

Authorization for Incidental Take and Implementing Agreement

Pursuant to the Illinois Endangered Species Protection Act (520 ILCS 10/5.5) the Illinois Department of Transportation's (IDOT) authorization for the incidental take of the State threatened slippershell mussel (*Alasmidonta viridis*) in McHenry County, Illinois [associated with the FAP 303/IL. 173 Road-Bridge project] is hereby granted, subject to the terms and conditions described in the attached Authorization and Implementing Agreement. The Illinois Department of Natural Resources has determined that this authorized take is incidental to the construction/replacement of the IL. 173 bridge, over Nippersink Creek, in McHenry County, Illinois.

Procedural History

IDOT prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5). That plan and IDOT's request for authorization for the incidental take of slippershell mussels were received by the Illinois Department of Natural Resources (Department) on 26 October 2009. Public notice of IDOT's request for authorization of incidental take of slippershell mussels was published in the Arlington Heights Daily Herald (Official State newspaper) and The Northwest Herald (local circulation) on November 27, December 3, as well as on December 10, 2009. Public comments on IDOT's conservation plan were accepted by the Department until January 11, 2010. No comments were received by the public during the period of November 27, 2009 through January 11, 2010.

Compliance with the Endangered Species Protection Act

The Illinois Endangered Species Protection Act includes six (6) criteria which must be met for the authorization of incidental take of an endangered or threatened species. These criteria and the Department's determination for each criteria are listed below.

1. The taking will not be the purpose of, but will only be incidental to, the carrying out of an otherwise lawful activity:

The project is for the reconstruction of the Nippersink Creek Bridge (Structure No. 056-0029) located in McHenry County, approximately 1.50 miles west of the Village of Hebron. The bridge is located on Illinois Route 173 (IL Rt 173) in the southwest quarter of Section 18 of T46N, R17E at latitude 42.4626° N, longitude 88.4673° W. Nippersink Creek is a tributary to the Fox River (Illinois River drainage).

The project is for the removal and replacement of the existing structure over Nippersink Creek. The bridge was constructed in 1931 and widened to its current size in 1975. The existing bridge is a two-span precast, prestressed concrete (P.P.C.) deck beam bridge with an abutment length of 75'-9⁵/₈" NS and a total width of 41'-0". The substructure consists of two vertical high walls, reinforced concrete abutments, four reinforced concrete wing walls and one reinforced concrete solid wall pier. The existing structure has been widened once with the widened sections of the substructure being supported on piles and the original sections supported on spread footings.

The new structure will be on the existing alignment and will be a single span design with a superstructure consisting of 42" P.P.C. I-Beams, an 8" reinforced concrete deck, and standard F-shaped concrete parapets on each side of the bridge. The proposed structure has a back of abutment to back of abutment length of 77'-7" with an out to out width of 47'-2" and a clear roadway bridge width of 44'-0". The substructure will consist of integral abutments supported on H-piles with a rip-rap slope protection system.

The proposed scope of work calls for the complete replacement of the structure spanning Nippersink Creek. There is currently no slope protection in place at this bridge and the creek bed extends up to meet the west abutment. The east abutment is located adjacent to an existing wetland. The pier falls partially within the limits of Nippersink Creek and the adjacent wetland. The project will include removal of the substructure elements and complete removal of the abutments. Possibilities for removal of the pier include complete removal, abandoning the pier in place, removing the pier to the water level, or removing the pier to the streambed. No channel excavation work is anticipated. It is possible that clean fill may be required to provide a temporary platform for cofferdam construction and substructure removal.

The potential for take would come from activities associated with the construction of a new bridge over Nippersink Creek. These activities consist of the removal of the existing abutments, the potential removal of the existing bridge pier, the temporary installation of cofferdams from which the work will occur, and embankment work. It is possible that clean fill may be required to provide a temporary platform for the cofferdam construction and substructure removal.

The anticipated adverse effects include:

- 1) Slippershell mussels may be crushed or entombed by equipment or piers.
- 2) Short term water quality impacts due to erosion and sedimentation during construction work.
- 3) Continuation of the existing potential for degradation of habitat associated with runoff and salt spray from the bridge deck.

2. The parties to the conservation plan will, to the maximum extent practicable, minimize and mitigate the impact caused by the taking.

The project will result in minimal wetland impacts. Wetland Site #1 (as shown in the Conservation Plan) is located along the east bank of Nippersink Creek, south and north of IL Rt 173, and currently falls underneath span 2 of the existing bridge. The area of this wetland that will be impacted is approximately 0.083 acres. The wetland has a Floristic Quality Index (FQI) of 10.9 and a mean C value of 2.6, indicating a low quality wetland. The layout of the proposed new structure places the east abutment and the rip-rap embankment cone within this wetland.

The Illinois Environmental Protection Agency/Illinois Department of Natural Resources Biological Stream Characterization (BSC) Work Group rates Nippersink Creek as a Class B (highly valued aquatic resource) stream based on the stream's fishery and macroinvertebrate data. Nippersink Creek on the south side of IL Rt 173 is identified as a high habitat value wetland by the McHenry County Illinois Advanced Identification Study (ADID).

Surveys were conducted in Nippersink Creek by the Illinois Natural History Survey (INHS) on August 7, 2008; the INHS team examined a 150 meter stretch of the creek. INHS describes the Nippersink Creek in this vicinity as having an average width of 6-8 meters, with depths ranging from 0.1 to 0.7 meters. The substrate is predominantly silted sand with small patches of gravel and cobble in the riffles and firm sand/mud in the pools. Shallow riffle habitat was found at, immediately upstream, and immediately downstream of the bridge. A portion of the stream banks is tree-lined, while the rest is lined with grass.

The property located within the road and bridge right-of-way is owned by the Illinois Department of Transportation (IDOT).

The formal conservation plan prepared by IDOT, and received by the Department on 26 October 2009, stated that freshwater mussel surveys, and subsequent relocations, would be conducted prior to initiation of bridge construction/repair. All mussels observed (listed or non-listed species) are to be relocated in order to minimize impacts.

Mussel surveys will be conducted using standard survey techniques including searching by feel to methodically cover the area to be disturbed by the project (viewing boxes, wading in shallow water, SCUBA in deeper water-if applicable, although not likely with this project). All mussels found will be identified to species. Mussels will be relocated into areas of suitable habitat, in the same stream/river, preferably upstream of the construction site. Specifically, the transplant site will be close to the collection area and have similar to better water quality and substrate.

The ecological staff/freshwater mussel consultant conducting this mussel relocation effort shall have extensive experience with Midwestern mussels. The mussel consultant will provide the Department with a report detailing the results of all mussel surveys and relocation efforts within 60 days of completing all surveys/relocations. In summary, mussel surveys and related relocations will occur only after Department authorization and prior to any construction activities.

During construction, the piers will be installed using cofferdams. The use of cofferdams will minimize any sedimentation that enters the water, thereby reducing water quality impacts and potential impacts to mussels. No new structures will be constructed within the limits of Nippersink Creek because the new bridge is a single span design and does not require a pier within the creek.

Super silt fencing will be used adjacent to the road work. Super silt fencing consists of chain link fencing with silt fencing attached; the chain link fencing adds stability to the silt fencing. This use of super silt fencing will also reduce the amount of siltation that enters Nippersink Creek.

These measures discussed above should minimize the amount of habitat that is affected. Permanent loss of habitat is likely restricted to the areas adjacent to the abutments that will have riprap placed for scour protection.

3. The parties to the conservation plan will ensure that adequate funding for the conservation plan will be provided:

This project is authorized by the Illinois Department of Transportation/IDOT, which receives funding from the Illinois General Assembly and the Federal Government in carrying out its programs. In addition, the Illinois Department of Transportation, exclusively abides by the National Environmental Policy Act (NEPA) and all associated state and federal environmental laws in carrying out its mission of performing the most environmentally sensitive methods of transportation planning and engineering.

4. Based on the best available scientific data, the Department has determined that the taking will not reduce the likelihood of the survival or recovery of the endangered species or threatened species in the wild in Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois:

Construction and repair/replacement of the IL. Route 173 (FAP 303) bridge over Nippersink Creek in McHenry County, Illinois will most likely not reduce the likelihood of the survival of state-listed threatened or endangered mussels in Illinois. For the purposes of biological comparison, it should be noted that the freshwater mussel fauna of the Fox River and its tributaries in Illinois and Wisconsin were surveyed by Department staff during the summers of 1997-2001. A total of 3,585 live individuals comprised of 23 species were collected from 96 sampling stations. Of this total, 31 slippershell mussels (*Alasmidonta viridis*) were collected.

The slippershell (*Alasmidonta viridis*) was historically widespread in the northern half of Illinois but has since been reduced to widely scattered populations throughout its range. The slippershell was found alive at three sites (3) in the upper part of the Little Vermilion River in 1997. The only live records for this species in the adjacent Vermilion River basin to the north were collected from Bean Creek (Middle Fork Drainage) in 1989 per the INHS, 1998.

Throughout North America, the slippershell mussel (*Alasmidonta viridis*) is known from the upper Mississippi, Ohio, Cumberland, and Tennessee river drainages and lower and middle sections of the St. Lawrence. In Illinois, it is known from the Sangamon, Kankakee, Vermilion, and Little Vermilion river systems. This mussel inhabits small to medium sized streams where it is usually found buried in sandy substrates in shallow water.

Unfortunately, the slippershell now has a restricted distribution in Illinois, and its numbers have been reduced most likely as a result of increased siltation and channelization in small to medium sized streams throughout the state. Any live animals that are overlooked during the relocation effort could be at risk of injury or death as a result of construction activities.

The relocation of all mussels encountered will make it unlikely that a significant number of individuals will be exposed to threats related to the construction and repair/replacement of the IL. Route 173 (FAP 303) bridge over Nippersink Creek in McHenry County.

As stated in the April 1996 Technical Report (working draft) titled - "Measures to minimize harm to *Lampsilis higginsi* [federally endangered Higgins Eye mussel] caused by passage of commercial navigation vessels in the upper Mississippi River" [prepared by the U.S. Army Corps of Engineers-Waterways Experiment Station]:

Relocation is one of several methods that can be used to protect freshwater mussels. Relocation can be used to recolonize areas where previous populations were extirpated, to remove mussels from proposed construction sites, to boost numbers of endangered species, or to protect against high densities of the zebra mussel (*Dreissena polymorpha*). The survival of relocated mussels is closely linked to habitat quality.

Relocation sites should have the same conditions of substratum type and stability, and water velocity as the original habitat. Research from the federally endangered Higgins Eye mussel (*Lampsilis higginsii*) recovery team, under the guidance of the United States Fish and Wildlife Service, has determined that minimal mortality (<12%) and high recovery rate (>88%) were shown when aerial exposure of mussels was less than four (4) hours and when relocations were conducted in spring or autumn when air (12-18 C) and water temperature (15-23 C) were moderate.

The project will more than likely have minimal impacts on the surrounding ecosystem. There will be no piers placed within Nippersink Creek. The existing pier will be removed, resulting in the restoration of mussel habitat where the pier currently exists. Impacts to adjacent wetlands will be minimal and will result in the loss of 0.083 acre of wetland; this small amount is not expected to cause an effect because sufficient wetlands remain to filter out salt spray and runoff associated with stormwater prior to discharging into Nippersink Creek.

Lastly, IDOT's Bureau of Design and Environmental Manual (2002); Landscape Design and Erosion Control criteria and Specification 280: Temporary Erosion Control shall be used during this project. The methodologies described in these documents utilize the latest techniques in sediment and erosion control design and implementation.

5. Any measures required under Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.40(b)], will be performed:

Additional measures are listed below under "Authorization." This authorization is, by definition, subject to those terms and conditions and official IDOT signature(s) on this authorization indicates their commitment to performing those measures.

6. The public has received notice of the application and has had the opportunity to comment before the Department made any decision regarding the application:

IDOT prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5). That plan and IDOT's request for authorization for the incidental take of slippershell mussels were received by the Illinois Department of Natural Resources (Department) on 26 October 2009. Public notice of IDOT's request for authorization of incidental take of slippershell mussels was published in the Arlington Heights Daily Herald (Official State newspaper) and The Northwest Herald (local circulation) on November 27, December 3, as well as on December 10, 2009. Public comments on IDOT's conservation plan were accepted by the Department until January 11, 2010. No comments were received by the public during the period of November 27, 2009 through January 11, 2010.

Authorization

It is the determination of the Department that the measures to be implemented by IDOT will adequately minimize and mitigate for the anticipated taking (relocation) of a small number of slippershell mussels due to the construction and repair/replacement of the IL. Route 173 (FAP 303) bridge over Nippersink Creek in McHenry County. Further, it is our opinion that the take (relocation) authorized herein would not diminish the likelihood of the survival of the slippershell mussel in the wild within the State of Illinois, the biotic community of which the species is a part or the habitat essential to the species' existence in Illinois.

Pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.40(b)], this authorization is issued subject to the following additional terms and conditions:

1. This authorization is effective upon signature of the Department and shall remain in effect for a period of six (6) years after the official "project completion date". "Completion" shall be defined as the date the IL. Route 173/FAP 303 bridge is officially open for public use. This authorization is effective unless terminated pursuant to Section 5.5. of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.80].

2. Prior to demolition/repair of the existing bridge and construction of the new the IL. Route 173 (FAP 303) bridge over Nippersink Creek in McHenry County, IDOT shall conduct/facilitate, or cause to be conducted, a thorough survey of the reach of the affected portion of Nippersink Creek that will be directly affected by bridge construction activities and shall relocate any and all (listed or non-listed species) freshwater mussels found within the area that will be directly affected by the bridge replacement to suitable habitat, preferably upstream, of the project site.

Handling of mussels shall be in compliance with any and all conditions and/or protocols included in the state and/or federal authorizations for this work. Relocated mussels shall be identified to species and enumerated. A report on the species and numbers of mussels relocated and the location(s) at which they were released shall be provided to the Department within 60 days of completion of the relocation.

3. IDOT shall conduct/facilitate, or cause to be conducted, a thorough survey of both the construction area (within existing right-of-way) and the mussel relocation site(s) for freshwater mussels in the fifth (5th) year following completion of bridge construction. "Completion" shall be defined as the date the bridge is officially open for public use. For example, if the IL. Route 173/FAP 303 bridge is completed in 2010, this survey shall be conducted in 2015. Freshwater mussels located within the construction right-of-way and relocation site(s) shall be identified to species and enumerated and the length of each mussel shall be measured to the nearest millimeter. Handling of mussels shall be in compliance with any and all conditions and/or protocols included in the state and/or federal authorizations for this work. A report on the species, numbers, and sizes of mussels found shall be provided to the Department within 60 days of the completion of this survey. This report shall also include a qualitative evaluation of the habitat for freshwater mussels being provided by the construction right-of-way area and the relocation site(s) and the manner in which that habitat has changed since the initial bridge construction project.

4. All mussels encountered within the State of Illinois during this project shall be subject to the general U.S. Fish and Wildlife Service handling protocol for determining presence/absence of species as found in "Section H" of the attached Federal Fish and Wildlife document.

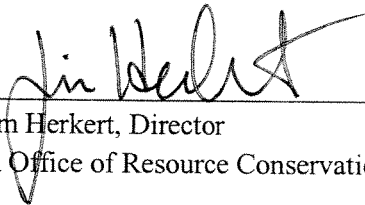
5. Specified IDOT erosion and sediment control practices for this project (IL. Route 173/FAP 303 - McHenry County) shall be implemented. IDNR recommends that inspections to ensure proper working order and maintenance of practices be made daily by local engineering staff. IDNR also recommends that additional inspections be made immediately prior to and following events of heavy rain for the area. If through daily monitoring, eroded soil is observed leaving the job-site or limits of construction, additional soil conserving practices, shall be installed in order to minimize soil erosion.

6. The effective period of this authorization may be altered by mutual agreement between IDOT and the Department.

7. This authorization may be revoked pursuant to Section 5.5 of the Act if the Department finds that IDOT has failed to comply with any of these terms and conditions or has been responsible for the take of any slippershell mussels beyond that which is incidental to the construction and repair/replacement of the IL. Route 173/FAP 303 bridge over Nippersink Creek in McHenry County.

8. The IDOT official identified below is authorized to execute this agreement. Execution by IDOT indicates acceptance of all terms and conditions described in this document.

For the IL. Department of Natural Resources



Dr. Jim Herkert, Director
IDNR Office of Resource Conservation

4-29-10

Date Signed

For the IL. Department of Transportation/IDOT



Signature

DIAUE O'KEEFE

REGIONAL ENGINEER

Please print name and official title

4-13-10

Date Signed

