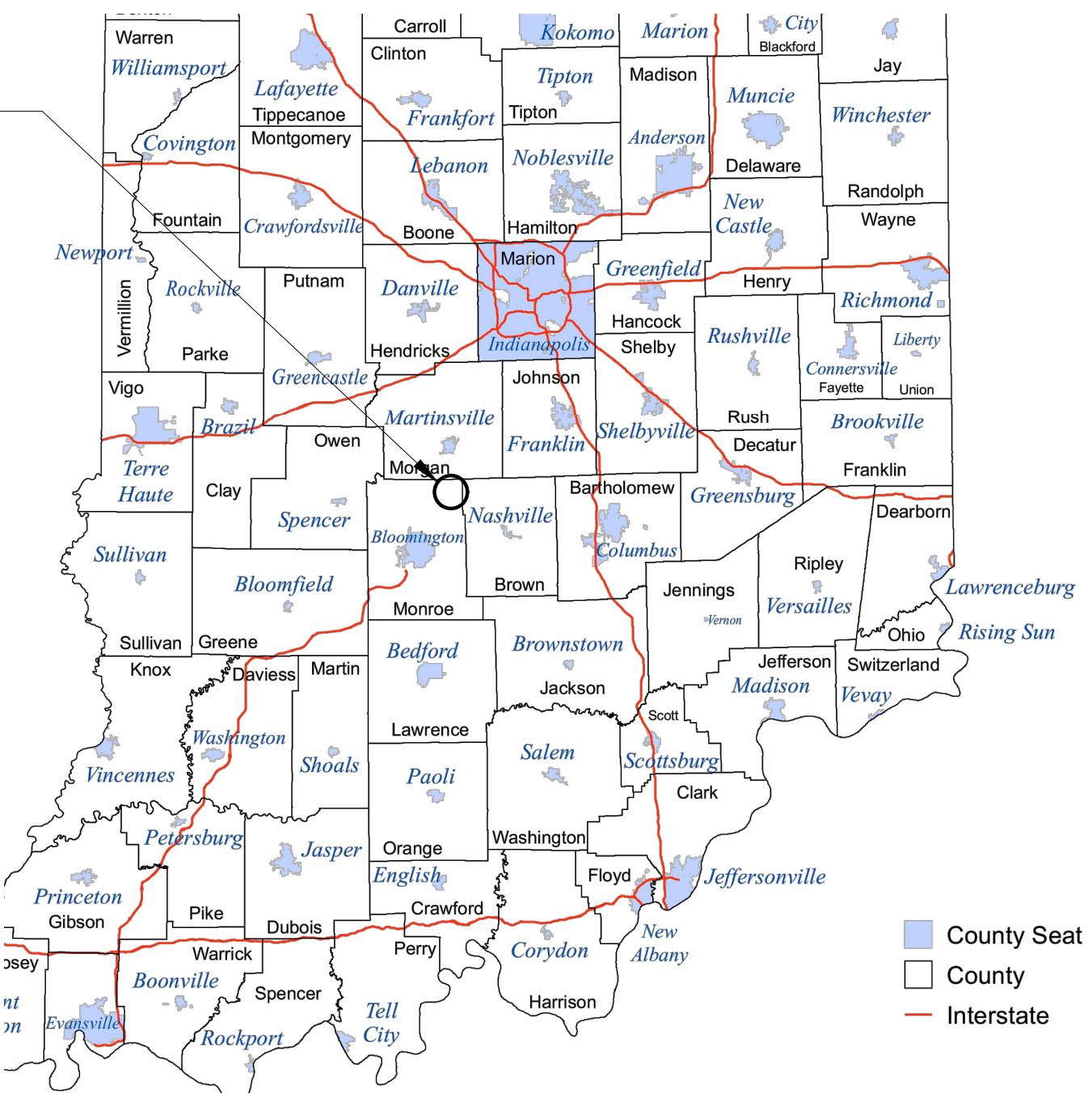


# CHERRY LAKE DAM REHABILITATION

SEC. 09 - T10N - R1E MONROE COUNTY, BENTON NORTH TOWNSHIP, MARTINSVILLE, INDIANA  
ZONED: FR, STATE PROJECT NO. 300DM-07013-04-C1

PROJECT  
LOCATION

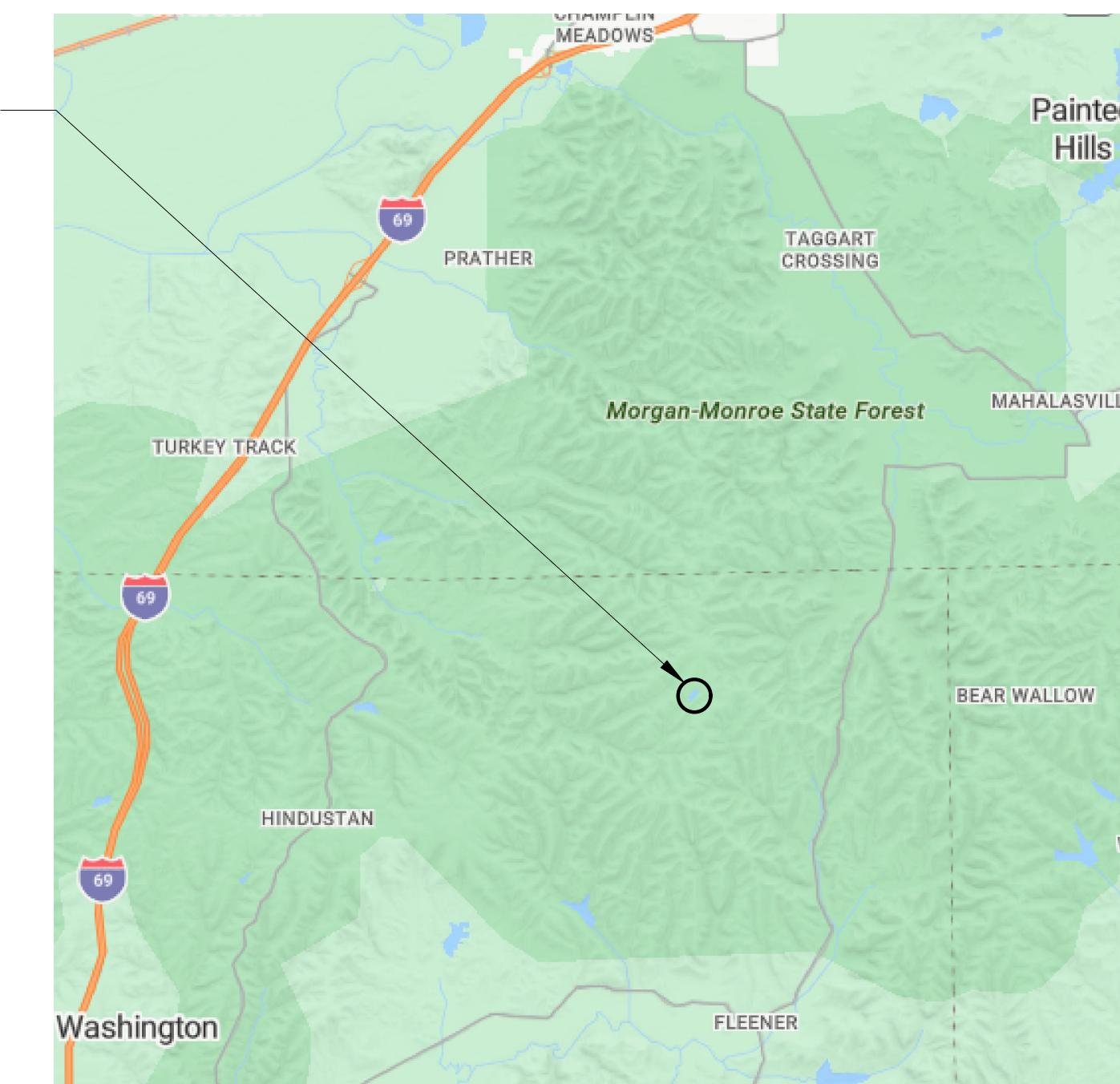


VICINITY MAP  
NO SCALE

PLANS PREPARED FOR:

INDIANA DEPARTMENT OF ADMINISTRATION  
402 W. WASHINGTON ST., ROOM W467, IGCS  
INDIANAPOLIS, INDIANA 46204  
PHONE: 317-232-4160  
FAX: 317-233-4613  
CONTACT: MICHAEL CHAPMAN

PROJECT  
LOCATION



LOCATION MAP  
NO SCALE

OPERATING AUTHORITIES

**COMMUNICATIONS**  
AT&T  
240 N. Meridian St., Room 1791  
Indianapolis, IN 46204  
317-265-3050

**ELECTRIC**  
South Central Indiana R.E.M.C.  
300 Morton Ave.  
Martinsville, IN 46151  
765-352-4751  
Howard McCormick

**FIBER OPTIC**  
South Central Indiana R.E.M.C.  
300 Morton Ave.  
Martinsville, IN 46151  
765-352-4771 or 765-352-4744  
Joby Jordan or Doug Hornberger

**SANITARY SEWER**

**FIRE DEPARTMENT**

**CITY OF MARTINSVILLE**

**WATER & STORM SEWER**

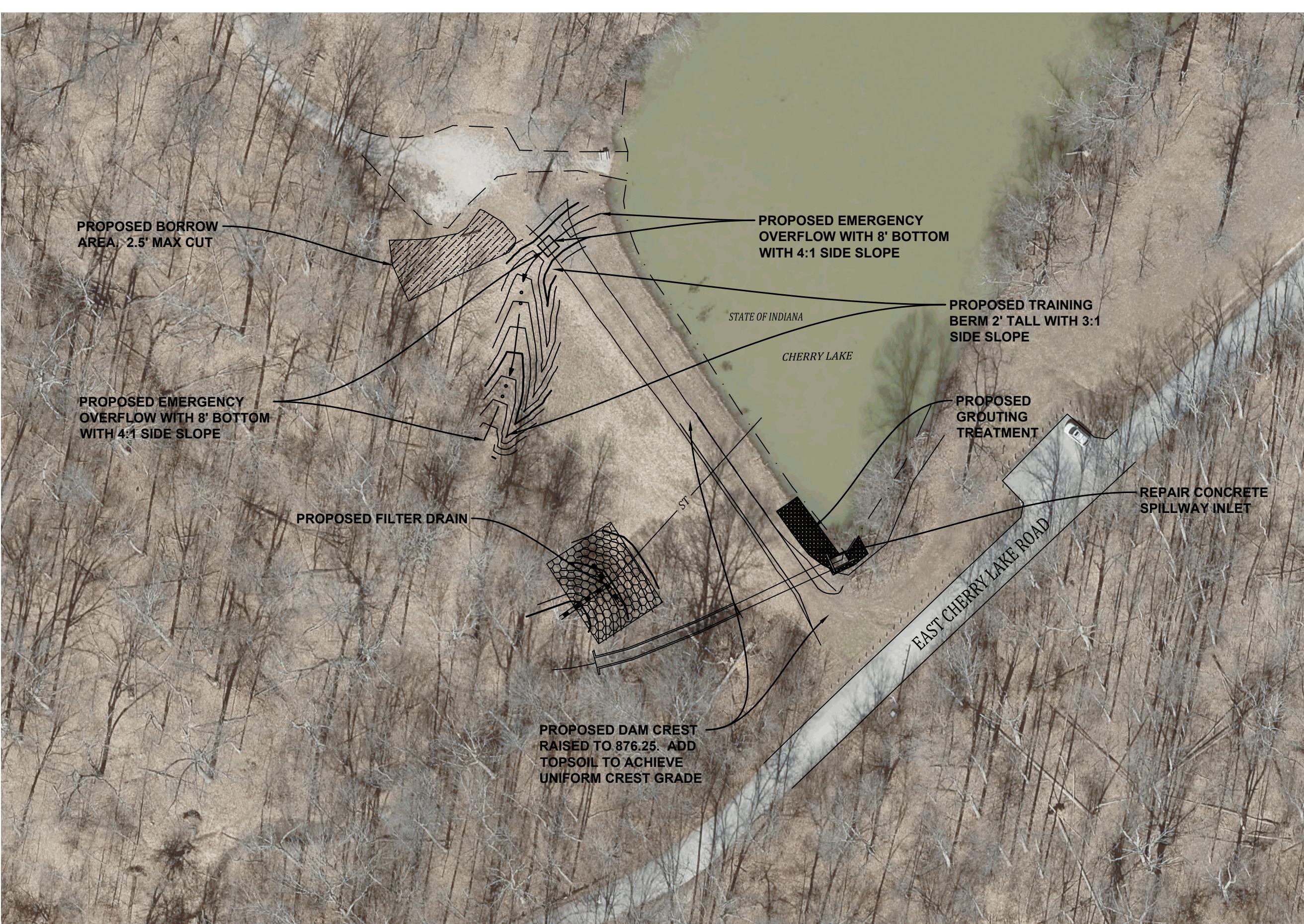
**SCHOOL DISTRICT**

**MONROE COUNTY COMMUNITY SCHOOL CORP.**

**315 E. NORTH DR.**

**BLOOMINGTON, IN 47401**

**812-330-7813**



SITE MAP

SCALE: 1" = 50'

SHEET INDEX

SHEET NO.	DESCRIPTION
C100	TITLE SHEET
C101	EXISTING TOPOGRAPHY PLAN
C102	OVERALL PLAN
C103	CROSS SECTIONS
C400	EROSION CONTROL PLAN
C401	STORM WATER POLLUTION PREVENTION PLAN
C500	EROSION CONTROL DETAILS
C501-C502	MISCELLANEOUS DETAILS
C503	SOIL BORINGS

CONSTRUCTION DOCUMENTS

PROJECT MANAGER: \_\_\_\_\_ DATE: \_\_\_\_\_

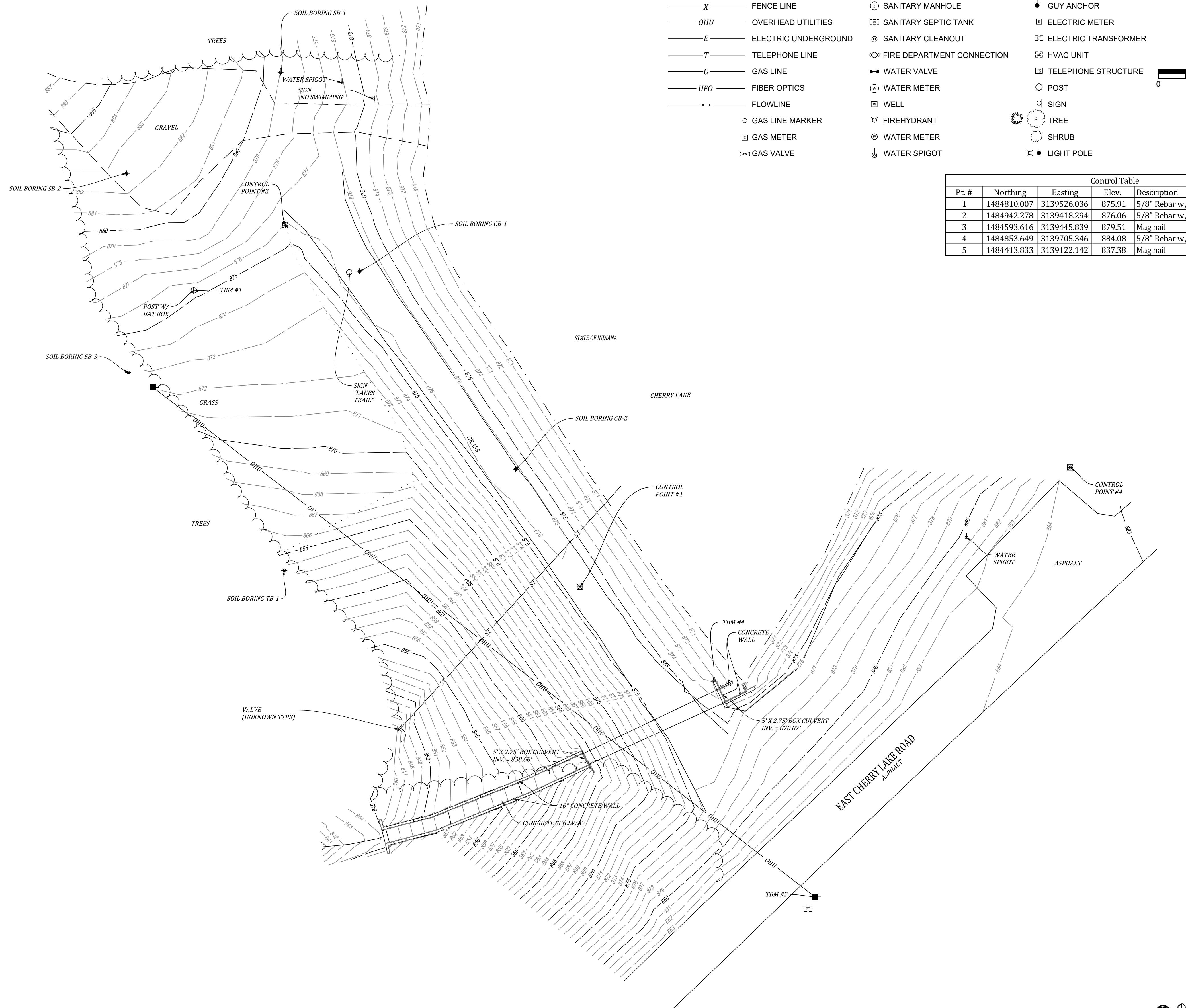
THESE PLANS ARE NOT TO BE CONSIDERED FINAL OR TO BE UTILIZED FOR CONSTRUCTION UNLESS SIGNED AND DATED BY THE APPROPRIATE BANNING ENGINEERING PROJECT MANAGER.

THESE PLANS ARE NOT INTENDED TO BE REPRESENTED AS A RETRACEMENT OR ORIGINAL BOUNDARY SURVEY, A ROUTE SURVEY, OR A SURVEYOR LOCATION REPORT.



CERTIFIED BY: \_\_\_\_\_

Date: 09-19-23  
Project No: 22067  
Sheet No: C100



P:\2022\22067\Engineering\Sheet Files\Cadd\Sep 19, 2023 - 5:37am

**Project Benchmark**  
The vertical datum for this site was based upon North American Vertical Datum of 1988 (NAVD 88) and established by an OPUS solution on Control Point #4. Differential leveling from Control Point #4 was utilized to establish the elevations of the remaining control points for this survey.

Site Benchmarks  
TBM #1 - Bench tie set, 1 ' above ground, in north face of bat box pole located on the west side of the Cherry Lake dam.  
Elev. = 876.71' (NAVD 88)

TBM #2 - Bench tie set, 1' above ground, in power pole #171-37-2 located on the south side of East Cherry Lake Road at the centerline of the Cherry Lake dam extended east.  
Elev. = 883.20' (NAVD 88)

TBM #3 - Benchtie set in north face of wood guardrail located on the south side of East Cherry Lake Road, +/- 120' south of shelter house.  
Elev. 829.36" (NAVD 88)

TBM #4 - Cut square on east end of the Cherry Lake concrete outlet structure.  
Elev. = 874.30' (NAVD 88)

Notes:  
Per 865 IAC 1-12-12 this drawing is not intended to be represented as a retracement or original boundary survey, a route survey, or a Surveyor Location Report.

The horizontal data shown on this exhibit is based upon standard radial survey techniques and by global positioning equipment, utilizing the VRS Network, a real-time kinematic (RTK) correction service over the internet. The coordinate values shown are in Indiana State Plane West Zone on the 1983 North American Datum.

All bearings, distances and coordinates are referenced to the Indiana State Plane West Zone (NAD 83) Coordinate System. The Combined Scale Factor for this project is 1.000000. Distances shown hereon are GRID distances.

The topographic information shown hereon was obtained in the field during February 2023. The topographic data was gathered using a robotic total station and data collector applying standard radial surveying techniques and by global positioning equipment, utilizing the VRS Network, a real-time kinematic (RTK) correction service over the internet.

Elevations on hard surfaces or structures are accurate to within 0.05 feet, elevations on natural surfaces are accurate to within 0.15 feet. The contours shown hereon were plotted based upon interpolation of spot elevations and other topographic information and are accurate to within one half of the contour interval.

This survey reflects above ground indications of utilities and information available from utility companies. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated, although they are located as accurately as possible from the information available. The surveyor has not physically located the underground utilities.

Underground utilities shown per Indiana 811 ticket numbers 2301173214 and 2301173365.

**BANNING**  
ENGINEERING  
853 COLUMBIA ROAD, SUITE #101  
PLAINFIELD, IN 46168  
TEL: (317) 707-3700, FAX: (317) 707-3800  
MAIL: [Banning@BanningEngineering.com](mailto:Banning@BanningEngineering.com)  
WEB: [www.BanningEngineering.com](http://www.BanningEngineering.com)

Project No: 22067

C101



## GENERAL NOTES

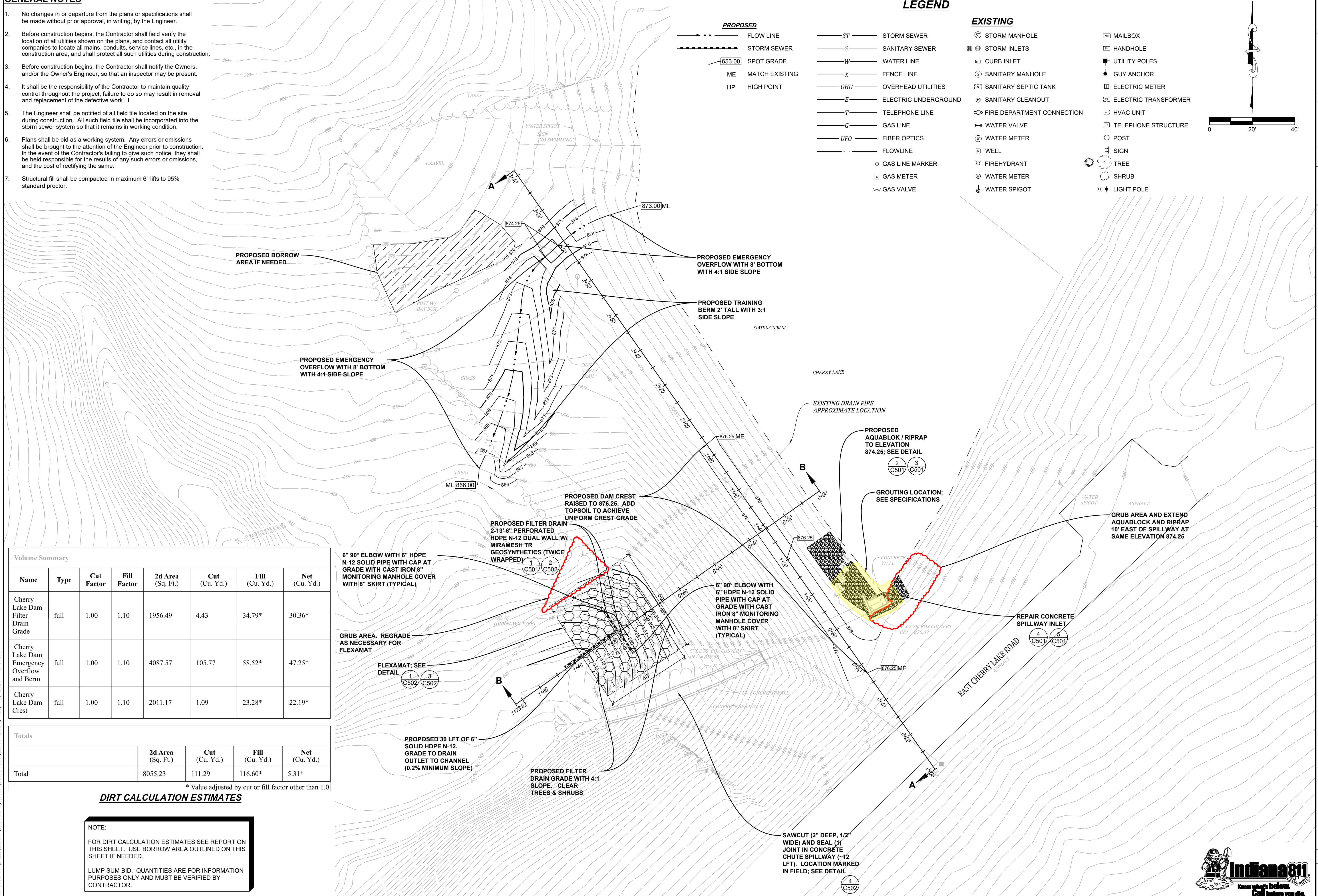
1. No changes in or departure from the plans or specifications shall be made without prior approval, in writing, by the Engineer.
2. Before construction begins, the Contractor shall field verify the location of all utilities shown on the plans, and contact all utility companies to locate all mains, conduits, service lines, etc., in the construction area, and shall protect all such utilities during construction.
3. Before construction begins, the Contractor shall notify the Owners, and/or the Owner's Engineer, so that an inspector may be present.
4. It shall be the responsibility of the Contractor to maintain quality control throughout the project; failure to do so may result in removal and replacement of the defective work. I
5. The Engineer shall be notified of all field tile located on the site during construction. All such field tile shall be incorporated into the storm sewer system so that it remains in working condition.
6. Plans shall be bid as a working system. Any errors or omissions shall be brought to the attention of the Engineer prior to construction. In the event of the Contractor's failing to give such notice, they shall be held responsible for the results of any such errors or omissions, and the cost of rectifying the same.
7. Structural fill shall be compacted in maximum 6" lifts to 95% standard proctor.

## **LEGEND**

## ***EXISTING***

- STORM MANHOLE
- STORM INLETS
- CURB INLET
- SANITARY MANHOLE
- SANITARY SEPTIC TANK
- SANITARY CLEANOUT
- FIRE DEPARTMENT CONNECTION
- WATER VALVE
- WATER METER
- WELL
- FIREHYDRANT
- WATER METER
- WATER SPIGOT

Designed:	Sym.	Revisions	Date
JLM			
Drawn:			
TMF			
Checked:	JLM		
Scale:	1" = 20'		
Date:	2012		



OVERALL PLAN  
CHERRY LAKE DAM REHABILITATION  
INDIANA DEPARTMENT OF ADMINISTRATION  
BENTON NORTH TOWNSHIP; MARTINSVILLE, INDIANA

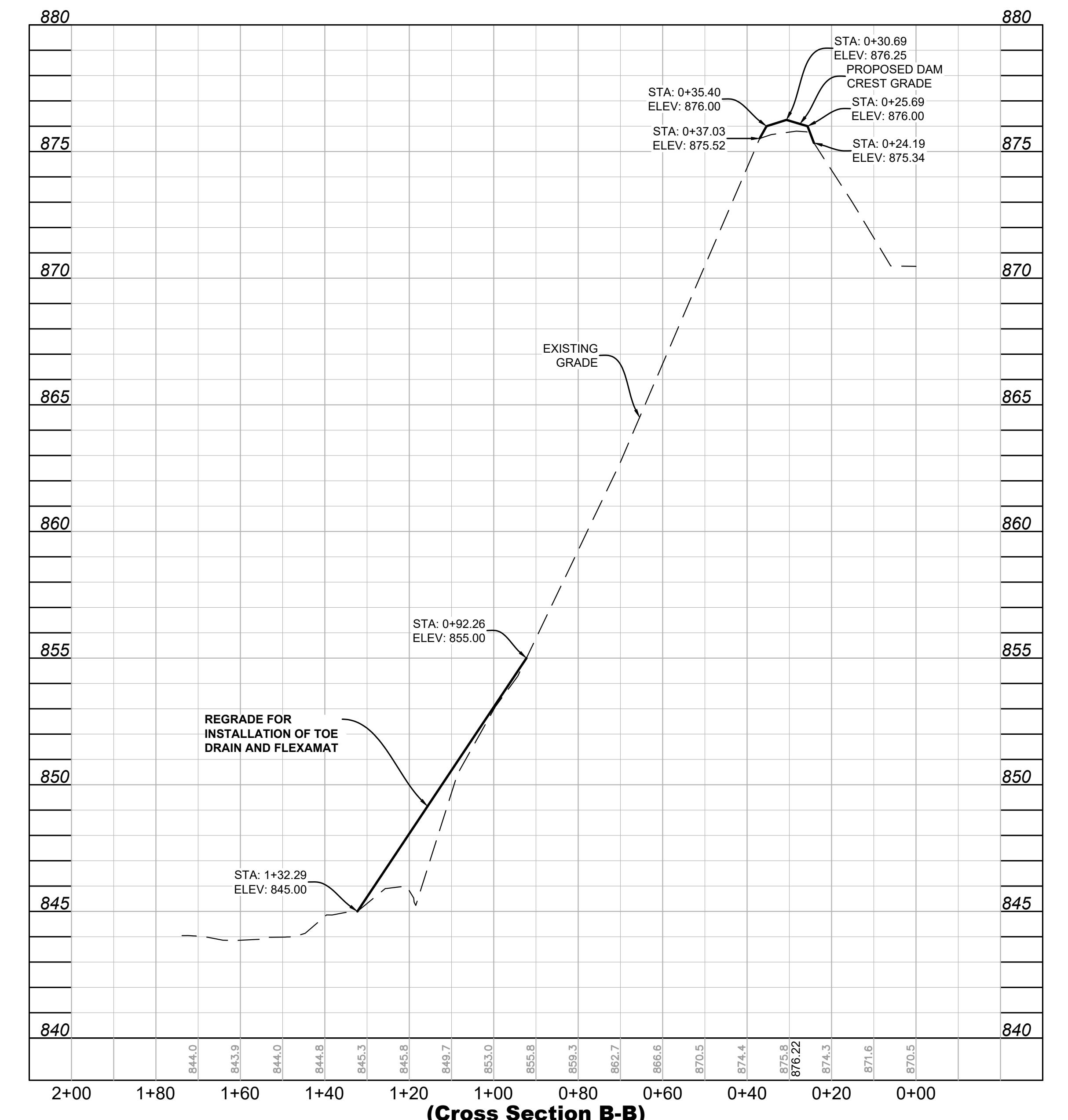
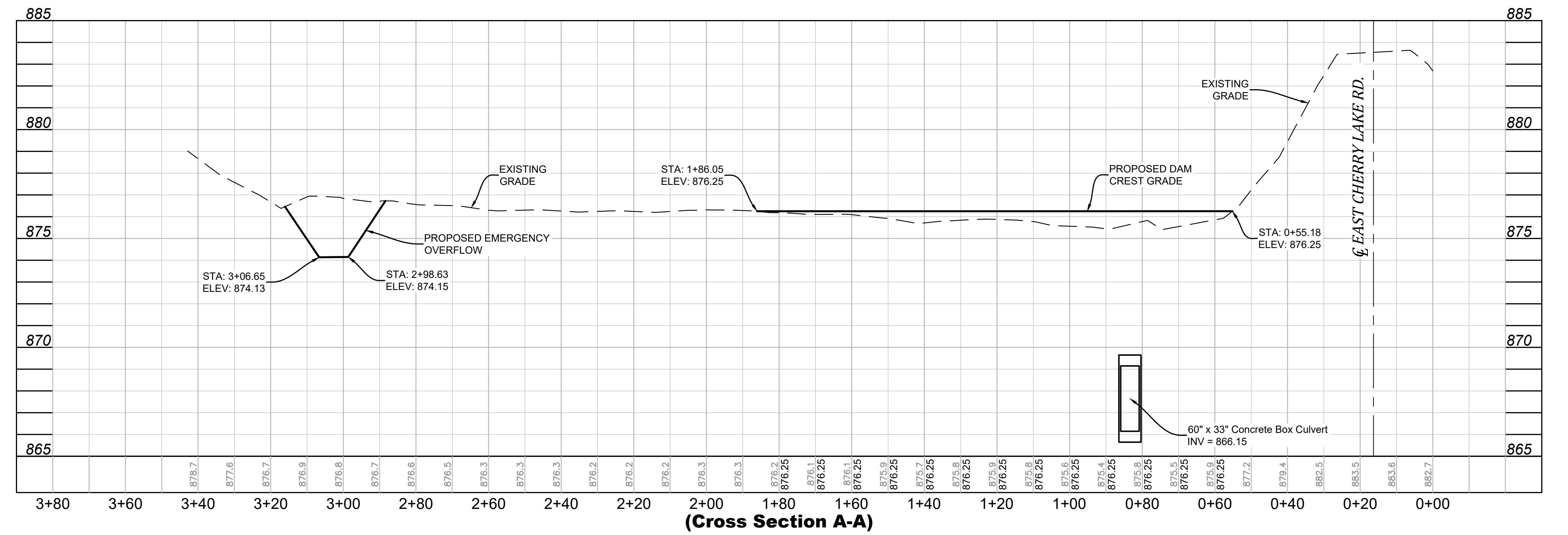
A circular registration stamp for a professional engineer. The outer ring contains the text "JOSEPH MILLER" at the top and "PROFESSIONAL ENGINEER" at the bottom. The inner circle contains "REGISTERED" at the top, "No." in the center, "PE10403481" in the middle, "STATE OF" above "INDIANA", and "INDIANA" at the bottom.

**BANNING** ENGINEERING  
853 COLUMBIA ROAD, SUITE #101  
PLAINFIELD, IN 46168  
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E: [Banning@BanningEngineering.com](mailto:Banning@BanningEngineering.com)  
W: [www.BanningEngineering.com](http://www.BanningEngineering.com)

Project No: 22067

Sheet No:

C102



PROFILE VIEW SCALE:  
"=5' VERT.  
"=20' HOR.

CROSS SECTIONS  
CHERRY LAKE DAM REHABILITATION  
INDIANA DEPARTMENT OF ADMINISTRATION

JOSEPH L. MILLER  
REGISTERED  
No.  
PE10403481  
STATE OF  
INDIANA  
PROFESSIONAL ENGINEER

09-19-23

*[Handwritten signature of Joseph L. Miller over the stamp]*

**BANNING**  
**ENGINEERING**  
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WEB: [www.BanningEngineering.com](http://www.BanningEngineering.com)



ect No: 20007

C103

## EROSION CONTROL GENERAL NOTES

- Only those areas within the designated construction limits are to be disturbed during construction.
- Contractor to provide temporary surface stabilization of any area scheduled or likely to remain inactive for a period of 15 days or more.
- Contractor to provide temporary signage near the entrance of the project identifying the responsible parties and other information about the project.
- Contractor shall implement design concepts and storm water quality measures, which are shown on this plan, to reduce post construction pollutants discharging from the site.
- All erosion control measures shall meet the Phase 2 IDEM Rule 327 IAC 15-5 requirements.
- Refer to the "Indiana Storm Water Quality Manual", "The Urban Development Planning Guide", and Manufacturers Recommendations for Installation for all required measures.
- Inspection and repair of erosion control measures shall be done weekly and after each  $\frac{1}{2}$ " rainfall event.
- Contractor to provide a 1 year warranty on all seeding to ensure adequate and established cover. Refer to contract documents.**

## EROSION CONTROL SEQUENCING

- Contractor shall prepare a self-monitoring plan and procedure, including documentation of weekly self monitoring operations. These documents must be kept on file and made available upon request.
- Start construction log. This log will document the performance of each pollution prevention measure. A thorough site inspection should be completed weekly, and within 24 hours of every  $\frac{1}{2}$ " rain event.
- Existing access drive to be used as construction entrance. Install construction staging area on site as delineated on this sheet.
- Establish concrete washout as delineated on this sheet.
- Install erosion control as delineated on this sheet.
- Begin earth work for dam rehabilitation. Strip topsoil and vegetation from work area. This area is to be filled when project complete.
- Install new emergency overflow channel and berm, raise dam crest, install filter drain and grade, install Aquablok and Riprap, and repair concrete wall.
- Finish grade site and replace topsoil as appropriate.
- Install erosion control blankets with permanent seeding, and other erosion control measures as delineated on this sheet.
- Re-grade, repair existing access drive to existing or better when construction is completed.
- Temporarily seed and mulch all areas scheduled or likely to remain inactive for 15 days or more.
- After construction is completed, vegetation established and permission received from Indiana Department of Administration representative, remove temporary erosion control measures.

EXISTING DRIVE TO BE USED AS CONSTRUCTION ENTRANCE.  
NO DIRT TO BE TRACKED ONTO PUBLIC ROADS.

CONSTRUCTION ENTRANCE MAINTENANCE  
\*Inspect entrance daily and after each  $\frac{1}{2}$ " rainfall event or heavy use.  
\*Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flushing should only be used if the water is conveyed into a sediment trap or basin.  
\*Repair any broken on public road pavement immediately.  
\*Repair existing drive (if needed) to existing or better when construction is completed.

TREES

WATER SPIGOT

SIGN  
NO SWIMMING

GRAVEL

PS

SF

SS

EB

TS

GRASS

POST W/ AT BOX

STATE OF INDIANA

CHERRY LAKE

WATER SPIGOT

ASPHALT

OHU

CONCRETE SPILLWAY

CONCRETE WALL

5' X 2' BOX CUMULAT INV. #670.07"

18" CONCRETE WALL

CONCRETE SPILLWAY

CONCRETE SPILLWAY</

**Construction Plan - General Plan Components (Section A)****A1 - Index of the location of required plan elements in the construction plan:**

The plan index should include a list of the required items in the CSGP and standard plan review checklist. An MS4 may have different requirements and plan expectations based on their local ordinance.

**A2 - A vicinity map depicting the site location in relationship to recognizable local landmarks, towns, and major roads:**

See Plan Set: Title Sheet, C100  
A3 - Narrative of the nature and purpose of the project:

This project consist of constructing a new emergency overflow channel and berm, raising part of dam crest, install a new filter drain and grading around filter drain, and installing Aquablok and rip rap for State of Indiana. The project is located in Benton North Township, Monroe County.

**A4 - Latitude and longitude to the nearest fifteen (15) seconds:**

Latitude: 39°45'25.17" W

**A5 - Legal description of the project site:**

See Plan Set: Title Sheet, C100

**A6 - 11 X 17-inch plat showing building lot numbers/boundaries and road layout/names:**

N/A

**A7 - Boundaries of the one hundred (100) year floodplain, floodway fringes, and floodways:**

See Plan Set: This site is located in Flood Zone X. Areas of 1% annual chance flood with average depths of less than 1 foot or of drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood (per Firm Map 18105C0075D Dated December 17, 2010. See this Sheet

**A8 - Land use of all adjacent properties:**

See Plan Set: Existing Topography Plan, C101

North: Wooded

South: Wooded

East: Wooded

West: Wooded

**A9 - Identification of a U.S. EPA approved or established TMDL:**

None

**A10 - Name(s) of the receiving water(s):**

Little Indian Creek

**A11 - Identification of discharges to a water on the current 303(d) list of impaired waters and the pollutant(s) for which it is impaired:**

Impairments: None

**A12 - Soils map of the predominate soil types:**

See Plan Set: Erosion Control Plan, C400

**A13 - Identification and location of known wetlands, lakes, and water courses on or adjacent to the project site (containing or adjacent to the project site):**

See Plan Set: Existing Topography Plan, C101

**A14 - Identification of any other state or federal water quality permits or authorizations that are required for construction activities:**

401 Water Quality Certification (IDEM): None

Section 404 Permit (USEC): None

Construction General Permit (CGP): None

**A15 - Identification and delineation of existing cover, including natural buffers:**

See Plan Set: Existing Topography Plan, C101

**A16 - Existing site topography at an interval appropriate to indicate drainage patterns:**

See Plan Set: Existing Topography Plan, C101

**A17 - Location(s) where run-off enters the project site:**

See Plan Set: Existing Topography Plan, C101

**A18 - Location(s) where run-off discharges from the project site prior to land disturbance:**

See Plan Set: Existing Topography Plan, C101

**A19 - Location of all existing structures on the project site:**

See Plan Set: Existing Topography Plan, C101

**A20 - Existing permanent retention or detention facilities, including manmade wetlands, designed for the purpose of stormwater management:**

See Plan Set: Existing Topography Plan, C101

**A21 - Locations where stormwater may be directly discharged into ground water, such as abandoned wells, sinkholes, and karst features:**

None known

**A22 - Size of the project area expressed in acres:**

0.97 Acres +/-

**A23 - Total expected land disturbance expressed in acres:**

0.97 Acres +/-

**A24 - Proposed final topography:**

See Plan Set: Overall Plan, C102

**A25 - Locations and approximate boundaries of all disturbed areas:**

Construction Limits: Erosion Control Plan, C400

**A26 - Locations, size, and dimensions of all stormwater drainage system such as culverts, stormwater sewer, and conveyance channels:**

See Plan Set: Overall Plan, C102

**A27 - Location of all points where stormwater and non-stormwater discharges will leave the project site:**

See Plan Set: Overall Plan, C102

**A28 - Location of all proposed site improvements, including roads, utilities, lot delineation and identification, proposed structures, and common areas:**

See Plan Set: Sheet, Sheet Number

**A29 - Location of all on-site and off-site soil stockpiles and borrow areas:**

See Plan Set: Overall Plan, C102

**A30 - Construction support activities that are expected to be part of the project:**

Construction support activities include construction entrance (existing drive), construction staging area (existing parking lot), and concrete washout.

**A31 - Location of any in-stream activities that are planned for the project including, but not limited to, stream crossings and pump arounds:**

See Plan Set: None

**Stormwater Pollution Prevention - Construction Component (Section B)****B1 - Description of the potential pollutant generating sources and pollutants, including all potential non-stormwater discharges:**

Silt and sediment from exposed soils, leaves, mulch, vehicular sources such as leaking fuel or oil, brake fluid, dust, antifreeze, trash, debris, biological agents found in trash, fertilizers, herbicides, pesticides, lime dust and concrete washout.

**B2 - Stable construction practices and site specific requirements:**

For Location: See Plan Set: Erosion Control Plan, C400

**B3 - Specifications for temporary and permanent stabilization:**

Temporary seeding is required for any area left for 7 days or longer within this project, such as soil stockpiles. Temporary seeding is also required in areas that will be disturbed in future projects. This seeding will be placed after finish grading and topsoil replacement.

Permanent stabilization will be provided by the solar panels after replacement of topsoil as described in the construction sequencing.

For Locations: See Plan Set: Erosion Control Plan, C400

**B4 - Sediment control measures for concentrated flow areas:**

Erosion control blankets, and Rip Rap will be installed to reduce and collect sediment from concentrated flow.

For Locations: See Plan Set: Erosion Control Plan, C400

**B5 - Sediment control measures for sheet flow areas:**

Mulch rock will be installed along the portion of the project to collect sediment runoff.

For Locations: See Plan Set: Erosion Control Plan, C400

**B6 - Run-off control measures:**

Almost all of the erosion control measures used at this site can be viewed as runoff control measures, with the possible exception of the construction entrance and concrete washout area, in that they either reduce the velocity, such as socks, or reduce the amount of runoff, such as rip rap. Erosion control blankets could be said to be a runoff control measure in that they certainly reduce the erosivity of the runoff.

For Locations: See Plan Set: Erosion Control Plan, C400

**B7 - Stormwater protection location and specifications:**

An emergency concrete berm will be installed at the emergency overflow channel as outlet protection.

For Locations: See Plan Set: Erosion Control Plan, C400

**B8 - Grade stabilization structure locations and specifications:**

None Required.

**B9 - Dewatering applications and management methods:****Description and Purpose:**

Dewatering operations are practices that manage the discharge of pollutants when non-stormwater and accumulated precipitation must be removed from a work location so that construction work may be accomplished.

**Suitable Applications:**

These practices are implemented for discharges of non-stormwater from construction sites. Non-stormwaters include, but are not limited to, groundwater, water from cofferdams, water diversions, and waters used during construction activities that must be removed from a work area. Practices identified in this section are also appropriate for implementation when managing the removal of accumulated precipitation (stormwater) from depressed areas at a construction site.

**Limitations:**

Site conditions will dictate design and use of dewatering operations. The controls discussed in this best management practice will address sediment only. The controls detailed in this BMP only allow for minimal settling time for sediment particles. Use only when conditions restrict the use of the other control methods. Dewatering operations will require, and must comply with, applicable local permits.

**Implementation:**

Dewatering discharges must not cause erosion at the discharge point. A variety of methods can be used to treat water during dewatering operations. Several devices are presented below and provide options to achieve sediment removal. The size of particles present in the sediment and/or receiving water limitations on sediment are key considerations for selecting sediment treatment option(s); in some cases, the use of multiple devices may be appropriate.

**B10 - Measures utilized for work within waterbodies:**

None

For Locations: See Plan Set: Erosion Control Plan, C400

**B11 - Maintenance guidelines for each proposed stormwater quality measure:**

Each measure shall be inspected weekly and after each 1/2" rainfall event. Follow maintenance guidelines for each measure as specified in each relevant construction detail.

See Plan Set: Control Detail, C500

**B12 - Planned construction sequence that describes the implementation of stormwater quality measures in relation to land disturbance:**

See Plan Set: Erosion Control Plan, C400

**B13 - Provisions for erosion and sediment control on individual residential building lots regulated under the proposed project:**

None

**B14 - Material handling and spill prevention and spill response plan meeting the requirements in 327 IAC 2-6-1:****MATERIAL HANDLING:**

1. The proper management and disposal of waste should be practiced on site at all times to reduce pollution of storm water runoff. Hazardous waste should always be disposed of through a designated hazardous waste management or recycling facility.

2. Designate a waste collection area on-site that does not receive a substantial amount of runoff from upland areas and does not drain directly into a water body.

**3. Keep products in original containers with original labels and material safety data information attached. Make sure products are properly sealed to prevent leaks and spills and stored in a weather proof container away from heat, sparks and flames.****4. A program for recycling or disposal of materials associated with or from the project site shall be established by the contractor.****5. All construction activities are to be monitored and maintained by the contractor. As each new subcontractor comes on-site, a meeting or a construction document a meeting to ensure awareness of the pollutant prevention program. Guidelines for proper handling, storage and disposal of construction site wastes shall be posted in the storage and use areas, and workers shall be trained in these practices.****6. Contaminants and equipment must be inspected regularly for leaks, corrosion, support or foundation failure, or any other signs of deterioration and must be tested for soundness. Any found to be defective should be repaired or replaced immediately.****SPILL PREVENTION PLAN:****Purpose:**

The intention of this Spill Prevention, Control and Countermeasures (SPCC) is to establish the procedures and equipment required to prevent the discharge of oil and hazardous substances in quantities that violate applicable water quality standards, cause a shear upon the water body, or damage to the aquatic life in navigable waters or adjoining shorelines. The Plan also establishes the activities required to mitigate such discharges (i.e., countermeasures) should they occur.

**Definitions:**

Pollutants: Any pollutant of any kind or in any form, including but not limited to sediment, paint, cleaning agent, concrete washout, pesticides, nutrients, trash, hydraulic fluids, fuel, oil, brake fluid, oil refuse, and oil mixed with wastes other than dredged wastes.

**Discharge:**

Mean: Any waters of the United States that are connected with a navigable stream, lake, or sea.

[Note: This definition is usually interpreted to mean any wastewater (even normally dry wash or storm sewer) that eventually drains into a navigable stream].

**Plan Review and Amendments:**

This Plan will be reviewed and/or amended, if necessary, whenever there is a change in the design of the site, construction, operation, or maintenance which materially affects the site's potential for the discharge of regulated material.

**Prediction of Potential Spills:**

1. Nearest Navigable Water: Little Indian Creek

2. Drainage System: All storm drainage leaves the site by open channels and closed storm systems to an unnamed tributary of Little Indian Creek.

3. Vehicular Spills (During and post construction): Vehicular sources such as leaking fuel or oil, brake fluid, grease, antifreeze, trash and debris, biological agents found in trash, fertilizers, household items including but not limited to cleaning agents, chemicals, paint, herbicides and pesticides.

4. Groundwater Contamination: The facility maintains NO above ground or under ground storage tanks at this site. Therefore, it is felt that there is little if any possibility of post construction groundwater contamination. The facility does have public

**Alert Procedures for Spills:**

1. Any personnel observing a spill will immediately instigate the following procedure:

a. Dialing "911" from any telephone.

b. Notify the appropriate emergency personnel.

2. The Emergency Coordinator will then take the following actions:

a. Ban all vehicles from entering the spill zone.

b. Notify the Indiana Department of Environmental Management, Office of Emergency Response by calling the appropriate telephone number:

Office: 317-233-7745

Toll Free: 800-233-7745

Also the National Response Center at 800-424-8802 and provide the following information:

i. Time and location of the spill

ii. Location of the spill

iii. Identity of material spilled

&lt;p

**Curlex® NetFree™** Product Description  
100% Biodegradable Erosion Control Blankets

American Excelsior Company is constantly researching new ideas to meet the needs of the ever-changing erosion control industry. Our latest innovation is Curlex NetFree - The first erosion control blanket (ECB) that does not use any netting material.

The manufacturing of Curlex NetFree begins with choosing the finest Great Lakes aspen. After the material is methodically shaved, the resulting Curlex excelsior fibers are stitched to form a continuous matrix. Biodegradable thread is used in the process, which makes the entire Curlex NetFree product biodegradable. Curlex NetFree loses the net, but keeps the unique and time proven benefits of the Curlex fiber.

**MATERIAL CHARACTERISTICS**  
Curlex NetFree is manufactured from Great Lakes aspen and is designed to provide protection for grass seed and topsoil from wind and water erosion, while simultaneously promoting ideal growing conditions.

**BENEFITS OF CURLEX NETFREE**

- No more entrainment of wildlife or pets
- No more netting tangled in mowing equipment
- No more worries about future environmental risks - *Curlex NetFree is 100% biodegradable*
- No more tripping on netting
- No more waiting for netting to decompose

**PERFORMANCE CAPABILITIES**  
SLOPES 3H:1V & flatter  
CHANNELS 48 Pa (1 lb/ft<sup>2</sup>)

**TYPICAL APPLICATIONS**  
Golf courses, residential projects, environmentally sensitive, commercial development, highway construction, urban drainage, slope stabilization, or other areas that do not want to deal with the potential headaches associated with ECB netting.

**American Excelsior Company®**  
Earth Science Division  
Arlington, Texas (800) 777-SOIL • [www.curlex.com](http://www.curlex.com)

**MADE IN THE U.S.A.**

**Curlex® NetFree™** Product Description  
100% Biodegradable Erosion Control Blanket

**SUGGESTED SPECIFICATIONS**  
General Fibers in Curlex NetFree shall be evenly distributed over its entire area and 80% of the fibers shall be six inches or longer with consistent thickness. Biodegradable stitching shall be used to form the continuous matrix of Curlex fibers. The blanket shall be naturally seed free and not contain any foreign weed seed, chemical additives, tackifiers, or paper products that could hinder grass growth, establish unwanted invasive weed species or shorten necessary erosion protection time periods.

**Product**  
Fiber Great Lakes Aspen Excelsior with no weed seeds. Curled, interlocking fibers with barbed edges.

Fiber Size 80% of fibers a minimum of 6 in (15.2 cm) long 0.038 in wide x 0.018 in thick (0.97 mm wide x 0.46 mm thick)

Mass per Unit Area\* 0.73 lb/yd<sup>2</sup> (0.40 kg/m<sup>2</sup>)

Thread Material Biodegradable

Width 8.0 ft (2.4 m)

Length 90.0 ft (27.4 m)

Area 80.0 yd<sup>2</sup> (66.9 m<sup>2</sup>)

\*Weight is based on a dry fiber weight basis at time of manufacture. Baseline moisture content of Great Lakes Aspen Excelsior is 22%.

**Installation**  
Before installing Curlex NetFree blankets, the seedbed shall be inspected by the Owner's Representative to ensure it has been properly compacted and fine graded to remove any existing rills. It shall be free of obstructions, such as tree roots, projections such as stones, and other foreign objects. The contractor shall proceed when satisfactory conditions are present. After the area has been fine graded, seedbed, fertilized, and compacted, locate the start of the roll, making sure the roll is facing toward the area to be covered, and then roll out the blanket. Blankets shall be rolled out flat, even, and smooth without stretching the material then anchored to the substrate.

**Maintenance**  
1. Remove the unit and sediment from environmentally sensitive areas and waterways. At the approved disposal site, open or slit the unit, remove sediment and grade smoothly into existing topography. Dispose of the dewatering bag, no longer in use at an appropriate recycling or solid waste facility.

**GENERAL NOTE**  
1. **Drop pool elevation no more than 1 foot per day.**

**DEWATERING FILTER BAG** NO SCALE 4 C500

**DEWATERING BAG** TIE DOWN STRAP FLOW WATER PUMP PUMP DISCHARGE HOSE FILTERED WATER

**MAINTENANCE**  
A = Kentucky Bluegrass 40 lbs/acre; or 40 lbs. low or endophyte free tall Fescue; plus 2 tons straw mulch/acre or add Annual Ryegrass 20 lbs/acre.

B = Kentucky Bluegrass 60 lbs/acre; or 40 lbs. low or endophyte free tall Fescue; plus 2 tons straw mulch/acre or add Annual Ryegrass 30 lbs/acre.

C = Spring Oats 100 lbs/acre.

D = Wheat or Rye 150 lbs/acre.

E = Annual Ryegrass 40 lbs/acre. (1 lb/1000 sq. ft.)

F = Sod

G = Straw Mulch 2 tons/acre.

\*I/I\* Irrigation needed during June, July, and/or September.

\*\* Irrigation needed for 2 to 3 weeks after applying sod.

Lime and fertilize to site specific soils tests or apply fertilizer at a rate of 1000 lbs. per acre or 12-12-12 or equivalent.

All swales shall be seeded with 2 lbs. Adelphi bluegrass and 2 lbs. Perennial Derby rye, or equivalent per 1000 square feet. mulch with one bale of straw per 1000 square feet. Fertilize with 5 lbs. of 20-5-5 per 1000 square feet unless specified otherwise.

**SEEDING CHART** NO SCALE 2 C500

**MAINTENANCE**  
Inspect weekly and after each 1/2" rainfall event, until the stand is successfully established. Characteristics of a successful stand include: vigorous, dark green or bluish-green seedlings; uniform density with vigorous plants; legumes, and grasses well inter-mixed; green leaves, and the perennials remaining green throughout the summer; at least at the plant base.)

Plan to add fertilizer the following growing season according to soil test recommendations.

Repair damaged, bare, or sparse areas by filling any gullies, re-fertilizing, over- or re-seeding, and mulching.

If plant cover is sparse or patchy, review the plant materials chosen, soil fertility, moisture condition, and mulching; then repair the affected area either by over-seeding or by re-seeding and mulching after re-preparing the seedbed.

If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems. (Contact your SWCD or Cooperative Extension office for assistance.)

If additional fertilization is needed to get a satisfactory stand, do so according to the soil test recommendations.

**INSTALLATION**

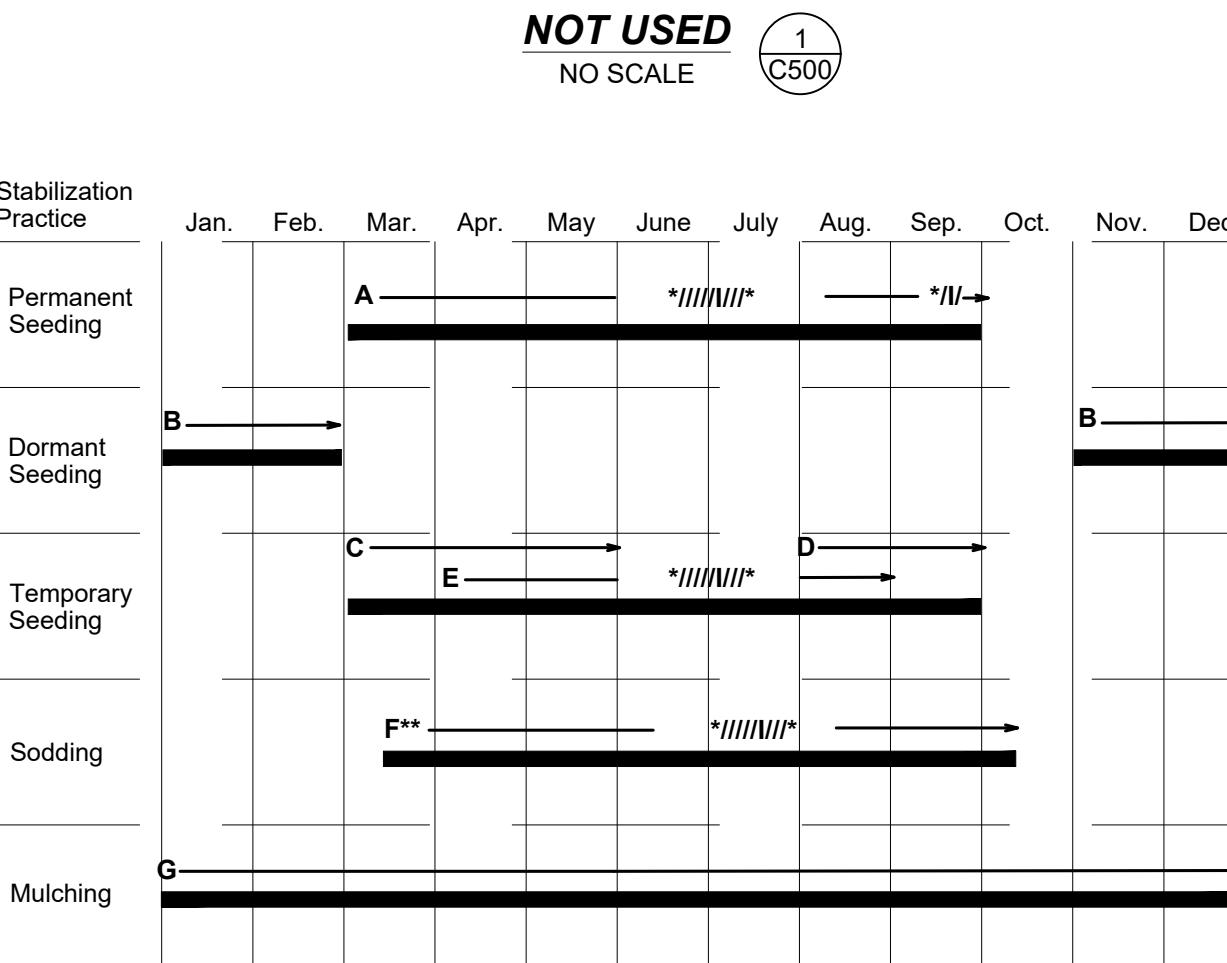
1. Lifting straps should be placed under the dewatering bag to facilitate removal after use.
2. Place the dewatering bag on a level stabilized area over dense vegetation / straw or gravel (if increased drainage surface area is needed).
3. Insert discharge hose form pump into dewatering bag a minimum of six inches (6") and tightly secure with attached strap to prevent water from flowing out of the unit without being filtered.
4. Replace the unit when one half (1/2) full of sediment or when sediment has reduced the flow rate of the pump discharge to an impractical rate.

**MAINTENANCE**

1. Remove the unit and sediment from environmentally sensitive areas and waterways. At the approved disposal site, open or slit the unit, remove sediment and grade smoothly into existing topography. Dispose of the dewatering bag, no longer in use at an appropriate recycling or solid waste facility.

**GENERAL NOTE**

1. **Drop pool elevation no more than 1 foot per day.**



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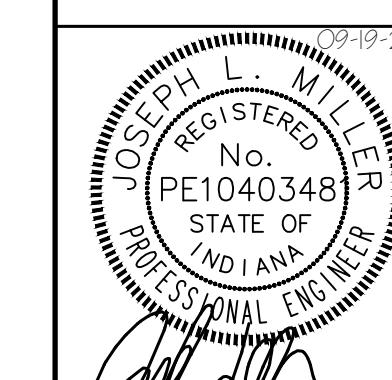
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**SEEDING CHART** NO SCALE 2 C500



**EROSION CONTROL DETAILS**  
**CHERRY LAKE DAM REHABILITATION**  
**INDIANA DEPARTMENT OF ADMINISTRATION**  
**BENTON NORTH TOWNSHIP; MARTINSVILLE, INDIANA**

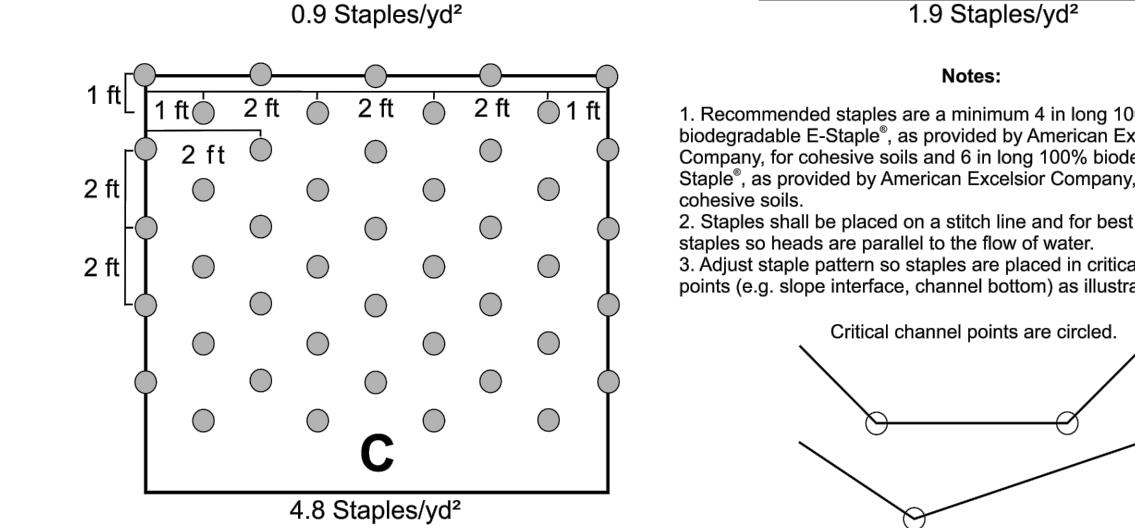
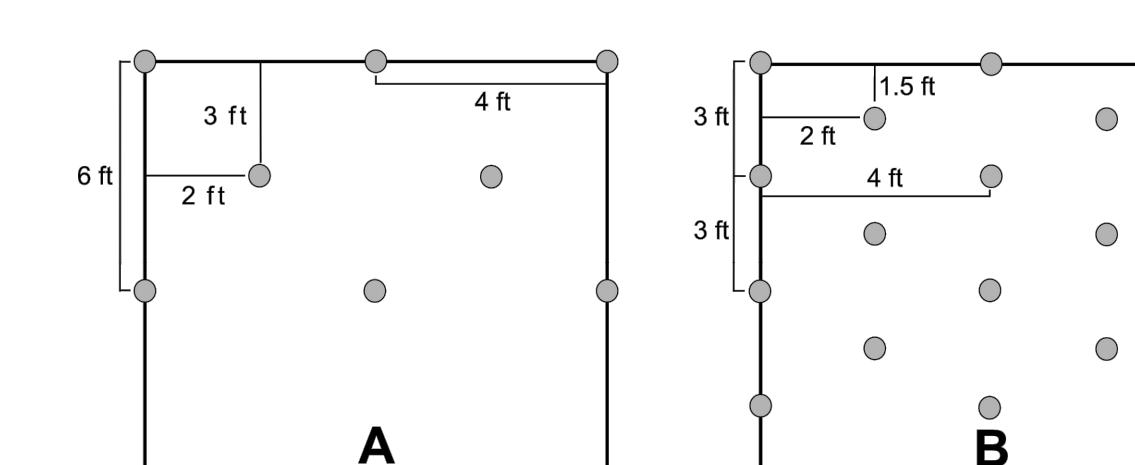


**American Excelsior Company®**  
Earth Science Division

**Curlex® NetFree™**  
Staple Pattern Guide

Application	Slope			Channel		
	$\leq 4H:1V$	$\leq 3H:1V$	$\leq 1.0 \text{ lb/ft}^2 (48 \text{ Pa}) \text{ Shear Stress}$	$\leq 3.0 \text{ ft/sec (0.9 m/sec) Velocity}$		
Staple Pattern	A	B	C			

● = Staple Placement



850 Avenue H E | Arlington, Texas 76011  
Phone 1-800-777-SOIL | Fax 817-385-3585 | [www.Curlex.com](http://www.Curlex.com)

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**STAPLE PATTERN GUIDE** NO SCALE 3 C500

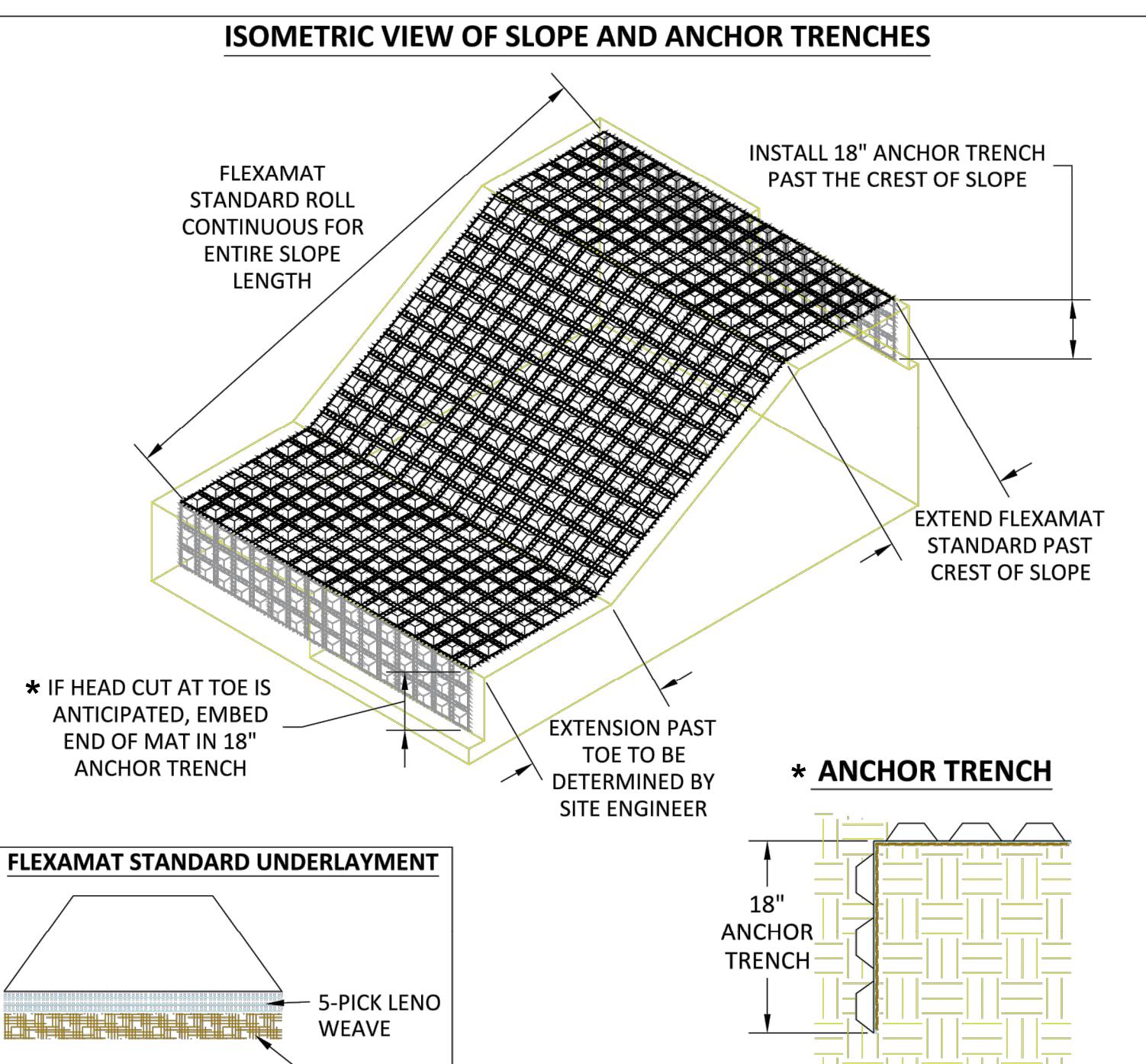
Project No: 22067  
Sheet No: 09-19-23

**BANNING**  
ENGINEERING, SUITE #101  
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09-19-23



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**ISOMETRIC VIEW OF SLOPE AND ANCHOR TRENCHES**

1. FLEXAMAT STANDARD ROLL CONTINUOUS FOR ENTIRE SLOPE LENGTH

2. INSTALL 18" ANCHOR TRENCH PAST THE CREST OF SLOPE

3. EXTEND FLEXAMAT STANDARD PAST CREST OF SLOPE

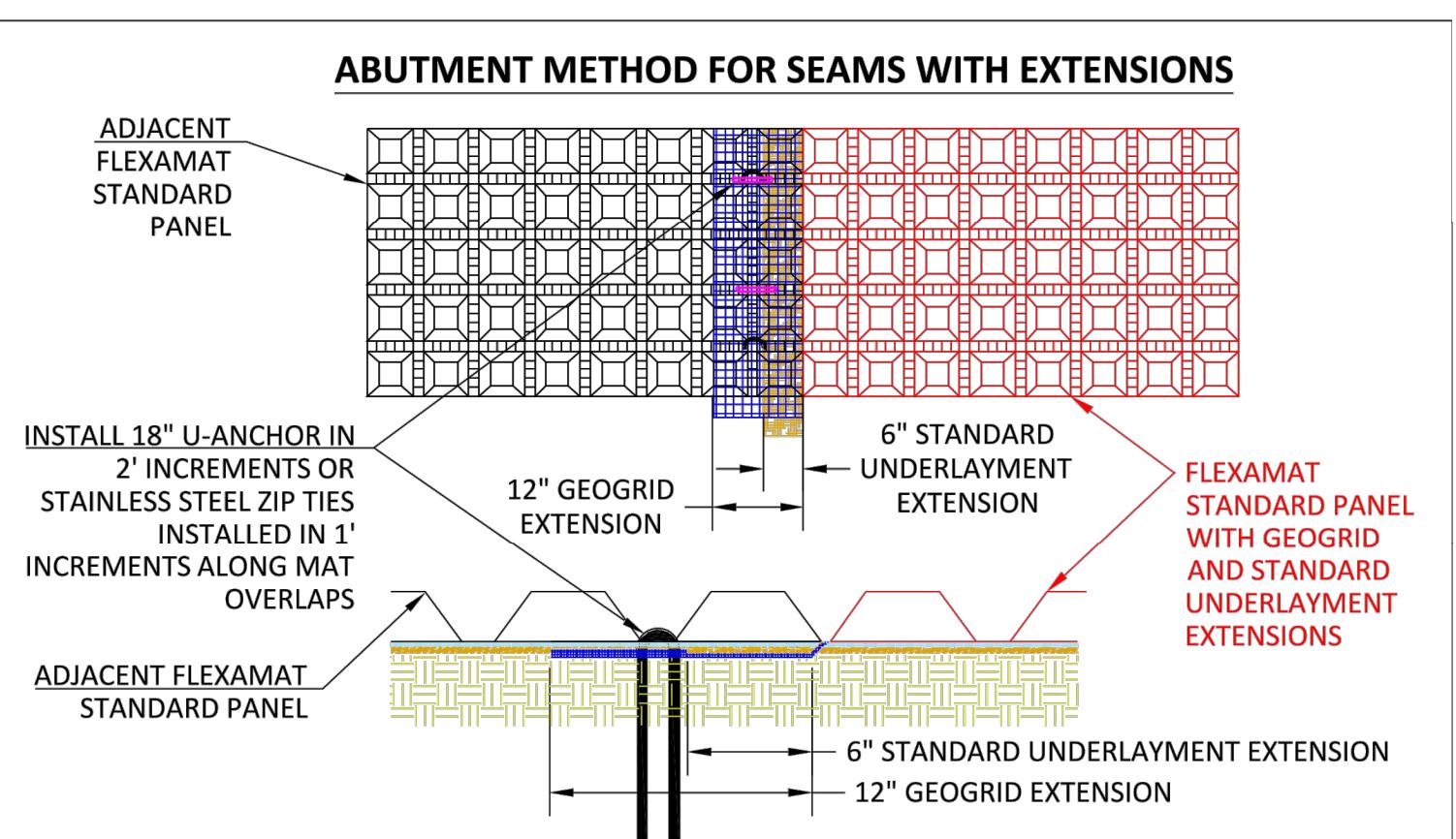
4. \* IF HEAD CUT AT TOE IS ANTICIPATED, EMBED END OF MAT IN 18" ANCHOR TRENCH

5. EXTENSION PAST TOE TO BE DETERMINED BY SITE ENGINEER

6. FLEXAMAT STANDARD UNDERLAYMENT

7. 5-PICK LENO WEAVE

8. CURLEX II ECB



**ABUTMENT METHOD FOR SEAMS WITH EXTENSIONS**

1. ADJACENT FLEXAMAT STANDARD PANEL

2. INSTALL 18" U-ANCHOR IN 2' INCREMENTS OR STAINLESS STEEL ZIP TIES INSTALLED IN 1' INCREMENTS ALONG MAT OVERLAPS

3. 12" GEOGRID EXTENSION

4. 6" STANDARD UNDERLAYMENT EXTENSION

5. FLEXAMAT STANDARD PANEL WITH GEOGRID AND STANDARD UNDERLAYMENT EXTENSIONS

6. ADJACENT FLEXAMAT STANDARD PANEL

7. 6" STANDARD UNDERLAYMENT EXTENSION

8. 12" GEOGRID EXTENSION

**FLEXAMAT STANDARD - SLOPE ARMORING**

**CONSTRUCTION NOTES:**

- AN ENGINEER OR MANUFACTURERS REPRESENTATIVE SHALL BE ONSITE FOR THE START OF THE INSTALLATION.
- ALL SUBGRADE SURFACES PREPARED FOR PLACEMENT OF MATS SHALL BE SMOOTH AND FREE OF ALL ROCKS, STICKS, ROOTS, OTHER PROTRUSIONS, OR DEBRIS OF ANY KIND.
- PRIOR TO FLEXAMAT STANDARD INSTALLATION SEED AND FERTILIZE SUBGRADE WITH SITE SPECIFIC SEED MIX IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS.
- INSTALL FLEXAMAT STANDARD ROLLS THAT ARE CONTINUOUS FOR ENTIRE SLOPE LENGTH. FOR SLOPES LONGER THAN 16', USE MATS WITH EXTENSIONS CUT TO THE LENGTH OF THE SLOPE. INSTALL MATS TO THAT THE MATTING EXTENDS PAST THE CREST OF SLOPE AND INTO AN 18" ANCHOR TRENCH.
- FOR ARMORED SLOPE LENGTHS 16' OR LESS, INSTALL CURLEX ECB EQUALLY UNDER ADJACENT MATS. SECURE SEAM WITH #3 REBAR 18" U-ANCHORS IN 2' INCREMENTS THE LENGTH OF THE ABUTMENT.
- ARMORED SLOPE LENGTHS LONGER THAN 16', INSTALL NEXT MAT OVER EXTENSIONS.
- INSTALL SUBSEQUENT MATS OVER THE GEOGRID EXTENSION AND STANDARD UNDERLAYMENT EXTENSION OF THE PREVIOUSLY INSTALLED MAT. ENSURE THE GEOGRID AND STANDARD UNDERLAYMENT EXTENSIONS ARE LAYING FLAT ON THE SUBGRADE BEFORE INSTALLING ADJACENT MAT OVER THE EXTENSIONS.
- INSTALL #3 REBAR 18" U-ANCHORS IN 2' INCREMENTS ACROSS THE GEOGRID AND STANDARD EXTENSION ABUTMENT. INSTALL ANCHORS PERPENDICULAR TO THE SLOPE DIRECTLY BEHIND FIRST ROW OF BLOCKS ON THE ADJACENT MAT.
- AT THE END OF THE ARMORED SLOPE, IF HEAD CUT IS ANTICIPATED, EMBED THE MAT 18" IN A TERMINATION TRENCH. FILL AND COMPACT TERMINATION TRENCH WITH SUITABLE FILL.

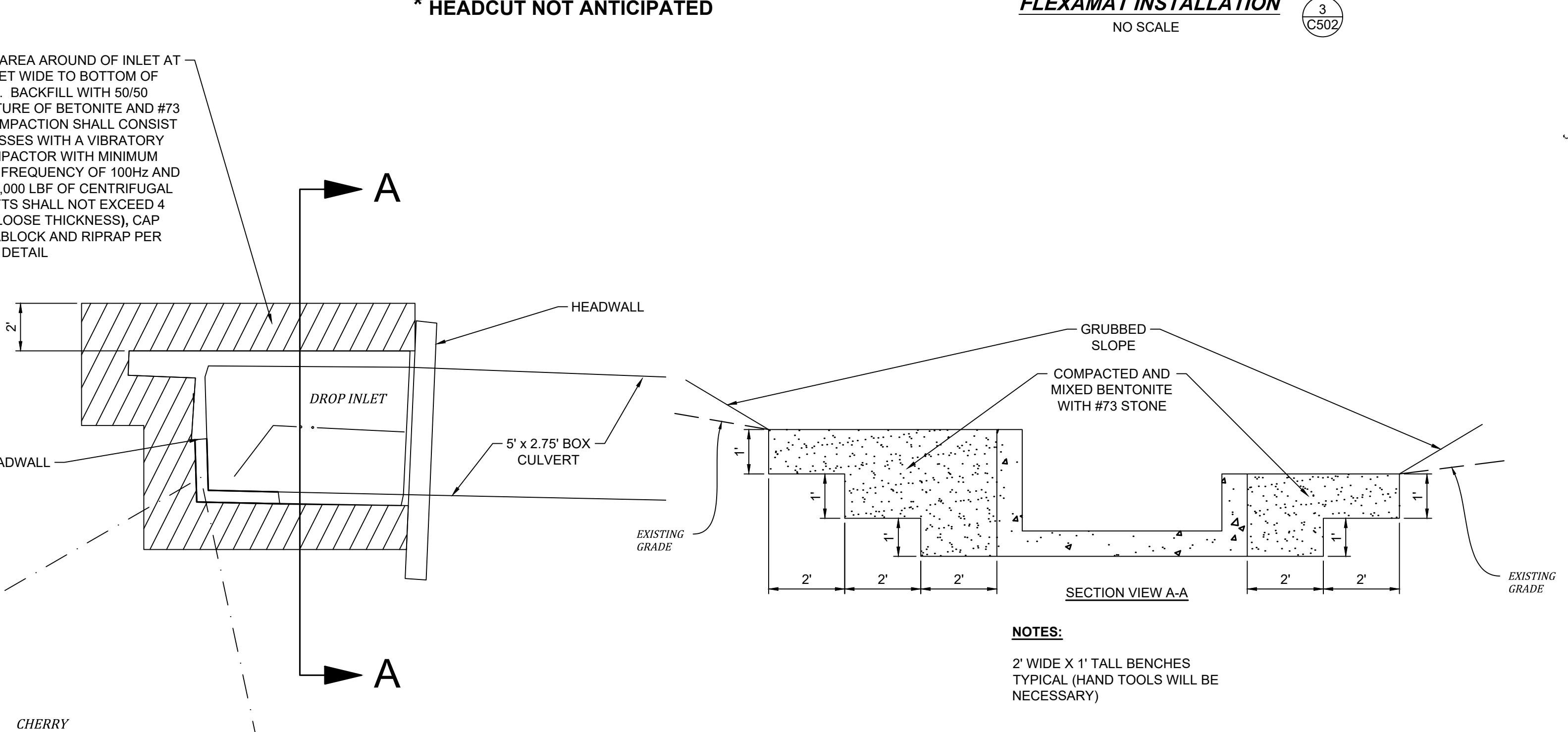
**MOTZ ENTERPRISES, INC.**

**Flexamat**  
(513)772-6689  
Info@Flexamat.com  
Flexamat.com

**Flexamat**  
PERMANENT EROSION CONTROL

REV - 1

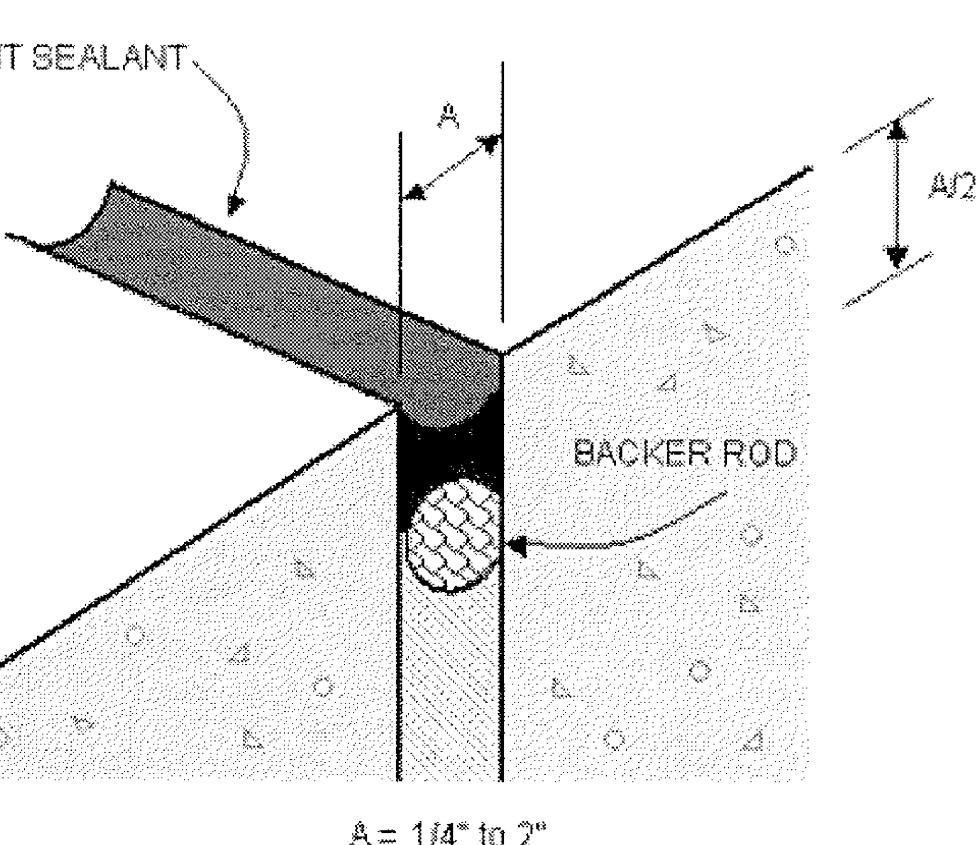
**\* HEADCUT NOT ANTICIPATED**



**SPILLWAY EXCAVATION DETAIL**

NOTES:

2' WIDE X 1' TALL BENCHES  
TYPICAL (HAND TOOLS WILL BE NECESSARY)



**TYPICAL SEALANT JOINT DETAIL**

NOTES:

USE TYPE M, GRADE NS, CLASS 25, USE I (IMMERSED)  
PER ASTM C920 OR ENGINEER APPROVED EQUIVALENT.

**FLEXAMAT INSTALLATION**

NO SCALE

3 C502

**GEOMESH WRAP**

NO SCALE

2 C502

**Composition of Materials - Flexamat Standard**

Blocks	5000 PSI, Wet-cast Portland Cement		
Interlocking Biaxial Geogrid	Formit 30/30 - Polypropylene Geogrid with 2,055 lb/ft biaxial strength. Carbon black UV inhibitor shall be blended into the extruded yarns at a rate no less than 0.8% by weight.		
Property	Unit	Test	Requirement
Mass/Unit Area	oz/yd <sup>2</sup>	ASTM D5261	6.5 oz/yd <sup>2</sup>
Aperture Size	English units	Measured	1.4x 1.4 inch
Ultimate Wide Width	lb/ft	ASTM D6637	2,055 lb/ft
Tensile Strength (MD x CMD)			
Elongation at Ultimate	%	ASTM D6637	6%
Wide Width Tensile Strength @ 2% (MD x CMD)	lb/ft	ASTM D6637	822 lb/ft
Wide Width Tensile Strength @ 5% (MD x CMD)	lb/ft	ASTM D6637	1,640 lb/ft
Tensile Modulus @ 2% (MD x CMD)	lb/ft	ASTM D6637	41,100 lb/ft
Tensile Modulus @ 5% (MD x CMD)	lb/ft	ASTM D6637	32,800 lb/ft

**Flexamat Standard Underlayment**

A three-layered system includes, in order from top to bottom, 1) Concrete block mat 2) 5-Pick Leno Weave and 3) Curlex II. The underlayment materials shall be packaged within the roll of the Flexamat Standard.

5000 PSI Concrete Blocks  
High Strength Biaxial Geogrid  
5-Pick Leno Weave  
Curlex II Wood Excisor

**Manufacturing Values**

Flexamat Properties	Values
Roll Width	4', 5.5', 8', 10', 12', 15.5', and 16'
Roll Length	30', 40', 50' / custom
Material Weight	10 lbs./sf
Block Size	6.5" x 6.5" x 2.25"
Percentage Open Area (POA)	30% min.

**Performance**

Test	Tested Value	Bed Slope	Soil Classification	Limiting Value
ASTM D460	Shear Stress	30%	Sandy Loam (USDA)	24 PSF
ASTM D460	Velocity	20%	Loam (USDA)	30 ft/sec

**FLEXAMAT**

1 C502

**MISCELLANEOUS DETAILS**

**CHERRY LAKE DAM REHABILITATION**

**INDIANA DEPARTMENT OF ADMINISTRATION**

**BENTON NORTH TOWNSHIP; MARTINSVILLE, INDIANA**

**JOSEPH L. MILLER, P.E. #1040348**

REGISTERED PROFESSIONAL ENGINEER

STATE OF INDIANA

09-19-23

**BANNING ENGINEERING**

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Project No: 22067

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