the Phase I freshwater mussel survey at Prairie Creek Crossing #2 in Paulding County, Ohio.

Survey Area	Area (m^2)	Total Search Effort (min)	Average Depth	Dominant / SubDominant Substrate Types (%)
DSB	100	20	8"	RipRap (50) / Gravel (30)
DSB SZ	25	20	8"	RipRap (50) / Gravel (30)
ADI	150	80	1.5'	RipRap (70) / Gravel (20)
USB SZ	25	15	1.5'	Sand (60) / RipRap (30)
USB	25	15	1.5'	Sand (60) / RipRap (30)

Table 9. Freshwater mussel species abundance by survey area for the Phase I mussel survey at the Prairie Creek Crossing #2 in Paulding County, Ohio.

Species	ADI	USB	DSB
A. plicata	1	0	0
P. grandis	1	0	0
Q. pustulosa	1	0	0
Q. quadrula	1	0	0
TOTAL	**4**	**0**	**0**

Table 10. Summary of survey effort, field observed average depths, and dominant substrate types by depletion cell for the mussel relocation survey at the Prairie Creek Crossing #2 in Paulding County, Ohio.

Cell #	Survey Area	Cell Size (m^2)	Total Search Effort (min)	Average Depth	Dominant / SubDominant Substrate Types (%)
1	DSB SZ	25	25	8'	RipRap (50) / Gravel (30)
2	ADI	75	115	1.5'	RipRap (70) / Gravel (20)

Table 11. Freshwater mussel species abundance by depletion cell and pass number for the relocation survey at the Prairie Creek Crossing #2 in Paulding County, Ohio.

Cell #	Pass #	Species	# Collected
1	1	*A. plicata*	1
1	2	N/A	0
2	1	*P. grandis*	1
2	1	*Q. pustulosa*	1
2	1	*Q. quadrula*	1
2	2	*P. grandis*	1
2	2	*Q. pustulosa*	1
2	3	N/A	0

Table 12. Freshwater mussel species abundance observed within the Project relocation area for Prairie Crossing #2 in Paulding County, Ohio.

Species	Count
A. plicata	1
P. grandis	2

Table 13. Summary of survey effort, field observed average depths, and dominant substrate types by survey area for the Phase I freshwater mussel survey at the Blue Creek Crossing in Paulding County, Ohio.

Survey Area	Area (m^2)	Total Search Effort (min)	Average Depth	Dominant / SubDominant Substrate Types (%)
DSB	120	40	1.0'	Gravel (40) / Sand/Silt (30)
DSB SZ	25	25	6"	Gravel (40) / Sand/Silt (30)
ADI	90	40	3"	Gravel (60) / Sand (30)
USB SZ	40	35	1.0'	Gravel (60) / Sand (30)
USB	40	30	1.0'	Sand (50) / Silt (50)

Table 14. Freshwater mussel species abundance by survey area for the Phase I mussel survey at the Blue Creek Crossing in Paulding County, Ohio.

Species	ADI	USB	DSB
L. complanata	5	5	1
L. siliquoidea	3	1	1
L. fragilis	0	4	0
P. alatus	1	0	2
P. grandis	6	6	0
Q. quadrula	0	1	0
Q. pustulosa	0	2	0
U. imbecillis	0	0	1
TOTAL	**15**	**19**	**5**

Table 15. Summary of survey effort, field observed average depths, and dominant substrate types by depletion cell for the mussel relocation survey at the Blue Creek Crossing in Paulding County, Ohio.

Cell #	Survey Area	Cell Size (m^2)	Total Search Effort (min)	Average Depth	Dominant / SubDominant Substrate Types (%)
1	DSB SZ	25	45	6"	Gravel (40) / Sand/Silt (30)
2	ADI	90	100	3"	Gravel (60) / Sand (30)
3	USB SZ	25	50	1.0'	Gravel (60) / Sand (30)

Table 16. Freshwater mussel species abundance by depletion cell and pass number for the relocation survey at the Blue Creek Crossing in Paulding County, Ohio.

Cell #	Pass #	Species	# Collected
1	1	*L. complanata*	4
1	1	*P. alatus*	1
1	1	*L. siliquoidea*	2
1	1	*L. fragilis*	1
1	1	*P. grandis*	2
1	2	*U. imbecillis*	1
1	3	N/A	0
2	1	*L. complanata*	4
2	1	*P. alatus*	2
2	1	*L. fragilis*	2
2	1	*P. grandis*	5
2	1	*Q. pustulosa*	1
2	2	N/A	0
3	1	*L. complanata*	3
3	1	*L. siliquoidea*	3
3	1	*L. fragilis*	1
3	1	*P. grandis*	5
3	1	*Q. quadrula*	1
3	1	*Q. pustulosa*	1
3	1	*U. imbecillis*	1
3	2	N/A	0

Table 17. Freshwater mussel species abundance observed within the Project relocation area for the Blue Creek Crossing in Paulding County, Ohio.

Species	Count
L. complanata	1
P. alatus	1
P. grandis	2

Discussion

A total of 10 live freshwater mussels representing three species were collected from the Prairie Creek Crossing #1 survey area during the Phase I and relocation surveys. Of the 10 live mussels collected at this location, all were collected from the SZ and relocated upstream. A total of six live freshwater mussels representing four species were collected from the Prairie Creek Crossing #2 survey area during the Phase I and relocation surveys. Of the six live mussels collected at this location, all were collected from the SZ and relocated upstream. A total of 40 live freshwater mussels representing eight species were collected from the Blue Creek Crossing survey area during the Phase I and relocation surveys. Of the 40 live mussels collected at this location, all were collected from the SZ and relocated upstreasm. No live, fresh dead, weathered dead, or relic freshwater mussels were located during the recon survey at the Cunningham Creek Crossing survey area.

No federal RTE species of mussels were found during recon, Phase I, or relocation surveys for the Project in Pauling County, Ohio. In addition, no federal RTE species of mussels were found during the qualitative searches within the relocation areas.

Based on the results of the Project recon, Phase I, and relocation surveys, the proposed instream activities associated with the Project will not have adverse effects on the native freshwater mussel populations in Prairie Creek, Blue Creek, or Cunningham Creek in Paulding County, Ohio at Project crossing locations.

Literature Cited

Ohio Department of Natural Resources (ODNR) and United States Fish and Wildlife Service (USFWS). 2016. Ohio Mussel Survey Protocols. Ohio Department of Natural Resources, April 2016.

Figure 8. A view upstream, to the west, of the DSB at Prairie Creek Crossing #1 in Paulding County, Ohio.

Figure 9. A view upstream, to the west, of the ADI at Prairie Creek Crossing #1 in Paulding County, Ohio.

Figure 10. A view upstream, to the west, of the ADI and USB at Prairie Creek Crossing #1 in Paulding County, Ohio.

Figure 11. A view upstream, to the west, of the relocation area for Prairie Creek Crossing #1 in Paulding County, Ohio.

Figure 12. A representative photo of *A. plicata* collected from the SZ at Prairie Creek Crossing #1 in Paulding County, Ohio.

Figure 13. A representative photo of *P.* grandis collected from the SZ at Prairie Creek Crossing #1 in Paulding County, Ohio.

Figure 14. A representative photo of *L. complanata* collected from the SZ at Prairie Creek Crossing #1 in Paulding County, Ohio.

Figure 15. A view upstream, to the west, of the DSB at Prairie Creek Crossing #2 in Paulding County, Ohio.

Figure 16. A view upstream, to the west, of the ADI at Prairie Creek Crossing #2 in Paulding County, Ohio.

Figure 17. A view upstream, to the west, of the ADI and USB at Prairie Creek Crossing #2 in Paulding County, Ohio.

Figure 18. A view downstream, to the east, of the relocation area for Prairie Creek Crossing #2 in Paulding County, Ohio.

Figure 19. A representative photo of *A. plicata* collected in the SZ of Prairie Creek Crossing #2 in Paulding County, Ohio.

Figure 20. A representative photo of *P. grandis* collected in the SZ of Prairie Creek Crossing #2 in Paulding County, Ohio.

Figure 21. A representative photo of *Q. pustulosa* collected in the SZ of Prairie Creek Crossing #2 in Paulding County, Ohio.

Figure 22. A representative photo of *Q. quadrula* collected in the SZ of Prairie Creek Crossing #2 in Paulding County, Ohio.

Figure 23. A view upstream, to the west, of the DSB at the Blue Creek Crossing in Paulding County, Ohio.

Figure 24. A view upstream, to the west, from the DSB at the Blue Creek Crossing in Paulding County, Ohio.

Figure 25. A view upstream, to the west, of the ADI at the Blue Creek Crossing in Paulding County, Ohio.

Figure 26. A view upstream, to the west, of the ADI and USB at the Blue Creek Crossing in Paulding County, Ohio.

Figure 27. A view downstream, to the east, of the USB at the Blue Creek Crossing in Paulding County, Ohio.

Figure 28. A view downstream, to the west, of the relocation area for the Blue Creek Crossing in Paulding County, Ohio.

Figure 29. A representative photo of *L. siliquoidea* collected from the SZ at the Blue Creek Crossing in Paulding County, Ohio.

Figure 30. A representative photo of *P. grandis* collected from the SZ at the Blue Creek Crossing in Paulding County, Ohio.

Figure 31. A representative photo of *L. fragilis* collected from the SZ at the Blue Creek Crossing in Paulding County, Ohio.

Figure 32. A representative photo of *L. complanata* collected from the SZ at the Blue Creek Crossing in Paulding County, Ohio.

Figure 33. A representative photo of *U. imbecillis* collected from the SZ at the Blue Creek Crossing in Paulding County, Ohio.

Figure 34. A representative photo of *Q. pustulosa* collected from the SZ at the Blue Creek Crossing in Paulding County, Ohio.

Figure 35. A representative photo *Q. quadrula* collected from the SZ at the Blue Creek Crossing in Paulding County, Ohio.

Figure 36. A representative photo of *P. alatus* collected from the SZ at the Blue Creek Crossing in Paulding County, Ohio.

Figure 37. A photo of the relic *F. flava* collected from the SZ at the Blue Creek Crossing in Paulding County, Ohio.

Figure 38. A downstream view, to the east, of the recon DSB at the Cunningham Creek Crossing in Paulding County, Ohio.

Figure 39. An upstream view, to the west, of the ADI at the Cunningham Creek Crossing in Paulding County, Ohio.

Figure 40. A downstream view, to the east, of the recon USB at the Cunningham Creek Crossing in Paulding County, Ohio.

APPENDIX A. Completed ODNR Mussel Habitat Data Forms for the Prairie Creek Crossing #1, Prairie Creek Crossing #2, Blue Creek Crossing, and Cunningham Creek Crossing.

Ohio Mussel Habitat Assessment Form

Project Information

Project Name: NW Ohio Windfarm

County: Paulding Township: Latty

Latitude (DD.DDDD): 41.043501 Longitude (DD.DDDD): -84.527516

Stream Name: Prairie Creek @ Crossing #2 Group # (From Appendix A): 1

Methods

Name of Surveyor(s): Brian Carlson, Elish Ieser

Qualification of Surveyor(s): ☐ USFWS Approved ☒ ODNR Approved ☐ Aquatic Biologist (minimum)

Date of Survey: Sept. 6, 2017 Distance Surveyed (ft.): 200' + Relaxation area

Total Survey Time (min. x people): 175 x 2 Scientific Collector's Permit Number(s): 20-035

Note any deviations from the Ohio Mussel Habitat Assessment Methods :

Downstream of Prairie Creek Crossing #1. Recon survey skipped and Phase I conducted.

Habitat Description of Survey Area

Drainage Area at Survey Location (mi^2): 26.9 Water Temp. (°F): 66.5 Air Temp. (°F): 54

Substrate Types (include %):

☑ Boulder (Riprap) 50 ☑ Gravel 30 ☐ Bedrock ____ ☐ Detritus ____ ☑ Silt marginal

☐ Cobble ____ ☑ Sand 20 ☐ Hardpan ____ ☐ Muck ____ ☐ Artificial ____

Water Level: ☐ High ☐ Up ☑ Normal ☑ Low ☐ Dry/Interstitial

Visibility: ☐ 0-15 cm ☐ 15-30 cm ☐ 30-50 cm ☑ >50 cm ☑ Visible to Bottom

Average Depth (cm): Riffle 0 Run 45 Pool 0

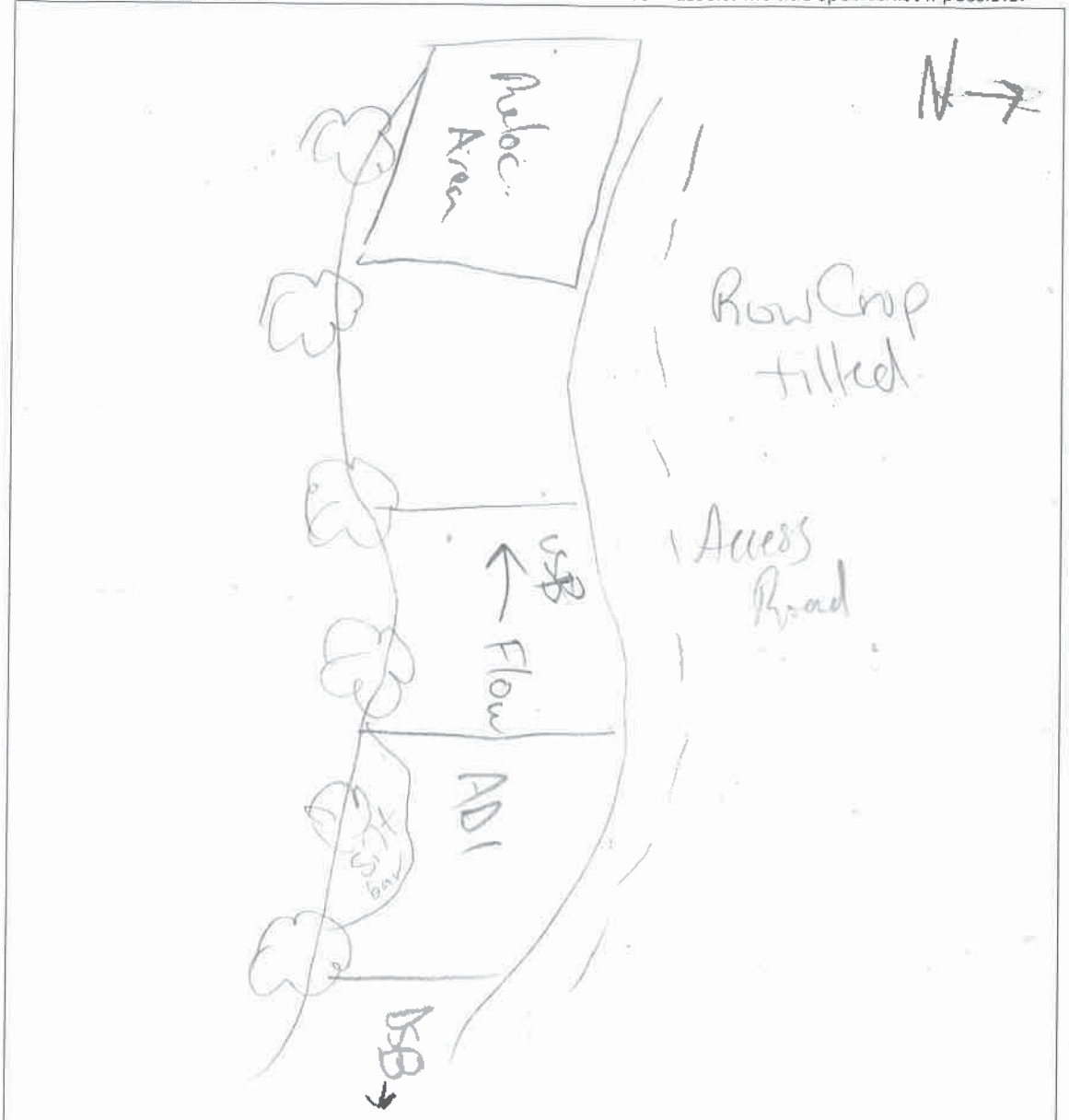
Max Depth (cm): Riffle 0 Run 60 Pool 0

Results

Evidence of Mussels: Presence of fresh dead mussel shells and living mussels will trigger a full mussel survey

☐ None ☐ Mussel Shell Only - Subfossil ☒ Mussel Shell Only - Weathered Dead ☒ Mussel Shell Only - Fresh Dead ☒ Living Mussels

Site Sketch. Approximate numbers and locations of shells and live mussels. Include species list if possible.



Required Attachments 1) Location Map and 2) Photo Log

Ohio Mussel Habitat Assessment Form

Project Information

Project Name: NW Ohio Wind Farm

County: Paulding Township: Latty

Latitude (DD.DDDD): 41.029111 Longitude (DD.DDDD): -84.541181

Stream Name: Praire Creek Group # (From Appendix A): 1

@Praine Creek Crossing #1

Methods

Name of Surveyor(s): Brian Carlson, Elishleser

Qualification of Surveyor(s): ☐ USFWS Approved ☒ ODNR Approved ☐ Aquatic Biologist (minimum)

Date of Survey: Sept 6, 2017 Distance Surveyed (ft.): 200 + Relocation Area

Total Survey Time (min. x people): 100 x 2 Scientific Collector's Permit Number(s): 20-035

Note any deviations from the Ohio Mussel Habitat Assessment Methods :

No deviations. Recon survey resulted in 1 L. complanata and 1 fresh dead P. gravelis

Phase I conducted

Habitat Description of Survey Area

Drainage Area at Survey Location (mi^2): 25 Water Temp. (°F): 66.5 Air Temp. (°F): 54

Substrate Types (include %):

☑ Boulder	40 RipRap	☑ Gravel	30	☐ Bedrock		☐ Detritus		☑ Silt	marginal
☐ Cobble		☑ Sand	30	☐ Hardpan		☐ Muck		☐ Artificial	

Water Level:	☐ High	☐ Up	☑ Normal	☑ Low	☐ Dry/Interstitial
Visibility:	☐ 0-15 cm	☐ 15-30 cm	☐ 30-50 cm	☑ >50 cm	☑ Visible to Bottom

Average Depth (cm):	Riffle 0	Run 15	Pool 30		
Max Depth (cm):	Riffle 0	Run 20	Pool 35		

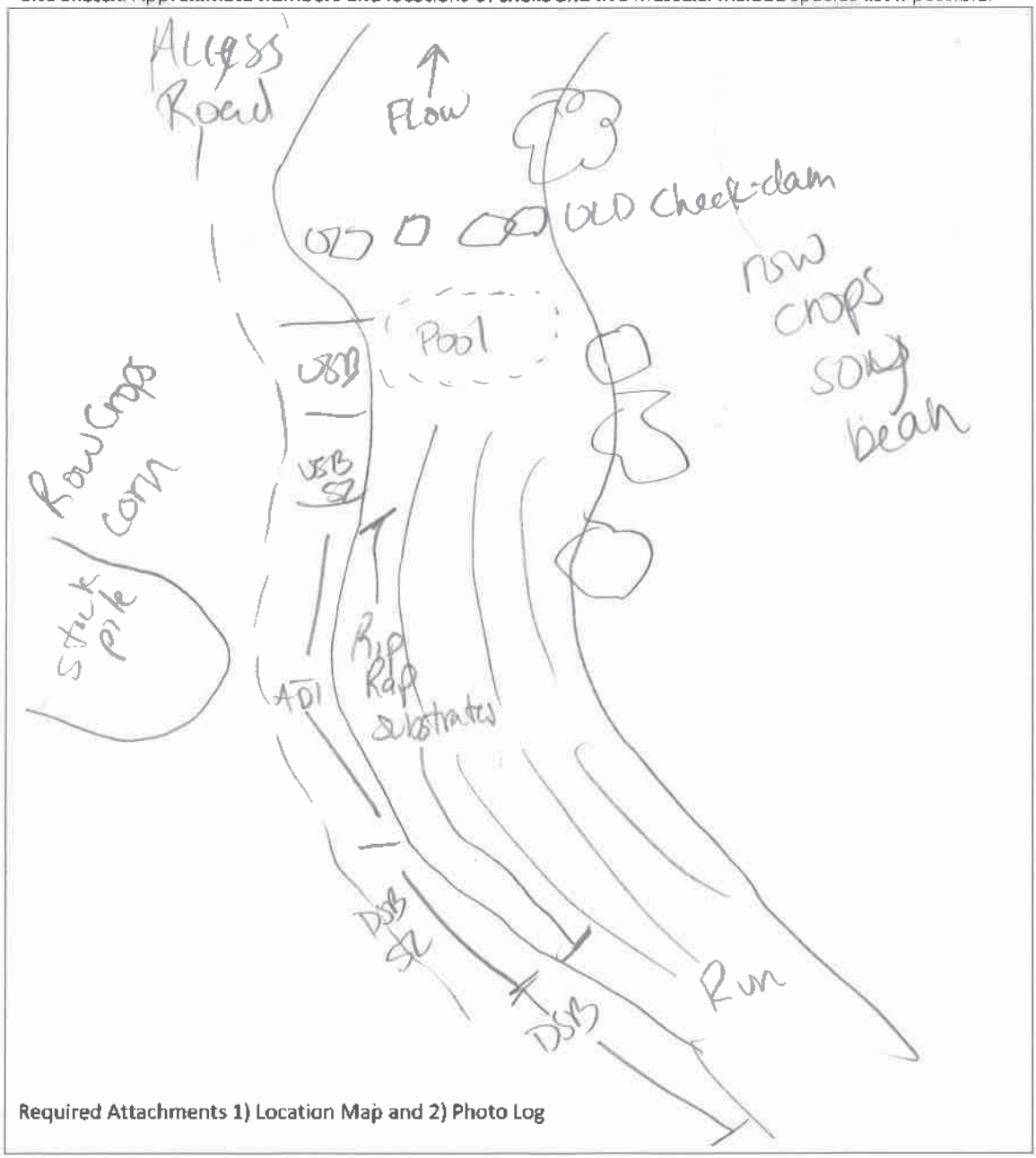
Site Drawing

Results

Evidence of Mussels: Presence of fresh dead mussel shells and living mussels will trigger a full mussel survey

☐ None ☑ Mussel Shell Only - Subfossil ☐ Mussel Shell Only - Weathered Dead ☑ Mussel Shell Only - Fresh Dead ☑ Living Mussels

Site Sketch. Approximate numbers and locations of shells and live mussels. Include species list if possible.



Required Attachments 1) Location Map and 2) Photo Log

Ohio Mussel Habitat Assessment Form

Project Information

Project Name: NW Ohio Windfarm

County: Paulding Township: Blue Creek

Latitude (DD.DDDD): 41.027670 Longitude (DD.DDDD): -84.622288

Stream Name: Blue Creek Group # (From Appendix A): 1

Methods

Name of Surveyor(s): Brian Carlson, Elisha Lester

Qualification of Surveyor(s): ☐ USFWS Approved ☒ ODNR Approved ☐ Aquatic Biologist (minimum)

Date of Survey: Sept. 6, 2017 Distance Surveyed (ft.): 200' + Relocation area

Total Survey Time (min. x people): 180x2 Scientific Collector's Permit Number(s): 20-035

Note any deviations from the Ohio Mussel Habitat Assessment Methods :

Phase I survey methods + relocation

Habitat Description of Survey Area

Drainage Area at Survey Location (mi²): 504 Water Temp. (°F): 66.38 Air Temp. (°F): 54

Substrate Types (include %):

☐ Boulder		☐ Gravel		☐ Bedrock		☐ Detritus		☐ Silt	10
☒ Cobble	70	☒ Sand	20	☐ Hardpan		☐ Muck		☐ Artificial	

Water Level: ☐ High ☐ Up ☒ Normal ☐ Low ☐ Dry/Interstitial

Visibility: ☐ 0-15 cm ☐ 15-30 cm ☐ 30-50 cm ☐ >50 cm ☒ Visible to Bottom

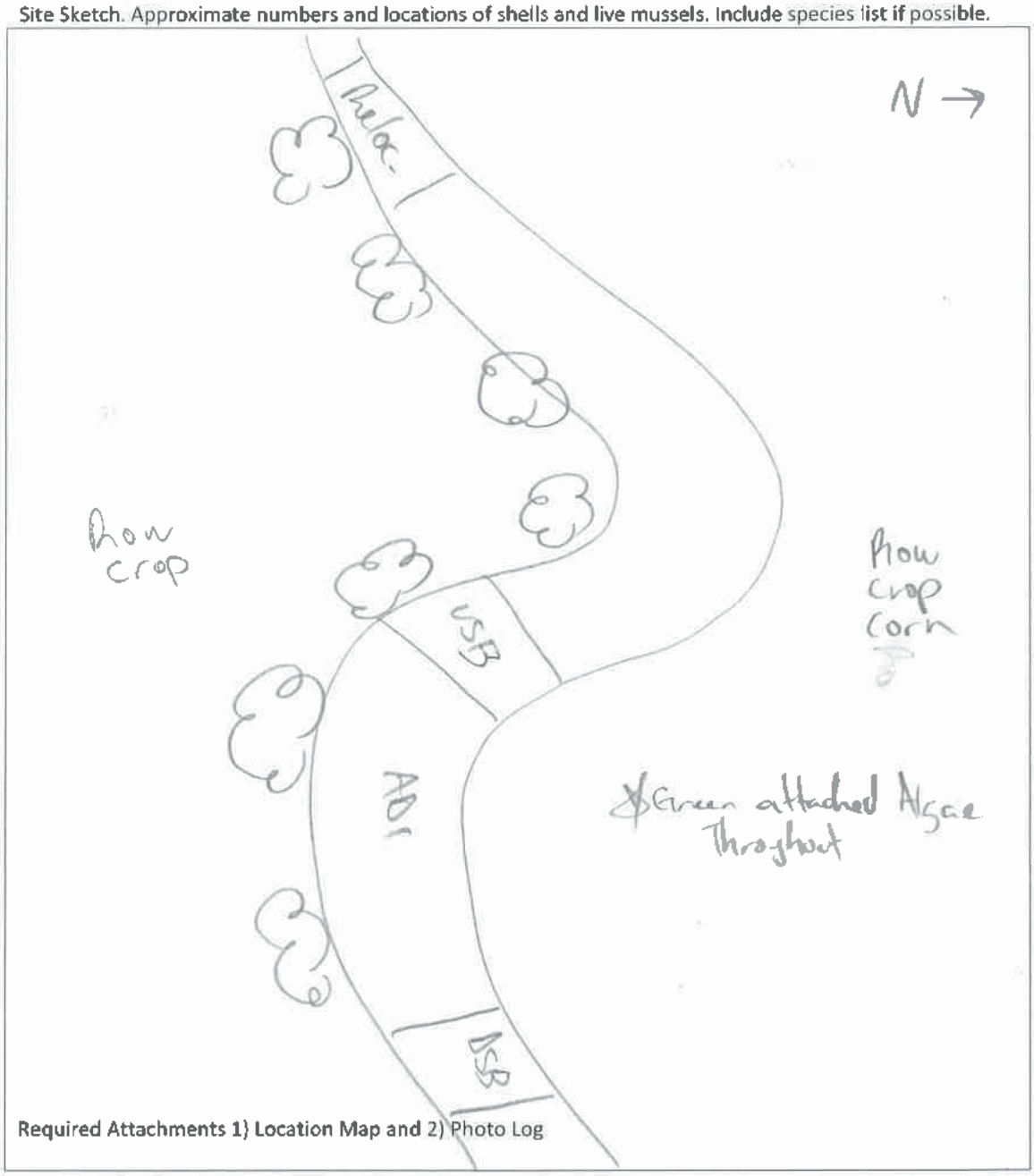
Average Depth (cm):	Riffle	0	Run	20	Pool	0
Max Depth (cm):	Riffle	0	Run	30	Pool	0

Results

Evidence of Mussels: Presence of fresh dead mussel shells and living mussels will trigger a full mussel survey

☐ None ☐ Mussel Shell Only - Subfossil ☒ Mussel Shell Only - Weathered Dead ☒ Mussel Shell Only - Fresh Dead ☒ Living Mussels

Site Sketch. Approximate numbers and locations of shells and live mussels. Include species list if possible.



Required Attachments 1) Location Map and 2) Photo Log

Ohio Mussel Habitat Assessment Form

Project Information

Project Name: NW Ohio Windfarm

County: Paulding Township: Blue Creek

Latitude (DD.DDDD): 41.040996 Longitude (DD.DDDD): -84.623093

Stream Name: Cunningham Creek Group # (From Appendix A): Unlisted

Methods

Name of Surveyor(s): Brian Carlson, Eli Shlesser

Qualification of Surveyor(s): ☐ USFWS Approved ☒ ODNR Approved ☐ Aquatic Biologist (minimum)

Date of Survey: Sept. 6, 2017 Distance Surveyed (ft.): 700'

Total Survey Time (min. x people): 30x2 Scientific Collector's Permit Number(s): 70-035

Note any deviations from the Ohio Mussel Habitat Assessment Methods :

drainage area calc varies by source.
Recon survey conducted
No live, freshdead, or relic mussels observed

Habitat Description of Survey Area

Drainage Area at Survey Location (mi²): 5-12 depending (very flat and watershed composed primarily of roadside/cropside ditches) Water Temp. (°F): 66 Air Temp. (°F): 54

Substrate Types (include %):

☑ Boulder	5	☐ Gravel		☐ Bedrock		☐ Detritus		☐ Silt	
☑ Cobble	5	☑ Sand	90	☐ Hardpan		☐ Muck		☐ Artificial	

Water Level:	☐ High	☐ Up	☐ Normal	☑ Low	☑ Dry/Interstitial
Visibility:	☐ 0-15 cm	☐ 15-30 cm	☐ 30-50 cm	☑ >50 cm	☑ Visible to Bottom

Average Depth (cm):	Riffle	2	Run	4	Pool	8
Max Depth (cm):	Riffle	8	Run	10	Pool	12

Results

Evidence of Mussels: Presence of fresh dead mussel shells and living mussels will trigger a full mussel survey

☒ None ☐ Mussel Shell Only - Subfossil ☐ Mussel Shell Only - Weathered Dead ☐ Mussel Shell Only - Fresh Dead ☐ Living Mussels

Site Sketch. Approximate numbers and locations of shells and live mussels. Include species list if possible.

Required Attachments 1) Location Map and 2) Photo Log

APPENDIX B. ODNR Issued Scientific Collection Permit No. 20 – 035.

DIVISION OF WILDLIFE

Division of Wildlife Headquarters
2045 Morse Road, Bldg. G
Columbus, Ohio 43229-6693
1-800-WILDLIFE
Ohio Department of Natural Resources

Chief, Division of Wildlife: **Raymond W. Petering**

WILD ANIMAL PERMIT: 20-035

SCIENTIFIC COLLECTION

DATE ISSUED
4/11/2017

SARAH VESELKA
ALLSTAR ECOLOGY, LLC.
1582 MEADOWDALE RD.
FAIRMONT, WV 26554

Others authorized on permit
YES (SEE ATTACHMENT)

is hereby granted permission to take, possess, and transport at any time and in any manner specimens of wild animals, subject to the conditions and restrictions listed below or any documents accompanying this permit. This permit, unless revoked earlier by the Chief, Division of Wildlife, is effective from:

3/16/2017 to: 3/15/2020

The Chief of the Division of Wildlife will not issue permits for Dangerous Wild Animal (DWA) species (ORC 935.01 except native DWA, required for specific projects. The permit issued by the Chief does not relieve the permittee of any responsiblity to obtain a permit pursuant to R.C. Chapter 935 except as specified for the animals and purposes permitted herein. The permittee must adhere to all additional requirements under R.C. Chapter 935.

THIS PERMIT IS RESTRICTED AS FOLLOWS:

1. Permittee may survey freshwater mussels on Group 1 and 3 streams. Mussels may be relocated in accordance with the current DOW Mussel Survey Protocol if necessary to avoid area of direct impact and required buffer zone.
2. Fish, amphibians and macroinvertebrates may be collected for survey and inventory purposes. All individuals must be immediately released.
3. Endangered species may not be targeted without specific written permission.
4. Permittee must contact local wildlife officer within twenty-four hours prior to sampling to advise location(s) and duration of sampling.
5. Contact the Division of Wildlife if undocumented aquatic invasive species or new locations for state-listed species are discovered. Contact John Navarro at (614) 265-6346 or john.navarro@dnr.state.oh.us with information.
6. Any traps left unsupervised must be clearly labeled with owner contact information and checked each calendar day.
7. Biosecurity measures must be taken at all times to minimize the potential transmission of diseases. The DOW has adopted new biosecurity protocol. Please follow the recommendations of the Northeast PARC (included) for all work with reptiles and amphibians.
8. Collection is prohibited in the Killbuck, Big Darby, Little Darby, tributaries to and east branch of the Chagrin River above I-90, Fish Creek (Williams County) and Division of Wildlife property without explicit written permission from the Division of Wildlife. Sampling is further restricted in streams that may have federally listed mussels. See Appendix A of the Ohio Mussel Survey Protocol (April 2014 @http://wildlife.ohiodnr.gov/licenses-and-permits/specialty-licenses-permits) for locations of federally listed mussels.
9. Voucher specimens of fish, amphibians and macroinvertebrates may be collected and held at ALLStar or deposited at an accredited depository such as the OSU Museum of Biological Diversity.
10. Permittee must provide an annual report of collecting activities in the Diversity Database Excel spreadsheet format to the Division of Wildlife.

Locations of Collecting:
STATEWIDE WITH NOTED EXCEPTIONS

Equipment and method used in collection:
SCUBA, SNORKEL, FUNNEL TRAPS, D-FRAME DIP NET, KICKNET, ELECTROFISHING

Name and number of each species to be collected:
MUSSELS FOR SURVEY, INVENTORY AND RELOCATION PURPOSES ON GROUP 1 AND 3 STREAMS. FISH, MACROINVERTEBRATES AND AMPHIBIANS FOR SURVEY AND INVENTORY.

RESTRICTIVE DOCUMENTS ACCOMPANYING THIS PERMIT? YES

NO ENDANGERED SPECIES OR AQUATIC NUISANCE SPECIES MAY BE TAKEN WITHOUT WRITTEN PERMISSION FROM THE CHIEF

Case No(s). 13-0197-EL-BGN, 16-1687-EL-BGA, 17-1099-EL-BGA

Summary: Notification of Compliance with Condition 16 – Mussel Survey
electronically filed by Mr. William V Vorys on behalf of Trishe Wind Ohio, LLC