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

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

PROJECT APPLICANT: **Antioch Township Highway Department**

PROJECT NAME: **W. Edwards Road Culvert Replacement**

COUNTY: **Lake**

AREA OF IMPACT (acreage): **0.071 Acres**

The incidental taking of endangered and threatened species shall be authorized by the Illinois Department of Natural Resources (IDNR) only if an applicant submits a Conservation Plan to the IDNR Incidental Take Coordinator that meets the following criteria:

1. A description of the impact likely to result from the proposed taking of the species that would be covered by the authorization, including but not limited to -

A) Identification of the area to be affected by the proposed action, include a legal description and a detailed description including street address, map(s), and GIS shapefile. Include an indication of ownership or control of affected property. Attach photos of the project area.

The affected area is located at W. Edwards Road in Antioch Township, Unincorporated Lake County, Illinois. Geographically, the project area is in Section 12 Township, 46 North, Range 10 East of the Third Principal Meridian. The project area is centered at approximately Latitude 42.480665, Longitude -88.012031 (WGS84 Datum). Please refer to Exhibit 1: Location Map and Exhibit 2: 2017 Aerial Imagery, located in Tab 1 of the Appendix.

The project area consists of W. Edwards Road and the public right-of-way (ROW), including two side by side 11-foot corrugated metal pipes (CMPs). The proposed action is the removal of the existing twin CMP culvert pipes which have failed, and replacement with triple box culverts and a headwall. All proposed work will take place within the public ROW. Impact to Iowa darter habitat is restricted to the culvert footprint (0.036 acres) and the area where rip rap will be placed in the stream bed (0.035 acres), for a total impact of 0.071 acres. In-stream construction activity will be limited to the width of the channel and the north and south ROW of W. Edwards Road.

The existing structure number for Edwards Road is 049-9004, and the proposed assigned structure number is 049-9005. The proposed action is detailed in the engineering plan set, titled "W Edwards Road Culvert Replacement", and included in Tab 2 of the Appendix.

W. Edwards Road is owned and maintained by the Antioch Township Highway Department. The Dutch Gap Canal flows north to south through the culvert, which is a Waters of the U.S. (WOUS) and has a direct connection to Mill Creek. The Dutch Gap Canal is a rural, low velocity stream in

this area, bounded by wooded Forest Preserve property to the north and agricultural land to the south. The substrate is primarily muddy, rocky soils consisting of a layer of silt with clay underneath.

The Illinois Department of Natural Resources has recommended that the Antioch Township Highway Department submit a conservation plan for the Iowa Darter species due to the likelihood of the species being located in the project area and adversely impacted by the project.

B) Biological data on the affected species including life history needs and habitat characteristics. Attach all biological survey reports.

Iowa darter (Etheostoma exile) is listed as a State Threatened Species by the Illinois Department of Natural Resources (IDNR) on the current (2016) Endangered and Threatened Species List. The most recent survey data provided by the Illinois Natural Heritage Database reports the fish present within Lake County as of August 30, 2016 (Illinois Natural Heritage Database, 2016). The Illinois Natural Heritage Database contains 88 records in the last 25 years for the Iowa Darter within the state of Illinois, many of which occur in Lake County and those counties which border it. These records occur throughout the county, indicating the presence of multiple populations.

The fish typically inhabits vegetated lakes, pools of headwaters, creeks, and small rivers (Page and Burr, 1991). Rook reports that the fish′s habitat consists of clear, sluggishly vegetated streams and weedy portions of glacial lakes, marshes, and ponds (Rook, 2002). Fredrick Copes reports that the fish prefers a mud bottom (Copes, 1986) while Beckman reports that the fish preferred colder streams and lakes with sandy bottoms (Beckman, 1952). This species typically has a northern range and prefers colder water (Beckman, 1952).

The range of the Iowa darter occurs between Saskatchewan to Quebec and southward to Colorado, Iowa, Illinois and Ohio (Eddy and Surber, 1947). Fishbase.org further clarifies it as occurring in St. Lawrence-Great Lakes, Hudson Bay and Mississippi basins from southern Quebec to northern Alberta in Canada and south to Ohio, Illinois, and Colorado in the U.S. (FishBase, 2017).

Iowa darters feed on drift organisms and invertebrates that are associated with aquatic vegetation, including midge larvae, mayfly larvae, and amphipods (Rook, 2002). The young Iowa darter eats plankton, while the adult feeds on immature insects and small crustaceans (IDNR, 2017).

Per the IDNR, the Iowa darter spawns in April in shallow water over roots, vegetation or debris (IDNR, 2017). Other sources have noted spawning times ranging from April 1st through June 30th, and Fredrick Copes reports that spawning can be extended to July 25th (Copes, 1986).

Populations of the Iowa darter in the United States are in jeopardy due to agricultural development and urbanization. Fishbase.org suggests that the species has declined because of habitat reduction due to forest clearing and drainage practices, which have reduced habitat and warmed the remaining waters. The IDNR states that this species is primarily threatened due to habitat degradation, including pollution, drainage of wetlands, and introduction of non-native species (Nyboer, R.W., et al; 2006). Fishbase.org reports that the Iowa darter is now only abundant in non-agricultural areas. The IDNR states that this species is presently known in only a

few locations and continued urbanization will pressure existing populations (Nyboer, R.W., et al; 2006).

C) Description of project activities that will result in taking of an endangered or threatened species, including practices to be used, a timeline of proposed activities, and any permitting reviews, such as a USFWS biological opinion or USACE wetland review. Please consider all potential impacts such as noise, vibration, light, predator/prey alterations, habitat alterations, increased traffic, etc.

The potential for take would come from in-stream activities associated with the construction of the new culvert pipes being constructed in the Dutch Gap Canal. These activities consist of the removal of the existing corrugated metal pipes, and replacement with concrete box culverts. Take may also be evident during dewatering activities.

A detailed description of all construction activities, including the dimensions and installation of the cofferdam, is provided in Section 2A.

The project has been approved for an Army Corps permit and all conditions of the permit will be followed. The permit approval letter from the Army Corps is included in the Appendix in Tab 3.

A timeline of proposed activities is listed below:

1) Installation of a non-erodible cofferdam to divert flow

2) Removal and construction of one culvert side at a time, while maintaining flow through the remaining open culvert

3) Headwall construction while a non-erodible cofferdam is constructed at both ends of the culvert. Flow will bypass the work area through temporary pipes installed through the new culverts, with pumping being used on an as-needed basis.

D) Explanation of the anticipated adverse effects on listed species; how will the applicant's proposed actions impact each of the species' life cycle stages.

The anticipated adverse effects include:

1) Short term erosion and sedimentation during construction may impact water quality, which could impact Iowa Darter feeding or spawning activities. However, the construction will be performed outside of the normal spawning season.

2) There is a potential for the Iowa darter to be crushed during the necessary construction phasing operations, including the insertion of pipes into the culvert to maintain the flow of water, and the installation of the upstream and downstream cofferdams.

3) Short term disturbances due to increased noise and activities during construction would occur.

2) Measures the applicant will take to minimize and mitigate that impact and the funding that will be available to undertake those measures, including, but not limited to -

A) Plans to minimize the area affected by the proposed action, the estimated number of individuals of each endangered or threatened species that will be taken, and the amount of habitat affected (please provide an estimate of area by habitat type for each species).

Minimization of impacts to the Iowa darter will occur through the timing of the construction. The project is scheduled to begin July 1, 2019. The in-stream work for the culvert removal and replacement is a short-term operation and will be completed within four weeks. The instream work will not occur during the Iowa darter spawning season (April 1 – June 30). All measures necessary will be taken to sustain aquatic life.

The proposed limits of construction represent the minimum area necessary in which to work and construct the new culvert crossing. The measures discussed above will reduce the amount of habitat that is affected to a minimal amount. Impact to Iowa darter habitat is restricted to the culvert footprint and the area where rip rap will be placed in the stream bed (0.071 acres). In-stream construction activity will be limited to the width of the channel and the north and south ROW of W. Edwards Road.

We estimate a take of between 5 to 10 fish throughout the course of the construction activities. The construction will be phased to ensure that the flow of the creek is not completely blocked for the four week in-stream construction duration. A permitted biologist/environmentalist will be present on site during dewatering activities to remove any fish remaining in the dewatered work area. We have applied for the permits necessary to clear the dewatered area of any fish.

During Stage 1, flow to the west CMP culvert pipe will be blocked with upstream and downstream cofferdams, the work area will be dewatered, and the west culvert will be removed and replaced with a box culvert. Aquatic species will be relocated once dewatering occurs, and prior to any work taking place. During Stage 2, the cofferdam process will be repeated for the east culvert pipe, while flow is restored to the west culvert pipe. During Stage 3, the culverts will be blocked with upstream and downstream cofferdams, and the water will be bypassed through temporary pipes placed in the newly installed triple 9’ by 9’ reinforced concrete box culverts.

It is recommended that to pass the 2-year storm event, there should be two temporary bypass pipes with a minimum 48” diameter each. The work area will be dewatered, and the headwalls will be poured. Water from the work area will be filtered through an approved sediment containment bag, which will be placed on a stabilized surface. This dewatering bag will remain on site in case of rain or seeping from groundwater into the work area. This process will minimize any sedimentation that enters the water, thereby reducing water quality impacts and potential impacts to the Iowa darter.

Water quality impacts will be further minimized through the installation of perimeter silt fence along the right-of-way in areas proposed to be graded. This will prevent runoff from adjacent disturbed areas from entering the waterway. Erosion and sediment control inspections will be performed weekly by a Designated Erosion Control Inspector (DECI) as required by Lake County Stormwater Management Commission (SMC). The DECI will inspect and monitor dewatering and/or bypass activities, minimization of wetland impacts, and utilization of appropriate erosion control methods. The construction contractor will be required to repair any deficiencies noted

within one week. If it is determined that the design of the erosion and sediment control is insufficient, a new design will be implemented. Additionally, any conditions placed by the U.S. Army Corps of Engineers' and/or the State of Illinois permits for the protection of water quality will be strictly followed.

B) Plans for management of the area affected by the proposed action that will enable continued use of the area by endangered or threatened species by maintaining/re-establishing suitable habitat (for example, native species planting, invasive species control, use of other best management practices, restored hydrology, etc.).

The measures outlined above in Section 2A detail the use of best management practices which shall be implemented on the project. In addition, all areas that are temporarily disturbed will be restored and blanketed with Class 4A Low Profile native seed mix as possible, which will stabilize the streambanks and will not be mowed. Primary species in this mix include native grasses such as little bluestem (Andropogon scoparius) and side-oats grama (Bouteloua curtipendula). Other upland areas of disturbance will be revegetated with IDOT Class 2A, which is a salt tolerant roadside mix.

The disturbed stream area will be permanently impacted with rip rap, and therefore will not be seeded with wetland vegetation. The existing hydrology of the site will be fully restored so that there is minimal permanent or temporary loss of Iowa darter habitat. The habitat loss caused by the placement of rip rap may ultimately be temporary, as silt and sediment from upstream will likely re-settle over the rip rap, restoring some habitat functions.

The Lake County Watershed Development Ordinance requires that the culverts have adequate conveyance capacity as to not increase upstream water surface elevations more than 0.1 feet and not increase downstream water surface elevations of more than 0.0 feet for the 10-year and 100-year flow rates. Based on this requirement, a triple box culvert was selected. The invert of the culverts will be buried 6" to create a natural channel bottom, promoting the passage of aquatic habitat. By minimizing the earthwork needed on the approach and the headwalls, environmental impact to the stream and adjacent wetlands were avoided and/or minimized.

To minimize wetland and floodplain impacts and thereby minimize long-term water quality impacts, the design includes 2:1 side slopes protected by guardrail. This avoids the necessity to obtain additional right-of-way and minimizes the amount of fill required that would impact wetlands.

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

Below is a summary of the avoidance and minimization efforts described in Section 2A above.

Construction

1) Timing of the construction will minimize impacts. The in-stream work for culvert will not occur during the April 1st through June 30th spawning season. A detailed description of minimization activities is provided in Section 2A.

2) Erosion and sediment control technologies will be used to minimize impacts. These will include the use of silt fence on the bank slopes to minimize runoff into the stream during construction. Erosion and sediment control inspections by a certified erosion control inspector will take place weekly throughout the construction.

3) The proposed limits of construction represent the minimum area necessary in which to work and construct the new culvert crossing.

4) During construction, any Iowa darters that are located within the project vicinity are expected to avoid the area because of the noise associated with construction activity.

Post-Construction

1) The project is cleared for construction with respect to wetlands. Areas of temporary impacts, including wetlands and uplands, that be revegetated will be using native plants species. The proposed wetland seed mix (IDOT Class 4A) is included in Appendix under Tab 4. This mix include native grass, sedge and rush species. Other upland areas of disturbance will be revegetated with IDOT Class 2A, which is a salt tolerant roadside mix. See Part D. for post-construction monitoring.

Mitigation

1) $5,200 in mitigation value will be provided through contribution to the Lake County Forest Preserve District's Iowa Darter conservation efforts.

D) Plans for monitoring the effects of the proposed actions on endangered or threatened species, such as species and habitat monitoring before and after construction, include a plan for follow-up reporting to IDNR.

The project sponsor will initiate the coordination of 2 and 5 year post-construction surveys for the Iowa Darter. The project sponsor shall notify IDOT's Bureau of Design Environment Natural Resource Unit that construction is complete, and that post-construction monitoring needs to be initiated. Upon receiving this notification, the Natural Resource Unit will task the Illinois Natural History Survey to conduct the post-construction surveys.

E) Adaptive management practices that will be used to deal with changed or unforeseen circumstances that effect on endangered or threatened species. Consider environmental variables such as flooding, drought, and species dynamics as well as other catastrophes. Management practices should include contingencies and specific triggers. Note: Not foreseeing any changes does not quality as an adaptive management plan.

In addition to items described in Section 2A and 2C above, IDOT's Bureau of Design and Environment Manual will be used. This Manual utilizes the latest techniques in sediment and erosion control design and implementation. Erosion and sediment control inspections will occur weekly and following a 0.5" rainfall. The construction contractor will be required to repair any

deficiencies noted within one week. If erosion and sediment control appear to be insufficient, corrections in the field will be made.

F) Verification that adequate funding exists to support and implement all mitigation activities described in the conservation plan. This may be in the form of bonds, certificates of insurance, escrow accounts, or other financial instruments adequate to carry out all aspects of the Conservation Plan.

This project is authorized by IDOT, which receives funding from Illinois General Assembly and the Federal government in carrying out its programs. Lake County DOT administers Township Bridge Program funding on behalf of IDOT and has reviewed and approved the plans and committed funds to the project. Antioch Township has budgeted MFT and general funds for the local match.

3) A description of alternative actions the applicant considered that would reduce take, and the reasons that each of those alternatives was not selected. A "no-action" alternative" shall be included in this description of alternatives. Please, describe the economic, social, and ecological tradeoffs of each action.

Various culvert pipe materials and configurations were evaluated to minimize impacts. The box culvert option was chosen because it minimizes the amount of in-stream work necessary, and the culverts are readily available from local concrete suppliers. The roadway has been closed due to the structural deficiency of the existing structure, and the proposed replacement option must be available to install. The option of a single span arch is not feasible because of the time required for design and fabrication. In addition, the arch span length required to pass the stream flows created more disturbance and impact to the project area. The option of lining the existing culverts was not feasible due to the age and deteriorating condition of the metal pipes, as it would not provide adequate structural integrity.

Relocation of the culvert crossing at another location would not be practical or economically reasonable. Introducing a new stream crossing would result in more extensive environmental impacts.

A No-Action alternative is not practical. Portions of the existing corrugated metal arch pipes have rusted, resulting in erosion of the adjacent trench backfill and creating voids below the roadway pavement. The roadway is currently closed due to the failing culvert presenting a safety concern.

4) Data and information to indicate that the proposed taking will not reduce the likelihood of the survival or recovery of the endangered or threatened species 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.

The project will have minimal impact on the surrounding ecosystem. The project will result in the alteration of a minimal amount of Iowa darter habitat, the amount being the 0.02 acres of rip rap

placement in the creek bed. This small amount is not expected to cause an effect as sufficient habitat is located upstream and downstream of the culvert crossing.

The project will not majorly impact wetlands, which will allow the existing wetlands adjacent to the project area to continue to filter stormwater runoff from the roadway prior discharge into the waterway. The wetlands associated on the road side and adjacent to the river will continue to act as filters to stormwater prior to its entering the waterway.

No new long-term ecosystem impacts will result because the project is the replacement of an existing structure and existing conditions will be maintained. The Illinois Natural Heritage Database contains 88 records in the last 25 years for the Iowa Darter within the state of Illinois, many of which occur in Lake County and those counties which border it. These records occur throughout the county, indicating the presence of multiple populations. However, it is unlikely that the temporary and permanent corridor impacts to the wetland habitats or water quality will jeopardize the continued existence of the Iowa darter in Illinois.

Temporary, short term water quality impacts will be minimized through the use of cofferdams during the culvert replacement and silt fencing during roadway work.

5) An implementing agreement, which shall include, but not be limited to (on a separate piece of paper containing signatures):

A) through D)

Please see the attached Implementing Agreement.

E) copies of any final federal authorizations for a taking already issued to the applicant, if any.

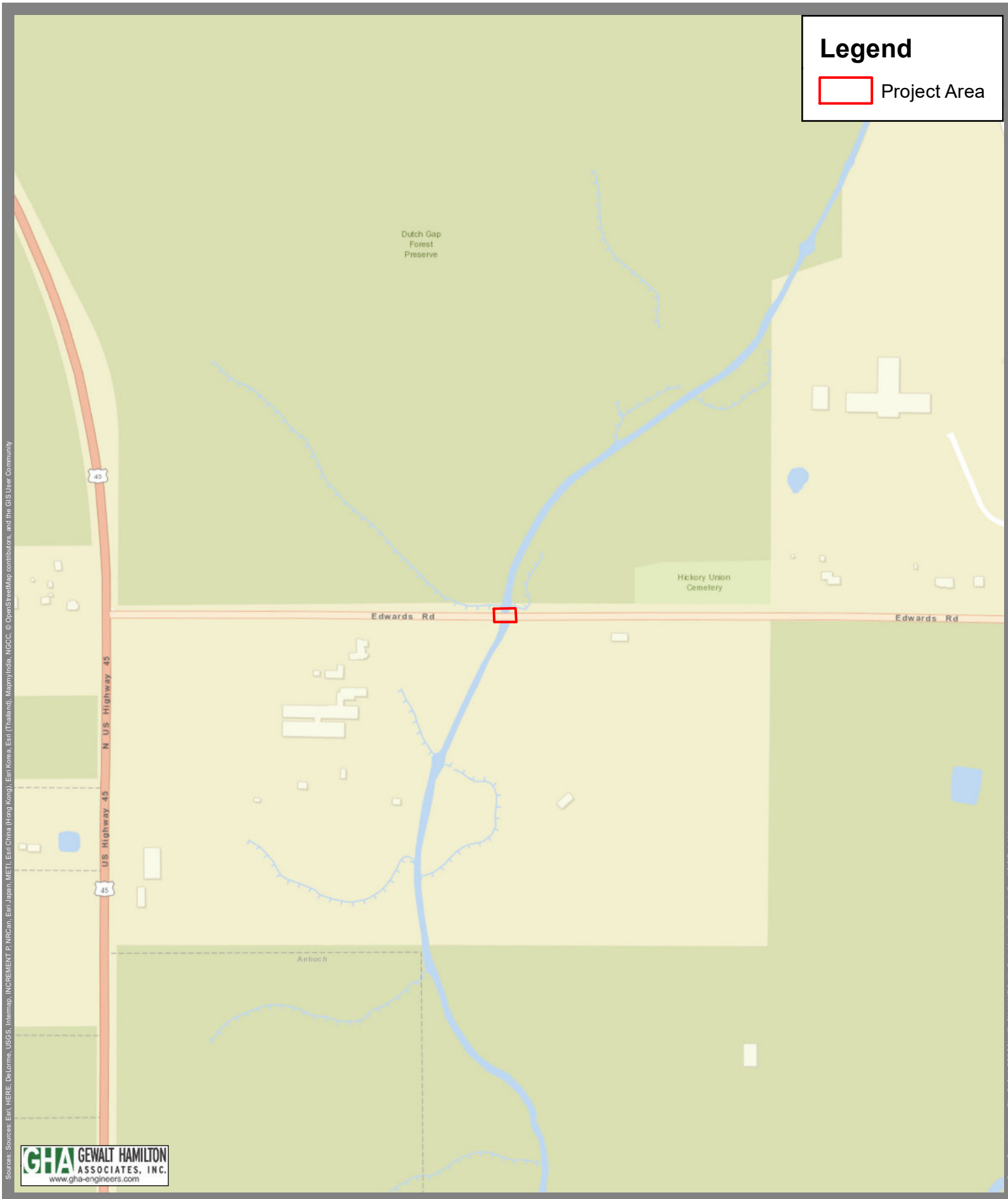
Not Applicable

PLEASE SUBMIT TO: Incidental Take Authorization Coordinator, Illinois Department of Natural Resources, Office of Resource Conservation, Division of Natural Heritage, One Natural Resources Way, Springfield, IL, 62702 OR DNR.ITAcoordinator@illinois.gov

December 2016

Tab 1

Exhibits



N

1 inch = 500 Feet

Exhibit 1: Location Map

West Edwards Road
Antioch Township, IL

MapCode: Date: 1/17/2018 Project: 5193.200

Sources:

GHA GEWALT HAMILTON ASSOCIATES, INC.
www.gha-engineers.com

Drawn By: cburke File: P:\5150-5199\5193.000 Antioch TWP\5193.200 Antioch Twp Edwards Road Culvert\GIS\Ex 2_2017 Aerial.mxd

N

1 inch = 100 Feet

Exhibit 2: 2017 Aerial Imagery

West Edwards Road
Antioch Township, IL

MapCode: Date: 9/20/2018 Project:

Tab 2

Engineering Plan Set

STATE OF ILLINOIS
COUNTY OF LAKE
W. EDWARDS ROAD
CULVERT REPLACEMENT
ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT
SECTION 18-01102-01-BR

STANDARD SYMBOLS

FEATURE	EXISTING	PROPOSED
BUFFALO BOX	⊕	◑
BUSH/SHRUB	⌀	●
CATCH BASIN	○	●
CLEANOUT	○CO	○C.O.
COMBINE SEWER LINE	—<—<—	—<—<—
CONTOUR	---708---	---708---
CULVERT	▱——▱	▶——◀
DITCH/SWALE	←←←←←←	←···←···←
ELECTRIC LINE	—E—	—E—
ELECTRIC MANHOLE	Ⓔ	Ⓔ
FENCE	—X—X—X—X—	—X—X—X—X—
FIRE HYDRANT	♉	♉
FLARED END SECTION	▱	▰
GAS LINE	—G—	—G—
GAS MANHOLE	Ⓖ	Ⓖ
GAS VALVE	⧋	⧋
INLET	□	■
LIGHT POLE	☼	✦
OVERHEAD WIRES	—A—	—A—
POWER POLE	-○-	-●-
R.O.W LINE	— — — —	———
R.O.W MARKER	⧋	
SANITARY FORCEMAIN LINE	—CC—CC—	—CC—CC—
SANITARY SEWER LINE	—C—	—C—
SANITARY SEWER MANHOLE	Ⓢ	Ⓢ
SIGN	⚲	⚲
SPOT ELEVATION	×850.00	×850.0
STORM SEWER LINE	◁———	◀———
STORM SEWER MANHOLE	◎	◉
TELEPHONE LINE	—T—	—T—
TELEPHONE MANHOLE	Ⓣ	Ⓣ
TELEPHONE BOX/PEDESTAL	ⓉⒷ	ⓉⒷ
TREE-CONIFEROUS (SIZE/TAG#)	345	345
TREE-DECIDUOUS (SIZE/TAG#)	12"	12"
VALVE BOX	⊗	⊗
VALVE VAULT	⊠	⊠
WATER VALVE	⊗	⊗
WATERMAIN LINE	—W—	—W—

LOCATION MAP
(Not to Scale)

PROJECT LOCATION
W. EDWARDS ROAD
ANTIOCH, IL

SHEET INDEX

PLANS PREPARED FOR:
ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT
933 Bartlett Avenue
ANTIOCH, IL 60002
TELEPHONE: 847-395-2070

TOPOGRAPHIC SURVEY BY:
GEWALT HAMILTON ASSOCIATES, INC.
625 FOREST EDGE DRIVE
VERNON HILLS, ILLINOIS 60061
TELEPHONE: 847-478-9700

UTILITY CONTACTS:

ATT DISTRIBUTION	630-573-5450
COMED	630-576-7094
NORTH SHORE GAS	847-263-4668

100' 200' 300' — 1"= 100'
0 10' 20' 30' — 1"= 10'
0 50' 100' — 1"= 50'
0 50' 100' — 1"= 40'
0 50' 100' — 1"= 30'
0 50' 100' — 1"= 20'

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.

NOTE: CONSTRUCTION MEANS, METHODS AND JOB SITE SAFETY IS THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR

J.U.L.I.E
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
CALL 811
811 Know what's below. Call before you dig.

REFERENCE BENCHMARK:
LAKE COUNTY BM 1-2 (REF BM) R.R. SPIKE IN W. FACE OF POWER POLE ON THE EAST SIDE OF U.S. RTE 45, SOUTH OF EDWARDS ROAD.
ELEV: 783.52 NGVD29

CONTROL POINTS:

Point #	Northing	Easting	Elevation	Description
1	2117935.18	1070408.62	771.67	CP1-SMN
3	2117917.80	1071401.30	773.88	CP3-SMN

HOT-MIX ASPHALT MIXTURE REQUIREMENTS

MIXTURE TYPE	AIR VOIDS
PAVEMENT RESURFACING	
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50	4% @ 70 (50) GYRATION
HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	4% @ 70 (50) GYRATION
SHOULDERS	
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50	4% @ 70 (50) GYRATION
HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	4% @ 70 (50) GYRATION

BUILDING LAKE COUNTY'S EFFECTIVE TRANSPORTATION SYSTEM TODAY

APPROVED
DEPARTMENT OF TRANSPORTATION

DATE _____ **20** _____

Region One Engineer

County Engineer
On behalf of IDOT pursuant to Agreement of Understanding dated January 18, 2013

Plans Prepared By: GEWALT HAMILTON ASSOCIATES, INC.

Signature: _____
Date: _____
Illinois License No: 062-059538
Expiration Date: 11/30/19
Field: CIVIL

Approved By: _____
County Engineer
Date: _____

GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ■ Vernon Hills, IL. 60061
TEL 847.478.9700 ■ FAX 847.478.9701

TITLE SHEET
W. EDWARDS ROAD
CULVERT REPLACEMENT
ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT

NO.	BY	DATE	REVISION
1	ASH	8/8/2018	LCDOT COMMENTS

NO.	BY	DATE	REVISION

FILE: 5193.200 Edwards Culvert PR3.dwg
DRAWN BY: KRM
DATE: 3-29-18
GHA PROJECT #: 5193.200
CHECKED BY: DJS
DATE:
SCALE: N.T.S
SHEET NUMBER: 1 OF 24 SHEETS

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE PERFORMED ACCORDING TO THE ILLINOIS DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" LATEST EDITION, THE "SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS" LATEST EDITION, THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS" LATEST EDITION, THE DETAILS IN THESE PLANS, THE CONTRACT DOCUMENTS, ALL APPLICABLE REQUIREMENTS OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION, THE IEPA AND ORDINANCES OF AUTHORITIES HAVING JURISDICTION AND ALL ADDENDA THERETO.

2. EASEMENTS FOR THE EXISTING UTILITIES, BOTH PUBLIC AND PRIVATE AND UTILITIES WITHIN PUBLIC RIGHTS-OF-WAY ARE SHOWN ON THE PLANS ACCORDING TO AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION IN THE FIELD OF THESE UTILITY LINES AND THEIR PROTECTION FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS. IF EXISTING UTILITY LINES OF ANY NATURE ARE ENCOUNTERED WHICH CONFLICT WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.

3. WHENEVER, DURING CONSTRUCTION OPERATIONS, ANY LOOSE MATERIAL IS DEPOSITED IN THE FLOW LINE OF GUTTERS, DRAINAGE STRUCTURES, DITCHES, ETC. SUCH THAT THE NATURAL FLOW LINE OF WATER IS OBSTRUCTED, THE LOOSE MATERIAL WILL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE STRUCTURES AND FLOW LINES SHALL BE FREE FROM DIRT AND DEBRIS. THIS WORK SHALL BE CONSIDERED INCLUDED IN THE CONTRACT. THE CONTRACTOR'S FAILURE TO PROVIDE THE ABOVE WILL PRECLUDE ANY POSSIBLE ADDED COMPENSATION REQUESTED DUE TO DELAYS OR UNSUITABLE MATERIALS CREATED AS A RESULT THEREOF.

4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AFFECTING THEIR WORK WITH THE ACTUAL CONDITIONS AT THE JOB SITE PRIOR TO ORDERING MATERIALS. IN ADDITION, THE CONTRACTOR MUST VERIFY THE LINE AND GRADES. IF THERE ARE ANY DISCREPANCIES FROM WHAT IS SHOWN ON THE CONSTRUCTION PLANS, STANDARD SPECIFICATIONS AND/OR SPECIAL DETAILS, THE CONTRACTOR SHALL SECURE WRITTEN INSTRUCTION FROM THE ENGINEER PRIOR TO PROCEEDING WITH ANY PART OF THE WORK AFFECTED BY OMISSION OR DISCREPANCIES. FAILING TO SECURE SUCH INSTRUCTION, THE CONTRACTOR WILL BE CONSIDERED TO HAVE PROCEEDED AT HIS/HER OWN RISK AND EXPENSE AND NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR ANY COSTS INCURRED..

5. ALL PAVEMENT DIMENSIONS ARE SHOWN TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

6. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE THE MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

7. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 72 HOURS PRIOR TO BEGINNING WORK.

8. IF DURING CONSTRUCTION THE CONTRACTOR ENCOUNTERS OR OTHERWISE BECOMES AWARE OF ANY SEWERS OR UNDERDRAINS OTHER THAN THOSE SHOWN ON THE PLANS, HE/SHE SHALL INFORM THE ENGINEER, WHO SHALL DIRECT THE WORK NECESSARY TO MAINTAIN OR REPLACE THE FACILITIES IN SERVICE AND TO PROTECT THEM FROM DAMAGE DURING CONSTRUCTION IF MAINTAINED. EXISTING FACILITIES TO BE MAINTAINED THAT ARE DAMAGED BECAUSE OF NON-COMPLIANCE WITH THIS PROVISION SHALL BE REPLACED AT THE CONTRACTOR'S OWN EXPENSE.

9. THE CONTRACTOR SHALL PROVIDE TEMPORARY TOILET FACILITIES AND HAND SANITIZING STATIONS FOR THE USE OF ALL THE CONTRACTORS PERSONNEL EMPLOYED ON THE WORK SITE. THE FACILITIES SHALL BE MAINTAINED IN PROPER SANITARY CONDITION THROUGHOUT THE PROJECT. THE LOCATION OF THE TEMPORARY FACILITIES SHALL BE APPROVED BY THE ENGINEER.

10. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE NPDES PERMIT AND SWPPP MANUAL. IF NO NPDES PERMIT OR SWPPP MANUAL IS NEEDED FOR THE PROJECT THE CONTRACTOR SHALL PERFORM SOIL EROSION SEDIMENT CONTROL BEST PRACTICES OR AS DIRECTED BY THE OWNER TO PREVENT ILLICIT DISCHARGES FROM THE SITE.

UTILITY NOTES

1. UNDERGROUND WORK SHALL INCLUDE TRENCHING, DISPOSAL OF EXCESS MATERIAL, DEWATERING, INSTALLATION OF PIPE, CASTINGS, STRUCTURES, BACKFILLING OF TRENCHES AND COMPACTION, AND TESTING AS SHOWN ON THE CONSTRUCTION PLANS. FITTINGS AND ACCESSORIES NECESSARY TO COMPLETE THE WORK MAY NOT BE SPECIFIED BUT SHALL BE CONSIDERED AS INCLUDED TO THE COST OF THE CONTRACT. ALL SEWER SHALL BE INSTALLED USING A LASER AND BEGIN AT THE DOWNSTREAM END.

2. MACHINE CORE ALL CONNECTIONS TO EXISTING STRUCTURES USING A CORE DRILL. HAMMERING OR SAWING OF STRUCTURES WILL NOT BE ALLOWED.

3. SANITARY SERVICE CONNECTIONS TO NEW SEWERS SHALL BE MADE WITH WYE BRANCHES. WYE BRANCHES SHALL BE FACTORY MANUFACTURED PERMANENTLY AFFIXED TO THE MAIN SEWER. TEE BRANCHES ARE NOT ALLOWED.

4. ALL CONNECTIONS TO EXISTING SANITARY MANHOLES SHALL BE INSTALLED WITH A NEOPRENE BOOT SECURED WITH DOUBLE STAINLESS STEEL STRAPS MEETING THE REQUIREMENTS OF ASTM C-923.

5. ALL CONNECTIONS TO EXISTING OR DISSIMILAR STORM/SANITARY LINES SHALL BE DONE WITH STAINLESS STEEL NON-SHEAR COUPLINGS.

6. STONE BEDDING AND BACKFILL SHALL BE OMITTED FOR A DISTANCE OF 15 FEET UP AND DOWNSTREAM OF SEWERS DRAINING TO OR FROM PONDS OR STREAMS. THE REPLACED BEDDING SHALL BE SILTY CLAY SOIL MECHANICALLY COMPACTED TO 90% MODIFIED PROCTOR DENSITY. THE USE OF PERMEABLE SOILS WILL NOT BE PERMITTED.

7. ALL WATER MAIN SHALL HAVE MECHANICAL RESTRAINED TYPE JOINTS AT ALL CONNECTIONS AND FITTINGS. IN ADDITION, ALL HARDWARE SHALL BE STAINLESS STEEL.

8. THRUST BLOCKING SHALL BE PROVIDED ON WATER MAIN AT ALL BENDS, TEES, ELBOWS, ETC. INDIVIDUAL INSPECTION FOR ALL THRUST BLOCKING IS REQUIRED. THRUST BLOCKING SHALL BE POURED IN PLACE CONCRETE. PRECAST BLOCKS MAY BE USED AS APPROVED BY THE ENGINEER IN THE FIELD.

9. ALL FLOOR DRAINS SHALL DISCHARGE TO THE SANITARY SEWER. ALL DOWNSPOUTS, SIDE YARD DRAINS, AND OUTSIDE DRAINS SHALL DISCHARGE TO THE STORM SEWER SYSTEM. FOOTING DRAINS SHALL FIRST DRAIN TO A SUMP PIT.

10. BUILDING STORM SEWER SERVICE PIPE SHALL NOT BE LESS THAN THE DIAMETER OF THE PLUMBING PIPE FROM THE BUILDING, BUT NOT LESS THAN 6 INCHES. THE PIPE SHALL HAVE A MINIMUM SLOPE OF 1/8-INCH PER FOOT, BUT NOT MORE THAN 1/2-INCH PER FOOT. CHANGES OF DIRECTION OF SERVICE PIPE SHALL BE MADE WITH COMBINATIONS OF 22-1/2 DEGREE BENDS WHEREVER PRACTICABLE, WITH NOT LESS THAN 2 FEET OF STRAIGHT PIPE BETWEEN SUCH BENDS. RIGHT ANGLE (90 DEGREE) BENDS WILL NOT BE ALLOWED. WHEN A SERVICE LINE-EXCEEDS 100 FEET IN LENGTH, A CLEANOUT SHALL BE PROVIDED AT A LOCATION DESIGNATED BY THE ENGINEER. THE CLEANOUT SHALL BE PROPERLY SEALED, WITH THE TOP OF THE PLUGGED RISER FLUSH WITH FINISHED GRADE.

PROJECT SPECIFIC NOTES

1. THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS THAT INCLUDE; CRITICAL SPOT GRADES SUCH AS OVERFLOW ELEVATIONS, SPOT ELEVATIONS NEAR ENTRANCES, SPOT ELEVATIONS ALONG THE DESIGNATED ADA ROUTE, SUFFICIENT INFORMATION SUCH THAT THE ENGINEER MAY VERIFY DETENTION VOLUMES, RIM AND INVERT ELEVATIONS OF ALL SEWERS, RIM AND TOP OF PIPE ELEVATIONS OF ALL WATER MAIN, LOCATIONS OF ALL INSTALLED UNDERGROUND UTILITIES, LOCATIONS OF ALL BURIED BENDS AND FITTINGS AND ALL FIELD CHANGES FROM THE APPROVED DRAWINGS.

2. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR AND HIS SURETY FOR A PERIOD OF 12 MONTHS FROM THE DATE OF INITIAL ACCEPTANCE OF THE WORK BY THE OWNER AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP OF WHATEVER NATURE.

3. ALL CONSTRUCTION WILL BE INSPECTED BY THE OWNER'S REPRESENTATIVE. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MUNICIPALITY AS WELL AS THE STANDARD SPECIFICATIONS.

4. ALL PUBLIC WATER MAINS AND SANITARY SEWER MAINS MUST BE ACCEPTED BY THE ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT.

5. THE SEWER AND WATER CONTRACTOR SHALL BE REQUIRED TO BE LICENSED AND BONDED WITH THE ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT BEFORE WORK IS STARTED.

6. CONTRACTOR SHALL NOTIFY THE ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT (847-395-2070) AND THE PROJECT ENGINEER (847-478-9700) AT LEAST 72 HOURS PRIOR TO BEGINNING ANY WORK ON THIS PROJECT.

7. THE CONTRACTOR SHALL INDEMNIFY THE OWNER, ENGINEER, THE MUNICIPALITY AND THEIR AGENTS, FROM ALL LIABILITY INVOLVED IN CONSTRUCTION, INSTALLATION AND TESTING OF THE WORK ON THIS PROJECT.

8. THE CONTRACTOR MUST CARRY INSURANCE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. ALL OFFICIALS, EMPLOYEES AND AGENTS OF GEWALT HAMILTON ASSOCIATES MUST BE LISTED AS ADDITIONAL INSURED.

9. ALL ELEVATIONS ARE ON NGVD 29 VERTICAL DATUM.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL TRAFFIC CONTROL TO ADEQUATELY INFORM AND PROTECT THE PUBLIC OF ALL CONSTRUCTION OPERATIONS.

11. STOCKPILING MATERIAL WITHIN THE 100 YEAR FLOOD PLAIN AND OR THE FLOODWAY IS STRICTLY PROHIBITED

12. PRIOR TO PLACEMENT OF FABRIC AND STONE, THE SUBGRADE SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER. PROOF-ROLLING SHALL BE DONE USING A THREE AXLE DUMP TRUCK TOGETHER WITH LOAD WEIGHING AT LEAST TWENTY-FIVE (25) TONS. THE LOAD SHALL BE UNIFORMLY PLACED IN THE DUMP BODY. ALL DEFICIENCIES SHALL BE REPAIRED AND RE-PROOF-ROLLED UNTIL FOUND ACCEPTABLE TO THE ENGINEER.

13. CRUSHED CONCRETE IS NOT PERMITTED FOR USE ON THE PROJECT UNLESS PRIOR WRITTEN NOTICE IS GIVEN BY THE ENGINEER.

14. ALL STONE USED ON THE PROJECT SHALL BE CRUSHED UNLESS SPECIFICALLY NOTED OTHERWISE.

15. ALL CONNECTIONS TO EXISTING STORM MANHOLES SHALL BE INSTALLED WITH A NEOPRENE BOOT SECURED WITH DOUBLE STAINLESS STEEL STRAPS MEETING THE REQUIREMENTS OF ASTM C-923.

16. ALL CONCRETE SHALL HAVE A LIGHT BROOM FINISH APPLIED WITHIN 1 HOUR OF FINAL STRIKING.

17. ALL CONCRETE SHALL CONSIST OF PORTLAND CEMENT CONCRETE, 4" SLUMP, 6.1 BAG MIX AND AIR ENTRAINMENT OF NOT LESS THAN FIVE (5%) OR MORE THAN EIGHT (8%). CONCRETE SHALL BE A MINIMUM COMPRESSIVE STRENGTH (4000PSI) AT TWENTY EIGHT (28) DAYS.

18. ALL CONCRETE SHALL HAVE A WHITE, IDOT TYPE 3 CURING COMPOUND APPLIED TO THE SURFACE WITHIN 1 HOUR OF FINAL STRIKING AT THE MANUFACTURER RECOMMENDED APPLICATION RATE.

19. 3/4" THICK PRE-MOLDED FIBER EXPANSION JOINTS WITH 2 , 3/4" x 18" PLAIN ROUND, STEEL DOWEL BARS SHALL BE INSTALLED IN ALL CURBS AT (45') FOURTY FIVE FOOT INTERVALS AND AT ALL P.C.'S, P.T.'S AND CURB RETURNS. ALTERNATE ENDS OF THE DOWEL BARS SHALL BE GREASED AND FITTED WITH METAL EXPANSION TUBES. ALL EXPANSION JOINTS MUST BE FREE OF CONCRETE FOR FULL DEPTH. CONTRACTION JOINTS SHALL BE TOOLED AT 15' INTERVALS.

20. UNLESS OTHERWISE NOTED ON THE PLANS WHENEVER NEW CONCRETE ABUTS EXISTING/ OR NEW CONCRETE SET A 1/2" THICK PRE-MOLDED FIBER EXPANSION JOINT AND DOWEL WITH SMOOTH 12" #4 BARS @ 24" O.C. THIS INCLUDES CONCRETE POURED ADJACENT TO EXISTING SIDEWALKS, CURBS AND BUILDING. THE DOWEL BARS SHOULD BE 4" INTO EXISTING CONCRETE WITH 8" EXTENDING INTO NEW CONCRETE.

21. ALL DOWEL BARS AND TIE BARS SHALL BE EPOXY COATED UNLESS NOTED OTHERWISE.

22. ALL PAVEMENT AND BUILDING SUBGRADE SHALL BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY. ALL SUBGRADE IN LAWN AREAS SHALL BE COMPACTED TO 90% MODIFIED PROCTOR DENSITY.

23. SPREAD SCREENED TOPSOIL ON ALL DISTURBED AREAS AND PROPOSED GREEN AREAS. TOPSOIL SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 1081.05.

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION EROSION CONTROL NOTES

A. SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.

B. FOR THOSE DEVELOPMENTS THAT REQUIRE A DESIGNATED EROSION CONTROL INSPECTOR (DECI), INSPECTIONS AND
DOCUMENTATION SHALL BE PERFORMED, AT A MINIMUM:
UPON COMPLETION OF SEDIMENT AND RUNOFF CONTROL MEASURES (INCLUDING PERIMETER CONTROLS AND DIVERSIONS), PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
AFTER EVERY SEVEN (7) CALENDAR DAYS OR STORM EVENT WITH GREATER THAN 0.5 INCH OF RAINFALL OR LIQUID EQUIVALENT PRECIPITATION.

C. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. IF STRIPPING, CLEARING, GRADING, OR LANDSCAPING ARE TO BE DONE IN PHASES, THE PERMITTEE SHALL PLAN FOR APPROPRIATE SOIL EROSION AND SEDIMENT CONTROL MEASURES.

D. A STABILIZED MAT OF CRUSHED STONE MEETING IDOT GRADATION CA 1 UNDERLAIN WITH FILTER FABRIC AND IN ACCORDANCE WITH THE ILLINOIS URBAN MANUAL, OR OTHER APPROPRIATE MEASURE(S) AS APPROVED BY THE ENFORCEMENT OFFICER, SHALL BE INSTALLED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE. SEDIMENT OR SOIL REACHING AN IMPROVED PUBLIC RIGHT OF WAY, STREET, ALLEY OR PARKING AREA SHALL BE REMOVED BY SCRAPING OR STREET CLEANING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

E. TEMPORARY DIVERSIONS SHALL BE CONSTRUCTED AS NECESSARY TO DIRECT ALL RUNOFF FROM HYDROLOGICALLY DISTURBED AREAS TO AN APPROPRIATE SEDIMENT TRAP OR BASIN.

F. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE END OF ACTIVE HYDROLOGIC DISTURBANCE OR REDISTURBANCE.

G. ALL STOCKPILES SHALL HAVE APPROPRIATE MEASURES TO PREVENT EROSION. STOCKPILES SHALL NOT BE PLACED IN FLOOD PRONE AREAS OR WETLANDS AND DESIGNATED BUFFERS.

H. SLOPES STEEPER THAN 3H:1V SHALL BE STABILIZED WITH APPROPRIATE MEASURESAS APPROVED BY THE ENFORCEMENT OFFICER.

I. APPROPRIATE EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN THE NORMAL WATER LEVEL AND HIGH WATER LEVEL.

J. STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.

K. IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. DISCHARGES SHALL BE ROUTED THROUGH AN APPROVED ANIONIC POLYMER DEWATERING SYSTEM OR A SIMILAR MEASURE AS APPROVED BY THE ENFORCEMENT OFFICER. DEWATERING SYSTEMS SHOULD BE INSPECTED DAILY DURING OPERATIONAL PERIODS. THE ENFORCEMENT OFFICER, OR APPROVED REPRESENTATIVE, MUST BE PRESENT AT THE COMMENCEMENT OF DEWATERING ACTIVITIES.

L. IF INSTALLED SOIL EROSION AND SEDIMENT CONTROL MEASURES DO NOT MINIMIZE SEDIMENT LEAVING THE DEVELOPMENT SITE, ADDITIONAL MEASURES SUCH AS ANIONIC POLYMERS OR FILTRATION SYSTEMS MAY BE REQUIRED BY THE ENFORCEMENT OFFICER.

M. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND REPAIR.

N. ALL TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED.

O. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, ENFORCEMENT OFFICER, OR OTHER GOVERNING AGENCY.

ADDITIONAL EROSION CONTROL NOTES

1. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS.

2. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ANY ROAD OF MATERIAL THAT IS FROM THE PROJECT. THIS WILL BE DONE AT THE CLOSE OF EACH DAY OF WORK OR MORE FREQUENTLY AS FIELD CONDITIONS WARRANT.

3. THE CONTRACTOR SHALL KEEP A WATER SOURCE AT THEIR DISPOSAL FOR THE PURPOSE OF WATERING DOWN SOIL ON SITE AND ADJACENT ROADWAYS WHICH OTHERWISE MAY BECOME AIRBORNE.

4. THE CONTRACTOR IS EXPRESSLY ADVISED NOT TO DISTURB AREAS WHICH ARE OUTSIDE THOSE NECESSARY TO PROVIDE THE IMPROVEMENTS AS CALLED FOR IN THE PLANS.

5. ALL EROSION CONTROL MEASURES SHALL BE REPLACED IF DAMAGED OR MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.

6. ALL BYPASS CHANNELS, MUST BE CONSTRUCTED SO THAT CHANNEL FLOWS WILL NOT CAUSE EROSION OF EXCAVATED MATERIAL. IN EACH CASE A SEDIMENTATION BASIN MUST BE CONSTRUCTED SO AS TO ALLOW THE SEDIMENT TO SETTLE PRIOR TO THE DOWNSTREAM OUTLET OF THE PROJECT AREA.

7. PUMPS MAY BE USED AS BYPASS DEVICES, BUT IN NO CASE WILL THE WATER BE DIVERTED OUTSIDE THE PROJECT LIMIT. ALL PUMPED WATER SHALL BE FREE OF SILT. PUMPING MAY REQUIRE THE USE OF A SEDIMENT CONTAINMENT FILTER BAG AND OTHER SUPPLEMENTAL SEDIMENT CONTROL MEASURES.

8. CONCRETE WASHOUT FACILITIES SHALL BE MADE AVAILABLE IF NEEDED, AND PROPERLY MAINTAINED THROUGHOUT THE PROJECT.

9. PROPERLY MANAGE ALL MATERIAL STORAGE AREAS, PORTABLE TOILETS, AND EQUIPMENT FUELING, CLEANING, AND MAINTENACE AREAS TO ENSURE THESE AREAS ARE FREE OF SPILLS, LEAKS, OR OTHER POTENTIAL POLLUTANTS.

10. WASTE, CONSTRUCTION DEBRIS, AND BUILDING MATERIALS SHALL BE COLLECTED AND PLACED IN APPROVED RECEPTACLES.

11. SEED CLASS 4A SHALL BE USED IN WETLAND AREAS, AFTER APPROVAL BY ENGINEER.

SPECIAL PROVISIONS

CLEAN CONSTRUCTION AND DEMOLITION DEBRIS (CCDD) MATERIAL DISPOSAL

WORK UNDER THIS ITEM SHALL BE PERFORMED IN COMPLIANCE WITH THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) GUIDELINES IN EFFECT AT THE TIME OF CONSTRUCTION. THE CONTRACTOR WILL BE REQUIRED TO MAKE ALL ARRANGEMENTS FOR COORDINATION AND SUBMISSION OF THE NECESSARY DOCUMENTS WITH THEIR CHOSEN CCDD OR OTHER SUITABLE DISPOSAL FACILITY. WRITTEN CONFIRMATION OF PRELIMINARY APPROVAL MUST BE PROVIDED FROM THE DISPOSAL FACILITY AND CONFIRMED BY THE OWNER AS ACCEPTABLE. ALL SURPLUS, CLEAN MATERIAL GENERATED FROM THE CONTRACTOR'S ACTIVITIES MUST BE DISPOSED OF AT AN IEPA PERMITTED CCDD OR OTHERWISE ACCEPTABLE FACILITY. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING DOCUMENTATION TO THE OWNER FOR EACH LOAD HAULED OFF-SITE SHOWING THE QUANTITY OF MATERIAL AND THE LOCATION THE MATERIAL WAS DISPOSED OF. NO EXTRA COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY EXPENSES INCURRED COMPLYING WITH THESE REQUIREMENTS INCLUDING BUT NOT LIMITED TO: DELAYS, INCONVENIENCE, OR INTERRUPTIONS IN THE WORK RESULTING FROM COMPLIANCE WITH THESE REQUIREMENTS. ALL COSTS ASSOCIATED WITH MATERIAL TESTING AND DISPOSAL SHALL BE INCLUDED IN THE COST OF THE CONTRACT.

AS-BUILT DOCUMENTS

THE CONTRACTOR IS REQUIRED TO SUBMIT "AS-BUILT PLANS", i.e. – RECORD DRAWINGS OF ALL PROJECTS THAT INCLUDE THE INSTALLATION OF STORM SEWER, SANITARY SEWER, WATERMAIN AND WATER SERVICES, STORMWATER MANAGEMENT FACILITIES AND SITE GRADING. THE EXISTING ELEVATIONS SHALL BE LINED-THROUGH AND THE AS-CONSTRUCTED GRADES WRITTEN NEXT TO THEM. THE "AS-BUILT PLANS" MUST BE SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR AND/OR A REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED TO GHA FOR REVIEW. THE AS-BUILT PLANS SHALL FURTHER:

A. SHOW THE RIM AND INVERT ELEVATIONS FOR ALL MANHOLES, CATCH BASINS, INLETS, CULVERTS AND FLARED END SECTIONS.

B. WHEN SURFACE DETENTION IS PROVIDED ON A PAVED SURFACE SUFFICIENT AS-CONSTRUCTED GRADES SHALL BE PROVIDED TO CONFIRM THAT THE REQUIRED DETENTION VOLUME AND HIGH-WATER ELEVATION WAS ACHIEVED.

C. WHEN SURFACE DETENTION IS PROVIDED IN A DETENTION OR RETENTION POND, SUFFICIENT AS-CONSTRUCTED GRADES SHALL BE PROVIDED TO CONFIRM THAT THE REQUIRED DETENTION VOLUME WAS ACHIEVED. THE AS-CONSTRUCTED GRADES SHALL INCLUDE THE TOP OF THE BERM AND EMERGENCY OVERFLOW.

D. RESTRICTOR STRUCTURES SHALL BE LOCATED AND THE SIZE, TYPE AND ELEVATION OF THE RESTRICTOR SHALL BE PROVIDED ALONG WITH ANY INTERIOR OVERFLOW WEIRS, LOW-FLOW NOTCHES, ETC.

PARTICULAR CARE SHALL BE GIVEN TO INSTALLATION OF ALL IMPROVEMENTS WITHIN THE ADA ROUTES INCLUDING RAMPS, LEVEL LANDINGS, TRANSITION PANEL, CURBS AND TACTILE SURFACES. THE CONTRACTOR SHALL ENSURE THAT ALL CROSS SLOPES AND LANDINGS DO NOT EXCEED 2% EXCEPT IN CHICAGO WHICH CANNOT EXCEED 1.56%. RUNNING SLOPES ON ADA ROUTES GREATER THAN 5% REQUIRE HANDRAILS. THE CONTRACTOR SHALL INFORM THE ENGINEER WHEN THE STATED SLOPES ARE EXCEEDED IN THE FIELD

GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ■ Vernon Hills, IL. 60061
TEL 847.478.9700 ■ FAX 847.478.9701

GENERAL NOTES

W. EDWARDS ROAD
CULVERT REPLACEMENT
ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT

NO.	BY	DATE	REVISION
1	ASH	8/8/2018	LCDOT COMMENTS

NO.	BY	DATE	REVISION

FILE: 5193.200 Edwards Culvert PR3.dwg
DRAWN BY: KRM
DATE: 3-29-18
GHA PROJECT # 5193.200
CHECKED BY: DJS
DATE:
SCALE: N.T.S
SHEET NUMBER: 2
OF 24 SHEETS

W. EDWARDS ROAD CULVERT REPLACEMENT

CODE NO.	LCDOT SP	ITEM	UNIT	TOTAL QUANTITY
20200100	*	EARTH EXCAVATION	CU YD	80
20201200		REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	50
20700110		POROUS GRANULAR EMBANKMENT	CU YD	56
20900110		POROUS GRANULAR BACKFILL	CU YD	21
21101600	*	TOPSOIL FURNISH AND PLACE, VARIABLE DEPTH	SQ YD	950
21400100		GRADING AND SHAPING DITCHES	FOOT	465
25000210		SEEDING, CLASS 2A	ACRE	0.2
25100630		EROSION CONTROL BLANKET, NAG75	SQ YD	950
28000305		TEMPORARY DITCH CHECKS	FOOT	20
28000400	*	PERIMETER EROSION BARRIER	FOOT	690
28100101		STONE RIP-RAP, CLASS A1	SQ YD	170
28100127		STONE RIP-RAP, CLASS B4	SQ YD	170
28200200		FILTER FABRIC	SQ YD	170
30300001		AGGREGATE SUBGRADE IMPROVEMENT	CU YD	50
35101800	*	AGGREGATE BASE COURSE, TYPE B, 6"	SQ YD	565
35102400	*	AGGREGATE BASE COURSE, TYPE B, 12"	SQ YD	140
40600290		BITUMINOUS MATERIALS (TACK COAT)	POUND	1015
40603080		HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	110
40603335		HOT-MIX ASPHALT SURFACE COURSE, MIX D, N50	TON	70
44000100		PAVEMENT REMOVAL, FULL DEPTH	SQ YD	140
44213200		SAW CUTS	FOOT	40
50105220		PIPE CULVERT REMOVAL	FOOT	90
50200100		STRUCTURE EXCAVATION	CU YD	350
50500505		STUD SHEAR CONNECTORS	EACH	111
50800205		REINFORCEMENT BARS, EPOXY COATED	POUND	12110
51500100		NAME PLATES	EACH	2
52200105		FURNISHING SOLDIER PILES (W SECTION)	FOOT	446
52200200		DRILLING AND SETTING SOLDER PILES (IN SOIL)	CU FT	2279
52200250		UNTREATED TIMBER LAGGING	SQ FT	416
52200900		CONCRETE STRUCTURES (RETAINING WALL)	CU YD	26.4

CODE NO.	LCDOT SP	ITEM	UNIT	TOTAL QUANTITY
54003000		CONCRETE BOX CULVERTS	CU YD	51
54010909		PRECAST CONCRETE BOX CULVERTS 9' X 9'	FOOT	102
59100100		GEOCOMPOSIT WALL DRAIN	SQ YD	15
60108104	*	PIPE UNDERDRAINS, TYPE 1, 4"	FOOT	155
63000001		STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	250
63000030		STRONG POST GUARDRAIL ATTACHED TO CULVERT	FOOT	65
63100041		TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	2
63100045		TRAFFIC BARRIER TERMINAL, TYPE 2	EACH	2
67100100		MOBILIZATION	L SUM	1
X0322128		MEMBRANE WATERPROOFING FOR BURIED STRUCTURES	SQ YD	129
X0426200	*	DEWATERING (SPECIAL)	L SUM	1
X7010216	*	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	L SUM	1
XX006658	*	FLOCCULATION LOGS	EACH	40
XX006659	*	FLOCCULATION POWDER	POUND	20

GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ■ Vernon Hills, IL. 60061
TEL 847.478.9700 ■ FAX 847.478.9701

SOQ

W. EDWARDS ROAD
CULVERT REPLACEMENT
ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT

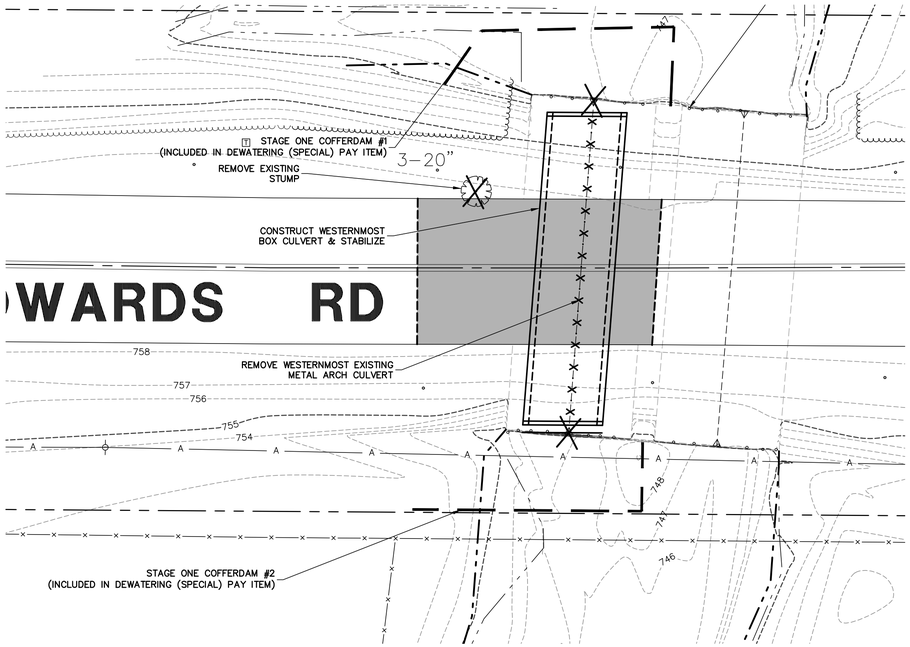
NO.	BY	DATE	REVISION
1	ASH	8/8/2018	LCDOT COMMENTS

NO.	BY	DATE	REVISION

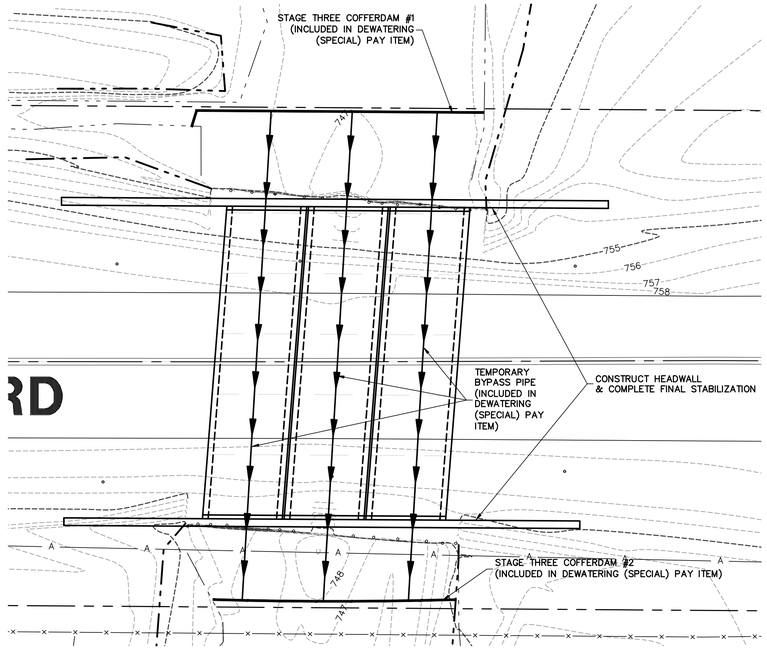
FILE: 5193.200 Edwards Culvert PR3.dwg
DRAWN BY: KRM
DATE: 3-29-18
GHA PROJECT # 5193.200
CHECKED BY: DJS
DATE:
SCALE: N.T.S

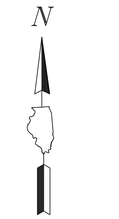
SHEET NUMBER: 3
OF 24 SHEETS

STAGE ONE CONSTRUCTION PHASING



STAGE THREE CONSTRUCTION PHASING

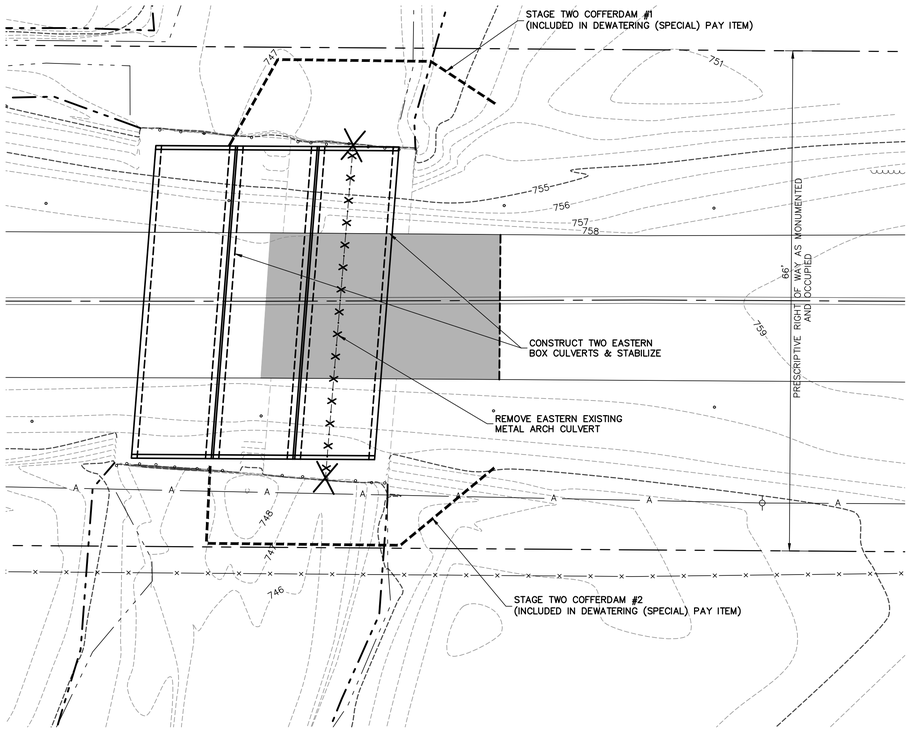




CONSTRUCTION PHASING LEGEND

- STAGE ONE COFFERDAM
- STAGE TWO COFFERDAM
- STAGE THREE COFFERDAM

STAGE TWO CONSTRUCTION PHASING



CONSTRUCTION SEQUENCING

1. ALL WORK TO BE PERFORMED IN DRY CONDITIONS.
2. PRE-CONSTRUCTION MEETING WITH THE PROJECT ENGINEER, TOWNSHIP, USACE, AND LAKE COUNTY STORMWATER MANAGEMENT COMMISSION (LCSMC) REPRESENTATIVE IS REQUIRED FOR THIS PROJECT.
3. FLOW SHALL BE DIVERTED USING AN APPROVED NON-ERODIBLE COFFERDAM (AQUA BARRIER, SHEET STEEL, SAND BAGS, PLASTIC LINER & ROCK). CONSTRUCTION SHALL BE COMPLETED IN STAGES AS SHOWN OR AS APPROVED BY ENGINEER:

STAGE ONE

- CONSTRUCT STAGE ONE COFFERDAMS. REMOVE "WESTERNMOST" OF TWO EXISTING METAL ARCH CULVERTS. CONSTRUCT "WESTERNMOST" OF PROPOSED RCP BOX CULVERTS & STABILIZE.

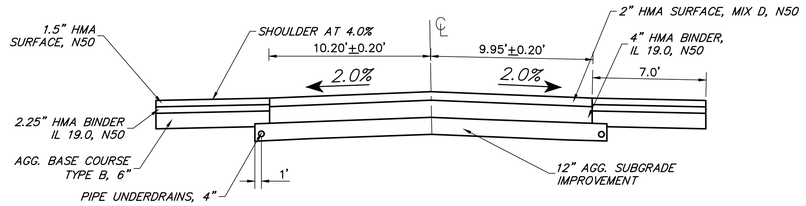
STAGE TWO

- REMOVE STAGE ONE COFFERDAMS. CONSTRUCT STAGE TWO COFFERDAMS. REMOVE EASTERN METAL ARCH CULVERT. CONSTRUCT TWO EASTERN RCP BOX CULVERTS & STABILIZE.

STAGE THREE

- REMOVE STAGE TWO COFFERDAMS AND CONSTRUCT STAGE THREE COFFERDAMS. INSTALL TEMPORARY BYPASS PIPES. CONSTRUCT HEADWALLS AND COMPLETE STABILIZATION. REMOVE STAGE THREE COFFERDAMS AND BYPASS PIPES.

CHANGES TO THE CONSTRUCTION PHASING AND DEWATERING AS SHOWN HERIN WILL BE ALLOWED IF APPROVED BY THE ENGINEER.



TYPICAL HMA PAVEMENT SECTION ABOVE CULVERT

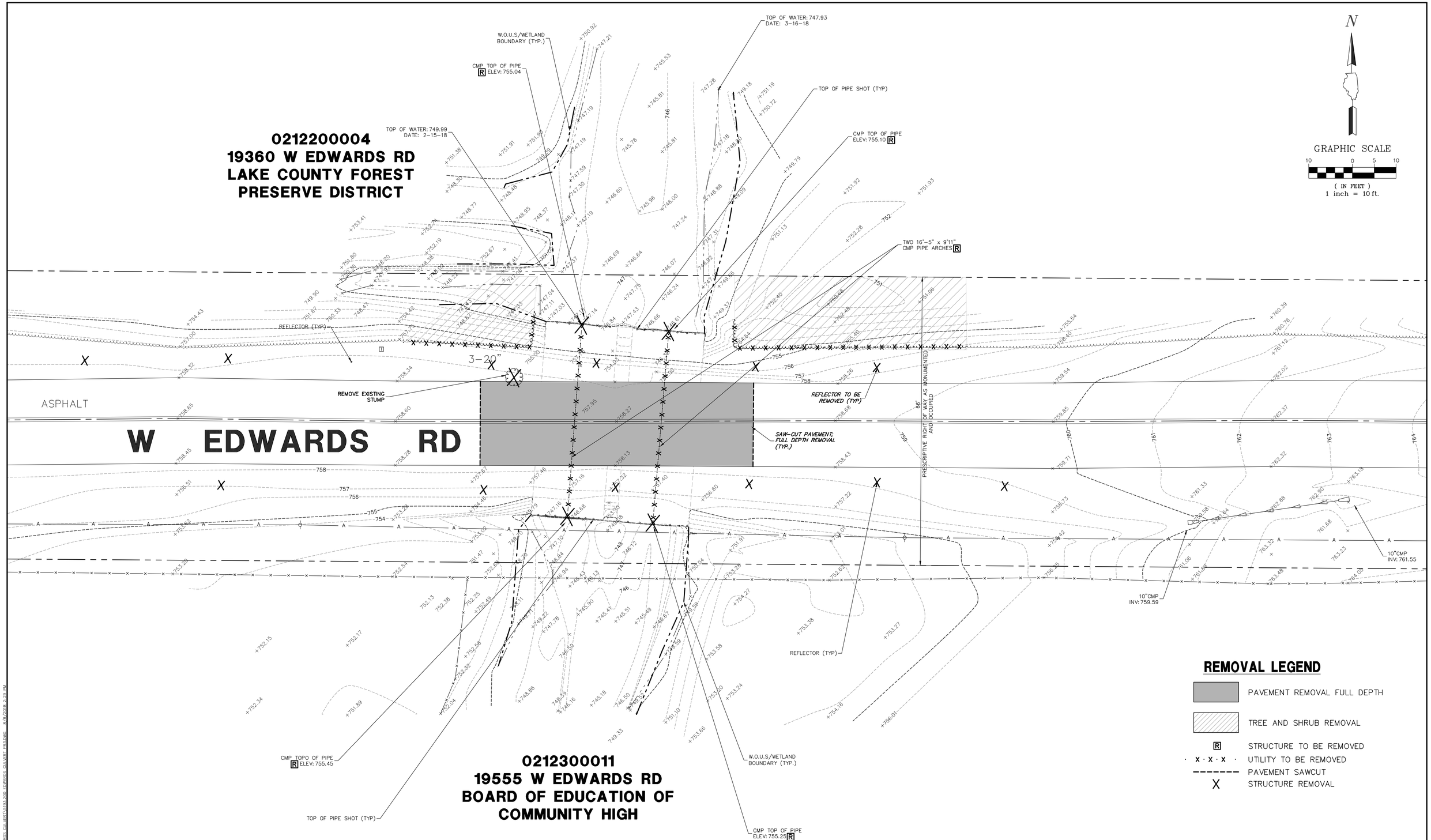
GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ▪ Vernon Hills, IL. 60061
TEL 847.478.9700 ▪ FAX 847.478.9701

CONSTRUCTION PHASING PLAN

W. EDWARDS ROAD
CULVERT REPLACEMENT
ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT

NO.	BY	DATE	REVISION
1	ASH	8/8/2018	LCDOT COMMENTS

FILE: 5193.200 Edwards Culvert PR3.dwg
DRAWN BY: KRM
DATE: 3-29-18
GHA PROJECT # 5193.200
CHECKED BY: DJS
DATE:
SCALE: 1"=10'
SHEET NUMBER: 4
OF 24 SHEETS



GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ▪ Vernon Hills, IL. 60061
TEL 847.478.9700 ▪ FAX 847.478.9701

EXISTING CONDITIONS/DEMOLITION PLAN

W. EDWARDS ROAD
CULVERT REPLACEMENT
ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT

NO.	BY	DATE	REVISION
1	ASH	8/8/2018	LCDOT COMMENTS

NO.	BY	DATE	REVISION

FILE: 5193.200 Edwards Culvert PR3.dwg
DRAWN BY: KRM
DATE: 3-29-18
GHA PROJECT # 5193.200
CHECKED BY: DJS
DATE:
SCALE: 1"=10'

SHEET NUMBER: 5
OF 24 SHEETS

N

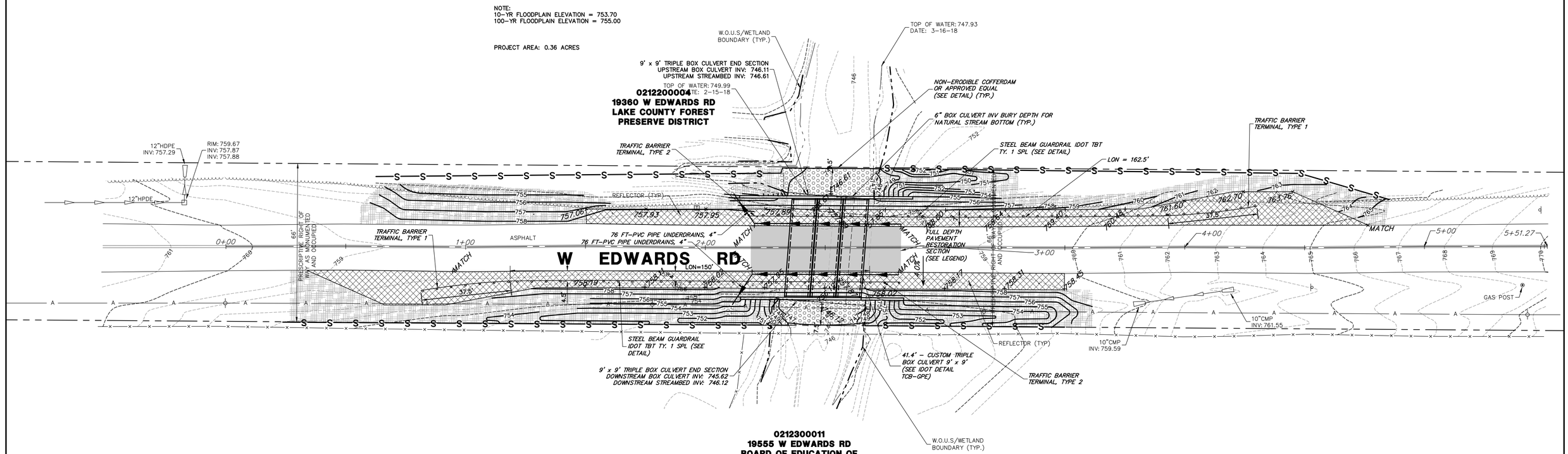
GRAPHIC SCALE

20 0 10 20

(IN FEET)
1 inch = 20 ft.

NOTE:
10-YR FLOODPLAIN ELEVATION = 753.70
100-YR FLOODPLAIN ELEVATION = 755.00

PROJECT AREA: 0.36 ACRES



PROPOSED LEGEND

TOPSOIL FURNISH AND PLACE, VARIABLE DEPTH
SEEDING, CLASS 2A
EROSION CONTROL BLANKET, NAG75

FULL DEPTH PAVEMENT RESTORATION SECTION
-2" HMA SURFACE COURSE, MIX D, N50
-4" HMA BINDER COURSE, IL-19.0
-AGGREGATE BASE COURSE, TYPE B 12"

STONE RIP RAP, CLASS B4
-STONE RIP RIP, CLASS A1 BEDDING

—S— PERIMETER EROSION BARRIER

HMA SHOULDER PAVEMENT
-1.5" HMA SURFACE COURSE, MIX D, N50
-2.25" HMA BINDER COURSE, IL-19.0
-AGGREGATE BASE COURSE, TYPE B 6"

GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ■ Vernon Hills, IL. 60061
TEL 847.478.9700 ■ FAX 847.478.9701

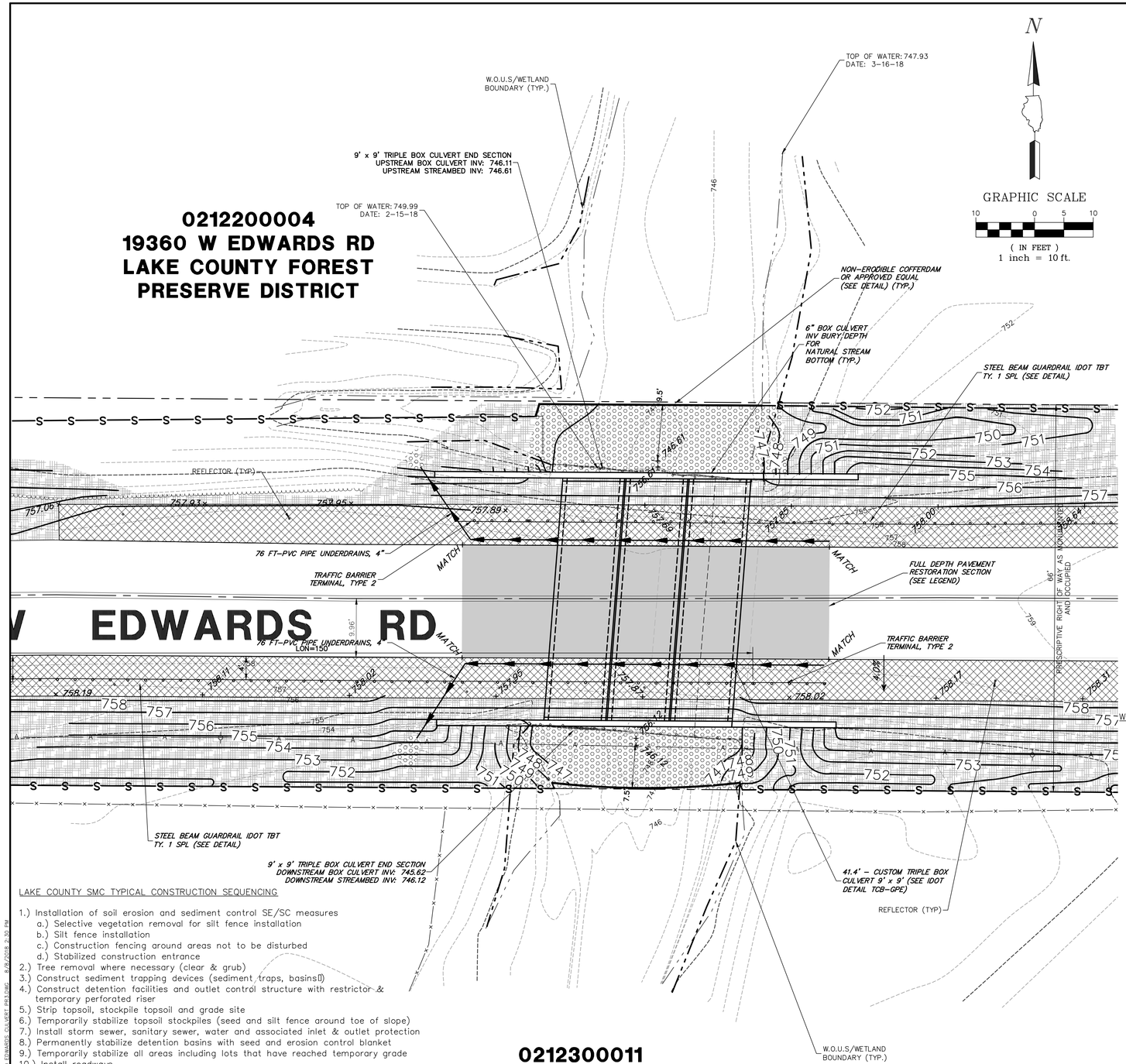
OVERALL SITE PLAN

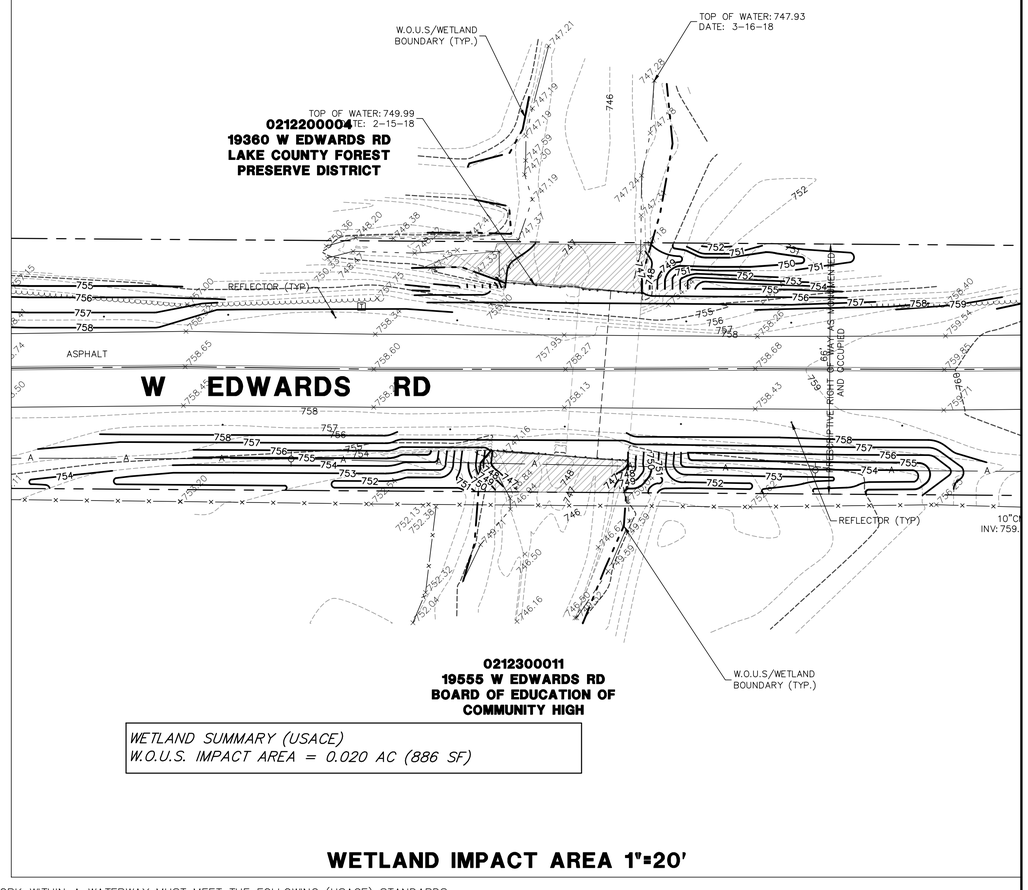
W. EDWARDS ROAD
CULVERT REPLACEMENT
ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT

NO.	BY	DATE	REVISION
1	ASH	8/8/2018	LCDOT COMMENTS

FILE: 5193.200 Edwards Culvert PR3.dwg
DRAWN BY: KRM
DATE: 3-29-18
CHECKED BY: DJS
DATE:
GHA PROJECT # 5193.200
SCALE: AS NOTED

SHEET NUMBER: 6
OF 24 SHEETS





WETLAND SUMMARY (USACE)
W.O.U.S. IMPACT AREA = 0.020 AC (886 SF)

WETLAND IMPACT AREA 1"=20'

LAKE COUNTY SMC TYPICAL CONSTRUCTION SEQUENCING

1.) Installation of soil erosion and sediment control SE/SC measures
   a.) Selective vegetation removal for silt fence installation
   b.) Silt fence installation
   c.) Construction fencing around areas not to be disturbed
   d.) Stabilized construction entrance
2.) Tree removal where necessary (clear & grub)
3.) Construct sediment trapping devices (sediment traps, basins!!)
4.) Construct detention facilities and outlet control structure with restrictor & temporary perforated riser
5.) Strip topsoil, stockpile topsoil and grade site
6.) Temporarily stabilize topsoil stockpiles (seed and silt fence around toe of slope)
7.) Install storm sewer, sanitary sewer, water and associated inlet & outlet protection
8.) Permanently stabilize detention basins with seed and erosion control blanket
9.) Temporarily stabilize all areas including lots that have reached temporary grade
10.) Install roadways
11.) Permanently stabilize all outlot areas
12.) Install structures and grade individual lots
13.) Permanently stabilize lots
14.) Remove all temporary SE/SC measures after the site is stabilized with vegetation

* Soil erosion and sediment control maintenance must occur every two weeks and after every ½ or greater rainfall event

0212300011
19555 W EDWARDS RD
BOARD OF EDUCATION OF
COMMUNITY HIGH

WORK WITHIN A WATERWAY MUST MEET THE FOLLOWING (USACE) STANDARDS:

1. Work in the waterway should be timed to take place during low or no-flow conditions. Low flow conditions are flow at or below the normal water elevation.
2. The plan will be designed to allow for the conveyance of the 2-year peak flow past the work area without overtopping the cofferdam. The Corps has the discretion to reduce this requirement if documented by the applicant to be infeasible or unnecessary.
3. Water shall be isolated from the in-stream work area using a cofferdam constructed of non-erodible materials (steel sheets, aqua barriers, rip rap and geotextile liner, etc.). Earthen cofferdams are not permissible.
4. The cofferdam must be constructed from the upland area and no equipment may enter flowing water at any time. If the installation of the cofferdam cannot be completed from shore and access is needed to reach the area to be coffered, other measures, such as the construction of a causeway, will be necessary to ensure that equipment does not enter the water. Once the cofferdam is in place and the isolated area is dewatered, equipment may enter the coffered area to perform the required work.
5. If bypass pumping is necessary, the intake hose shall be placed on a stable surface or floated to prevent sediment from entering the hose. The bypass discharge shall be placed on a non-erodible, energy dissipating surface prior to rejoining the stream flow and shall not cause erosion. Filtering of bypass water is not necessary unless the bypass water has become sediment-laden as a result of the current construction activities.
6. During dewatering of the coffered work area, all sediment-laden water must be filtered to remove sediment. Possible options for sediment removal include baffle systems, anionic polymers systems, dewatering bags, or other appropriate methods. Water shall have sediment removed prior to being re-introduced to the downstream waterway. A stabilized conveyance from the dewatering device to the waterway must be identified in the plan. Discharge water is considered clean if it does not result in a visually identifiable degradation of water clarity.
7. The area from the toe to the top of the side slope shall be temporarily stabilized during construction to reduce the potential for erosion. All areas disturbed due to construction activities shall be restored to proposed conditions and fully stabilized prior to accepting flows.

Additional Notes:
- Cofferdams shall be constructed to allow the passage of high flows, maintain downstream flows, and withstand anticipated erosive forces.
- Cofferdams shall be designed and installed so as not to impede the movement of aquatic organisms.

WETLAND IMPACT LEGEND

- W.O.U.S IMPACT
- WATERS OF THE U.S./ WETLAND BOUNDARY

PROPOSED LEGEND

- TOPSOIL FURNISH AND PLACE, VARIABLE DEPTH
  SEEDING, CLASS 2A
  EROSION CONTROL BLANKET, NAG75
- FULL DEPTH PAVEMENT RESTORATION SECTION
  -2" HMA SURFACE COURSE, MIX D, N50
  -4" HMA BINDER COURSE, IL-19.0
  -AGGREGATE BASE COURSE, TYPE B 12"
- STONE RIP RAP, CLASS B4
  -STONE RIP RIP, CLASS A1 BEDDING
- PERIMETER EROSION BARRIER
- HMA SHOULDER PAVEMENT
  -1.5" HMA SURFACE COURSE, MIX D, N50
  -2.25" HMA BINDER COURSE, IL-19.0
  -AGGREGATE BASE COURSE, TYPE B 6"

GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ■ Vernon Hills, IL. 60061
TEL 847.478.9700 ■ FAX 847.478.9701

PROPOSED WETLAND IMPACT

W. EDWARDS ROAD
CULVERT REPLACEMENT
ANTIOCH TOWNSHIP HIGHWAY DEPARTMENT

NO.	BY	DATE	REVISION
1	ASH	8/8/2018	LCDOT COMMENTS

FILE: 5193.200 Edwards Culvert PR3.dwg
DRAWN BY: KRM
DATE: 3-29-18
GHA PROJECT # 5193.200
CHECKED BY: DJS
DATE:
SCALE: AS NOTED
SHEET NUMBER: 7
OF 24 SHEETS

Tab 3

Permit Approvals

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
231 SOUTH LA SALLE STREET
CHICAGO, ILLINOIS 60604-1437

REPLY TO
ATTENTION OF:

August 9, 2018

Technical Services Division
Regulatory Branch
LRC-2018-00425

SUBJECT: Request Authorization to Impact 0.02 Acres of North Mill Creek for the Edwards Road Culvert Replacement Located East of Route 45/ Edwards Road Intersection in the Village of Antioch, Lake County, Illinois (Latitude 42.48067, Longitude -88.0119)

Eric Ring
Antioch Township Highway Department
933 Bartlett Avenue
Antioch, IL 60001

Dear Mr. Ring:

This office has verified that your proposed activity complies with the terms and conditions of Regional Permit 3 & 7 and the General Conditions for all activities authorized under the Regional Permit Program.

This verification expires three (3) years from the date of this letter and covers only your activity as described in your notification and as shown on the plans entitled, "W. Edwards Road, Culvert Replacement, Antioch Township Highway Department, Sheets 1-9, GHA Project # 5193.200", dated March 29, 2018 (revised July 23, 2018), prepared by Gewalt Hamilton Associates, Inc. Caution must be taken to prevent construction materials and activities from impacting waters of the United States beyond the scope of this authorization. If you anticipate changing the design or location of the activity, you should contact this office to determine the need for further authorization.

The activity may be completed without further authorization from this office provided the activity is conducted in compliance with the terms and conditions of the RPP, including conditions of water quality certification issued under Section 401 of the Clean Water Act by the Illinois Environmental Protection Agency (IEPA). If the design, location, or purpose of the project is changed, you should contact this office to determine the need for further authorization.

1. If the work is scheduled to occur between April 1 and September 31 of any year, the bridge/culvert shall be inspected for the presence of Northern Long-Eared bat (Myotis septentrionalis) no more than 7 days prior to the start of construction activity to ensure bats have not started to use the area of the bridge proposed for work. If that species is found to be using the structure, the permittee shall immediately contact Shawn Cirton of

the U.S. Fish and Wildlife Service, (847) 381-2253, and Melyssa R. Navis of the U.S. Army Corps of Engineers, (312) 846-5533, to ask for further guidance. Work shall not commence until consultation with these two agencies has been satisfied.

2. To avoid potential impacts to the northern long-eared bat (Myotis septentrionalis), tree clearing (trees 3" DBH or greater) shall only occur between October 1 and March 31 of any construction year.

3. This authorization is contingent upon implementing and maintaining soil erosion and sediment controls in a serviceable condition throughout the duration of the project. You shall comply with the Lake County Stormwater Management Commission (LCSMC)'s written and verbal recommendations regarding the soil erosion and sediment control (SESC) plan and the installation and maintenance requirements of the SESC practices on-site.

    a. You shall schedule a preconstruction meeting with LCSMC to discuss the SESC plan and the installation and maintenance requirements of the SESC practices on the site. You shall contact the LCSMC at least 10 calendar days prior to the preconstruction meeting so that a representative may attend.
    b. You shall notify the LCSMC or the LCSMC's designated agent of any changes or modifications to the approved plan set. Field conditions during project construction may require the implementation of additional SESC measures. If you fail to implement corrective measures, this office may require more frequent site inspections to ensure the installed SESC measures are acceptable.
    c. Prior to commencement of any in-stream work, you shall submit constructions plans and a detailed narrative disclosing the contractor's preferred method of cofferdam and dewatering method to the LCSMC or the LCSMC's designated agent. Work in the waterway shall NOT commence until the LCSMC notifies you, in writing, that the plans have been approved.

4. Under no circumstances shall the Contractor prolong final grading and shaping so that the entire project can be permanently seeded at one time. Permanent stabilization within the wetland and stream buffers identified in the plans shall be initiated immediately following the completion of work. Final stabilization of these areas should not be delayed due to utility work to be performed by others.

5. Please note that this site is within the aboriginal homelands of several American Indian Tribes. If any cultural, archaeological or historical resources are unearthed during activities authorized by this permit, work in that area must be stopped immediately and the Corps, State Historic Preservation Office and/or Tribal Historic Preservation Office must be contacted for further instruction. The Corps will initiate the coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing on the National Register of Historic Places.

6. You are responsible for all work authorized herein and for ensuring that all contractors are aware of the terms and conditions of this authorization.

7. A copy of this authorization must be present at the project site during all phases of construction.

8. You shall notify this office of any proposed modifications to the project, including revisions to any of the plans or documents cited in this authorization. You must receive approval from this office before work affected by the proposed modification is performed.

9. You shall notify this office prior to the transfer of this authorization and liabilities associated with compliance with its terms and conditions.

10. Work in the waterway should be timed to take place during low or no-flow conditions. Low flow conditions are flow at or below the normal water elevation.

11. The plan will be designed to allow for the conveyance of the 2-year peak flow past the work area without overtopping the cofferdam. The Corps has the discretion to reduce this requirement if documented by the applicant to be infeasible or unnecessary.

12. Water shall be isolated from the in-stream work area using a cofferdam constructed of non-erodible materials (steel sheets, aqua barriers, rip rap and geotextile liner, etc.). Earthen cofferdams are not permissible.

13. The cofferdam must be constructed from the upland area and no equipment may enter flowing water at any time. If the installation of the cofferdam cannot be completed from shore and access is needed to reach the area to be coffered, other measures, such as the construction of a causeway, will be necessary to ensure that equipment does not enter the water. Once the cofferdam is in place and the isolated area is dewatered, equipment may enter the coffered area to perform the required work.

14. If bypass pumping is necessary, the intake hose shall be placed on a stable surface or floated to prevent sediment from entering the hose. The bypass discharge shall be placed on a non-erodible, energy dissipating surface prior to rejoining the stream flow and shall not cause erosion. Filtering of bypass water is not necessary unless the bypass water has become sediment-laden as a result of the current construction activities.

15. During dewatering of the coffered work area, all sediment-laden water must be filtered to remove sediment. Possible options for sediment removal include baffle systems, anionic polymers systems, dewatering bags, or other appropriate methods. Water shall have sediment removed prior to being re-introduced to the downstream waterway. A stabilized conveyance from the dewatering device to the waterway must be identified in the plan. Discharge water is considered clean if it does not result in a visually identifiable degradation of water clarity.

16. The portion of the side slope that is above the observed water elevation shall be stabilized as specified in the plans prior to accepting flows. The substrate and toe of slope that has

been disturbed due to construction activities shall be restored to proposed or pre-construction conditions and fully stabilized prior to accepting flows.

This verification does not obviate the need to obtain all other required Federal, state, or local approvals before starting work. Please note that Section 401 Water Quality Certification has been issued by IEPA for this RP. If you have any questions regarding Section 401 certification, please contact Mr. Darin LeCrone at IEPA Division of Water Pollution Control, Permit Section #15, by telephone at (217) 782-0610.

Once you have completed the authorized activity, please sign and return the enclosed compliance certification. If you have any questions, please contact Melyssa R. Navis of my staff by telephone at (312) 846-5533, or email at melyssa.r.navis@usace.army.mil.

Sincerely,

CHERNICH.KATHLEEN.G.1230365616

Digitally signed by CHERNICH.KATHLEEN.G.1230365616
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=CHERNICH.KATHLEEN.G.1230365616
Date: 2018.08.09 17:46:39 -05'00'

Kathy G. Chernich
Chief, East Section
Regulatory Branch

Enclosures

Copy Furnished:

Lake County Stormwater Management Commission (Kurt Woolford)
Lake County Planning, Building and Development Department (Matthew Meyers)
Gewalt Hamilton and Associates (Caitlin Burke)

PERMIT COMPLIANCE

CERTIFICATION

Permit Number: LRC-2018-00425

Permittee: Antioch Township Highway Department

Date: August 3, 2018

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of said permit and if applicable, compensatory wetland mitigation was completed in accordance with the approved mitigation plan.[1]

_____ _____

PERMITTEE DATE

Upon completion of the activity authorized by this permit and any mitigation required by the permit, this certification must be signed and returned to the following address:

U.S. Army Corps of Engineers
Chicago District, Regulatory Branch
231 South LaSalle Street, Suite 1500
Chicago, Illinois 60604-1437

Please note that your permitted activity is subject to compliance inspections by Corps of Engineers representatives. If you fail to comply with this permit, you may be subject to permit suspension, modification, or revocation.

[1] If compensatory mitigation was required as part of your authorization, you are certifying that the mitigation area has been graded and planted in accordance with the approved plan. You are acknowledging that the maintenance and monitoring period will begin after a site inspection by a Corps of Engineers representative or after thirty days of the Corps' receipt of this certification. You agree to comply with all permit terms and conditions, including additional reporting requirements, for the duration of the maintenance and monitoring period.

Tab 4

Seed Mixes

TABLE 1 - SEEDING MIXTURES

Class - Type		Seeds	lb/acre (kg/hectare)
1	Lawn Mixture 7/	Ky Bluegrass	100 (110)
		Perennial Ryegrass	60 (70)
		Creeping Red Fescue	40 (50)
1A	Salt Tolerant Lawn Mixture 7/	Bluegrass	60 (70)
		Perennial Ryegrass	20 (20)
		Red Fescue (Audubon, Sea Link, or Epic)	20 (20)
		Hard Fescue (Rescue 911, Spartan II, or Reliant IV)	20 (20)
		Fults Salt Grass 1/ or Salty Alkaligrass	60 (70)
1B	Low Maintenance Lawn Mixture 7/	Fine Leaf Turf-Type Fescue 3/	150 (170)
		Perennial Ryegrass	20 (20)
		Red Top	10 (10)
		Creeping Red Fescue	20 (20)
2	Roadside Mixture 7/	Tall Fescue (Inferno, Tarheel II, Quest, Blade Runner, or Falcon IV)	100 (110)
		Perennial Ryegrass	50 (55)
		Creeping Red Fescue	40 (50)
		Red Top	10 (10)
2A	Salt Tolerant Roadside Mixture 7/	Tall Fescue (Inferno, Tarheel II, Quest, Blade Runner, or Falcon IV)	60 (70)
		Perennial Ryegrass	20 (20)
		Red Fescue (Audubon, Sea Link, or Epic)	30 (20)
		Hard Fescue (Rescue 911, Spartan II, or Reliant IV)	30 (20)
		Fults Salt Grass 1/ or Salty Alkaligrass	60 (70)
3	Northern Illinois Slope Mixture 7/	Elymus Canadensis (Canada Wild Rye) 5/	5 (5)
		Perennial Ryegrass	20 (20)
		Alsike Clover 2/	5 (5)
		Desmanthus Illinoensis (Illinois Bundleflower) 2/, 5/	2 (2)
		Andropogon Scoparius (Little Bluestem) 5/	12 (12)
		Bouteloua Curtipendula (Side-Oats Grama) 5/	10 (10)
		Fults Salt Grass 1/ or Salty Alkaligrass	30 (35)
		Oats, Spring	50 (55)
		Slender Wheat Grass 5/	15 (15)
		Buffalo Grass (Cody or Bowie) 4/, 5/, 9/	5 (5)
3A	Southern Illinois Slope Mixture 7/	Perennial Ryegrass	20 (20)
		Elymus Canadensis (Canada Wild Rye) 5/	20 (20)
		Panicum Virgatum (Switchgrass) 5/	10 (10)
		Andropogon Scoparius (Little Blue Stem) 5/	12 (12)
		Bouteloua Curtipendula (Side-Oats Grama) 5/	10 (10)
		Petalostemum Candidum (White Prairie Clover) 5/	5 (5)
		Rudbeckia Hirta (Black-Eyed Susan) 5/	5 (5)
		Oats, Spring	50 (55)

Class - Type		Seeds	lb/acre (kg/hectare)
4	Native Grass 6/, 8/	Andropogon Gerardi (Big Blue Stem) 5/	4 (4)
		Andropogon Scoparius (Little Blue Stem) 5/	5 (5)
		Bouteloua Curtipendula (Side-Oats Grama) 5/	5 (5)
		Elymus Canadensis (Canada Wild Rye) 5/	1 (1)
		Panicum Virgatum (Switch Grass) 5/	1 (1)
		Sorghastrum Nutans (Indian Grass) 5/	2 (2)
		Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Perennial Ryegrass	15 (15)
4A	Low Profile Native Grass 6/, 8/	Andropogon Scoparius (Little Blue Stem) 5/	5 (5)
		Bouteloua Curtipendula (Side-Oats Grama) 5/	5 (5)
		Elymus Canadensis (Canada Wild Rye) 5/	1 (1)
		Sporobolus Heterolepsis (Prairie Dropseed) 5/	0.5 (0.5)
		Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Perennial Ryegrass	15 (15)
4B	Wetland Grass and Sedge Mixture 6, 8/	Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Wetland Grasses (species below)	6 (6)

Species:	% By Weight 5/
Calamagrostis Canadensis (Blue Joint Grass)	12
Carex lacustris (Lake-Bank Sedge)	6
Carex slipata (Awl-Fruited Sedge)	6
Carex stricta (Tussock Sedge)	6
Carex vulpinoidea (Fox Sedge)	6
Eleocharis aciculoris (Needle Spike Rush)	3
Eleocharis obtusa (Blunt Spike Rush)	3
Glyceria striata (Fowl Manna Grass)	14
Juncus effusus (Common Rush)	6
Juncus tenuis (Slender Rush)	6
Juncus torreyi (Torrey's Rush)	6
Leersia oryzoides (Rice Cut Grass)	10
Scirpus acutus (Hard-Stemmed Bulrush)	3
Scirpus atrovirens (Dark Green Rush)	3
Scirpus fluviatilis (River Bulrush)	3
Scirpus validus (Softstem Bulrush)	3
Spartina pectinata (Cord Grass)	4

Tab 5

Site Photographs

Site Photographs

PHOTO 1

North end of the culvert, facing south.

PHOTO 2

North end of the culvert, facing south.

PHOTO 3

Small ravine/drainage area runs parallel along north side of Edwards Road into the creek.

PHOTO 4

Larger ravine immediately parallel to north side of Edwards Road into the creek.

PHOTO 5

North end of the culvert, facing north.

PHOTO 6

South end of the culvert, facing north.

PHOTO 7

South end of the culvert, facing north.

PHOTO 8

South end of the culvert, facing south.

PHOTO 9
North end of the culvert, facing west.

PHOTO 10

Shoulder of Edwards Road, with hole forming due to loss of stone around culverts

PHOTO 11

Inside of culverts, close up of rusted metal with stone subbase spilling into the creek

Tab 6

Implementing Agreement

IMPLEMENTING AGREEMENT

A) the names and signatures of all participants in the execution of the conservation plan;

Antioch Township Highway Commission

Eric Ring
Highway Commissioner

Gewalt Hamilton Associates, Inc.

Thomas Rychlik, P.E.
Senior Engineer

B) the obligations and responsibilities of each of the identified participants with schedules and deadlines for completion of activities included in the conservation plan and a schedule for preparation of progress reports to be provided to the IDNR;

The erosion control inspector will ensure that erosion and sediment control is maintained in good working condition. Inspections will occur weekly and following a 0.5" rainfall. The erosion control inspector will ensure that any deficiencies noted in the erosion and sediment control will be repaired within one week. If it is determined that the design of the erosion and sediment control is insufficient, a new design will be implemented. Additionally, any conditions placed by the U.S. Army Corps of Engineers or the State of Illinois' permits for the protection of water quality will be strictly followed.

C) certification 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;

The project is an undertaking by the Antioch Township Highway Commission. The Township has the legal authority to conduct the work and accepts the responsibility of adhering to minimization and conservation measures described within this document.

D) assurance of compliance with all other federal, State and local regulations pertinent to the proposed action and to execution of the conservation plan;

Antioch Township Highway Commission has applied for a Section 404 Clean Water Act permit from the U.S. Army Corps of Engineers. Permits have been received by the Illinois Department of Natural Resources-Office of Water Resources for work in the floodway, and by the Lake County Stormwater Management Commission. Permit conditions include erosion and sediment control and other minimization measures.

E) copies of any final federal authorizations for a taking already issued to the applicant, if any.

The Iowa darter is a state-threatened species and not federally protected species. No federal authorization is required.