

**Illinois Department of Natural Resources  
CONSERVATION PLAN**

(Application for an Incidental Take Authorization)  
Per 520 ILCS 10/5.5 and 17 Ill. Adm. Code 1080

**Conservation Plan for the Monkeyface Mussel (*Theliderma metanevra*) at the Bridge Crossing Middle Fork Sugar Creek (Salt Creek Drainage Basin) at the County Highway 32/County Road 1000N (FAS 481) Bridge in McLean County, Illinois.**

150-day minimum required for public review, biological and legal analysis, and permitting

SUBMITTED TO: Ms. Heather Osborn  
Incidental Take Authorization Coordinator  
Illinois Department of Natural Resources  
One Natural Resources Way  
Springfield, IL 62702  
DNR.ITAcordinator@illinois.gov

PROJECT APPLICANT: McLean County Highway Department  
Attn: Jerry Stokes  
12 S. Towanda – Barnes Road  
Bloomington, IL 61705

PROJECT NAME: Highway 32 Bridge Replacement at Middle Fork  
Sugar Creek, 23338-CH 32 over Middle Fork Sugar  
Creek, in Mclean County, Illinois  
IDOT PMA Seq # 23338  
Section 20-00057-12-BR

COUNTY: McLean

AREA OF IMPACT: 0.11 acres

**1. Description of the impact likely to result from the proposed taking**

**A. Legal description of the project area**

Specific locality information for this project site has been taken from the Stanford Quadrangle, Illinois (7.5' series, 2015 edition; NAD 1983 U.S. Geological Survey topographic quadrangle map (all coordinates to approximate center of bridge). UTM = Universal Transverse Mercator System.

Illinois, McLean County, Middle Fork Sugar Creek, approximately 1.25 miles ESE of Stanford, IL, at the FAS 481 bridge, Township 23 North, Range: 1West, Section 22. UTM: Zone 16T, 313740.31m East, 4477587.93m North. Latitude: 40.42811° North, Longitude: 89.19574° West

All staging and work associated with the proposed improvements to the bridge over Middle Fork Sugar will be performed within existing county right-of-way (ROW); see Exhibit A.

**B. Biological Data**

The Environmental Survey Request (ESR) process for the proposed replacement of the existing five-span bridge carrying 1000 E North Road (CH 32) over the Middle Fork Sugar Creek with a three-span bridge near Stanford, Illinois, involved coordination with IDNR for the presence of threatened and endangered species. As a result, the attached INHS Aquatic Survey Report (Exhibit B) identified the presence of the following protected resources occurring near the project area and proposed action:

Monkeyface mussel (*Theliderma metanevra*) are found in medium to large rivers in gravel or mixed sand and gravel (Cummings and Mayer 1992). They are increasingly isolated in Illinois, found primarily in a few larger rivers and in the Vermilion-Wabash drainage, this mussel species is at risk for further decline due to fragmentation. Common fish hosts for the glochidia of monkeyface mussels include species from the minnow family (Cyprinidae), bluegill (*Lepomis macrochirus*), green sunfish (*L. cyanellus*), and sauger (*Sander canadensis*).

**C. Description of project activities**

The construction activities that are associated with the proposed improvements will be limited to county ROW within the stream. County ROW is defined as that portion of the area lying 50 to 60 feet north and south of Highway 32 centerline totaling 2.0 acres. All construction activities shall comply with the IDOT Standard Specifications for Road and Bridge Construction. Additionally, the contractor will be required to follow all Best Management Practices contained in the Stormwater Pollution Prevention Plan.

Approximately 1700' west of 400E Road will be the beginning of the project limits and extend for 750' to the east. The existing bridge will be removed and replaced with a 160' back-to-back of abutments, three-span continuous steel beam bridge. The project will also include reconstructing conventional flexible pavement, HMA resurfacing, aggregate shoulders, steel plate beam guardrail, stone riprap and field entrances.

**Existing Structure Removal**

The following special provisions will apply to the removal of the existing structure, in addition to the requirements of Section 501 of the IDOT Standard Specifications. The Contractor shall remove all portions of the existing structure and repairs that may interfere with the proposed structure. All materials and debris from the existing structure shall be removed from the channel immediately following demolition. The Contractor shall complete the removal operations in a manner to minimize disturbance to the streambed. The Contractor shall restore the channel banks to their original condition immediately after removal is complete. All bituminous material, including any asphalt coated aggregate material will be removed and disposed of before removal of the existing structure can begin. This includes all surface material on the existing bridge. The Contractor shall take special care to prevent any bituminous material from falling into the channel.

The proposed piers are located at the edges of the streambed. Each proposed pier is an individually encased pile bent type consisting of seven (7) driven metal shell piles with 2'-6" diameter concrete encasement poured from the pile cap above down to 2'-6" below the streambed. The excavation for the concrete encasement will be pumped dry prior to pouring the concrete. No cofferdams will be required to construct this bridge.

The Contractor will be allowed to construct a temporary stream crossing within the 0.11-acre impacted area and/or in-stream work pad, according to IDOT Recurring Special Provision #8 for Temporary Stream Crossing and In-Stream Work Pads. This special provision states:

*Haul Road and Other Temporary Stream Crossings. A temporary low flow structure such as a pipe culvert shall be installed at haul road and other temporary stream crossings. The haul road shall be constructed with materials (i.e., coarse aggregate) meeting the requirements of Article 1004.04 of the Standard Specifications, except, if pit run gravel is used, prior approval of the source may be required by the Engineer. Upon completion of the work, the haul road or other temporary stream crossing shall be removed, and the stream channel returned to its original cross section or the cross section called for in the plans.*

*The Contractor may propose other methods of constructing the stream crossing to the Department of Natural Resources and, if approved by them, the Contractor may proceed with that method.*

*In-Stream Works Pads. All in-stream work pads shall be constructed with materials (i.e., coarse aggregate) meeting the requirements of Article 1004.04 of the Standard Specifications, except, if pit run gravel is used, prior approval of the source may be required by the Engineer. In cases where the work pad will span the stream, a temporary low flow structure such as a pipe culvert shall be installed. Upon completion of the work, the in-stream work pads shall be removed, and the stream channel returned to its original cross section or the cross section called for in the plans.*

*The Contractor may propose other methods of constructing the work pads to the Department of Natural Resources, and if approved by them, the Contractor may proceed with that method.*

Construction Timeline

Construction Contracts Advertises, Bid, and Awarded	Winter 2021 - 2022
Construction Begins	April 18, 2022
Construction Completed	September 1, 2022

**D. Explanation of the anticipated adverse effects on the listed species.**

Monkeyface mussel individuals may be buried or crushed by the replacement of riprap in the stream. Construction of the new bridge structure could also result in the taking of listed mussels. Details of the project can be found in Exhibit C; flow within the stream would be maintained 100% during construction; a significant reduction of flow is not anticipated.

**2. Measures the applicant will take to minimize and mitigate that impact**

**A. Plans to minimize the area affected by the proposed action, the number of individuals of an endangered or threatened species that will be taken, and the amount of habitat affected.**

1. Construction activities associated with proposed improvements within the river will be limited to county ROW (county ROW is defined as that portion of the area lying 50 to 60 feet north and south of Highway 32 centerline). The ROW varies between 100' and 120' in width. Temporary impacts may occur within the 2.0

acres with permanent impacts from construction activities being approximately 0.25 acre (Exhibit C). Direct stream impacts from the project are designed to be 0.08 acre. McLean County has minimized the impact footprint within the species aquatic habitat to the extent possible leaving a portion of the channel open for mussel repopulation of this area. Also, the open channel does not restrict the movement of the host fish species. The Illinois Natural History Survey (INHS) found the entire stretch of the relocation area had suitable habitat for freshwater mussels as well as upstream and downstream of the bridge. Given that a mussel relocation has already occurred within the project footprint, the likelihood of take is extremely low. However, because take cannot be a zero figure, it is estimated that the take will be between 1 and 4 individuals.

**B. Plans for management of the area affected by the proposed action that will allow continued use of the area by the species.**

All proposed work will be performed within existing county ROW. The INHS Aquatic Survey Report (Exhibit B) states that habitat throughout most of the project area was a run of shallow slow-flowing water. Substrate in the relocation area (i.e., the area from where the mussels were taken) was primarily sand (48%) and gravel (35%), but silt (10%), cobble (4%), clay (2%), and coarse woody debris (1%) were also present. An area approximately 100 yards downstream of the County Highway 32/County Road 1000N (FAS 481) bridge was selected to receive the relocated mussels (i.e., recipient area) due to similar substrate and depths present in the relocation area.

Other than the area where riprap will be replaced, efforts will be made to ensure the existing stream bed directly under the bridge will have the same substrate as was present preconstruction; additionally, after construction activities are complete, the streambed directly under the bridges will be “managed” or “controlled” by natural processes; the dynamic processes operating within Middle Fork Sugar Creek will dictate the condition of the bed of the stream post construction.

**C. Description of all measures to be implemented to minimize or mitigate the effects of the proposed action on the endangered or threatened species.**

- Because completely avoiding temporary impacts to the Middle Fork Sugar Creek is not practicable due to the fundamental nature of the project, the area of disturbance within the stream is the minimum needed for construction purposes.
- Siltation during all phases of construction will be minimized through use of proper soil erosion and sediment control measures such as floating silt fences to prevent sediment from entering the stream. The resident engineer will inspect and ensure maintenance of all silt fences, silt curtains, and other erosion control structures. If site inspections show that measures in place are not functioning or are not adequate, different or additional measures will be added. If unforeseen observations or events pertaining to listed species are identified during construction, IDNR will be contacted.
- During on-site work, the resident engineer will conduct daily inspections of the erosion and sediment control practices to ensure proper working order and maintenance. Additional inspections will be made immediately prior to and following events of heavy rain. If eroded soil is observed leaving the limits of construction, additional soil conserving practices will be installed, or measures taken to minimize soil erosion.

- As part of the County's mitigation efforts, the INHS performed a freshwater mussel relocation Middle Fork Sugar Creek (Illinois River drainage) at the County Road 32/1000N (FAS 481) bridge (Sequence No. 2338) in McLean County, Illinois. The mussel relocation was completed by INHS personnel on 6-7 August 2020. During this relocation, freshwater mussels were collected by completing 40 multiple-pass 3.28 ft-wide transects over a 120-ft-long stretch of the stream directly under the County Highway 32/1000N bridge. Twelve species of mussels were collected from the project area, including two live monkeyface mussels. All live mussels collected were relocated approximately 100 yards downstream of the project area to suitable habitat.
- In addition to the cost of the INHS mussel surveys, relocation efforts, and post construction surveys for this action; McLean County will pay IDNR \$11,161.00 as requested by INDR for the 0.11-acre habitat impact associated with this project.

**D. Plans for monitoring the effects of the measures implemented.**

McLean County recommends INHS conduct mussel surveys following completion of construction where "completion" shall be defined as the date of the McLean County Final Inspection for the project. IDNR will provide more details on the post construction surveys. The County will contact the IDOT Central Office Natural Resources Unit within one week of completion of the project to task follow-up surveys. The purpose of the monitoring effort is to determine if monkeyface mussels are present. A report on the species and numbers found shall be provided to the IDNR within 60 days of the completion of each survey. The report shall also include a qualitative evaluation of the habitat for monkeyface mussels and the manner in which that habitat has changed since the previous survey. Based on the results of the monitoring survey, the need for further monitoring will be assessed.

**E. Adaptive management practices that will be used to deal with changed or unforeseen circumstances that affect the effectiveness of measures instituted to minimize or mitigate the effects of the proposed action on endangered or threatened species.**

Due to the nature of the project, McLean County does not anticipate any changed or unforeseen circumstances; however, if high water or drought conditions occur during the work directly under the bridge, McLean County will coordinate closely with the contractor and IDOT District Environmental Coordinator to make appropriate changes necessary. The bridge work will be completed with no additional work being necessary afterwards.

**F. Verification that funding to support mitigation activities will be available for the life of conservation plan.**

The project is funded through the following:

- The program cost of the project is \$1,425,000; with 100% of the funds coming from McLean County. Any costs are associated with implementation of the erosion and sediment control practices will be borne by the Contractor and included in their bid price for the project. INHS would conduct the post-construction mussel survey(s) with funds provided from IDOT.

**3. Alternative actions that would reduce take**

Alternative A – “No-Action”:

The only alternative which does not result in the taking of the state listed species is to leave the bridge in place as it currently exists, or the “no-action” alternative. The existing bridge has a clear roadway width of 28’ and the proposed bridge has a clear roadway width of 32’. The current configuration forces large agricultural equipment to take both lanes crossing the bridge, leaving no room for on-coming traffic to pass. Under the no-action alternative, this configuration would remain a safety concern. Therefore, the no-action alternative is not considered a feasible alternative.

Alternative B – Superstructure Replacement:

Since the existing concrete slab superstructure has structural edge beams built integrally with the hubguards, it is not feasible to widen the bridge without at least replacing the superstructure. It would be feasible to remove the superstructure and reuse the existing piles, but it would still require work within the channel to remove the existing superstructure, drive additional piles, place stone riprap, and construct the new superstructure. Superstructure replacement would maintain the existing five span configuration, with two piers located in the streambed. Complete replacement results in only three spans with no piers in the streambed, which will be an improvement hydraulically and for aquatic species in the creek.

**4. Data and information to assure that the proposed taking will not reduce the likelihood of the survival of the species.**

All proposed in-stream work is limited to the replacement of riprap along the banks to provide stabilization for the bridge and the soil beneath and is within existing ROW. INHS relocated two individuals of this species during their relocation effort 6-7 August 2020 to suitable habitat 100 yards south of the project area. All reasonable and prudent measures will be used to reduce the chance of take to the extent possible for this project. Other streams in Illinois are not affected by this project. Upon completion of the proposed bridge replacement, and given the mitigation measures used, the mussel species is expected to continue to survive in Middle Fork Sugar Creek.

**5. An implementing agreement, which shall include, but not be limited to:**

**A. Names of all participants in the execution of the conservation plan, including public bodies, corporations, organizations, and private individuals.**

McLean County Highway Department  
Jerry Stokes  
12 S. Towanda – Barnes Road  
Bloomington, IL 61705

Farnsworth Group  
Attn: John Zeman  
2709 McGraw Drive  
Bloomington, IL 61704

**B. The obligations and responsibilities of each of the identified participants with schedules and deadlines for completion of activities in the conversation plan and a schedule for preparation of progress report to be provided to the Department.**

The Illinois Department of Natural Resources is responsible for the review of this Conservation Plan and for subsequent issuance of the Incidental Take Authorization.

The INHS will have duties of surveying for threatened or endangered mussels. Post construction surveys by the INHS will examine Middle Fork Sugar Creek within the county ROW for the monkeyface mussel and mussel habitat.

IDOT District 5 is responsible for all biological clearance coordination and recommendations related to the project and will address those items listed under the Incidental Take Notice.

**C. Assurances that each participant in the execution of the conservation plan has the legal authority to carry out their respective obligations and responsibilities under the conservation plan.**

This project is authorized by McLean County and is being managed by the County Highway Departments County Engineer. The project is using local funding to perform complete replacement of a county road structure.

**D. Assurances of compliance with all other federal, state, and local regulations pertinent to the proposed action and to execution of the conservation plans.**

McLean County abides by all associated state and federal environmental laws in carrying out its mission of performing the most environmentally sensitive methods of transportation planning and engineering. The project has completed the Joint Application Process.


**E. Copies of any federal authorizations for taking already issues to the applicant.**

Not applicable since the monkeyface mussel is not federally threatened or endangered.

**F. For projects that will result in the taking of endangered or threatened species of plants, copies of expressed written permission of the landowner.**

Not applicable since the monkeyface mussel is considered an animal under the Illinois Endangered Species Act (ILCS 10/2).

**CERTIFICATION:** The McLean County Highway Department hereby certifies that it has the authority and funding to complete the project and to address the issues proposed in this Incidental Take Conservation Plan for the state-listed monkeyface mussel. McLean County Highway Department is in charge of construction and will assure that all applicable state, federal, and local laws will be adhered to during the completion of the project.

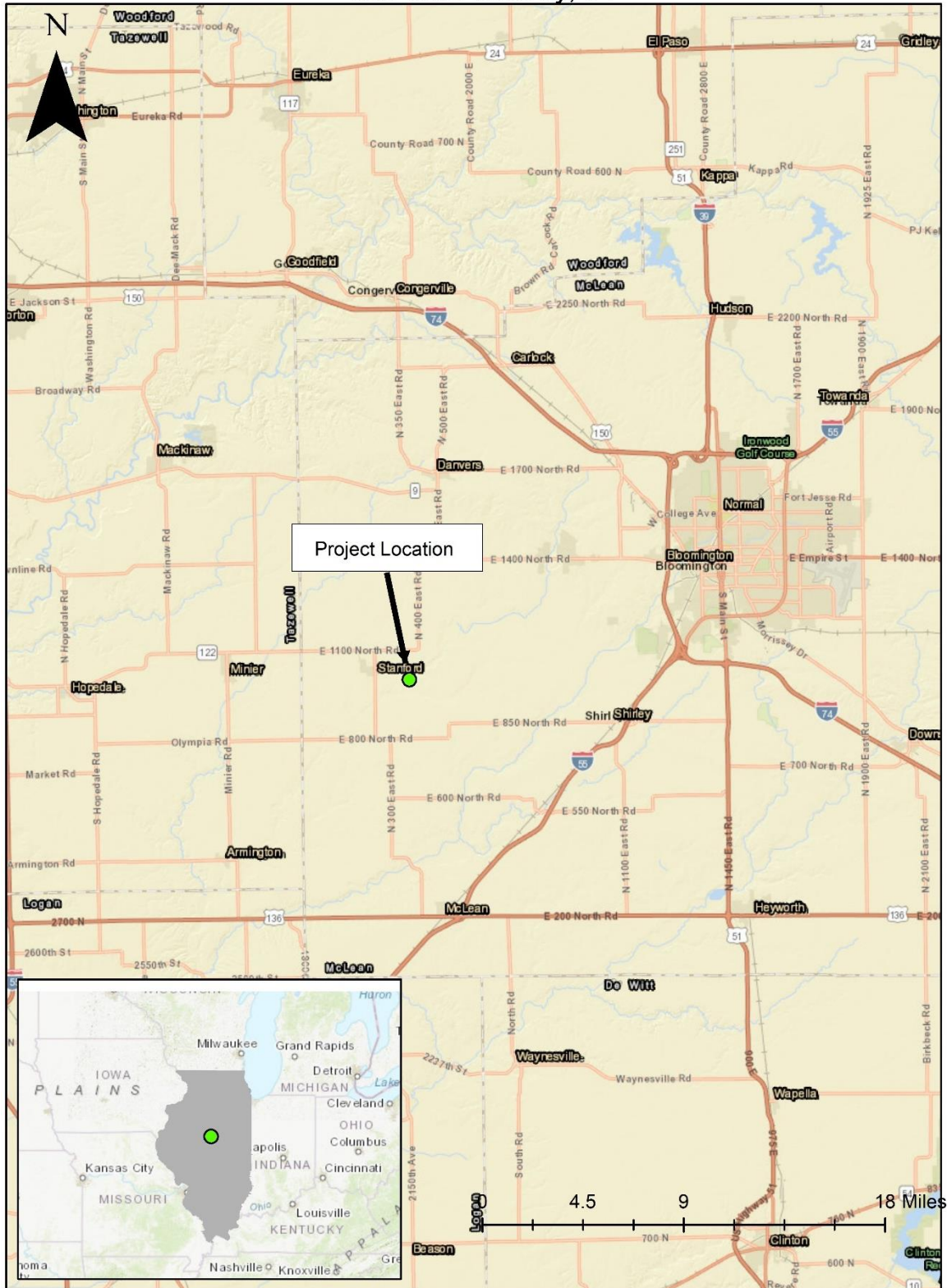
  
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Date: APRIL 12, 2021

**Jerry Stokes, PE – County Engineer**

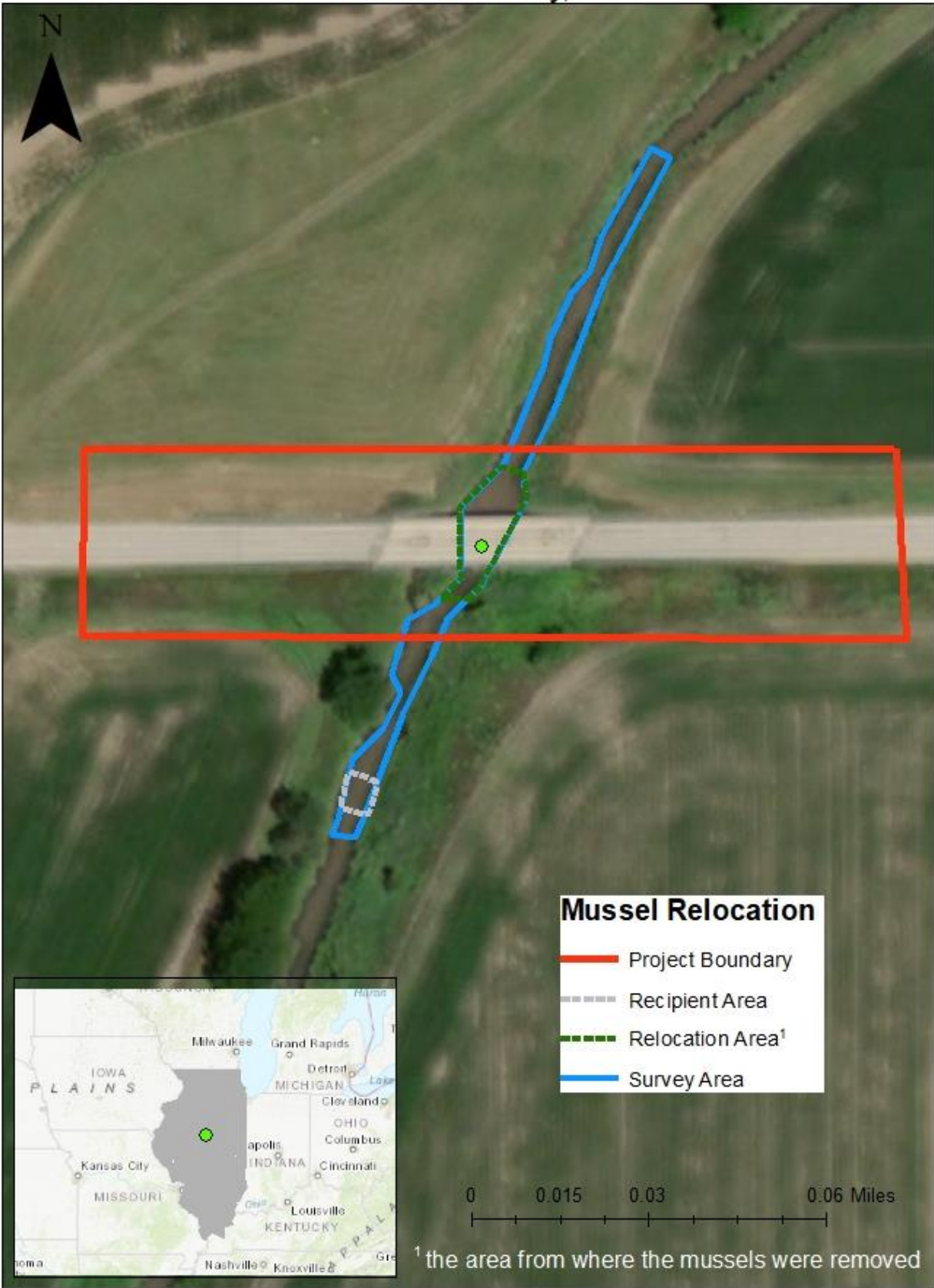


# Exhibit A – Location Map and Mussel Relocation Map.

County Highway 32/County Road 1000N Bridge (FAS 481)  
Middle Fork Sugar Creek  
McLean County, IL



County Highway 32/County Road 1000N Bridge (FAS 481)  
Middle Fork Sugar Creek  
McLean County, IL



# Exhibit B – INHS Aquatic Survey Report.

**Freshwater Mussel Relocation in Middle Fork Sugar Creek (Salt  
Creek Basin) at the County Highway 32/County Road 1000N  
(FAS 481) Bridge in McLean County, Illinois**

IDOT Sequence Number 23338



Prepared by:  
Alison P. Stodola

**INHS/IDOT Statewide Biological Survey & Assessment Program**  
2020:81

4 November 2020



## PROJECT SUMMARY

This report is submitted in response to a request from IDOT to INHS for a freshwater mussel relocation in Middle Fork Sugar Creek (Salt Creek Drainage Basin) at the County Highway 32/County Road 1000N (FAS 481) bridge (IDOT Sequence No. 23338) in McLean County, Illinois. The mussel relocation was completed by INHS personnel on 6-7 August 2020.

During this relocation, freshwater mussels were collected by completing 40 multiple-pass 3.28 ft-wide transects over a 120-ft-long stretch of the stream directly under the County Highway 32/County Road 1000N (FAS 481) bridge. Twelve species of mussels were collected and relocated, including two Monkeyface (*Theliderma metanevra*), which is a species listed as threatened in Illinois.



Approved By: Kevin S. Cummings, Further Studies Aquatics  
Group Coordinator-Malacologist

Surveys Conducted By: Alison P. Stodola, Assistant Aquatic Field Biologist  
Rachel M. Vinsel, Senior Scientific Specialist  
Kathryn E. Conatser, Hourly Assistant  
Kathleen C.S. Cook, Hourly Assistant

Report Edited By: Mark J. Wetzel

GIS Layers: Janet L. Jarvis, GIS and Remote Sensing Specialist

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**Cover Photo:** Middle Fork Sugar Creek at the County Highway 32/County Road 1000N (FAS 481) bridge, McLean County, Illinois (Latitude 40.42811°N, Longitude 89.19574°W). Photo is taken from the west bank, facing downstream (south), on 7 August 2020. Photo by A.P. Stodola, INHS.

## INTRODUCTION

This report is submitted in response to a request on 9 July 2020 by Vincent Hamer of the Illinois Department of Transportation (IDOT) to Rachel Vinsel of the Illinois Natural History Survey (INHS) for a freshwater mussel relocation in Middle Fork Sugar Creek at the County Highway 32/County Road 1000N (FAS 481; Section 20-00057-12-BR; Structure No. 057-3010) bridge in McLean County, Illinois (IDOT Sequence No. 23338, INHS Project No. FS-1480). This reach of Middle Fork Sugar Creek is listed as a Category VI site on the Illinois Natural Areas Inventory (INAI) by the Illinois Department of Natural Resources (IDNR) Division of Natural Heritage due to an unusual concentration of Flora and Fauna, which in this case is an unusual concentration of freshwater mussels (IDNR 2013; INAI 2018). The McLean County highway department proposes replacement of the County Highway 32/County Road 1000N (FAS 481) five-span bridge with a proposed three-span bridge over Middle Fork Sugar Creek. Reconstruction will include 590 feet of roadway outside of the proposed bridge. The replacement structure includes guardrail installation, ditch grading, riprap placement, and field entrance reconstruction.

In this report, we summarize the results of the freshwater mussel relocation conducted in Middle Fork Sugar Creek at the County Highway 32/County Road 1000N (FAS 481) bridge by INHS personnel on 6-7 August 2020.

## PROJECT AREA

The County Highway 32/County Road 1000N project (FAS 481; Section 20-00057-12-BR; Structure No. 057-3010) is located on the Gilman U.S.G.S Topographic Quadrangle map and occurs approximately 1.25 miles ESE of Stanford in McLean County, Illinois - in Township 23N, Range 1W, Section 22 at Latitude 40.42811°N, Longitude 89.19574°W (**Figure 1**).

**Appendix 1** references an Arc-GIS shapefile with sampling point information for the stream crossing discussed in this report.

## HABITAT CHARACTERIZATION

During our site visit on 6-7 August 2020, Middle Fork Sugar Creek at the County Highway 32/County Road 1000N (FAS 481) bridge was approximately 36 feet wide and 1.2 ft deep (ranged from 0.5 to 2 ft deep), with a flow of 0.75 ft/second. The entire relocation area was wadable. Substrate in the relocation area was primarily sand (48%) and gravel (35%), but silt (10%), cobble (4%), clay (2%), and coarse woody debris (1%) were also present. Habitat throughout the relocation area was a run of shallow flowing water. Water levels during the relocation effort were at or below baseflow for this stream during this season. The entire stretch of the relocation area had suitable substrate composition and stability for freshwater mussels, and suitable habitat was found both upstream and downstream of the County Highway 32/County Road 1000N (FAS 481) bridge, though this section of Middle Fork Sugar Creek has been channelized in many places (**Figure 2**). An area approximately 100 yards downstream of the County Highway 32/County Road 1000N (FAS 481) bridge was selected to receive the relocated mussels (i.e., recipient area) due to similar substrate and depths present within the relocation area.



## BACKGROUND

Middle Fork Sugar Creek flows southeasterly to Sugar Creek, which is a tributary of Salt Creek in the Sangamon drainage in central Illinois. The Sugar Creek basin is located just west of Bloomington in McLean County, Illinois, and Sugar Creek is formed by several feeder tributaries. Surrounding land use in the area is row-crop agriculture, and riparian areas consist of clumps of grasses or herbaceous growth throughout the length of Middle Fork Sugar Creek.

Freshwater mussels have been surveyed previously in Middle Fork Sugar Creek at the County Road 150E bridge (INHS Mollusk Collections Data 2020), which is located two miles downstream (southwest) of the County Highway 32/County Road 1000N (FAS 481) bridge (**Table 1**). Twelve species were previously recorded from Middle Fork Sugar Creek. This section of Middle Fork Sugar Creek is listed on the INAI list for freshwater mussels under Category VI for having 10 or more live species present, or being rated as “unique or highly valued” according to the Freshwater Mussel Community Index (IDNR 2013). Although no listed species have been previously recorded in Middle Fork Sugar Creek, shell records for Illinois threatened Monkeyface (*Theliderma metanevra*) are known from Sugar Creek in Logan County, approximately 20 miles downstream (southwest) of the current sampling location in Middle Fork Sugar Creek (IESPA 2020; INHS Mollusk Collections Data 2020). All other species collected from Middle Fork Sugar Creek are common inhabitants of central Illinois streams (Cummings and Mayer 1992; Cummings and Mayer 1997; Tiemann et al. 2007).

Monkeyface (*Theliderma metanevra*) are found in medium to large rivers in gravel or mixed sand and gravel (Cummings and Mayer 1992). They are increasingly isolated in Illinois, found primarily in a few larger rivers and in the Vermilion-Wabash drainage, and are at risk for further decline due to fragmentation (Douglass and Stodola 2014).

## METHODS

A relocation for freshwater mussels was conducted in Middle Fork Sugar Creek at the County Road 1000N (FAS 481) bridge on 6-7 August 2020 by INHS personnel A.P. Stodola, R.M. Vinsel, K.E. Conatser, and K.C.S. Cook.

Mussels were collected using a moving transect method to ensure that most animals are collected and relocated. Transects that were 3.28 feet (1 m) wide and ran perpendicular to stream flow were established within the area of direct impact that was provided by IDOT prior to relocation efforts. The area of direct impact consisted of a 120 ft (40 yards) long stream reach that was centered upon the midpoint of the bridge. During this relocation, 40 transects were established, and transects were sampled from downstream-most to upstream-most transect. Mussels were sampled within each transect using tactile search methods. Substrates were disturbed to a depth of approximately 1.5 inches (4 cm) to uncover buried mussels and transects were searched at a rate that did not exceed 1 min/10 ft<sup>2</sup> (1 min/m<sup>2</sup>). Each transect was resampled until the subsequent pass no longer yielded  $\geq 10\%$  of the total individuals collected in that transect. All mussels collected were processed separately for each pass within each transect and were identified to species and measured. Mussels were held in mesh bags in the stream except during processing. Any mussels collected that were on the Illinois

endangered species list (IESPA 2020) were affixed with a unique numbered tag and a passive integrated transponder (PIT) tag to facilitate detection during follow-up monitoring events. The remaining mussels collected during the relocation event were affixed with either a gold glitter tag or a passive integrated transponder (PIT) tag (**Appendix 2**). All live mussels collected from the project site at the County Highway 32/County Road 1000N (FAS 481) bridge were moved to a downstream recipient site (see paragraph below) after processing each day.

Due to the time-intensive sampling effort required to complete the moving transect method, this relocation occurred over a period of multiple days. An area to receive the relocated mussels (i.e., a recipient area) was selected on the first day of the relocation effort based on the presence of similar substrate, habitat, and native mussel community as that found in the relocation area at the County Highway 32/County Road 1000N (FAS 481) bridge. The recipient area was located approximately 100 yards downstream (southwest) of the relocation area. The recipient area was qualitatively surveyed for mussels for 0.5 person hours prior to moving mussels into the area, and mussels collected in the recipient area were identified, enumerated, affixed with a unique numbered tag and a PIT tag, and placed back in the recipient area for future monitoring (**Appendix 2**). Following the completion of 40 transects and survey within the recipient area, an additional 4 person-hour qualitative survey was completed adjacent to the relocation area within the environmental survey limits set forth in the tasking provided by IDOT to determine whether additional species were present at the site.

Nomenclature used for freshwater mussels discussed in this report follows Williams et al. (2017). Voucher material of mollusks collected were deposited in the Illinois Natural History Mollusk Collection and cataloged as INHS 91021 through 91027.

## **RESULTS AND DISCUSSION**

During the relocation on 6-7 August 2020, 331 live mussels representing nine live species were collected and relocated by INHS personnel from Middle Fork Sugar Creek in the relocation area at the County Highway 32/County Road 1000N (FAS 481) bridge (**Table 1; Figure 3; Appendix 2**). Two live Monkeyface, listed as threatened in Illinois, were among the species collected from the relocation area (IESPA 2020). One Monkeyface was collected in transect 1 (i.e., approximately 65 feet downstream [SW] from midpoint of bridge) and one was collected from transect 25 (i.e., directly under the north edge of the bridge) (**Appendix 2**).

During the four person-hour qualitative survey adjacent to the relocation area, 72 additional live mussels of six species were collected. During the 0.5-person hour survey of the recipient area, ten individuals that represented four species were collected alive. All species collected during the surveys in the additional qualitative survey and in the recipient area had been previously recorded during the transects in the relocation area. Other than state threatened Monkeyface, all mussel species collected on August 6-7 from Middle Fork Sugar Creek at the County Highway 32/County Road 1000N (FAS 481) survey are common inhabitants of central Illinois streams and not listed as endangered or threatened at the federal or state levels (Cummings and Mayer 1992; Cummings and Mayer 1997; Tiemann et al. 2007).

Forty transects (each 3.28 feet wide) were sampled, and widths ranged from 23.9 to 48.4 feet (**Appendix 3**). The total length of transects sampled was 1486.7 feet, which calculates to an area of 4876.2 ft<sup>2</sup>. Density of freshwater mussels was 0.07 mussels/ft<sup>2</sup>, or roughly 1 mussel for every 14 ft<sup>2</sup>.

## ACKNOWLEDGMENTS

INHS employees Rachel M. Vinsel, Kathryn E. Conatser, and Kathleen C.S. Cook assisted with field work. Janet L. Jarvis (INHS) prepared the map in **Figure 1** and the associated shape file referenced in **Appendix 1**, and Mark J. Wetzel edited early drafts of the report.

## LITERATURE CITED

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**Table 1.** Freshwater mussel collections from Middle Fork Sugar Creek in McLean County, Illinois. Mussels collected by INHS personnel on 6-7 August 2020 at the County Highway 32/County Road 1000N (FAS 481) bridge (IDOT Sequence No. 23338; Section 20-00057-12-BR; Structure No. 057-3010) project area are bounded by a black border. Data from the INHS Mollusk Collection Data (2020), accessed 9 September. Number = live individuals. **ST**=Illinois Threatened.

		6-7 August 2020			2003	2009
		Relocation area (40 transects)	Additional 4 ph survey	recipient area	County Road 150E	
<i>Alasmidonta marginata</i>	Elktoe					2
<i>Amblema plicata</i>	Threeridge	48	13	1	12	124
<i>Anodontoides ferussacianus</i>	Cylindrical Papershell	22	1			19
<i>Cyclonaias pustulosa</i>	Pimpleback				1	2
<i>Fusconaia flava</i>	Wabash Pigtoe	120	22	4	29	143
<i>Lampsilis cardium</i>	Plain Pocketbook	56	19	3	27	92
<i>Lampsilis siliquoidea</i>	Fatmucket	1	4		1	4
<i>Lampsilis teres</i>	Yellow Sandshell	2				2
<i>Pleurobema sintoxia</i>	Round Pigtoe	66	13	2	2	74
<i>Pyganodon grandis</i>	Giant Floater					dead
<i>Theliderma metanevra</i> <b>ST</b>	Monkeyface	2				
<i>Toxolasma parvum</i>	Lilliput	dead				
<i>Lasmigona complanata</i>	White Heelsplitter	relict			1	12
<i>Lasmigona compressa</i>	Creek Heelsplitter	relict				
<i>Strophitus undulatus</i>	Creeper	14			15	49
<b>Total Individuals</b>		<b>331</b>	<b>72</b>	<b>10</b>	<b>88</b>	<b>523</b>
<b>Total Live</b>		<b>9</b>	<b>6</b>	<b>4</b>	<b>8</b>	<b>11</b>
<b>Total Species</b>		<b>12</b>	<b>6</b>	<b>4</b>	<b>8</b>	<b>12</b>



Mussel survey location on Middle Fork Sugar Creek near County Road 1000 North (Sequence no. 23338) McLean County, Illinois.

▭ Project Boundary    
 ▭ Mussel Survey Area    
 ▭ Mussel Relocation Area    
 ▭ Mussel Recipient Area    
 — Stream

0    100    200 Feet  
 N  
 Jarvis, 10/30/2020

**Figure 1.** Middle Fork Sugar Creek project (IDOT Sequence No. 23338) at the County Highway 32/County Road 1000N (FAS 481) bridge (Section 20-00057-12-BR; Structure No. 057-3010) project site in McLean County, Illinois, where a freshwater mussel relocation was conducted by INHS personnel on 6-7 August 2020.



**Figure 2.** Middle Fork Sugar Creek from downstream of the County Highway 32/County Road 1000N (FAS 481) bridge, McLean County, Illinois, facing downstream (south) – demonstrating channelized nature of the stream – where a recipient area was established by INHS personnel on 6 August 2020. Photo by A.P. Stodola, INHS.



**Figure 3.** Representatives of species collected in Middle Fork Sugar Creek at the County Highway 32/County Road 1000N (FAS 481) bridge, McLean County, Illinois, by INHS personnel on 6-7 August 2020. From left to right, starting at top left: Cylindrical Papershell, Fatmucket, Monkeyface, Plain Pocketbook, Round Pigtoe, Threeridge, Wabash Pigtoe, Yellow Sandshell, and Creeper. Photos by R.M. Vinsel and A.P. Stodola, INHS.

## Appendix 1

**Appendix 1:** The appendix references an ArcGIS shapefile < 23338\_Mussel\_Survey\_GIS.zip > with sampling point information for the stream crossing of Middle Fork Sugar Creek at the County Highway 32/County Road 1000N (FAS 481)bridge (FAS 481; IDOT Sequence No. 23338; Bridge Section 20-00057-12-BR; Structure No. 057-3010), McLean County, Illinois (Latitude 40.42811°N, Longitude 89.19574°W), where a freshwater mussel relocation was conducted by INHS personnel on 6-7 August 2020.

The ArcGIS shapefile and this report were both submitted to IDOT via the IDOT Site Assessment Tracking System extranet website (Frostycap) on 4 November 2020.



## Appendix 2

**Appendix 2:** Raw mussel data associated with freshwater mussels collected in Middle Fork Sugar Creek at the County Highway 32/County Road 1000N (FAS 481) bridge, McLean County, Illinois by INHS personnel on 6-7 August 2020.

Data collected during transects, plus the mussels tagged in the relocation area: mm=total length in mm of mussel; GRC=external growth ring count; Sex=Sex of mussel (if determinable); Ltag=tag on left valve; Rtag= tag on right valve.

Transect	Pass	Species	MM	GRC	Sex	Ltag	Rtag
1	1	<i>Fusconaia flava</i>	48	6		3DD.003BFA0145	336
1	1	<i>Fusconaia flava</i>	52	6		3DD.003BFA013D	343
1	1	<i>Pleurobema sintoxia</i>	44	4		3DD.003BFA0268	342
1	1	<i>Theliderma metanevra</i>	29	4		3DD.003BFA0290	335
2	1	<i>Fusconaia flava</i>	45	6			
2	1	<i>Lampsilis cardium</i>	67	5	M		
2	1	<i>Strophitus undulatus</i>	65	8			
2	1	<i>Strophitus undulatus</i>	82	11			
3	1	<i>Fusconaia flava</i>	65	9		3DD.003BFA0256	340
3	1	<i>Fusconaia flava</i>	79	11		3DD.003BFA024E	341
3	1	<i>Lampsilis cardium</i>	62	5	M	3DD.003BFA026E	339
3	1	<i>Lampsilis cardium</i>	121	15	M	3DD.003BFA029E	344
4	1	<i>Amblema plicata</i>	79	7		3DD.003BFA028C	337
4	1	<i>Anodontoides ferussacianus</i>	65	9		3DD.003BFA0276	338
4	1	<i>Lampsilis cardium</i>	75	5	F		
4	1	<i>Lampsilis cardium</i>	105	11	F		
5	1	<i>Fusconaia flava</i>	71	6			
5	1	<i>Lampsilis cardium</i>	69	5	F		
5	2	<i>Strophitus undulatus</i>	75	7			
6	1	<i>Fusconaia flava</i>	51	6			
7	1	<i>Amblema plicata</i>	41	5			
7	1	<i>Amblema plicata</i>	96	12			
7	1	<i>Fusconaia flava</i>	52	6			
7	1	<i>Fusconaia flava</i>	52	9			
7	1	<i>Fusconaia flava</i>	56	9			
7	1	<i>Fusconaia flava</i>	58	10			
7	1	<i>Fusconaia flava</i>	72	11			
7	1	<i>Fusconaia flava</i>	91	18			
7	1	<i>Lampsilis cardium</i>	74	9	F		
7	1	<i>Lampsilis cardium</i>	78	7	F		
7	1	<i>Lampsilis cardium</i>	105	12	F		
7	1	<i>Pleurobema sintoxia</i>	36	4			
7	1	<i>Pleurobema sintoxia</i>	36	5			
7	1	<i>Pleurobema sintoxia</i>	41	4			
7	1	<i>Pleurobema sintoxia</i>	55	8			

7	1	<i>Pleurobema sintoxia</i>	59	6		
7	1	<i>Pleurobema sintoxia</i>	59	7		
7	1	<i>Pleurobema sintoxia</i>	60	7		
7	2	<i>Fusconaia flava</i>	66	10		
8	1	<i>Anodontooides ferussacianus</i>	46	6		
8	1	<i>Anodontooides ferussacianus</i>	65	7		
8	1	<i>Fusconaia flava</i>	60	6		
8	1	<i>Fusconaia flava</i>	68	7		
8	1	<i>Fusconaia flava</i>	79	12		
8	1	<i>Pleurobema sintoxia</i>	31	4		
8	1	<i>Pleurobema sintoxia</i>	33	3		
8	1	<i>Pleurobema sintoxia</i>	60	6		
8	1	<i>Pleurobema sintoxia</i>	61	7		
8	1	<i>Pleurobema sintoxia</i>	75	8		
9	1	<i>Amblyma plicata</i>	36	4		
9	1	<i>Amblyma plicata</i>	86	9		
9	1	<i>Fusconaia flava</i>	20	2		
9	1	<i>Fusconaia flava</i>	32	3		
9	1	<i>Fusconaia flava</i>	34	3		
9	1	<i>Fusconaia flava</i>	52	6		
9	1	<i>Fusconaia flava</i>	55	11		
9	1	<i>Fusconaia flava</i>	55	5		
9	1	<i>Fusconaia flava</i>	62	7		
9	1	<i>Fusconaia flava</i>	63	8		
9	1	<i>Fusconaia flava</i>	69	8		
9	1	<i>Pleurobema sintoxia</i>	32	4		
9	1	<i>Pleurobema sintoxia</i>	52	5		
9	1	<i>Pleurobema sintoxia</i>	63	5		
10	1	<i>Fusconaia flava</i>	38	4		
10	1	<i>Fusconaia flava</i>	58	8		
11	1	<i>Fusconaia flava</i>	54	8		
11	1	<i>Fusconaia flava</i>	60	9		
11	1	<i>Fusconaia flava</i>	60	8		
11	1	<i>Pleurobema sintoxia</i>	63	7		
12	1	<i>Lampsilis cardium</i>	92	11	F	
12	1	<i>Lampsilis cardium</i>	109	10	F	
12	1	<i>Lampsilis cardium</i>	122	15	M	
12	2	<i>Fusconaia flava</i>	52	7		
12	2	<i>Lampsilis cardium</i>	85	9	F	
12	2	<i>Pleurobema sintoxia</i>	42	5		
13	1	<i>Amblyma plicata</i>	88	9		
14	1	<i>Fusconaia flava</i>	41	5		
15	1	<i>no mussels</i>				
16	1	<i>Anodontooides ferussacianus</i>	56	5		
16	1	<i>Fusconaia flava</i>	59	7		
16	1	<i>Fusconaia flava</i>	68	9		
16	1	<i>Fusconaia flava</i>	69	9		

16	1	<i>Fusconaia flava</i>	72	13		
16	1	<i>Lampsilis cardium</i>	95	16		
16	1	<i>Pleurobema sintoxia</i>	47	5		
16	2	<i>Pleurobema sintoxia</i>	33	4		
16	2	<i>Pleurobema sintoxia</i>	78	4		
16	2	<i>Strophitus undulatus</i>	60	6		
17	1	<i>Amblema plicata</i>	39	4		
17	1	<i>Anodontoides ferussacianus</i>	54	5		
17	1	<i>Anodontoides ferussacianus</i>	61	6		
17	1	<i>Fusconaia flava</i>	49	5		
17	1	<i>Fusconaia flava</i>	54	6		
17	1	<i>Fusconaia flava</i>	54	6		
17	1	<i>Fusconaia flava</i>	58	7		
17	1	<i>Fusconaia flava</i>	59	7		
17	1	<i>Fusconaia flava</i>	59	6		
17	1	<i>Fusconaia flava</i>	60	6		
17	1	<i>Fusconaia flava</i>	61	5		
17	1	<i>Lampsilis cardium</i>	56	6	F	
17	1	<i>Lampsilis cardium</i>	99	10	F	
17	1	<i>Pleurobema sintoxia</i>	40	4		
17	1	<i>Pleurobema sintoxia</i>	56	5		
17	1	<i>Pleurobema sintoxia</i>	58	5		
17	1	<i>Pleurobema sintoxia</i>	60	6		
17	1	<i>Pleurobema sintoxia</i>	66	7		
17	1	<i>Strophitus undulatus</i>	66	6		
17	2	<i>Anodontoides ferussacianus</i>	60	7		
18	1	<i>Amblema plicata</i>	86	7		
18	1	<i>Anodontoides ferussacianus</i>	52	3		
18	1	<i>Fusconaia flava</i>	47	5		
18	1	<i>Fusconaia flava</i>	66	7		
18	1	<i>Fusconaia flava</i>	79	9		
18	1	<i>Lampsilis cardium</i>	65	4	F	
18	1	<i>Lampsilis cardium</i>	68	5	M	
18	1	<i>Pleurobema sintoxia</i>	32	4		
18	1	<i>Pleurobema sintoxia</i>	61	6		
18	1	<i>Pleurobema sintoxia</i>	66	6		
18	1	<i>Strophitus undulatus</i>	78	6		
18	2	<i>Pleurobema sintoxia</i>	58	5		
18	2	<i>Strophitus undulatus</i>	62	5		
19	1	<i>Amblema plicata</i>	37	5		
19	1	<i>Amblema plicata</i>	39	5		
19	1	<i>Amblema plicata</i>	95	9		
19	1	<i>Anodontoides ferussacianus</i>	52	5		
19	1	<i>Fusconaia flava</i>	34	5		
19	1	<i>Fusconaia flava</i>	34	3		
19	1	<i>Fusconaia flava</i>	49	5		
19	1	<i>Fusconaia flava</i>	58	6		

19	1	<i>Fusconaia flava</i>	59	6		
19	1	<i>Fusconaia flava</i>	68	11		
19	1	<i>Lampsilis cardium</i>	68	5	F	
19	1	<i>Lampsilis cardium</i>	73	5	M	
19	1	<i>Lampsilis cardium</i>	102	12	F	
19	1	<i>Pleurobema sintoxia</i>	85	10		
19	1	<i>Strophitus undulatus</i>	51	4		
19	1	<i>Strophitus undulatus</i>	65	5		
19	2	<i>Fusconaia flava</i>	51	6		
19	2	<i>Pleurobema sintoxia</i>	57	7		
20	1	<i>Amblema plicata</i>	68	8		
20	1	<i>Amblema plicata</i>	92	8		
20	1	<i>Fusconaia flava</i>	57	7		
20	1	<i>Fusconaia flava</i>	58	9		
20	1	<i>Fusconaia flava</i>	62	11		
20	1	<i>Lampsilis cardium</i>	108	7	M	
20	1	<i>Lampsilis siliquoidea</i>	48	4	M	
20	2	<i>Amblema plicata</i>	91	14		
21	1	<i>Anodontoides ferussacianus</i>	53	3		
21	1	<i>Anodontoides ferussacianus</i>	54	3		
21	1	<i>Fusconaia flava</i>	59	7		
21	1	<i>Fusconaia flava</i>	78	10		
21	1	<i>Lampsilis cardium</i>	66	4	M	
21	1	<i>Lampsilis cardium</i>	80	4	M	
21	1	<i>Pleurobema sintoxia</i>	56	5		
21	1	<i>Pleurobema sintoxia</i>	61	7		
21	1	<i>Pleurobema sintoxia</i>	73	8		
21	2	<i>Fusconaia flava</i>	47	5		
22	1	<i>Anodontoides ferussacianus</i>	50	4		
22	1	<i>Fusconaia flava</i>	52	6		
22	1	<i>Fusconaia flava</i>	69	6		
22	1	<i>Lampsilis cardium</i>	77	5	F	
22	1	<i>Pleurobema sintoxia</i>	60	5		
22	1	<i>Strophitus undulatus</i>	71	7		
23	1	<i>Amblema plicata</i>	106	12		
23	1	<i>Anodontoides ferussacianus</i>	53	6		
23	1	<i>Fusconaia flava</i>	40	4		
23	1	<i>Fusconaia flava</i>	57	8		
23	1	<i>Fusconaia flava</i>	61	7		
23	1	<i>Fusconaia flava</i>	62	7		
23	1	<i>Lampsilis cardium</i>	70	5	M	
23	1	<i>Lampsilis cardium</i>	85	6	F	
23	1	<i>Lampsilis cardium</i>	87	5	M	
23	1	<i>Lampsilis cardium</i>	88	5	M	
23	1	<i>Lampsilis cardium</i>	113	7	M	
23	1	<i>Lampsilis cardium</i>	118	7	F	
23	1	<i>Lampsilis cardium</i>	118	9	F	

23	1	<i>Pleurobema sintoxia</i>	55	6			
23	1	<i>Pleurobema sintoxia</i>	65	6			
23	2	<i>Pleurobema sintoxia</i>	62	7			
24	1	<i>Amblema plicata</i>	38	4			
24	1	<i>Amblema plicata</i>	62	7			
24	1	<i>Amblema plicata</i>	81	8			
24	1	<i>Anodontoides ferussacianus</i>	59	7			
24	1	<i>Anodontoides ferussacianus</i>	61	7			
24	1	<i>Fusconaia flava</i>	49	7			
24	1	<i>Fusconaia flava</i>	53	7			
24	1	<i>Fusconaia flava</i>	56	8			
24	1	<i>Pleurobema sintoxia</i>	51	7			
24	1	<i>Pleurobema sintoxia</i>	72	9			
24	1	<i>Strophitus undulatus</i>	67	5			
25	1	<i>Amblema plicata</i>	49	5			
25	1	<i>Amblema plicata</i>	70	7			
25	1	<i>Amblema plicata</i>	93	8			
25	1	<i>Anodontoides ferussacianus</i>	48	5			
25	1	<i>Anodontoides ferussacianus</i>	51	6			
25	1	<i>Anodontoides ferussacianus</i>	56	5			
25	1	<i>Anodontoides ferussacianus</i>	66	8			
25	1	<i>Fusconaia flava</i>	49	8			
25	1	<i>Fusconaia flava</i>	49	7			
25	1	<i>Fusconaia flava</i>	56	9			
25	1	<i>Fusconaia flava</i>	57	6			
25	1	<i>Fusconaia flava</i>	60	9			
25	1	<i>Fusconaia flava</i>	70	9			
25	1	<i>Lampsilis cardium</i>	49	3	M		
25	1	<i>Lampsilis cardium</i>	69	4	F		
25	1	<i>Lampsilis cardium</i>	70	4	M		
25	1	<i>Lampsilis cardium</i>	79	6	F		
25	1	<i>Lampsilis cardium</i>	82	6	F		
25	1	<i>Lampsilis cardium</i>	96	5	M		
25	1	<i>Lampsilis cardium</i>	98	12	F		
25	1	<i>Pleurobema sintoxia</i>	58	6			
25	1	<i>Pleurobema sintoxia</i>	61	6			
25	1	<i>Pleurobema sintoxia</i>	65	9			
25	1	<i>Theliderma metanevra</i>	27	4		3DD.003B9C50B3	324
25	2	<i>Anodontoides ferussacianus</i>	52	5			
26	1	<i>Fusconaia flava</i>	42	5			
26	1	<i>Fusconaia flava</i>	57	5			
26	1	<i>Lampsilis cardium</i>	65	4	M		
26	1	<i>Lampsilis cardium</i>	72	4	F		
26	1	<i>Lampsilis cardium</i>	75	5	F		
27	1	<i>Amblema plicata</i>	42	6			
27	1	<i>Pleurobema sintoxia</i>	61	6			
28	1	<i>Amblema plicata</i>	75	7			

28	1	<i>Amblema plicata</i>	78	8		
28	1	<i>Amblema plicata</i>	78	9		
28	1	<i>Amblema plicata</i>	87	11		
28	1	<i>Anodontoides ferussacianus</i>	62	6		
28	1	<i>Fusconaia flava</i>	68	9		
28	1	<i>Pleurobema sintoxia</i>	59	6		
29	1	<i>Pleurobema sintoxia</i>	29	4		
30	1	<i>Amblema plicata</i>	82	8		
30	1	<i>Amblema plicata</i>	103	9		
30	1	<i>Fusconaia flava</i>	27	5		
30	1	<i>Fusconaia flava</i>	77	7		
30	1	<i>Lampsilis cardium</i>	72	5	M	
30	1	<i>Lampsilis cardium</i>	79	5	F	
30	1	<i>Lampsilis cardium</i>	99	10	M	
30	1	<i>Lampsilis cardium</i>	107	15	F	
30	1	<i>Pleurobema sintoxia</i>	68	7		
30	2	<i>Pleurobema sintoxia</i>	42	4		
31	1	<i>Amblema plicata</i>	69	8		
31	1	<i>Amblema plicata</i>	78	6		
31	1	<i>Amblema plicata</i>	102	16		
31	1	<i>Fusconaia flava</i>	38	4		
31	1	<i>Fusconaia flava</i>	56	6		
31	1	<i>Fusconaia flava</i>	56	7		
31	1	<i>Fusconaia flava</i>	56	6		
31	1	<i>Fusconaia flava</i>	59	7		
31	1	<i>Lampsilis cardium</i>	66	4	F	
31	1	<i>Lampsilis cardium</i>	95	8	F	
31	1	<i>Lampsilis cardium</i>	115	8	M	
31	1	<i>Pleurobema sintoxia</i>	29	4		
31	1	<i>Pleurobema sintoxia</i>	54	6		
31	1	<i>Pleurobema sintoxia</i>	65	7		
31	1	<i>Pleurobema sintoxia</i>	65	7		
32	1	<i>Amblema plicata</i>	78	7		
32	1	<i>Amblema plicata</i>	82	7		
32	1	<i>Fusconaia flava</i>	37	5		
32	1	<i>Fusconaia flava</i>	53	7		
32	1	<i>Fusconaia flava</i>	56	8		
32	1	<i>Fusconaia flava</i>	63	10		
32	1	<i>Lampsilis cardium</i>	88	7	F	
32	1	<i>Lampsilis teres</i>	68	6		
32	1	<i>Pleurobema sintoxia</i>	58	7		
32	1	<i>Strophitus undulatus</i>	71	5		
34	1	<i>Amblema plicata</i>	82	7		
34	1	<i>Fusconaia flava</i>	52	7		
34	1	<i>Fusconaia flava</i>	55	8		
34	1	<i>Fusconaia flava</i>	57	9		
34	1	<i>Fusconaia flava</i>	68	11		

34	1	<i>Pleurobema sintoxia</i>	44	5		
34	1	<i>Pleurobema sintoxia</i>	60	7		
34	1	<i>Pleurobema sintoxia</i>	65	6		
34	1	<i>Pleurobema sintoxia</i>	70	8		
34	1	<i>Strophitus undulatus</i>	72	7		
35	1	<i>Amblema plicata</i>	27	3		
35	1	<i>Amblema plicata</i>	72	8		
35	1	<i>Amblema plicata</i>	76	6		
35	1	<i>Fusconaia flava</i>	86	7		
35	1	<i>Strophitus undulatus</i>	82	8		
36	1	<i>Amblema plicata</i>	91	10		
36	1	<i>Fusconaia flava</i>	60	8		
37	1	<i>Amblema plicata</i>	43	5		
37	1	<i>Amblema plicata</i>	72	8		
37	1	<i>Amblema plicata</i>	77	7		
37	1	<i>Amblema plicata</i>	79	7		
37	1	<i>Amblema plicata</i>	97	8		
37	1	<i>Fusconaia flava</i>	86	11		
37	1	<i>Lampsilis cardium</i>	51	4	M	
37	1	<i>Pleurobema sintoxia</i>	42	5		
38	1	<i>Amblema plicata</i>	68	6		
38	1	<i>Amblema plicata</i>	88	8		
38	1	<i>Fusconaia flava</i>	38	5		
38	1	<i>Fusconaia flava</i>	52	6		
38	1	<i>Fusconaia flava</i>	54	6		
38	1	<i>Fusconaia flava</i>	55	6		
38	1	<i>Fusconaia flava</i>	58	6		
38	1	<i>Fusconaia flava</i>	60	10		
38	1	<i>Fusconaia flava</i>	61	7		
38	1	<i>Fusconaia flava</i>	62	7		
38	1	<i>Fusconaia flava</i>	65	7		
38	1	<i>Fusconaia flava</i>	69	8		
38	1	<i>Fusconaia flava</i>	72	8		
38	1	<i>Fusconaia flava</i>	81	9		
38	1	<i>Lampsilis cardium</i>	55	3		
38	1	<i>Lampsilis cardium</i>	72	4		
38	1	<i>Lampsilis cardium</i>	80	6		
38	1	<i>Lampsilis teres</i>	70	5		
38	1	<i>Pleurobema sintoxia</i>	35	3		
38	1	<i>Pleurobema sintoxia</i>	51	7		
38	1	<i>Pleurobema sintoxia</i>	55	6		
38	1	<i>Pleurobema sintoxia</i>	55	8		
39	1	<i>Amblema plicata</i>	62	6		
39	1	<i>Amblema plicata</i>	73	7		
39	1	<i>Amblema plicata</i>	74	7		
39	1	<i>Anodontoides ferussacianus</i>	69	7		
39	1	<i>Fusconaia flava</i>	51	6		

39	1	<i>Fusconaia flava</i>	54	6			
39	1	<i>Fusconaia flava</i>	56	6			
39	1	<i>Fusconaia flava</i>	69	7			
39	1	<i>Fusconaia flava</i>	74	7			
39	1	<i>Fusconaia flava</i>	78	8			
39	1	<i>Fusconaia flava</i>	83	8			
39	1	<i>Fusconaia flava</i>	84	6			
39	1	<i>Lampsilis cardium</i>	72	5			
39	1	<i>Pleurobema sintoxia</i>	74	7			
39	1	<i>Pleurobema sintoxia</i>	88	8			
40	1	<i>Fusconaia flava</i>	45	6			
40	1	<i>Fusconaia flava</i>	62	8			
40	1	<i>Fusconaia flava</i>	69	8			
40	1	<i>Lampsilis cardium</i>	88	7			
40	1	<i>Pleurobema sintoxia</i>	76	9			
relocation area		<i>Fusconaia flava</i>	56	7		3DD.003B9C50A3	327
relocation area		<i>Fusconaia flava</i>	56	6		3DD.003B9C5068	325
relocation area		<i>Fusconaia flava</i>	51	6		3DD.003B9C5070	333
relocation area		<i>Fusconaia flava</i>	56	7		3DD.003B9C5074	332
relocation area		<i>Lampsilis cardium</i>	54	4	M	3DD.003BFA025F	326
relocation area		<i>Lampsilis cardium</i>	72	5	F	3DD.003BFA0171	334
relocation area		<i>Lampsilis cardium</i>	85	5	M	3DD.003BFA0258	329
relocation area		<i>Amblema plicata</i>	103	13		3DD.003BFA0291	331
relocation area		<i>Pleurobema sintoxia</i>	34	3		3DD.003B9C5077	330
relocation area		<i>Pleurobema sintoxia</i>	64	6		3DD.003B9C5089	328



### Appendix 3

**Appendix 3:** Raw habitat data associated with freshwater mussels collected in Middle Fork Sugar Creek at the County Highway 32/County Road 1000N (FAS 481) bridge, McLean County, Illinois by INHS personnel on 6-7 August 2020. Transects are ordered from downstream-most (1) to upstream-most (40).

Data collected during transects: substrate percentages (cobble, gravel, sand, silt, hardpan clay, woody debris), max depth (ft) and transect width (ft).

transect	width (ft)	max depth (ft)	cobble	gravel	sand	silt	hardpan clay	woody debris
1	28.2	1.5	0	30	60	5	5	0
2	29.2	1.5	0	30	60	5	5	0
3	33.8	1.5	0	5	85	5	5	0
4	36.1	1.5	0	20	70	5	5	0
5	38.0	1.5	0	60	20	20	0	0
6	39.0	1.5	30	20	20	20	10	0
7	40.5	1.5	0	40	50	0	10	0
8	41.7	1.5	0	50	40	5	5	0
9	42.0	2	0	60	35	5	0	0
10	42.6	1.5	0	45	50	5	0	0
11	44.3	1.5	5	40	50	5	0	0
12	46.2	1	5	40	50	5	0	0
13	47.4	0.74	5	60	30	5	0	0
14	48.2	0.75	0	60	30	10	0	0
15	47.9	0.5	0	40	60	0	0	0
16	48.4	0.5	0	35	50	10	5	0
17	46.9	0.5	0	40	60	0	0	0
18	41.7	0.5	0	40	40	20	0	0
19	46.2	0.5	0	20	60	20	0	0
20	46.9	0.5	0	40	40	20	0	0
21	45.9	0.5	0	50	30	20	0	0
22	44.9	0.5	20	30	25	25	0	0
23	44.0	0.5	30	30	40	0	0	0
24	43.0	0.5	20	30	40	10	0	0
25	44.3	1	0	20	55	20	0	5
26	27.2	1	0	40	50	10	0	0
27	27.9	1	0	40	50	10	0	0
28	28.4	1	0	25	60	10	5	0
29	28.5	1	0	20	75	5	0	0
30	29.5	1	0	20	70	5	5	0
31	30.7	1	0	50	40	5	5	0
32	32.6	1	10	20	50	10	10	0
33	34.3	1	20	10	60	10	0	0

34	32.6	2	0	35	45	15	5	0
35	30.5	2.25	0	40	50	10	0	0
36	27.2	2	0	40	50	5	5	0
37	26.4	2	0	40	50	5	5	0
38	24.9	2	0	40	50	10	0	0
39	24.6	2	0	40	45	15	0	0
40	23.9	2	20	20	30	30	0	0

# Exhibit C – Project Plans.

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
32	20-00057-12-BR	McLEAN	41	1
		ILLINOIS	CONTRACT NO.	

# McLEAN COUNTY HIGHWAY DEPARTMENT

# PROPOSED HIGHWAY PLANS

**LOCAL FUNDS  
ALLIN TOWNSHIP, McLEAN COUNTY  
ROUTE: C.H. 32 / F.A.S. 481 (1000N)  
SECTION 20-00057-12-BR  
BRAND II BRIDGE REPLACEMENT  
STRUCTURE NO: 057-3040**

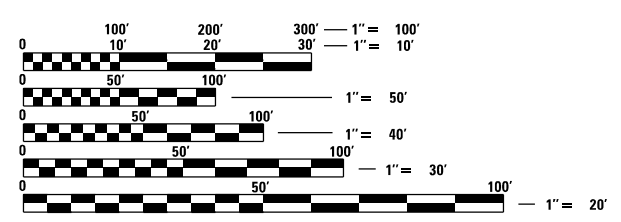
## INDEX OF SHEETS

- 1 COVER SHEET
- 2 GENERAL NOTES, COMMITMENTS, ALIGNMENT, TIES, AND BENCHMARKS
- 3-6 SUMMARY OF QUANTITIES
- 7 TYPICAL SECTIONS
- 8-9 SCHEDULE OF QUANTITIES
- 10-11 PLAN AND PROFILE
- 12-35 STRUCTURE PLANS S.N. 057-3040
- 36 MISCELLANEOUS DETAILS
- 37-41 CROSS SECTIONS

## HIGHWAY STANDARD DETAILS

- 000001-08 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 001001-02 AREAS OF REINFORCEMENT BARS
- 001006 DECIMAL OF AN INCH AND OF A FOOT
- 280001-07 TEMPORARY EROSION CONTROL SYSTEMS
- 420001-09 PAVEMENT JOINTS
- 420401-13 PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB
- 515001-04 NAME PLATE FOR BRIDGES
- 601101-02 CONCRETE HEADWALL FOR PIPE UNDERDRAIN
- 630001-12 STEEL PLATE BEAM GUARDRAIL
- 631032-09 TRAFFIC BARRIER TERMINAL, TYPE 6A
- 701901-08 TRAFFIC CONTROL DEVICES
- 725001-01 OBJECT AND TERMINAL MARKERS
- 782006-01 GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS
- B.L.R. 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
- B.L.R. 22-7 TYP. APPL. OF T.C.D FOR RURAL LOC. HWYS. (2-LANE 2 WAY RURAL TRAFF.) (RD. CLOSED TO THRU TRAFF.)
- B.L.R. 23-4 TRAFFIC BARRIER TERMINAL TYPE 1

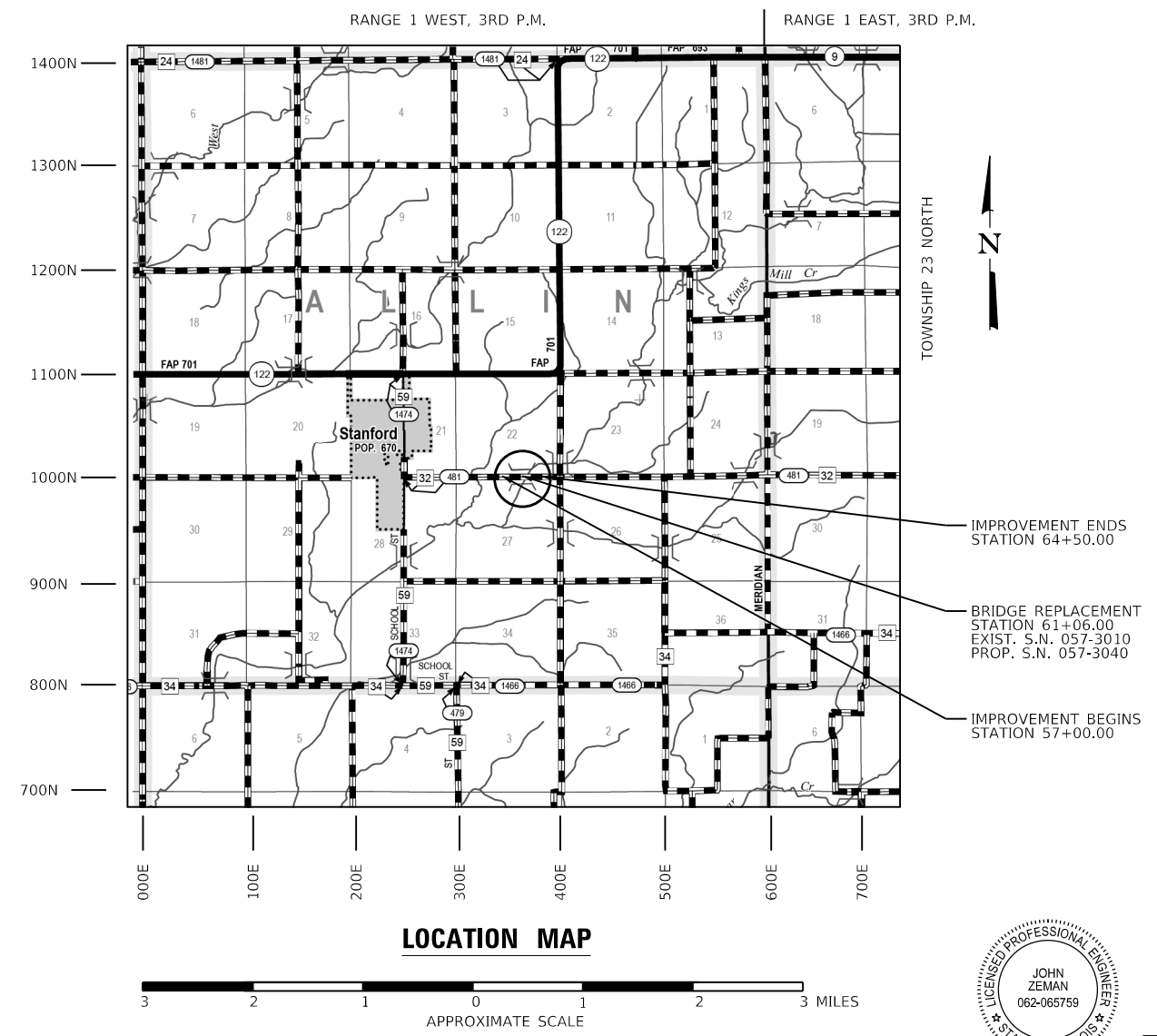
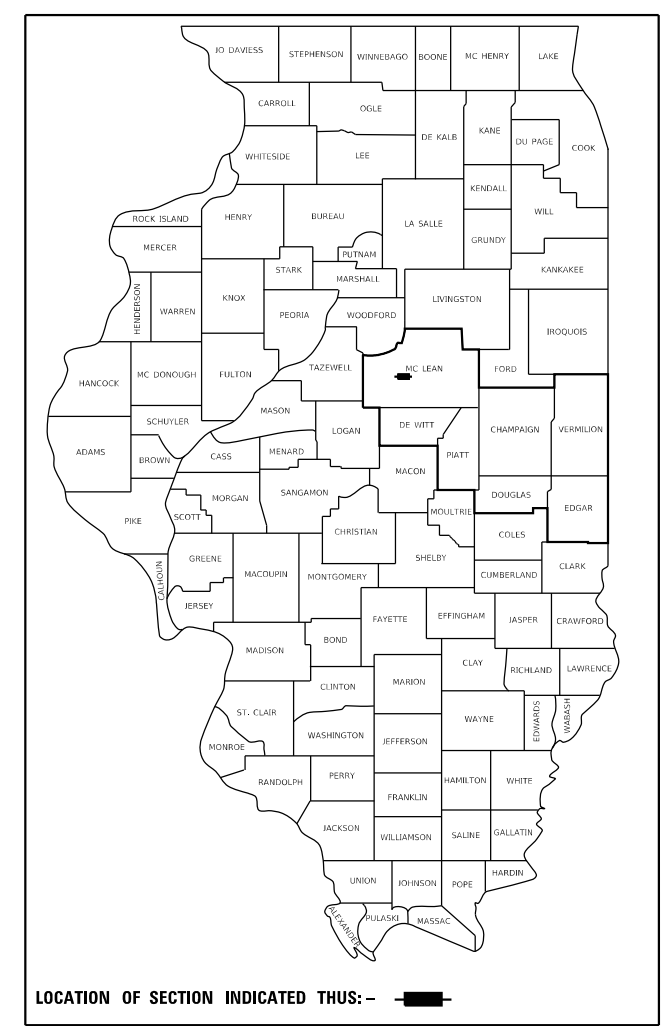
FUNCTIONAL CLASSIFICATION: MAJOR COLLECTOR  
DESIGN SPEED: 50 MPH  
DESIGN TRAFFIC: 2015 ADT = 900 / 2032 ADT = 1,117  
% TRUCKS: 3%  
% PASSENGER VEHICLES: 97%



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

**J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123  
OR 811**

**PROJECT ENGINEER: JOHN ZEMAN, PE, SE  
PROJECT MANAGER: JOSEPH LOWRANCE, SE**



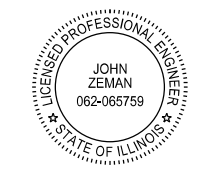
IMPROVEMENT ENDS  
STATION 64+50.00

BRIDGE REPLACEMENT  
STATION 61+06.00  
EXIST. S.N. 057-3010  
PROP. S.N. 057-3040

IMPROVEMENT BEGINS  
STATION 57+00.00

**LOCATION MAP**

GROSS LENGTH = 750 FT. = 0.14 MILE  
NET LENGTH = 750 FT. = 0.14 MILE



**McLEAN COUNTY  
HIGHWAY DEPARTMENT**

APPROVED \_\_\_\_\_ 20 \_\_\_\_\_  
COUNTY HIGHWAY ENGINEER

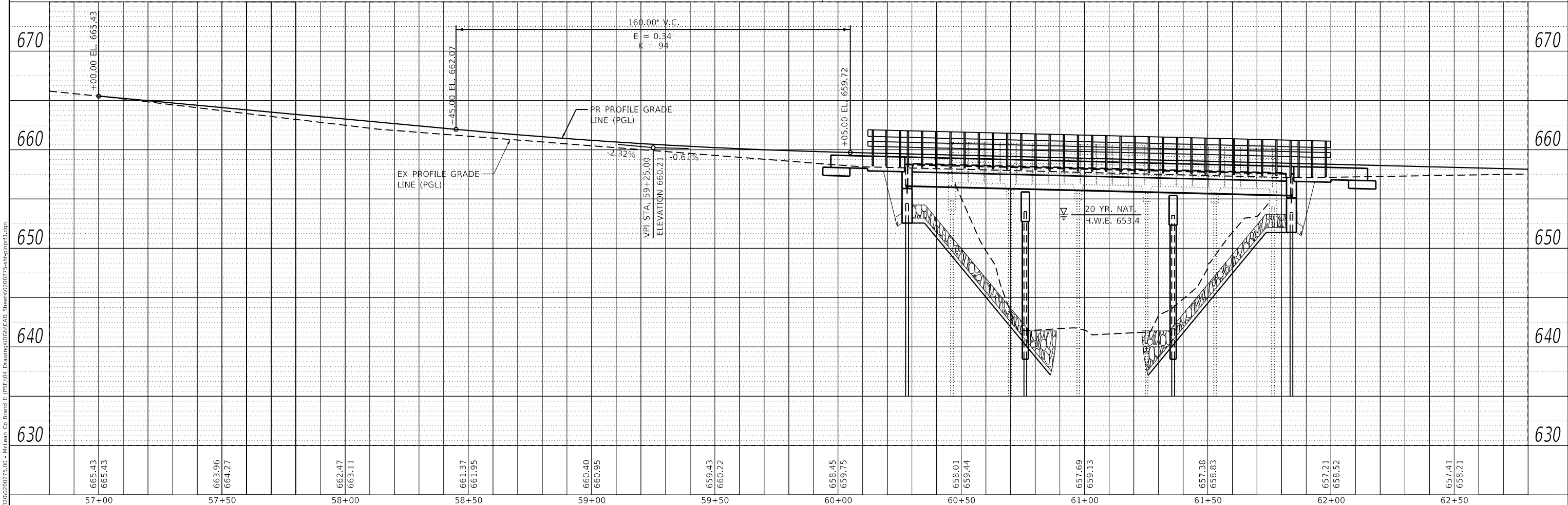
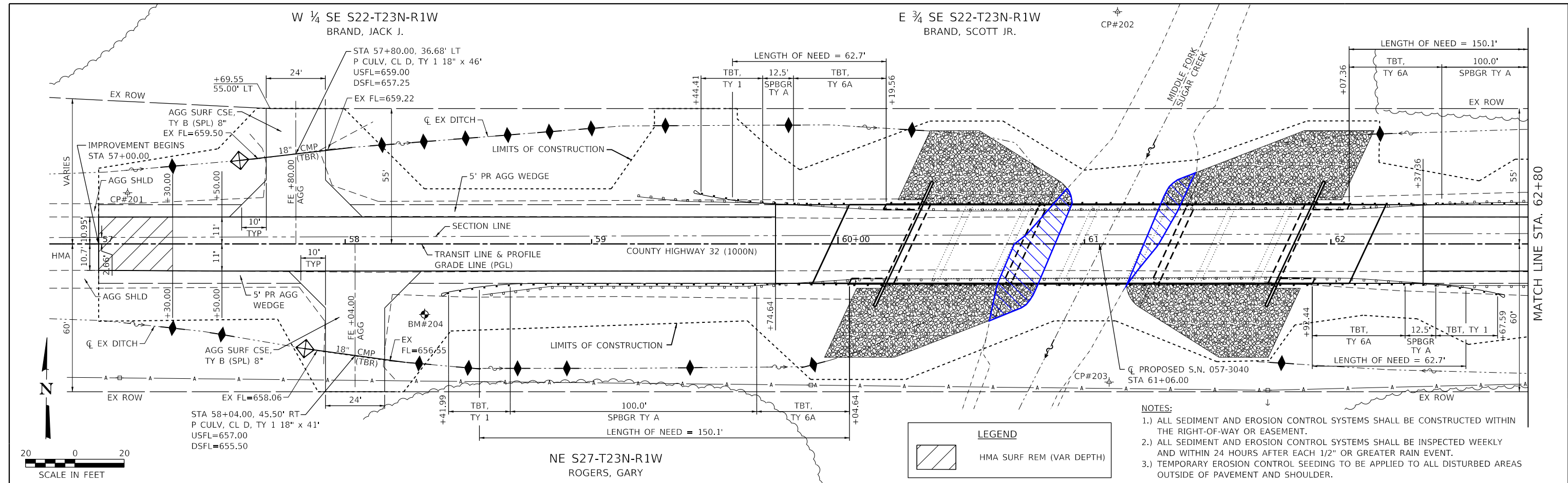
Date \_\_\_\_\_  
JOHN ZEMAN  
ILLINOIS PROFESSIONAL ENGINEER  
NO. 062-065759  
EXPIRATION 11/30/21



DATE: 11/04/2020

PLAN	SURVEYED	DATE
	PLOTTED	BY
	ALIGNED	CHECKED
	NOTE BOOK	NO.
	CADD FILE NAME	

PROFILE	SURVEYED	DATE
	PLOTTED	BY
	GRADES CHECKED	
	STRUCTURE NOTATIONS	
	NO.	



665.43	665.43	663.96	664.27	662.47	663.11	661.37	661.95	660.40	660.95	659.43	660.22	658.45	659.75	658.01	659.44	657.69	659.13	657.38	658.83	657.21	658.52	657.41	658.21
57+00		57+50		58+00		58+50		59+00		59+50		60+00		60+50		61+00		61+50		62+00		62+50	

**Farnsworth GROUP**  
 2709 McGRAW DRIVE  
 BLOOMINGTON, ILLINOIS 61704  
 (309) 863-8435 / info@f-w.com

USER NAME = jzeman	DESIGNED - PMG	REVISED -
PLOT SCALE = 40,0000 "/>		

DESIGNED - PMG	REVISED -
DRAWN - MRA	REVISED -
CHECKED - JCZ	REVISED -
DATE - 11/04/2020	REVISED -

**McLEAN COUNTY  
HIGHWAY DEPARTMENT**

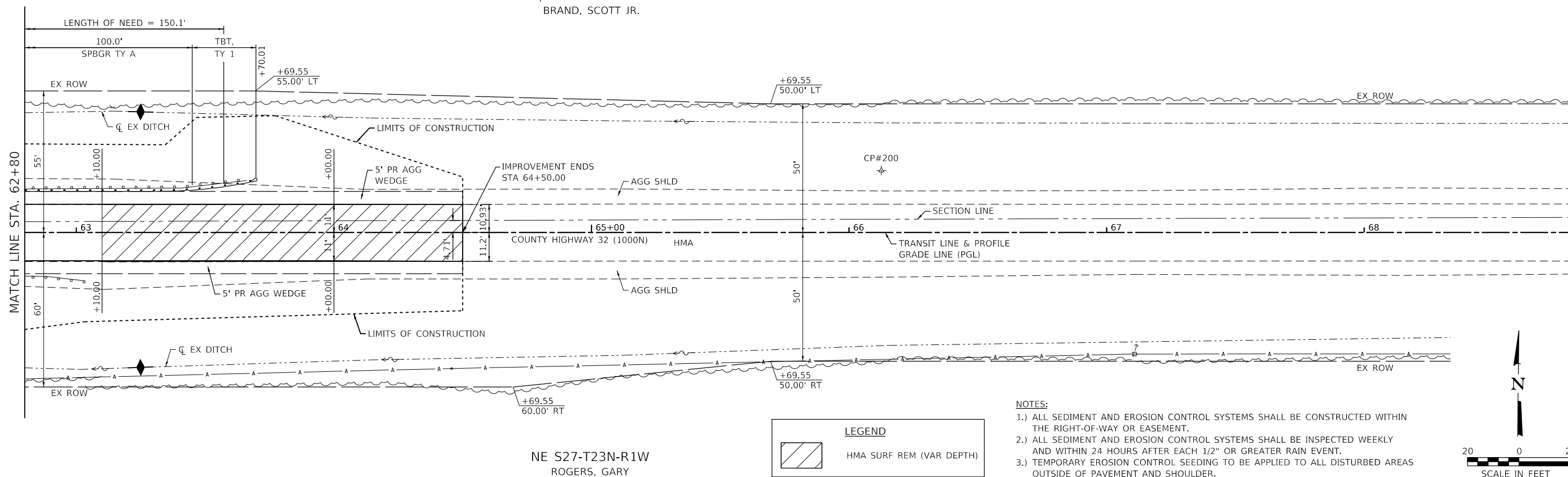
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-----------------	---------------------	--------------------------------

**PLAN AND PROFILE**

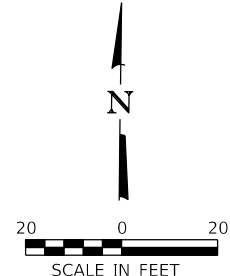
C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
32	20-00057-12-BR	McLEAN	41	10
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

MODEL: Default  
 FILE NAME: J:\2020\0075-00 - McLean Co Brand II (PST)\04\_Drawing\32-00057-12-BR.dwg

E ¼ SE S22-T23N-R1W  
BRAND, SCOTT JR.



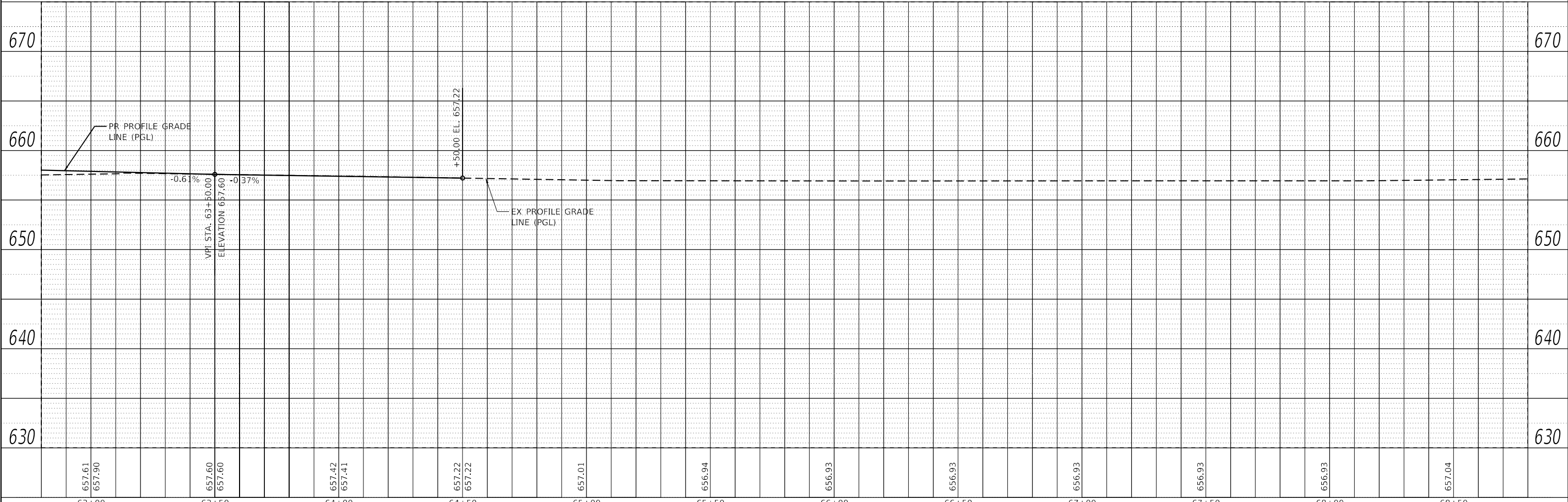
- NOTES:**
- 1.) ALL SEDIMENT AND EROSION CONTROL SYSTEMS SHALL BE CONSTRUCTED WITHIN THE RIGHT-OF-WAY OR EASEMENT.
  - 2.) ALL SEDIMENT AND EROSION CONTROL SYSTEMS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EACH 1/2" OR GREATER RAIN EVENT.
  - 3.) TEMPORARY EROSION CONTROL SEEDING TO BE APPLIED TO ALL DISTURBED AREAS OUTSIDE OF PAVEMENT AND SHOULDER.



NE S27-T23N-R1W  
ROGERS, GARY

**LEGEND**

HMA SURF REM (VAR DEPTH)



**PLAN**

DATE	
BY	
REVISIONS	
NO.	
NO.	

**PROFILE**

DATE	
BY	
REVISIONS	
NO.	
NO.	

**Farnsworth GROUP**  
2709 McGRAW DRIVE  
BLOOMINGTON, ILLINOIS 61704  
(309) 663-8435 / info@f-w.com

USER NAME = jzeman	DESIGNED - PMG	REVISED -
PLOT SCALE = 40.0000' / in.	DRAWN - MRA	REVISED -
PLOT DATE = 11/5/2020	CHECKED - JCZ	REVISED -
	DATE - 11/04/2020	REVISED -

**McLEAN COUNTY  
HIGHWAY DEPARTMENT**

**PLAN AND PROFILE**

SCALE: 1" = 20'    SHEET 2 OF 2 SHEETS    STA. 62+80.00 TO STA. 68+80.00

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
32	20-00057-12-BR	McLEAN	41	11
CONTRACT NO.				

ILLINOIS FED. AID PROJECT

Benchmarks: #204, T-Post on South side of C.H. 32, Elevation = 660.10, Sta. 58+32.27, 28.59' RT.

Existing Structure: Structure No. 057-3010 was constructed in 1963 by McLean County as Section 57B. The superstructure consists of a five-span continuous concrete slab bridge. The substructure consists of spill-thru abutments and pile bent piers supported by precast concrete piles. The back-to-back of abutments length is 133'-0" and the out-to-out of deck width is 32'-0". The span lengths are 23'-6", 27'-9", 27'-9", 27'-9", and 23'-6". The structure is on a 25-degree left-forward skew. The structure is to be replaced during road closure.

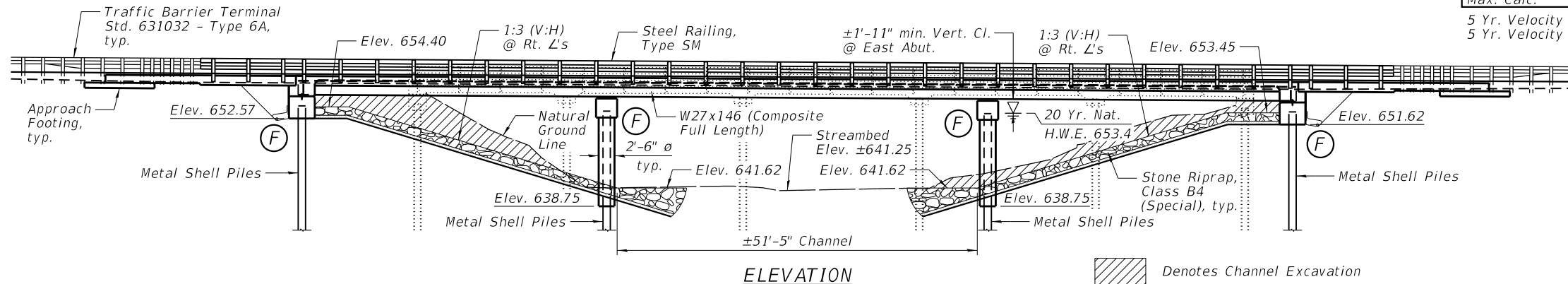
**DESIGN SCOUR ELEVATION TABLE**

Event/Limit State	Design Scour Elevations (ft.)				Item 113
	W. Abut.	Pier No. 1	Pier No. 2	E. Abut.	
Q100	652.6	635.4	635.4	651.6	5
Q200	652.6	635.2	635.2	651.6	
Design	652.6	638.8	638.8	651.6	
Check	652.6	638.8	638.8	651.6	

**WATERWAY INFORMATION**

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Drainage Area = 39.7 Sq. Mi.			Existing Overtopping Elev. 656.9 @ Sta. 65+60						
			Proposed Overtopping Elev. 656.9 @ Sta. 65+60						
Five-Year	5	2,530	807	855	652.5	0.5	0.4	653.0	652.9
Design	20	4,321	894	955	653.4	1.1	0.9	654.5	654.3
Base	100	6,380	1,018	1,103	654.6	1.5	1.3	656.1	655.9
Scour Check	200	7,325	1,046	1,142	654.9	1.8	1.6	656.7	656.5
Overtop Existing	231	7,511	1,035		654.8	2.0		656.8	
Max. Calc.	500	8,620	1,098	1,207	655.4	2.1	1.9	657.5	657.3

5 Yr. Velocity = 4.5 ft./sec. (Proposed)  
5 Yr. Velocity = 4.5 ft./sec. (Existing)



**INDEX OF SHEETS**

See Sheet 2 of 24 for "Index of Sheets".

**DESIGN SPECIFICATIONS**

2017 AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 8th Edition

**DESIGN STRESSES**

FIELD UNITS:

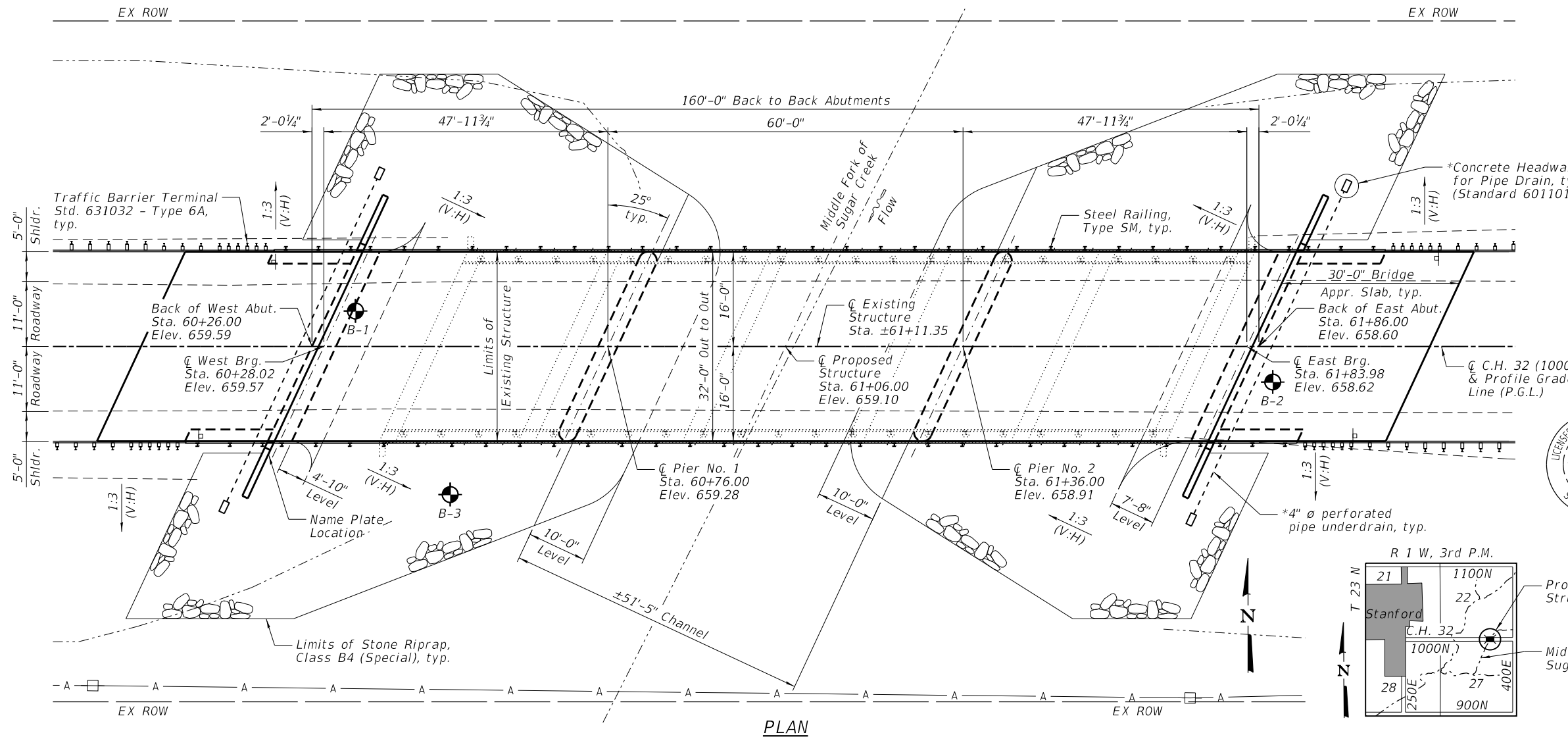
f'c = 3,500 psi  
f'c = 5,000 psi (Superstructure Concrete)  
fy = 60,000 psi (Reinforcement)  
fy = 50,000 psi (AASHTO M270 Grade 50W)

**HIGHWAY LOADING HL-93**

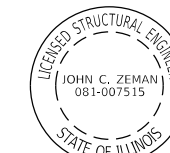
Allow 50#/sq. ft. for future wearing surface.

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.125  
Design Spectral Acceleration at 0.2 sec. (SDs) = 0.208  
Soil Site Class = D (Assumed)



I certify that to the best of my knowledge, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO LRFD Bridge Design Specifications".

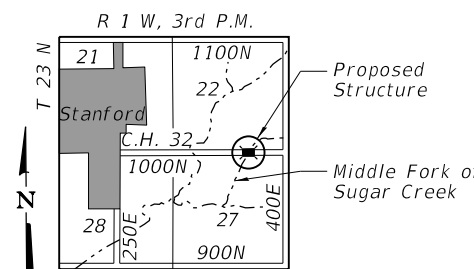


Date

JOHN C. ZEMAN  
ILLINOIS STRUCTURAL ENGINEER  
NO. 081-007515  
Exp. Date 11/30/22

**C.H. 32 (1000 ROAD) OVER MIDDLE FORK OF SUGAR CREEK**

F.A.S. 481  
SECTION 20-00057-12-BR  
MCLEAN COUNTY  
STATION 61+06.00  
STRUCTURE NO. 057-3040



DESIGNED - AID	REVISOR
CHECKED - JCZ	REVISOR
DRAWN - DJM	REVISOR
CHECKED - JML	REVISOR

McLEAN COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN AND ELEVATION STRUCTURE NO. 057-3040

SHEET NO. 1 OF 24 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
32	20-00057-12-BR	MCLEAN	41	12

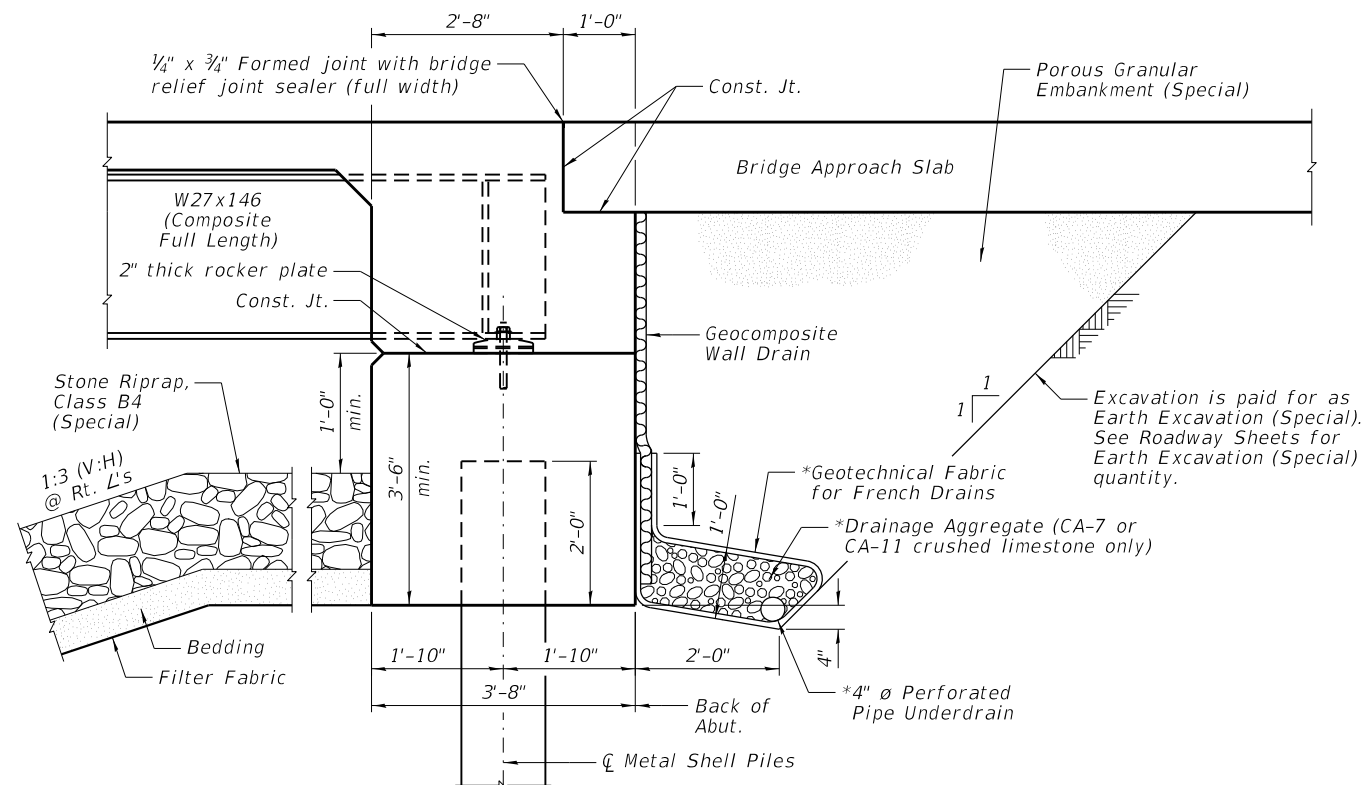
CONTRACT NO. ILLINOIS

**INDEX OF SHEETS**

SHEET NO.	TITLE
1	GENERAL PLAN AND ELEVATION
2-3	GENERAL DATA
4	TOP OF DECK ELEVATION LOCATIONS
5-6	TOP OF DECK ELEVATIONS
7	TOP OF APPROACH SLAB ELEVATIONS
8	SUPERSTRUCTURE
9	SUPERSTRUCTURE DETAILS
10	DIAPHRAGM DETAILS
11-12	BRIDGE APPROACH SLAB DETAILS
13	STEEL RAILING, TYPE SM
14-16	STRUCTURAL STEEL
17	FIXED BEARING DETAILS
18	WEST ABUTMENT
19	EAST ABUTMENT
20	ABUTMENT DETAILS
21	PIER NO. 1
22	PIER NO. 2
23	METAL SHELL PILE DETAILS
24	SOIL BORING LOGS

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Removal of Existing Structures	Each	1
Concrete Structures	Cu. Yd.	89.6
Concrete Superstructure	Cu. Yd.	163.9
Concrete Encasement	Cu. Yd.	35.0
Protective Coat	Sq. Yd.	806
Concrete Superstructure (Approach Slab)	Cu. Yd.	90.0
Furnishing and Erecting Structural Steel	L Sum	1
Stud Shear Connectors	Each	4,420
Reinforcement Bars, Epoxy Coated	Pound	85,340
Steel Railing, Type SM	Foot	376
Furnishing Metal Shell Piles 14" X 0.312"	Foot	1,322
Driving Piles	Foot	1,322
Test Pile Metal Shells	Each	2
Name Plates	Each	1
Anchor Bolts, 1"	Each	40
Geocomposite Wall Drain	Sq. Yd.	64
Porous Granular Embankment, Special	Ton	202
Stone Riprap, Class B4 (Special)	Ton	1,176
Asbestos Bearing Pad Removal	Each	10
Pipe Underdrains for Structures 4"	Foot	162



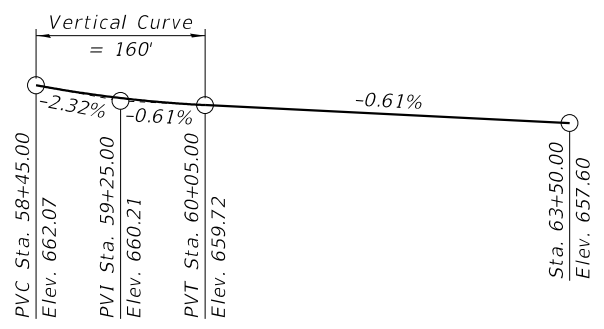
**SECTION THRU ABUTMENT**

**GENERAL NOTES:**

- Fasteners shall be ASTM F3125 Grade A325 Type 1, mechanically galvanized bolts in painted or metalized areas and ASTM F3125 Grade A325 Type 3 weathering steel bolts in unpainted areas. Bolts 7/8 in. ø, holes 15/16 in. ø, unless otherwise noted.
- Calculated weight of Structural Steel = 135,450 lbs.
- All structural steel shall be AASHTO M 270 Grade 50W except bearings, which shall be AASHTO M270 Grade 50.
- No field welding is permitted except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 in. (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
- Structural steel shall be painted for a distance equal to the depth of embedment into the concrete diaphragm plus 18 inches. Painted areas shall be primed in the shop with a Department-approved zinc rich primer. Field painting will not be required.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- Protective Coat shall be applied to the surfaces identified in Article 503.19 of the Standard Specifications as well as the sides of the deck and approach slabs and the exposed surfaces of the wingwalls.
- Excavation required for construction of Stone Riprap, Class B4 (Special) will be paid for as "Channel Excavation". See Roadway Sheets for Channel Excavation quantity.
- Graphited asbestos bearing pads are present at the existing abutments. Removal and disposal shall be according to the Recurring Special Provision for "Asbestos Bearing Pad Removal".

**NOTES:**

- Horizontal dimensions @ Rt. L's to Abutment.
- \*Included in the cost of Pipe Underdrains for Structures (see Special Provisions).
- All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).
- Porous Granular Embankment (Special) shall be compacted according to Article 207.03 of the Standard Specifications.

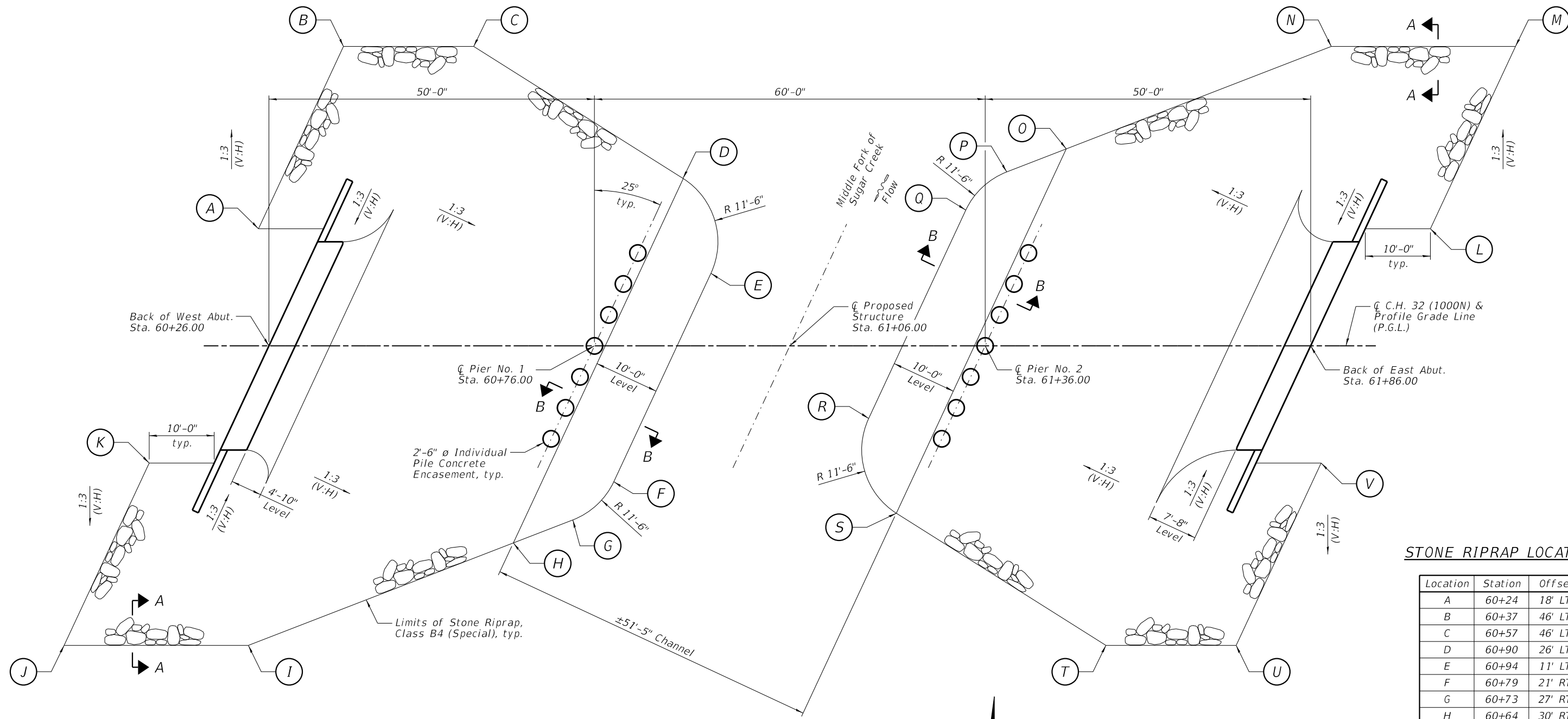


**PROFILE GRADE**  
(Along ⊘ Roadway)

MIDDLE FORK OF SUGAR CREEK  
 BUILT 20\_\_ BY  
 McLEAN COUNTY  
 SECTION 20-00057-12-BR  
 STATION 61+06.00  
 STR. NO. 057-3040 LOADING HL-93

**NAME PLATE**  
See Standard 515001



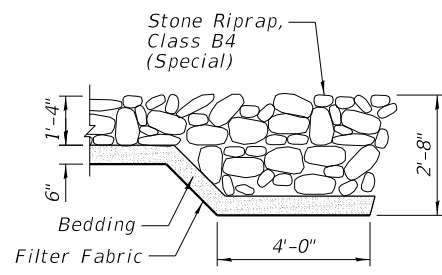


STONE RIPRAP LAYOUT PLAN

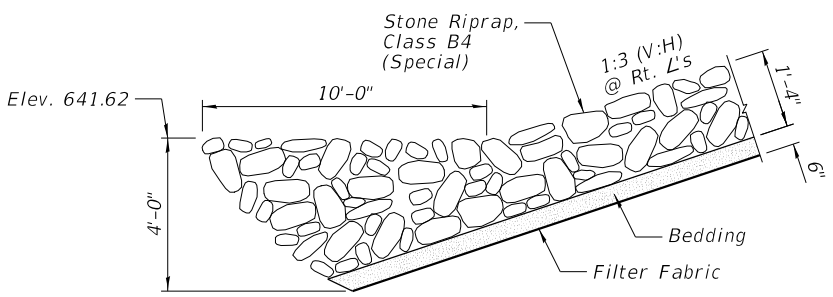
STONE RIPRAP LOCATION

Location	Station	Offset
A	60+24	18' LT.
B	60+37	46' LT.
C	60+57	46' LT.
D	60+90	26' LT.
E	60+94	11' LT.
F	60+79	21' RT.
G	60+73	27' RT.
H	60+64	30' RT.
I	60+23	46' RT.
J	59+95	46' RT.
K	60+08	18' RT.
L	62+04	18' LT.
M	62+17	46' LT.
N	61+89	46' LT.
O	61+48	30' LT.
P	61+39	27' LT.
Q	61+33	21' LT.
R	61+18	11' RT.
S	61+22	26' RT.
T	61+55	46' RT.
U	61+75	46' RT.
V	61+88	18' RT.

Note: Stationing and offsets for the Stone Riprap, Class B4 (Special) are from the Roadway C.



SECTION A-A



SECTION B-B



DESIGNED - AID	REVISED
CHECKED - JCZ	REVISED
DRAWN - DJM	REVISED
CHECKED - JML	REVISED
DATE - 11/04/2020	

McLEAN COUNTY HIGHWAY DEPARTMENT

GENERAL DATA  
STRUCTURE NO. 057-3040

SHEET NO. 3 OF 24 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
32	20-00057-12-BR	McLEAN	41	14
CONTRACT NO.				

ILLINOIS

# Exhibit D – Photos.



Photo 1. Middle Fork Sugar Creek facing downstream (south) taken from the County Highway 32/County Road 1000N (FAS 481) bridge, McLean County, Illinois.



Photo 2. Middle Fork Sugar Creek facing upstream (north) taken from the County Highway 32/County Road 1000N (FAS 481) bridge, McLean County, Illinois.



Photo 3. County Hwy 32/County Road 1000N (FAS 481) bridge, McLean County, Illinois, crossing Middle Fork Sugar Creek. Facing downstream at the north side of the bridge.



Photo 4. County Highway 32/County Road 1000N (FAS 481) bridge, McLean County, Illinois, crossing Middle Fork Sugar Creek. Facing upstream from south side of bridge.



Photo 5. County Highway 32/County Road 1000N (FAS 481) bridge, McLean County, Illinois, crossing Middle Fork Sugar Creek. Facing upstream from south side of bridge.