



SECTION 401 WQC REGIONAL GENERAL PERMIT NOTIFICATION

State Form 51937 (R5 / 7-18)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM) and U.S. ARMY CORPS OF ENGINEERS (USACE)

Authorities: Section 401 Water Quality Certification, Section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbor Act

INSTRUCTIONS: 1. Familiarize yourself with the terms and conditions of this permit.
2. Read the instructions before filling out this form.
3. All applicable sections of this two (2) page form must be completed.

AGENCY USE ONLY

Date Received (mm/dd/yyyy)

1-3-23

IDEM ID

2023-89-41-JWR-X

Processing Date (mm/dd/yyyy)

2-1-23

APPLICANT INFORMATION

Name of Project: Apryl Drive Culvert Replacement	Designation Number: _____
Applicant: City of Greenwood	Agent (Name of Company): Wessler Engineering
Contact Person: Christopher Jones	Contact Person: Nancy Cho
Address (number and street): 300 S Madison Avenue	Address (number and street) : 1130 AAA Way
City: Greenwood State: IN ZIP Code: 46142	City: Carmel State: IN ZIP Code: 46032
Telephone Number: 317-887-4711	Telephone Number: 317-788-4551
E-mail Address: stormwater@greenwood.in.gov	E-mail Address: NancyC@wesslerengineering.com

PROJECT LOCATION

County: Johnson	Nearest Town: Greenwood
Quad Name: Greenwood Section: 05	Township: 13 North Range: 4 East
Latitude: 39.598690	Longitude: -86.109218

Project Address and Driving Directions:

From I-65 S take Exit 97 toward E 750 N/County Road 750 N/East Worthsville Road. Keep right at the fork and merge onto E 750 N/County Road 750 N/East Worthsville Road. At the traffic circle, take the 2nd exit and stay on E 750 N/County Road 750 N/East Worthsville Road. In 0.8 miles, turn right onto S US 31. In 0.3 miles, turn left onto Apryl Drive. The project is located at where Apryl Drive crosses Tracy Ditch.

EXISTING CONDITIONS ON THE PROJECT SITE

Lake: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Name of Lake: N/A
Stream: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Name of Stream: Tracy Ditch Stream Type: <input type="checkbox"/> Perennial <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Ephemeral
Wetlands: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Acreage on the site by Wetland Type(s): _____ Emergent _____ Scrub-Shrub _____ Forested
	Date (mm/dd/yyyy) of Wetland Delineation: _____ Date (mm/dd/yyyy) of the U.S. Army Corps of Engineers Jurisdiction Correspondence: _____

PROJECT IMPACTS

Activity Description:

The project is located where Tracy Ditch crosses Apryl Drive in Greenwood, Indiana. The project consists of the replacement of the existing three corrugated metal pipe arches with an 8-ft by 5-ft concrete box culvert (three sided). Associated concrete wingwalls and footings and a flexamat vegetated concrete block mat are also proposed.

Purpose of Project:

The existing current culvert has experienced corrosion, degradation, and backfill migration leading to damage of the pavement surface and requires replacement.

For Lake Impact (Acceptable fill is defined in the instructions):

(1) Linear feet of shoreline impact (Example – Seawall): _____
(2) Type of fill below the Ordinary High Water Mark: _____ Volume (Cubic Yards): _____ Acres: _____
(3) Does the shoreline or open water area have vegetation present? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, are you proposing natural shoreline stabilization? <input type="checkbox"/> Yes <input type="checkbox"/> No Description: _____
(4) Open water fill beyond shoreline (Examples – Boat Well, Underwater Beach): Type of Fill: _____ Acres: _____

For Stream Impact (Acceptable fill is defined in instructions):

- (1) Total linear feet of stream impact (Examples - bank stabilization, bridge construction or culvert placement, seawall work): 158.6
- (2) Total acre(s) of stream impact: 0.049
- (3) Type of fill below the Ordinary High Water Mark: flexamat, concrete culvert/footings/wingwalls Volume (Cubic Yards): 98.28
- (4) Proposed start date of work in the stream (mm/dd/yyyy): 05/01/2023 Proposed end date of work in the stream (mm/dd/yyyy): 11/30/2023
- (5) Channel width in feet (See instructions): 19.5 Channel depth in feet (See instructions): 2.3
- (6) Cross-sectional area below the Ordinary High Water Mark: 44.85 SF
- (7) For stream crossings, type of structure proposed to be installed (Examples: three-sided or four-sided culvert, bridge, pipe): three-sided culvert
- (8) For stream crossings, width of culvert structure/diameter of pipe to be installed (feet): 8 Length of culvert structure/pipe (feet): 66.67"
- (9) For stream crossings, substrate type (i.e. sand, soil or unconsolidated till, bedrock or consolidated till): soil
- (10) Open water fill that projects beyond the stream bank: Type of fill: N/A Acre(s) of open water impact: 0

For Wetland Impact (Acceptable fill is defined in instructions):

- (1) Type of fill: _____
- (2) Acre(s) of Impact: _____ Emergent _____ Scrub-Shrub _____ Forested _____

SIGNATURE OF APPLICANT – STATEMENT OF AFFIRMATION

I swear or affirm, under penalty of perjury as specified by IC 35-44.1-2-1 and other penalties specified by IC 13-30-10, that the statements and representations in this notification are true, accurate, and complete.

I certify that I have the authority to undertake and will undertake the activities exactly as described in this notification form. I am aware that there are penalties for submitting false information. I understand that any changes in project design subsequent to IDEM's and the USACE's granting of authorization to discharge to a water of the U.S. are not authorized, and that I may be subject to civil and criminal penalties for proceeding without proper authorization. I agree to allow representatives of IDEM and the USACE to enter and inspect the project site. I understand that the granting of other permits by local, state, or federal agencies does not release me from the requirement of obtaining the authorization requested herein before commencing the project.

Signature of Applicant: Christopher Jones Date (mm/dd/yyyy): 01-03-2023

Printed Name of Applicant: Christopher Jones Title: Stormwater Superintendent

Enclose copies of the following documents (all enclosures must be on 8.5" by 11" paper). Failure to provide all applicable documents and information may result in a determination that the proposed project is out of scope.

- (1) Location Map
- (2) Drawings of existing site and proposed project
- (3) Cross sections of proposed activities showing extent of fill waterward (for seawall, shoreline, and stream bank stabilization impacts)
- (4) Cross sections of proposed activities showing the bankfull width or Ordinary High Water Mark of the stream
- (5) At least three photos of the site, labeled
- (6) Copy of wetland delineation report (for projects with wetland impacts)
- (7) Copies of all correspondence from the USACE (for projects with wetland impacts)
- (8) Copies of all correspondence from the Indiana Department of Natural Resources, Division of Nature Preserves (required)

Please Note:

- (1) It is recommended that you send this form and the attachments via certified mail. The agencies will not notify you when this form is received.
- (2) IDEM and the USACE will review this form and all attachments for completeness and accuracy. You will not be contacted during the application process unless deficiencies are identified at which time the agencies may require additional information to verify that the project meets all conditions of the Regional General Permit and the Section 401 Water Quality Certification (WQC). If you are not contacted by IDEM within thirty (30) days of the date IDEM receives this notification form, your project is authorized, subject to the terms and conditions of the Section 401 Water Quality Certification and its conditions. You will not receive a written confirmation of authorization from IDEM, however the USACE will issue written authorization.
- (3) Read all the terms and conditions of the IDEM Regional General Permit, including all USACE and IDEM conditions. The terms and conditions of this general permit as instituted by IDEM can be found at: <http://www.in.gov/idem/wetlands/2353.htm>. Do not submit this notification form or commence work on the proposed project until you understand and are familiar with the limitations and restrictions of the IDEM Regional General Permit Notification Form.
- (4) Consult this webpage for more information: <http://www.in.gov/idem/wetlands/index.htm>

Upon completion of the application, mail this form and all enclosures to:

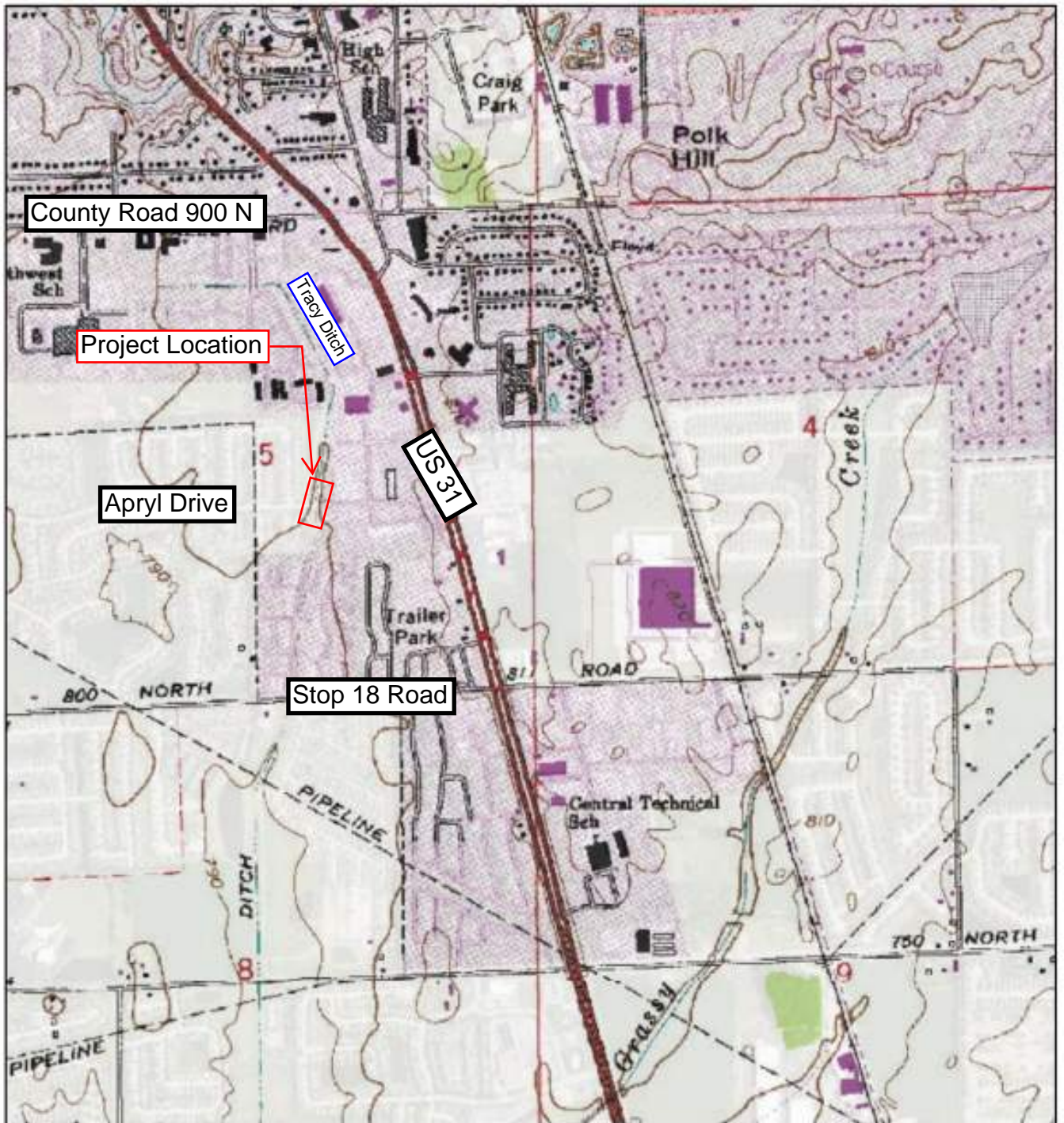
Indiana Department of Environmental Management
Office of Water Quality, Wetlands and Stormwater Section
Section 401 WQC/Isolated Wetlands Program
100 North Senate Avenue, IGCN, Room 1255
Indianapolis, Indiana 46204-2251

U.S. Army Corps of Engineers
Regulatory Branch

For office locations serving Indiana, please visit:
<http://www.usace.army.mil/Locations.aspx>

EXHIBIT 1

Project Location Map



Map Source: Indiana Map
 Map Date: 12/15/2022

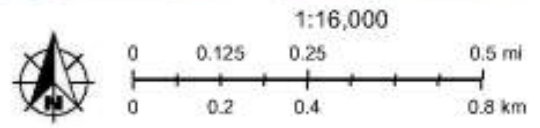
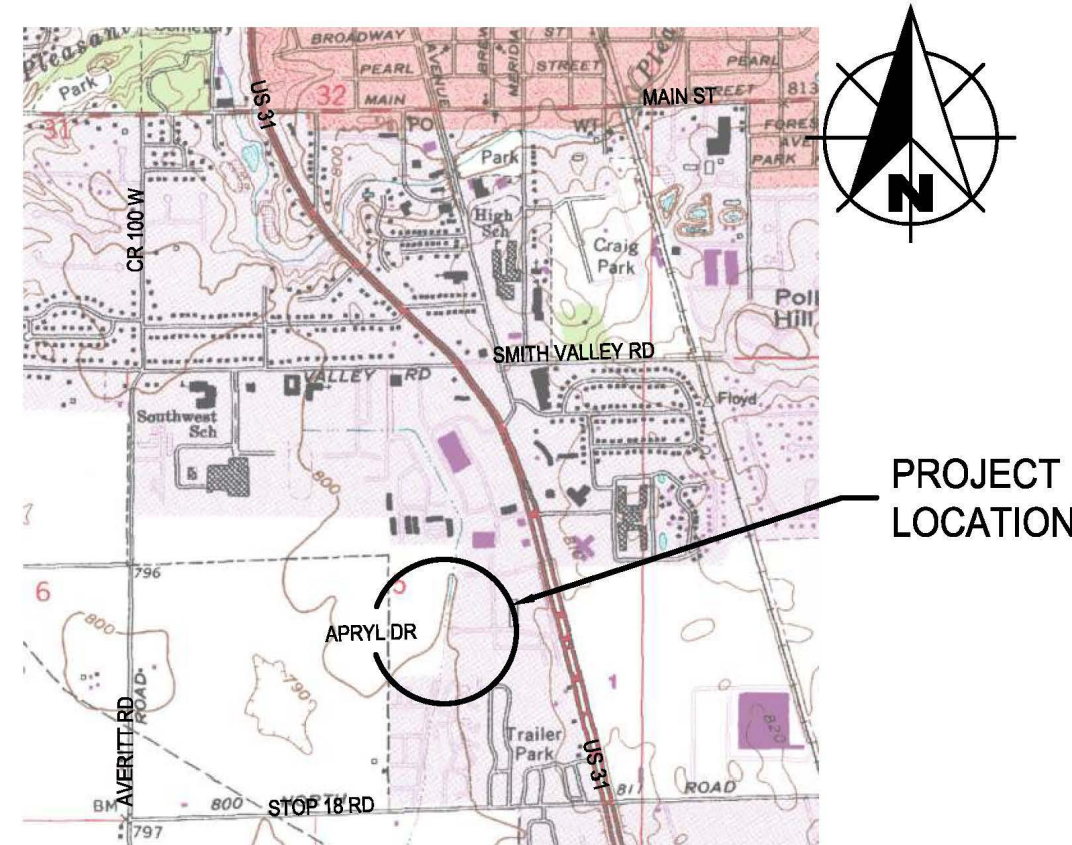


EXHIBIT 1: PROJECT LOCATION MAP

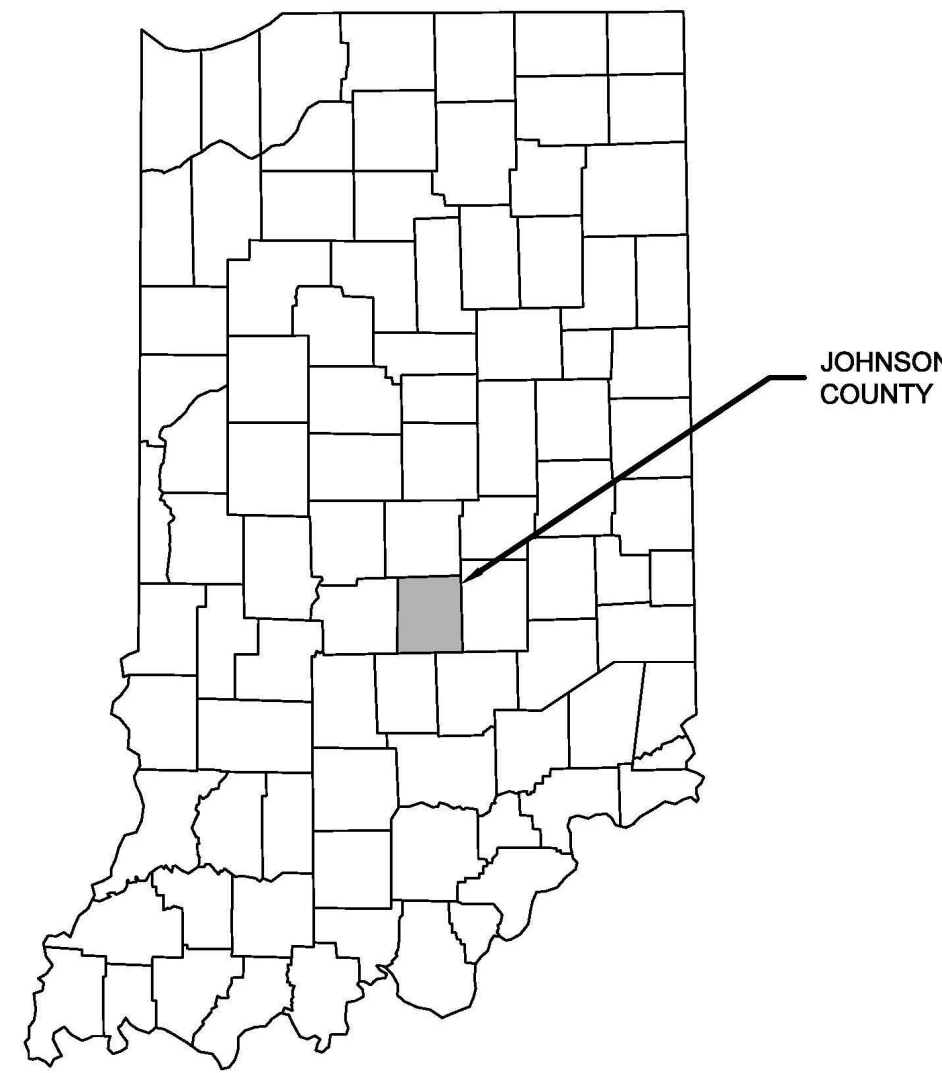
EXHIBIT 2

Apryl Drive Culvert Replacement Plan Sheets

APRYL DRIVE CULVERT REPLACEMENT FOR THE CITY OF GREENWOOD, INDIANA

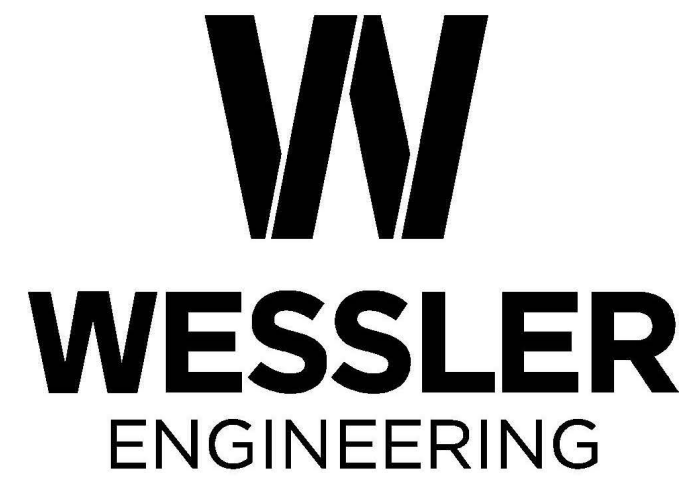


GREENWOOD
VICINITY MAP
SCALE: NONE



STATE LOCATION MAP
SCALE: NONE

90% DESIGN DRAWINGS
NOT FOR CONSTRUCTION



More than a Project™

INDIANAPOLIS
6219 South East Street
Indianapolis, Indiana 46227
Phone: (317) 788-4551 - Fax: (317) 788-4553
www.wesslerengineering.com

PROJECT NO. 256422-04-001

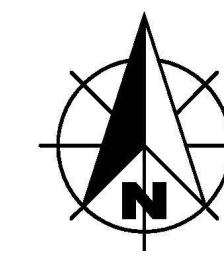
DRAWINGS PREPARED FOR:

THE CITY OF GREENWOOD BOARD OF DIRECTORS OF
THE DEPARTMENT OF STORMWATER MANAGEMENT

FEBRUARY 2023

		JUSTIN R. FRAZIER REGISTERED ENGINEER STATE OF INDIANA NO. 10606088	

Drawing: J:\Greenwood\Projects\256422_Greenwood\Tracy_Legal_Drain\CADD\DWG\Sheets\256422-GS.dwg | Layout: TGI | Plotter: TGI | Plotted: 12/14/22 @ 07:30:38 | LastSavedBy: Michelle



HORIZONTAL AND VERTICAL CONTROL INFORMATION

NOTES:

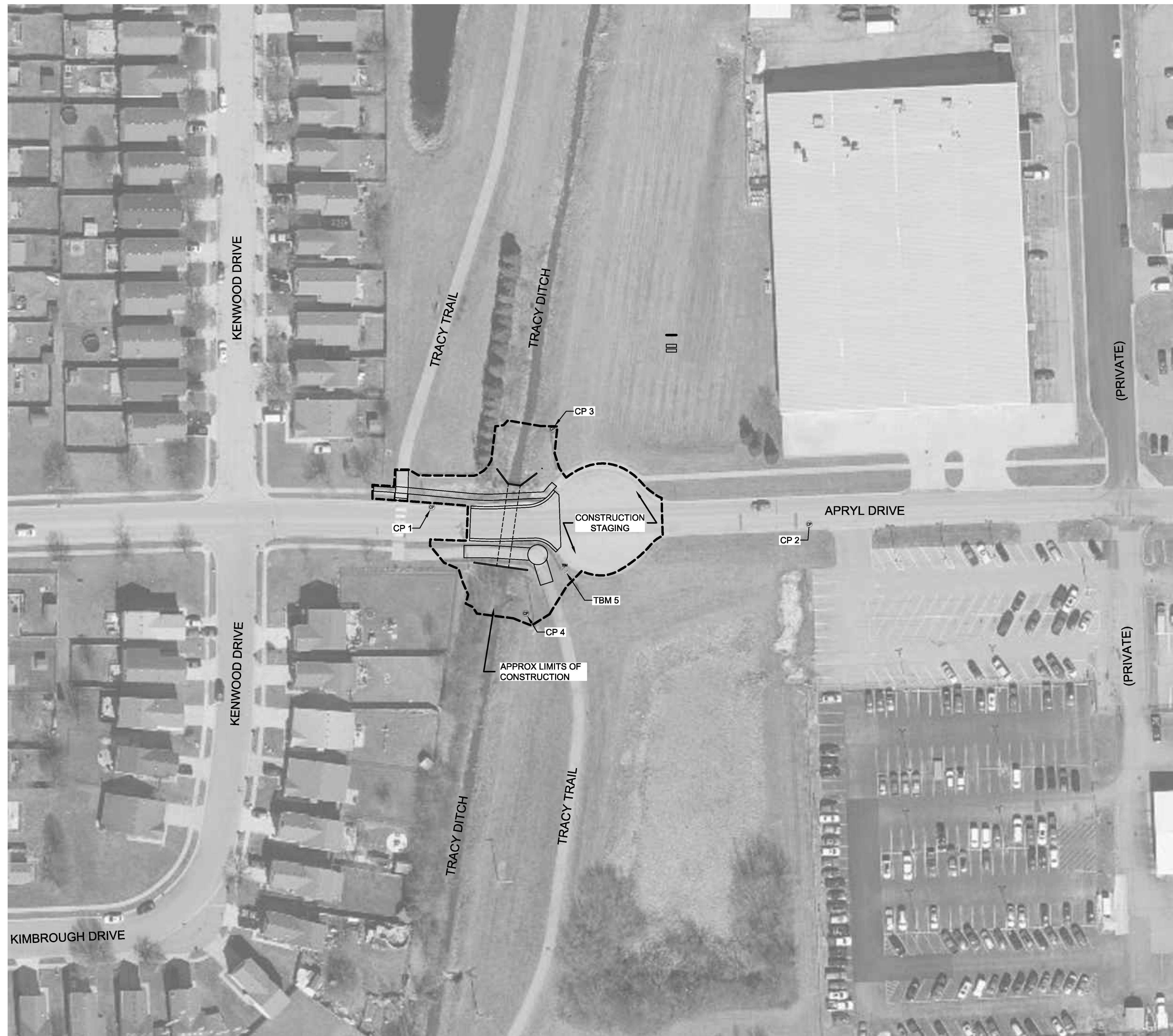
1. A FIELD SURVEY WAS PERFORMED IN JULY 2022.
2. COORDINATES (INDIANA STATE PLANE, EAST ZONE, NAD 83) AND ELEVATIONS (NAVD 88) ARE BASED ON INCORS.
3. UNITS ARE U.S. SURVEY FEET.
4. CONTROL POINTS WERE SET USING GPS.
5. A LEVEL LOOP WAS PERFORMED ON THE CONTROL POINTS AND TBMS.

BENCHMARK DESCRIPTION:

1. TBM NO. 5 - SOUTHEAST BONNET BOLT ON THE FIRE HYDRANT LOCATED ±50.7 FEET SOUTHWEST FROM THE CENTER OF THE CUL-DE-SAC FOR APRYL DRIVE AND ±25.3 FEET SOUTHEAST FROM THE CENTER OF THE CUL-DE-SAC FOR TRACY TRAIL. SAID TBM IS ±59.6 FEET SOUTHEAST OF THE CENTERLINE INTERSECTION OF APRYL DRIVE AND THE CULVERT OVER TRACY DITCH. EL 798.66

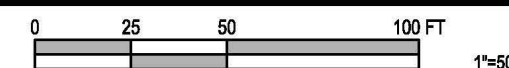
CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP 1	1584811.17	203316.92	797.36	MAG NAIL
CP 2	1584797.40	203621.86	797.20	MAG NAIL
CP 3	1584874.36	203414.39	798.78	5/8" REBAR
CP 4	1584725.29	203392.95	798.53	5/8" REBAR

DRAWING INDEX	
SHEET NO.	DESCRIPTION
GENERAL	
01	TITLE SHEET
02	LOCATION AND SCOPE OF WORK PLAN, AND DRAWING INDEX
03	GENERAL INFORMATION
PLAN SHEETS	
04	MAINTENANCE OF TRAFFIC AND DETOUR PLAN
05	EXISTING SITE AND DEMOLITION PLAN
06	GRADING AND EROSION CONTROL PLAN
07	SITE AND UTILITY PLAN
08	PLAN AND PROFILE - LINE A
DETAILS	
09 - 12	MISCELLANEOUS DETAILS
13 - 14	EROSION CONTROL DETAILS



201X IMAGERY FROM INDIANA STATE MAP.

LOCATION AND SCOPE OF WORK PLAN



**90% DESIGN DRAWINGS
NOT FOR CONSTRUCTION
12/14/2022**

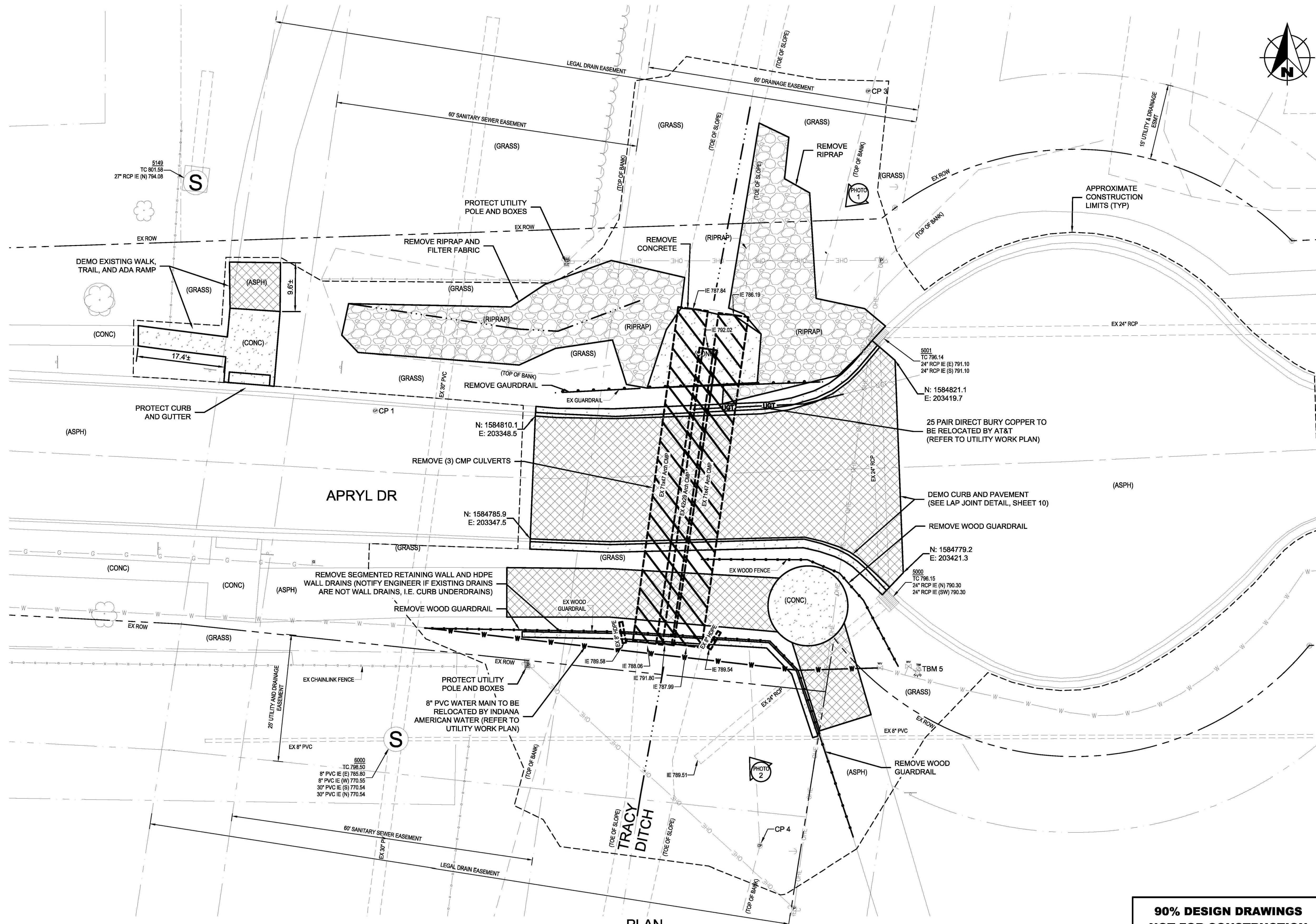
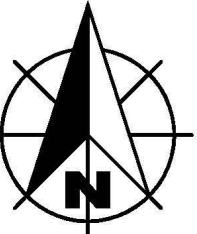
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BAR IS ONE INCH LONG ON ORIGINAL DRAWING 	CHECKED BY	MKA				
	APPROVED BY	JRF				
	ISSUE DATE	FEBRUARY 2023				
	PROJECT NUMBER	256422-04-001				



APRYL DRIVE CULVERT REPLACEMENT
CITY OF GREENWOOD, INDIANA
LOCATION AND SCOPE OF WORK PLAN, AND DRAWING INDEX

SHEET NO.
02
TOTAL SHEETS
14

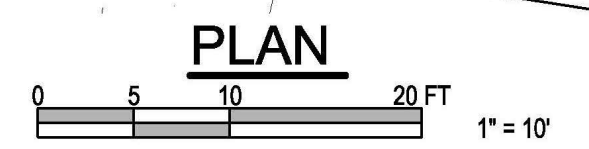
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UPSTREAM PHOTO 2

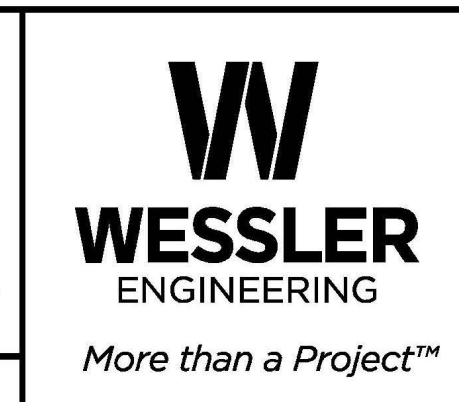


DOWNSTREAM PHOTO 1



**90% DESIGN DRAWINGS
NOT FOR CONSTRUCTION
12/14/2022**

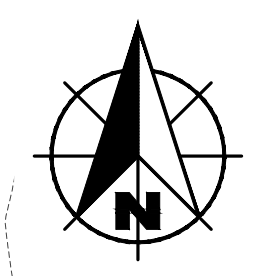
SCALE VERIFICATION BAR IS ONE INCH LONG ON ORIGINAL DRAWING	DRAWN BY	MRE	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	MKA				
	APPROVED BY	JRF				
	ISSUE DATE	FEBRUARY 2023				
	PROJECT NUMBER	256422-04-001				



APRYL DRIVE CULVERT REPLACEMENT
 CITY OF GREENWOOD, INDIANA
EXISTING SITE AND DEMOLITION PLAN

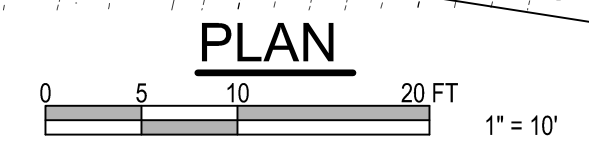
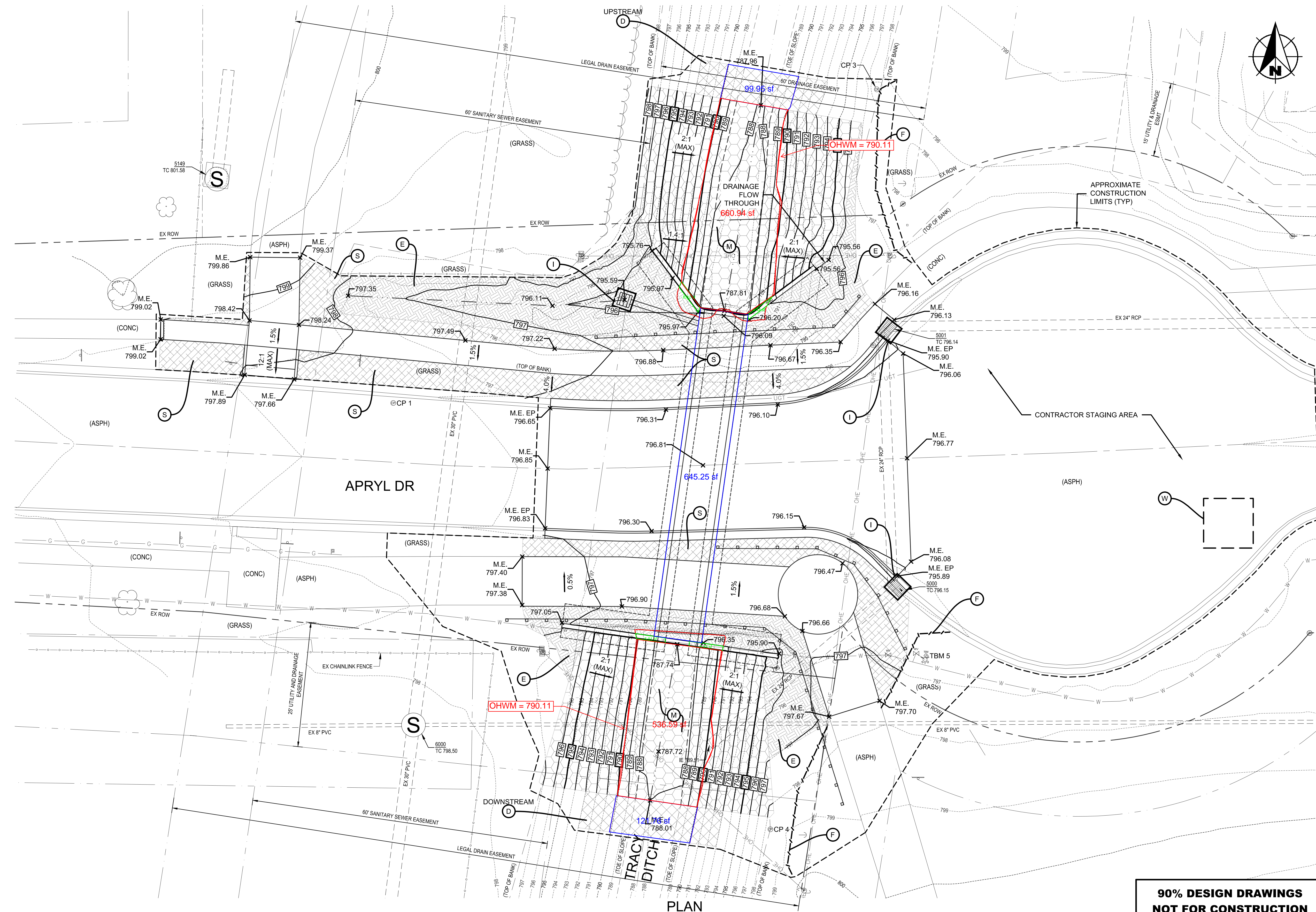
SHEET NO.
05
 TOTAL SHEETS
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LEGEND AND KEYED NOTES

- EG EXISTING GRADE
- EP EDGE OF PAVEMENT
- M.E. MATCH EXISTING
- APPROX CONSTRUCTION LIMITS
- (F) FILTER TUBE. SEE DETAIL, SHEET 14
- (W) CONCRETE WASHOUT. SEE DETAIL, SHEET 14
- (I) INLET PROTECTION. SEE DETAILS, SHEET 13
- (S) SOD
- (E) PERMANENT SEED AND EROSION CONTROL BLANKET. SEE DETAIL, SHEET 13
- (M) FLEXMAT CHANNEL PROTECTION SEE DETAIL, SHEET 14
- (D) TEMPORARY DAM. SEE DAM AND PUMP METHOD DETAIL, SHEET 13



**90% DESIGN DRAWINGS
NOT FOR CONSTRUCTION
12/14/2022**

SCALE VERIFICATION	DRAWN BY	MRE	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	MKA				
	APPROVED BY	JRF				
	ISSUE DATE	FEBRUARY 2023				
	PROJECT NUMBER	256422-04-001				



APRYL DRIVE CULVERT REPLACEMENT

CITY OF GREENWOOD, INDIANA

GRADING AND EROSION CONTROL PLAN

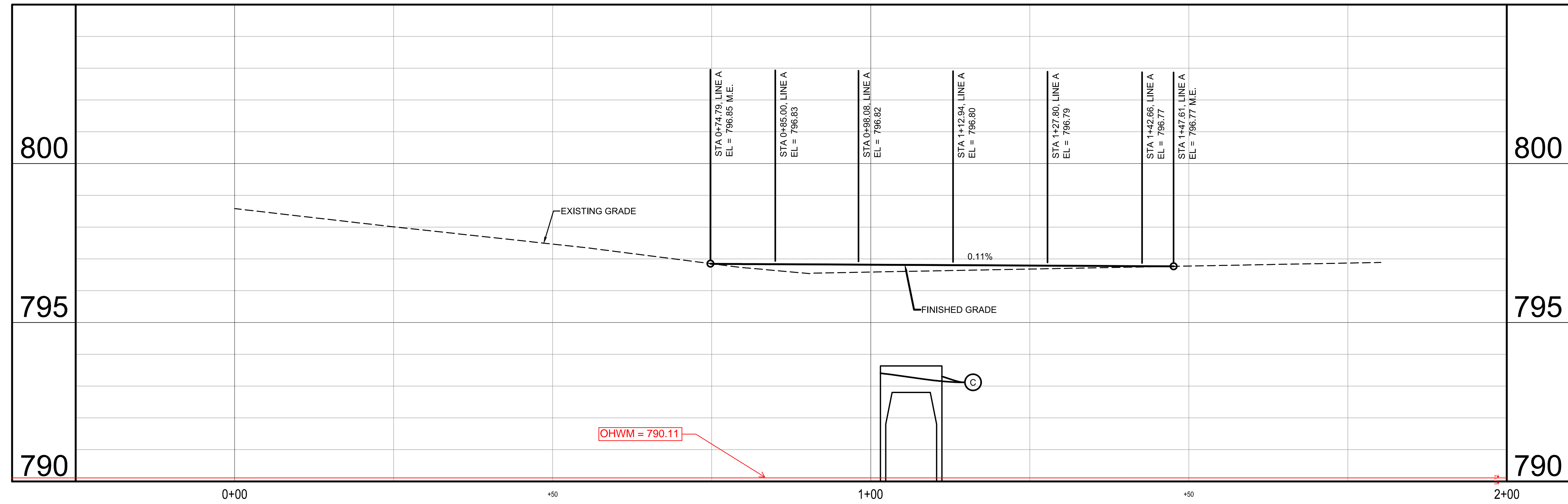
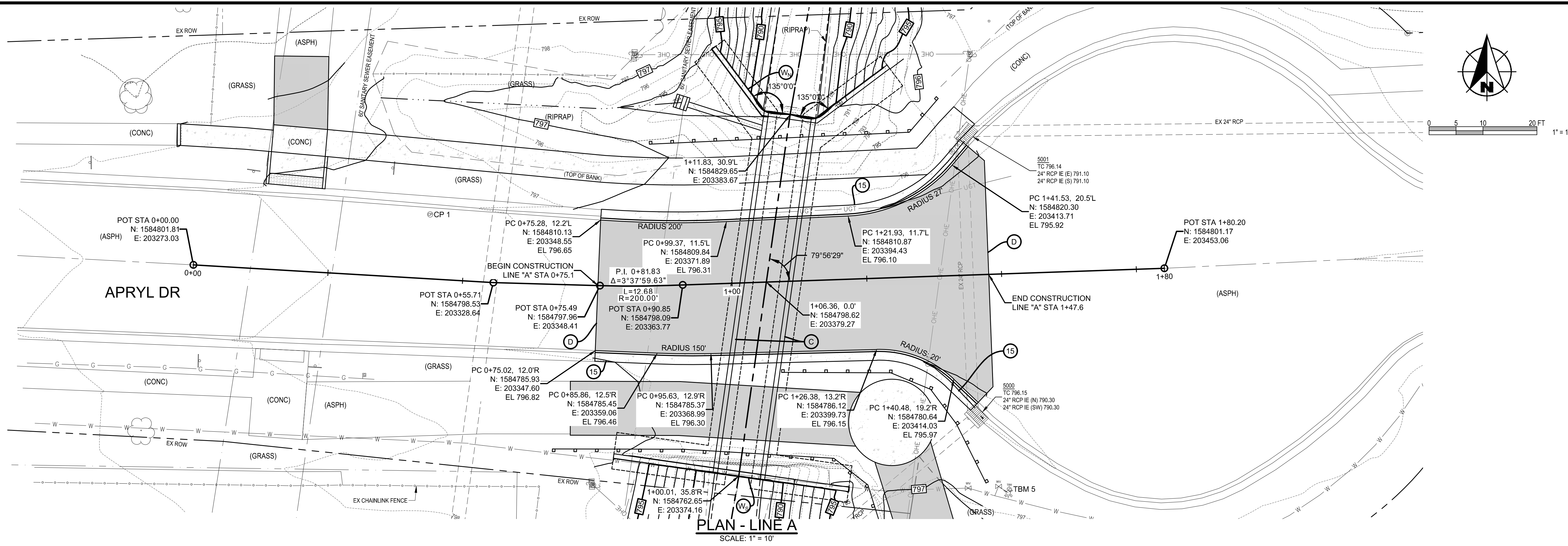
SHEET NO.

06

TOTAL SHEETS

14

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LEGEND
 M.E. MATCH EXISTING

KEYED NOTES

- C THREE-SIDED BOX CULVERT SEE DETAILS, SHEET 09
- D ASPHALT ROADWAY SEE DETAIL, SHEET 09
- W_N NORTH WALL SEE DETAIL, SHEET 09
- W_S SOUTH WALL SEE DETAIL, SHEET 09
- 15 CONCRETE CURB AND GUTTER SEE DETAIL, SHEET 09

**90% DESIGN DRAWINGS
 NOT FOR CONSTRUCTION
 12/14/2022**

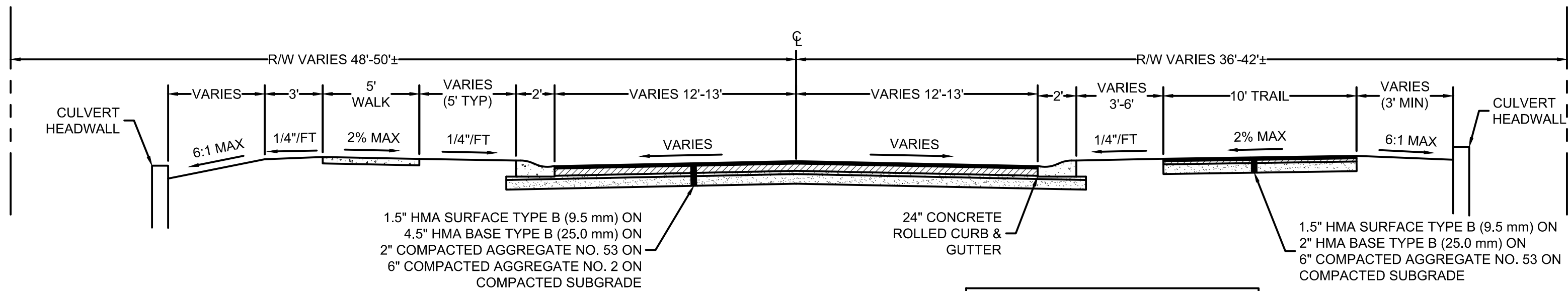
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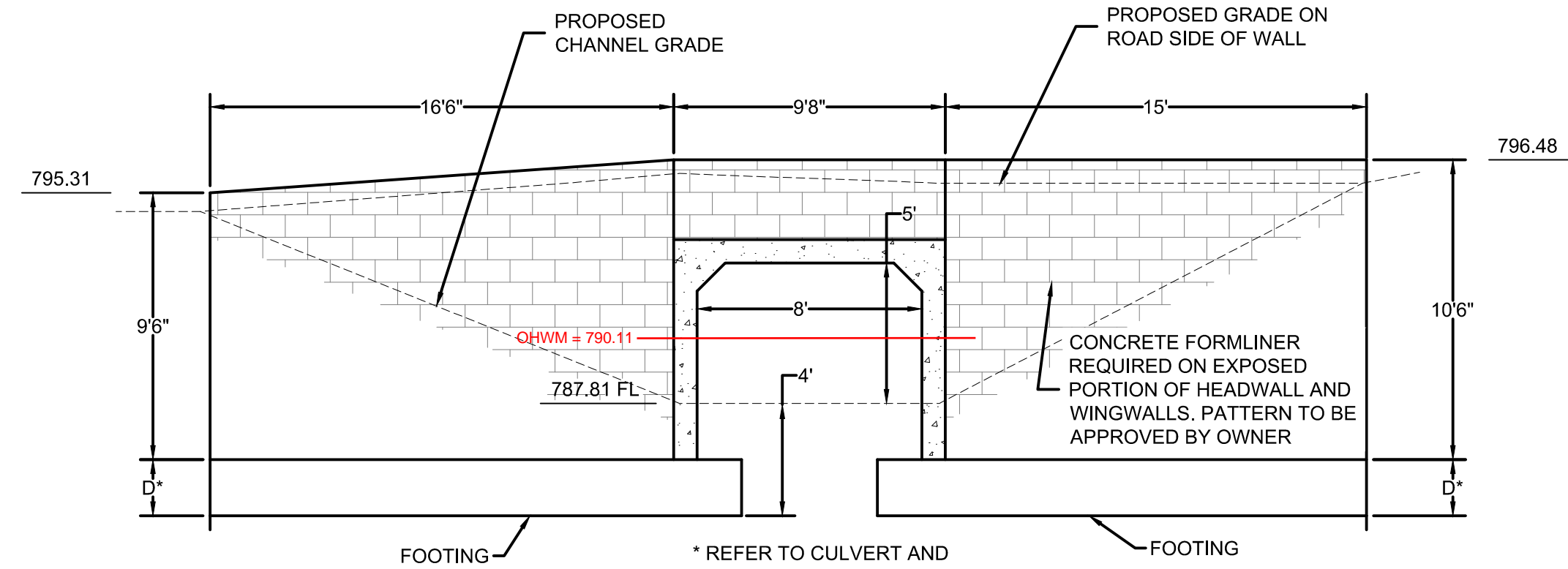
APRYL DRIVE CULVERT REPLACEMENT
 CITY OF GREENWOOD, INDIANA
**PLAN AND PROFILE - LINE A
 (APRYL DRIVE)**

SHEET NO.
08
 TOTAL SHEETS
14

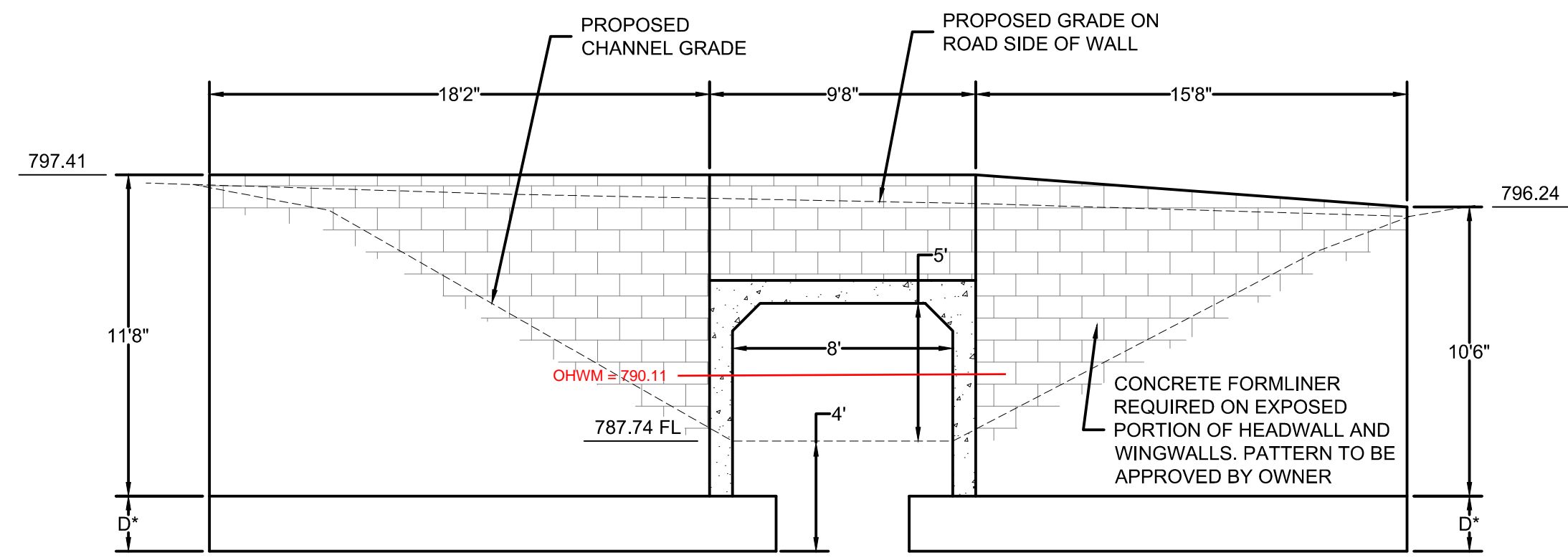
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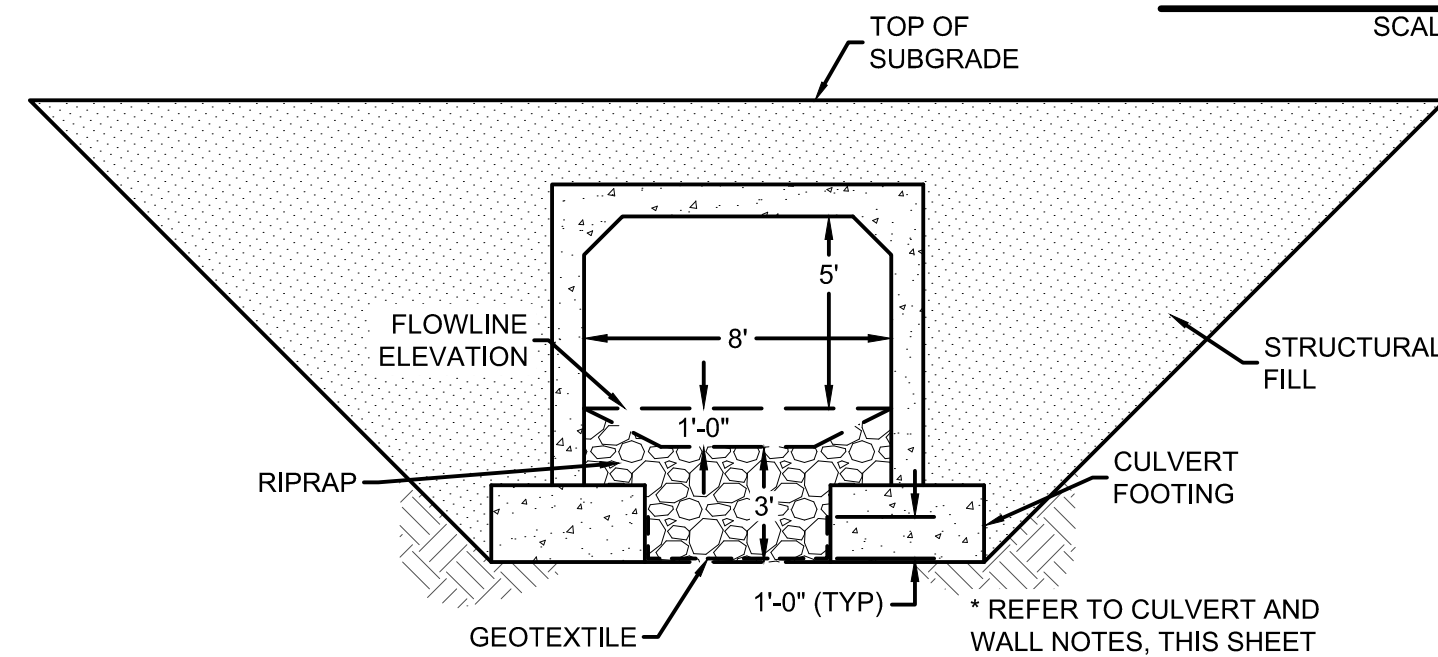
TYPICAL ROAD SECTION
SCALE: 1" = 5'



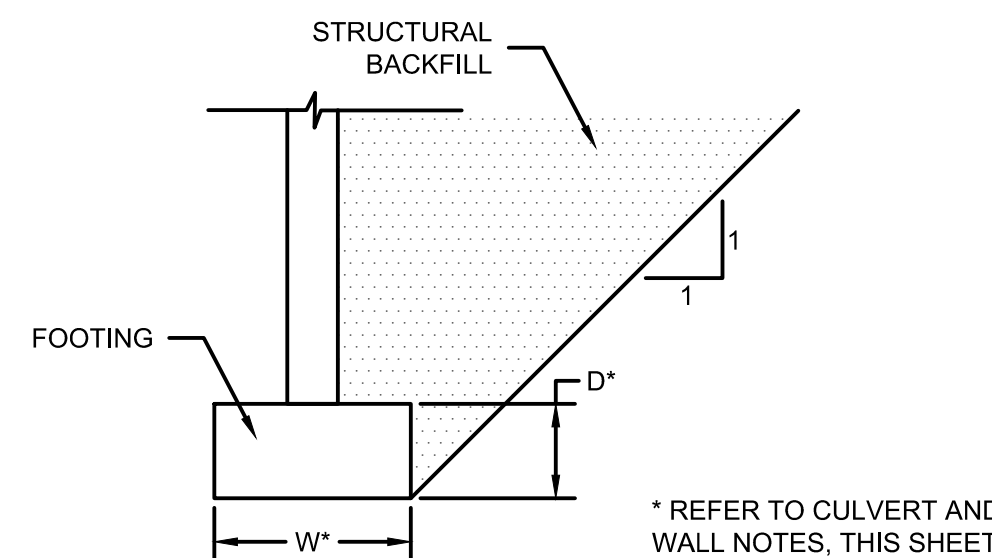
NORTH WALL SECTION
SCALE: 1" = 5'



SOUTH WALL SECTION
SCALE: 1" = 5'



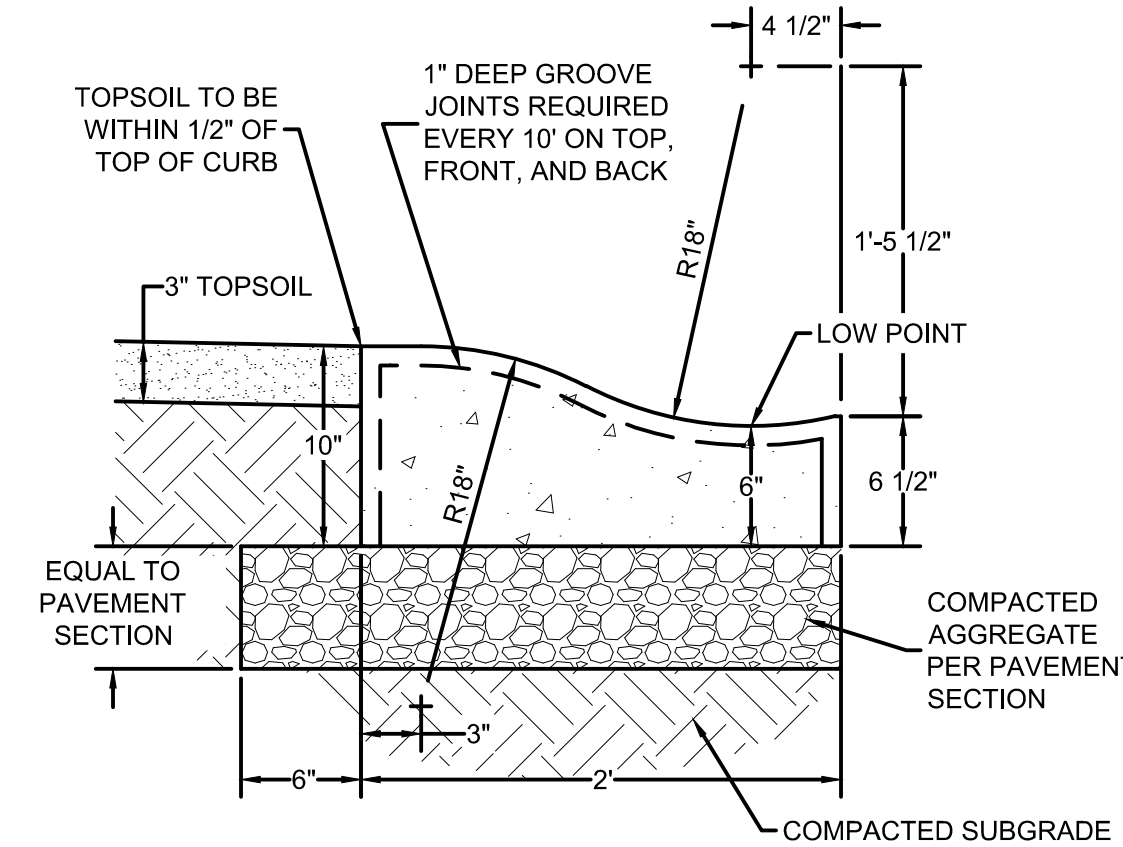
CULVERT SECTION
SCALE: 1" = 5'



TYPICAL WINGWALL SECTION
SCALE: NONE

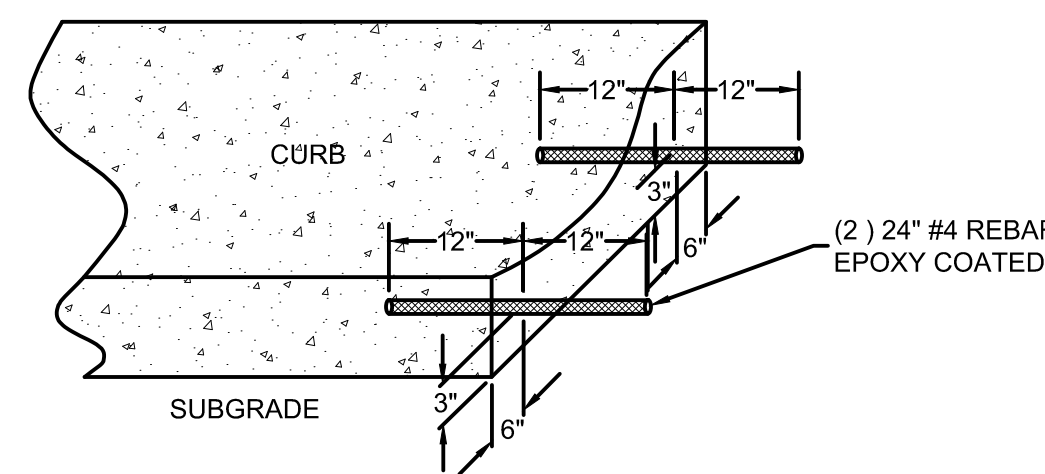
CULVERT AND WALL NOTES:

1. CULVERT (THICKNESS), HEADWALLS, WINGWALLS, AND FOOTING DESIGN TO BE PER MANUFACTURER. REFER TO GEOTECHNICAL INVESTIGATION FOR SOIL PARAMETERS FOR FOUNDATION AND WALL DESIGN.
2. THE CULVERT SHALL BE A THREE SIDED CULVERT WITH FLOW AREA DIMENSIONS AS SHOWN. BOX CULVERTS, WITH A CONCRETE BOTTOM, WILL NOT BE CONSIDERED.
3. INSTALL WEEP HOLES IN WINGWALLS PER THE GEOTECHNICAL INVESTIGATION.



24" CONCRETE ROLL CURB & GUTTER
SCALE: NONE

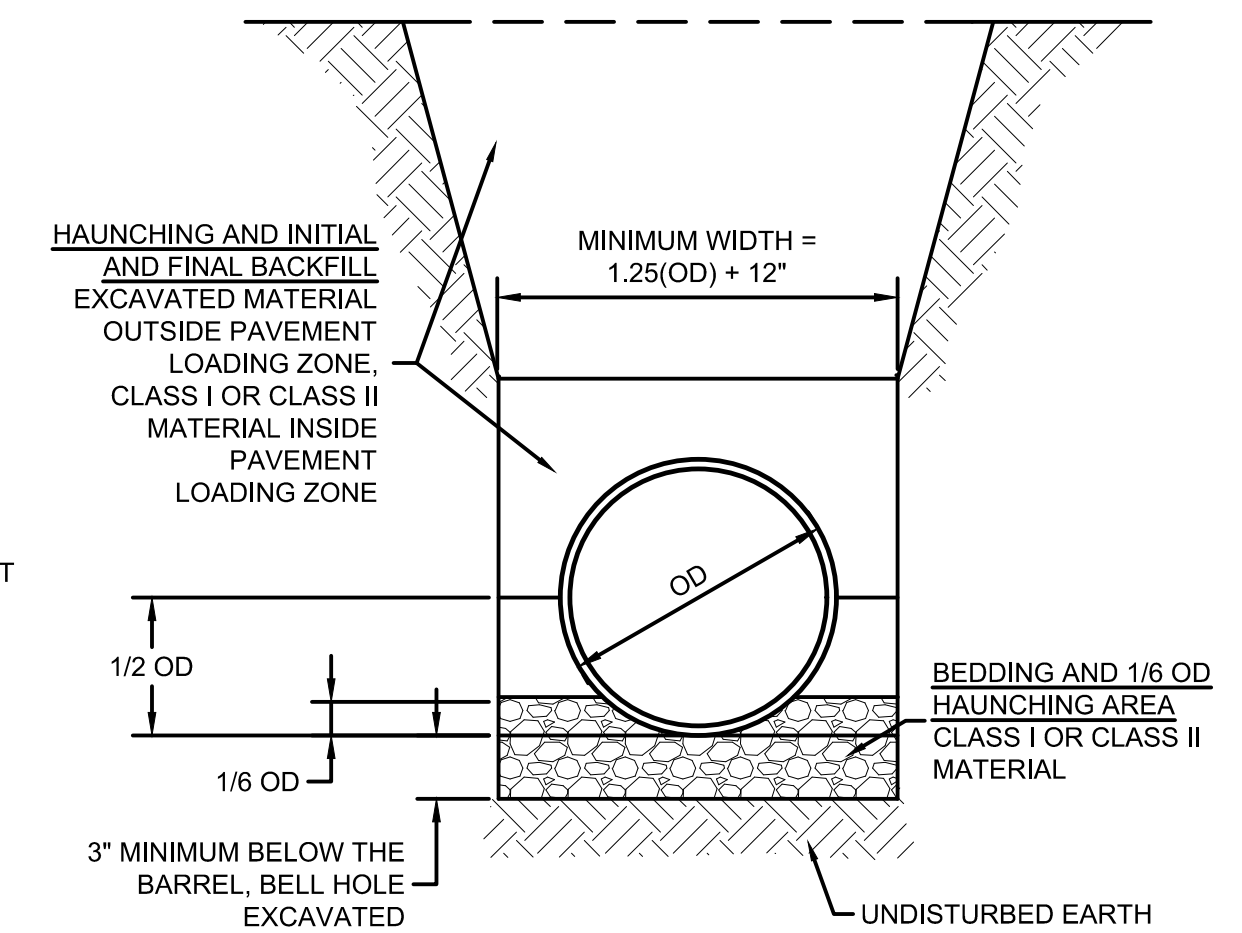
- NOTES:
1. REFER TO SPECIFICATIONS FOR MATERIAL AND CONSTRUCTION REQUIREMENTS



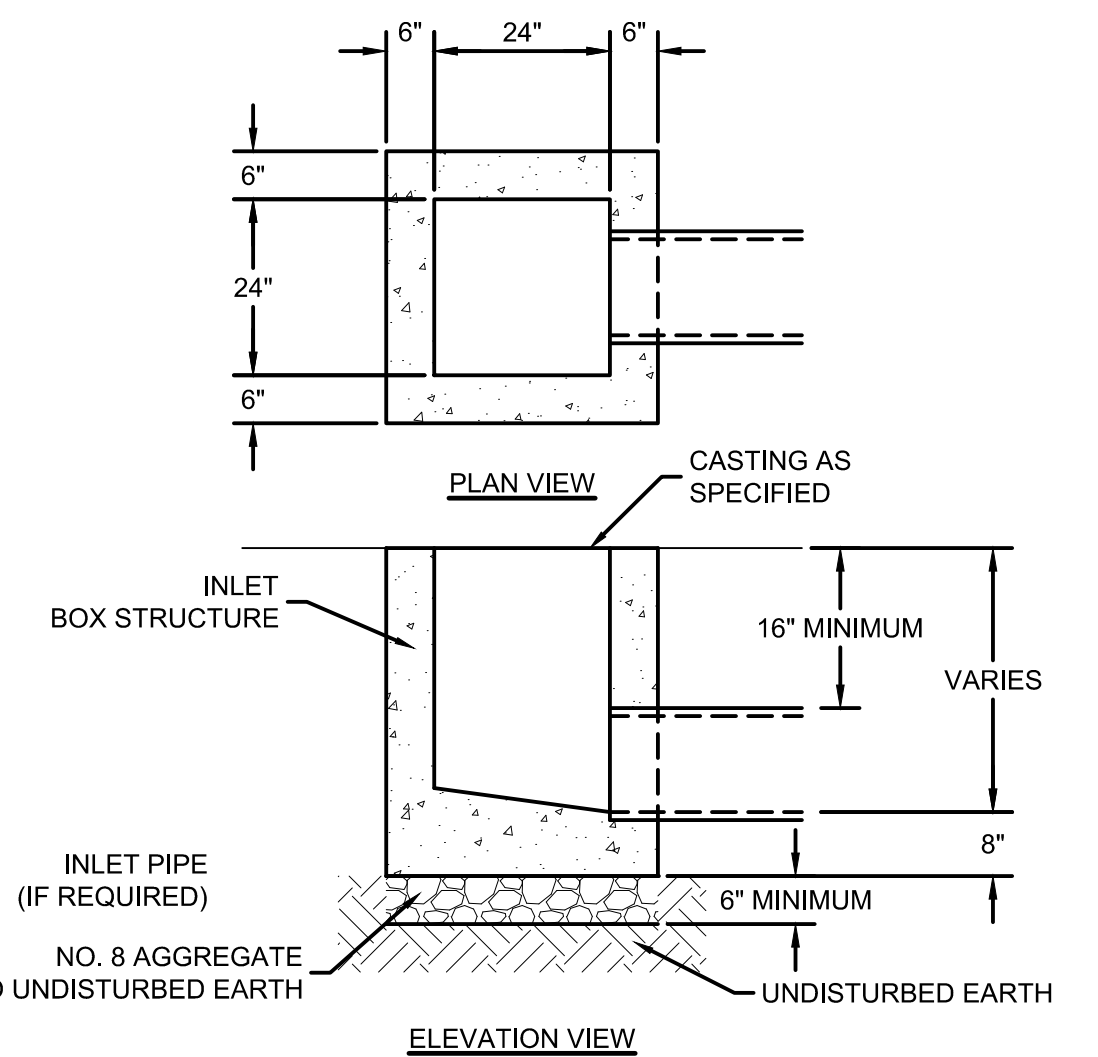
- NOTE:
1. REBAR REINFORCEMENT IS TO BE CHEMICALLY ANCHORED INTO THE EXISTING CURB WITH EPOXY GROUT PER THE MANUFACTURER'S GUIDELINES FOR PLACEMENT.
 2. REBAR IS TO BE CENTERED AT THE JOINT.

CONCRETE CURB TIE-IN
SCALE: NONE

SOIL FOUNDATION	
BEDDING BELOW THE PIPE BARREL	OD / 24 MIN = 3"
ROCK FOUNDATION	
BEDDING BELOW THE PIPE BARREL	OD / 12 MIN = 6"



REINFORCED CONCRETE PIPE (RCP) TRENCH
SCALE: NONE



INLET TYPE A
SCALE: NONE

**90% DESIGN DRAWINGS
NOT FOR CONSTRUCTION
12/14/2022**

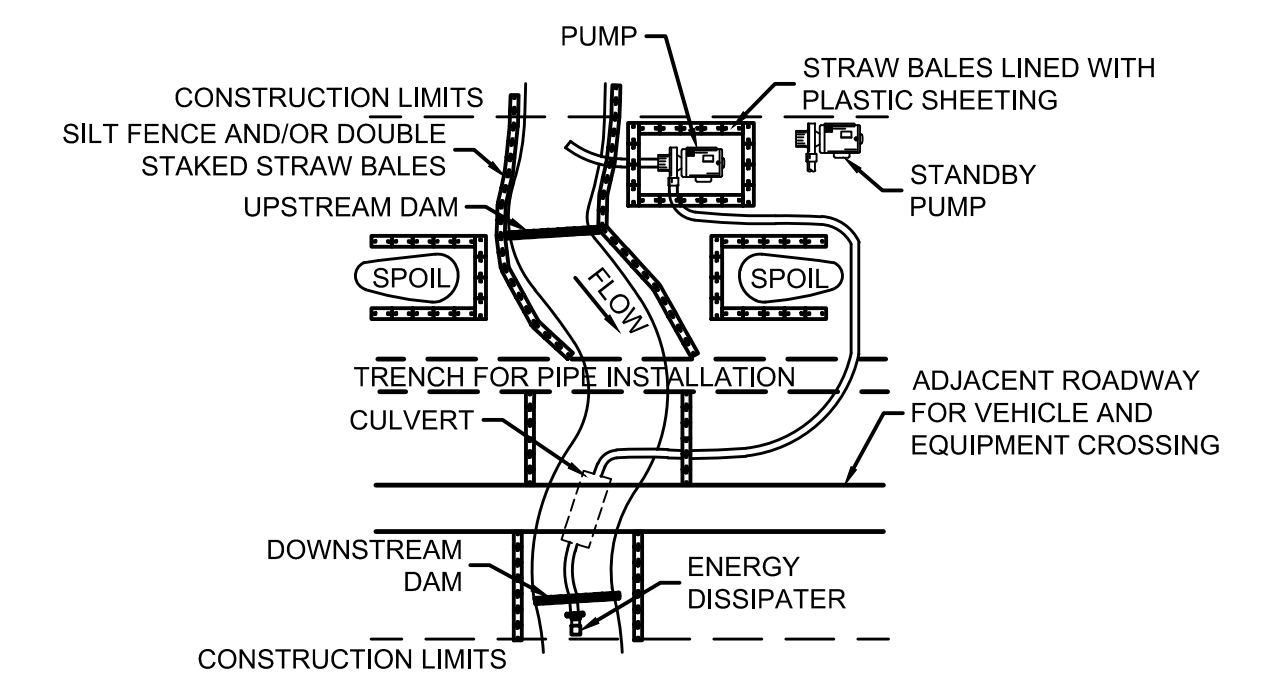
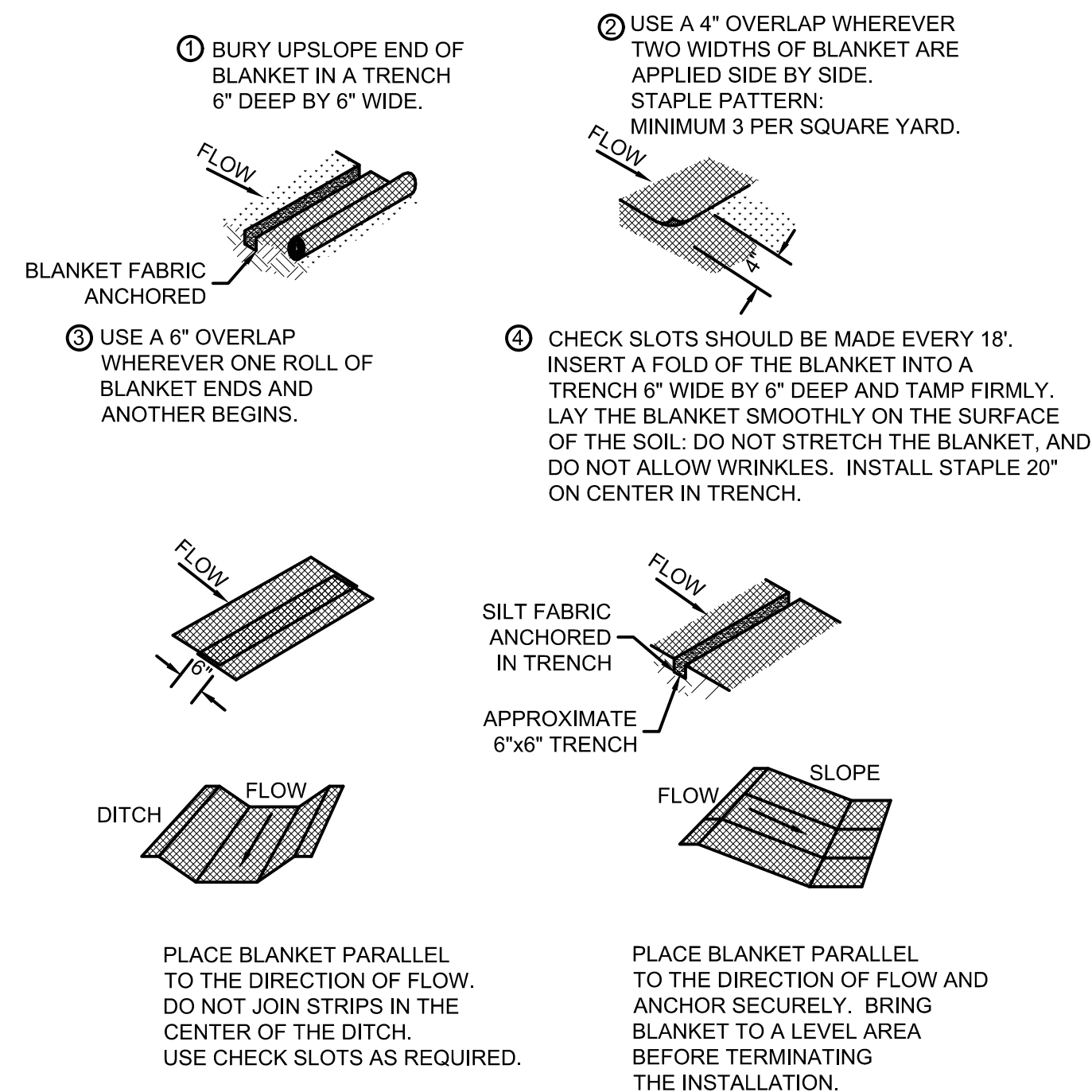
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BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	MKA				
	APPROVED BY	JRF				
	ISSUE DATE	FEBRUARY 2023				
	PROJECT NUMBER	256422-04-001				



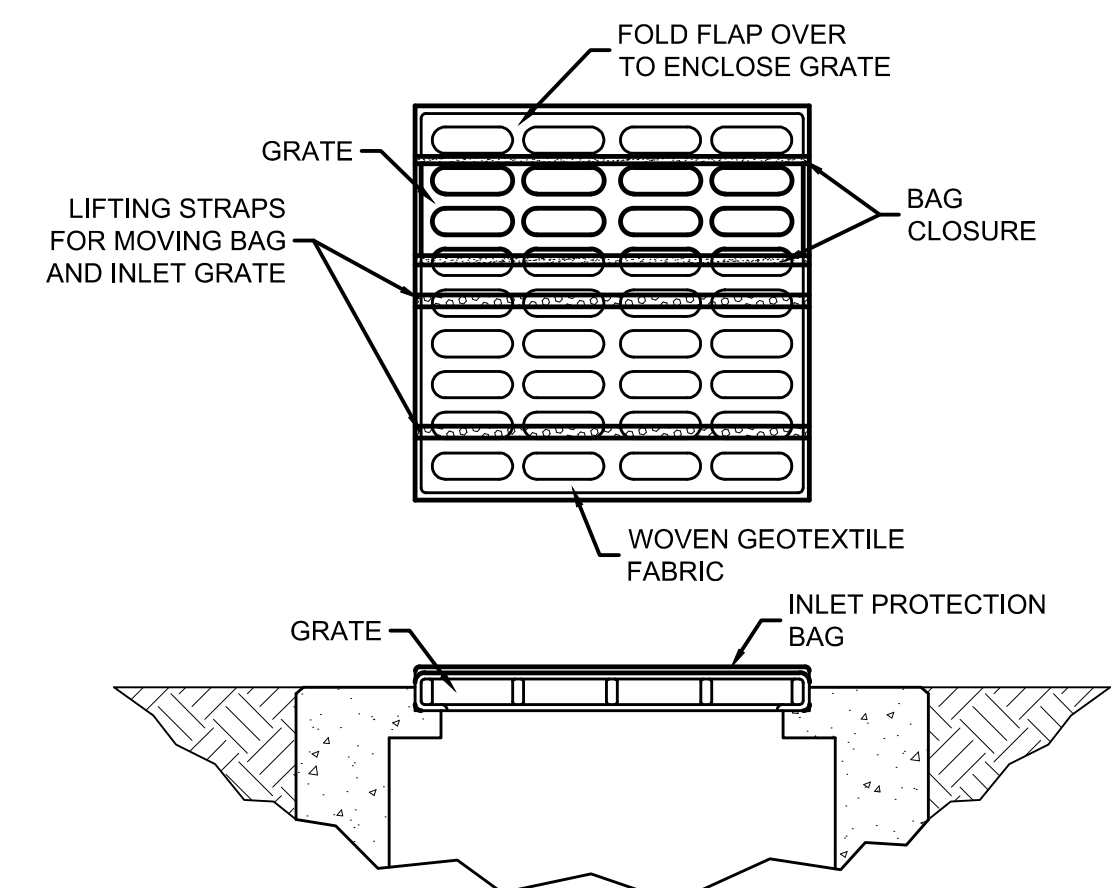
APRYL DRIVE CULVERT REPLACEMENT
CITY OF GREENWOOD, INDIANA
MISCELLANEOUS DETAILS

SHEET NO.
09
TOTAL SHEETS
14

Drawing: J:\Greenwood\Projects\256422 - Greenwood Tracy Legal\Drawings\Sheets\256422-CD.dwg | Layout: CD1 | Plotted: 12/14/22 @ 07:35:14 | Laseve@by Michelle



- INSTALLATION:**
- USE THE DAM AND PUMP METHOD ON NARROW WATER COURSES WITH LOW STREAM FLOW. THE DAM AND PUMP METHOD IS NOT REQUIRED WHEN NO STREAM FLOW IS PRESENT.
 - IF FISH PASSAGE IS A CONCERN, DO NOT USE THE DAM AND PUMP METHOD.
 - INSTALL SILT FENCE OR DOUBLE STAKED STRAW BALES PARALLEL TO BOTH SIDES OF THE STREAM PRIOR TO EXCAVATION.
 - THE DAM AND PUMP METHOD INVOLVES DAMMING THE STREAM BEFORE EXCAVATING IN ORDER TO PREVENT INTERRUPTING DOWNSTREAM FLOW BY PUMPING THE WATER SIMULTANEOUSLY WITH DAM CONSTRUCTION.
 - CONSTRUCT UPSTREAM AND DOWNSTREAM DAMS OF SANDBAGS, STEEL PLATES, AQUADAMS OR CLEAN AGGREGATE WITH PLASTIC LINER.
 - HAVE TWO PUMPS ON HAND, EACH SIZED WITH THE PUMPING CAPACITY OF THE ANTICIPATED STREAM FLOW, TO ENSURE STANDBY FUNCTION. ONE OF THE PUMPS MUST BE ONSITE AS A BACKUP PUMP OF EQUAL OR GREATER CAPACITY AT ALL TIMES IN CASE THE PRIMARY PUMP FAILS.
 - PUMP WATER ACROSS THE CONSTRUCTION AREA THROUGH A HOSE AND ONTO AN ENERGY DISSIPATION DEVICE BACK INTO THE DRY STREAM BED DOWNSTREAM.
 - PLACE THE PUMP IN AN IMPERMEABLE, BERMED AREA ON THE UPSTREAM SIDE OF THE CONSTRUCTION SITE TO PREVENT ANY SPILLED FUEL FROM ENTERING THE WATERCOURSE.
 - MONITOR THE PUMPING OPERATION AT ALL TIMES, AND ADJUST THE PUMP AS NECESSARY TO MAINTAIN AN EVEN FLOW OF WATER ACROSS THE WORK AREA. MAINTAIN NEAR-NORMAL WATER LEVELS UPSTREAM AND DOWNSTREAM OF THE CROSSING.
 - PUMP AND FILTER STANDING WATER THAT IS ISOLATED IN THE CONSTRUCTION AREA BY THE DAMS, OR ANY STREAM WATER THAT LEAKS AROUND THE DAMS OR SEEPS FROM THE GROUND.
 - UTILIZE AN ADJACENT ROADWAY FOR VEHICLE AND EQUIPMENT CROSSINGS.
- MAINTENANCE:**
- FOLLOW GENERAL MAINTENANCE PRACTICES FOR SILT FENCE, STRAW BALES, AND PUMPING BAG (IF NEEDED).
 - CONTINUOUSLY MONITOR DAMS FOR PROPER SEAL.
 - ADJUST THE DAMS AS NECESSARY TO PREVENT LARGE VOLUMES OF WATER FROM SEEPING AROUND THE DAMS AND INTO THE CONSTRUCTION WORK AREA.
 - INSPECT AT LEAST ONCE EVERY 7 CALENDAR DAYS.



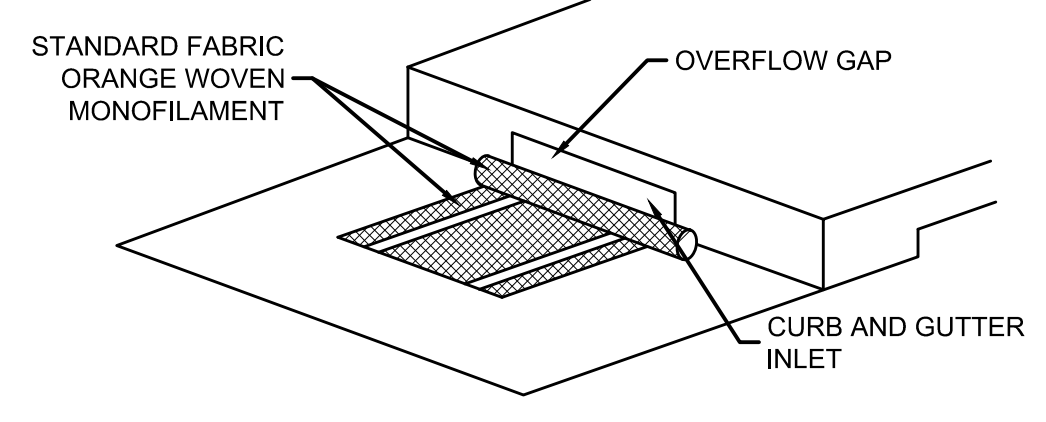
- PRODUCT:**
- DANDY BAG, OR APPROVED EQUAL.
- INSTALLATION:**
- THE EMPTY INLET PROTECTION BAG SHOULD BE PLACED OVER THE GRATE AS THE GRATE STANDS ON END.
 - TUCK THE ENCLOSURE FLAP INSIDE TO COMPLETELY ENCLOSE THE GRATE.
 - HOLDING THE LIFTING DEVICES (DO NOT RELY ON LIFTING DEVICES TO SUPPORT THE ENTIRE WEIGHT OF THE GRATE), PLACE THE GRATE INTO ITS FRAME.
- MAINTENANCE:**
- REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM SURFACE AND VICINITY OF UNIT AFTER EACH STORM EVENT.
 - REMOVE SEDIMENT THAT HAS ACCUMULATED WITHIN THE CONTAINMENT AREA OF THE INLET PROTECTION BAG AS NEEDED.
 - INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND ONCE EVERY 7 CALENDAR DAYS.

- PRODUCT:**
- NORTH AMERICAN GREEN SC150, OR EQUAL.
- NOTES:**
- PROTECT THE SLOPES WITH AN EROSION CONTROL BLANKET WHERE CONSTRUCTION DISTURBS SLOPES EQUAL OR STEEPER THAN 3:1.
- MAINTENANCE:**
- INSPECT FOR EROSION AFTER EACH STORM EVENT DURING VEGETATION ESTABLISHMENT, AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.
 - IF ANY AREAS SHOW EROSION, PULL BACK THAT PORTION OF THE BLANKET, ADD SOIL, RESEED, RELAY AND STAPLE THE BLANKET.
 - CHECK AREAS PERIODICALLY AFTER VEGETATION ESTABLISHMENT.

EROSION CONTROL SCHEDULE	
CONSTRUCTION ACTIVITY	SCHEDULE CONSIDERATION
REVIEW THE EROSION CONTROL SCHEDULE ON THE DRAWINGS AND REVISE AS NEEDED TO PHASE CONSTRUCTION ACTIVITIES TO MINIMIZE THE FOOTPRINT OF DISTURBED UNSTABLE AREAS. SUBMIT A REVISED EROSION CONTROL SCHEDULE AS NEEDED FOR TEMPORARY AND PERMANENT EROSION CONTROL WORK AS APPLICABLE.	COMPLETE BEFORE CONSTRUCTION BEGINS.
CONSTRUCTION ACCESS - ENTRANCE TO SITE, CONSTRUCTION ROUTES, AREAS DESIGNATED FOR EQUIPMENT PARKING OR MATERIAL STAGING AND WASTE HANDLING.	THIS IS THE FIRST LAND-DISTURBING ACTIVITY. AS SOON AS CONSTRUCTION BEGINS, STABILIZE ANY BARE AREAS WITH AGGREGATE AND TEMPORARY VEGETATION.
SEDIMENT TRAPS AND BARRIERS - BASIN TRAPS, SILT FENCE AND PERIMETER PROTECTION.	AFTER CONSTRUCTION IS ACCESSED, BASINS SHALL BE INSTALLED, WITH THE ADDITION OF MORE TRAPS AND BARRIERS AS NEEDED DURING GRADING. SET UP PROTECTION FOR NATURAL FEATURES, TREES AND BUFFERS.
RUNOFF CONTROL - DIVERSIONS, PERIMETER PROTECTION, CHECK DAMS, OUTLET PROTECTION.	RUNOFF CONTROL PRACTICES SHALL BE INSTALLED AFTER THE INSTALLATION OF SEDIMENT TRAPS AND BEFORE LAND GRADING. ADDITIONAL RUNOFF CONTROL MEASURES MAY BE INSTALLED DURING GRADING.
RUNOFF CONVEYANCE SYSTEM - STABILIZE STREAM BANKS, STORM DRAINS, CHANNELS, INLET AND OUTLET PROTECTION, SLOPE DRAINS.	AS NECESSARY, STABILIZE STREAM BANKS AND SIDE SLOPES OF RUNOFF SYSTEMS AS SOON AS POSSIBLE. USE EROSION CONTROL BLANKETS OR SLOPE DRAINS TO PREVENT EROSION. INSTALL INLET PROTECTION TO PREVENT SEDIMENTS FROM ENTERING STORM DRAINAGE SYSTEMS. PROTECT STORM OUTLETS TO PREVENT EROSION.
LAND CLEARING AND GRADING - SITE PREPARATION (CUTTING, FILLING, AND GRADING, SEDIMENT TRAPS, BARRIERS, DIVERSIONS, DRAINS, SURFACE ROUGHENING).	IMPLEMENT CLEARING AND GRADING AFTER INSTALLATION OF SEDIMENT TRAPS AND RUNOFF CONTROL MEASURES, AND INSTALL ADDITIONAL CONTROL MEASURES AS GRADING CONTINUES. CLEAR BORROW AND DISPOSAL AREAS AS NEEDED.
SURFACE STABILIZATION - TEMPORARY AND PERMANENT SEEDING, MULCHING, SODDING, RIPRAP, EROSION CONTROL BLANKET.	APPLY TEMPORARY OR PERMANENT STABILIZING MEASURES IMMEDIATELY TO ANY DISTURBED AREAS WHERE WORK HAS BEEN EITHER COMPLETED OR DELAYED.
CONSTRUCTION - STRUCTURES, UTILITIES, PAVING, CONCRETE WASHOUT, AND CONSTRUCTION ENTRANCES.	DURING CONSTRUCTION, INSTALL ANY EROSION AND SEDIMENTATION CONTROL MEASURES THAT ARE NEEDED.
LANDSCAPING AND FINAL STABILIZATION - TOPSOILING, TREES AND SHRUBS, PERMANENT SEEDING, MULCHING, SODDING, RIPRAP.	THIS IS THE LAST CONSTRUCTION PHASE. STABILIZE ALL DISTURBED AREAS, INCLUDING BORROW AND SPOIL AREAS, AND REMOVE ALL TEMPORARY CONTROL MEASURES. FINAL STABILIZATION IS WHEN A UNIFORM DENSITY OF 70% VEGETATION COVER IS MET. PROVIDE NOTIFICATION TO THE OWNER WHEN THE ENTIRE SITE HAS BEEN STABILIZED AND ALL CONSTRUCTION MATERIALS, WASTES, AND EQUIPMENT HAVE BEEN REMOVED.

EROSION CONTROL SCHEDULE
SCALE: NONE

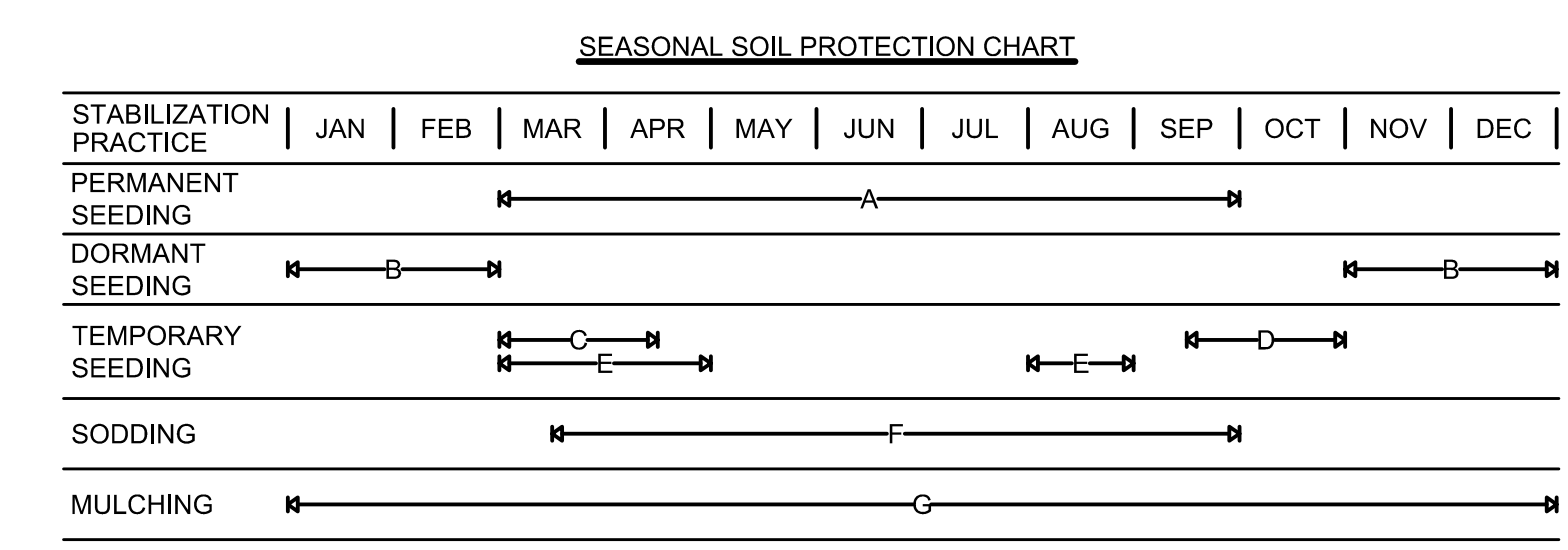
INLET PROTECTION BAG
SCALE: NONE



- PRODUCT:**
- DANDY CURB SACK, OR APPROVED EQUAL.
- INSTALLATION:**
- REMOVE THE GRATE FROM THE CATCH BASIN AND STAND ON END.
 - CRADLE THE GRATE BETWEEN THE UPPER AND LOWER STRAPS.
 - INSERT THE GRATE INTO THE INLET WITH THE LIFTING DEVICES. LOWER BACK EDGE WITH TUBE INTO PLACE. TUBE SHOULD PARTIALLY BLOCK THE CURB HOOD OPENING.
- MAINTENANCE:**
- REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM SURFACE AND VICINITY OF UNIT AFTER EACH STORM EVENT.
 - REMOVE THE SEDIMENT THAT HAS ACCUMULATED WITHIN THE FABRIC AS NEEDED.
 - INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.

CURB AND GUTTER INLET PROTECTION
SCALE: NONE

EROSION CONTROL BLANKET
SCALE: NONE



- A. = KENTUCKY BLUEGRASS 40 LB/ACRE
- B. = KENTUCKY BLUEGRASS 210 LB/ACRE
- C. = SPRING OATS 100 LB/ACRE (1" PLANTING DEPTH)
- D. = WHEAT OR RYE 150 LB/ACRE (1" - 1.5" PLANTING DEPTH)
- E. = ANNUAL RYEGRASS 40 LB/ACRE (1/4" PLANTING DEPTH)
- F. = SOD
- G. = ANCHORED STRAW/HAY (2 TONS/ACRE) OR WOOD FIBER/CELLULOSE (1 TON/ACRE)

- NOTES:**
- IRRIGATION NEEDED DURING MAY THROUGH SEPTEMBER.
 - IRRIGATION NEEDED FOR 2 TO 3 WEEKS AFTER APPLYING SOD.
 - ANCHORED MULCH IS REQUIRED FOR PERMANENT, DORMANT AND TEMPORARY SEEDING.
 - OPTIMUM SEEDING DATES PROVIDED. DATES MAY BE EXTENDED OR SHORTENED BASED ON PROJECT LOCATION.
 - SEED MIXTURES PROVIDED FOR LAWNS AND HIGH MAINTENANCE AREAS.
- MAINTENANCE:**
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.
 - CHECK FOR EROSION AND MOVEMENT OF MULCH AND REPAIR IMMEDIATELY.
 - MONITOR FOR EROSION DAMAGE AND ADEQUATE COVER (70% DENSITY).
 - RESEED, FERTILIZE OR APPLY MULCH WHERE NECESSARY.

**90% DESIGN DRAWINGS
NOT FOR CONSTRUCTION
12/14/2022**

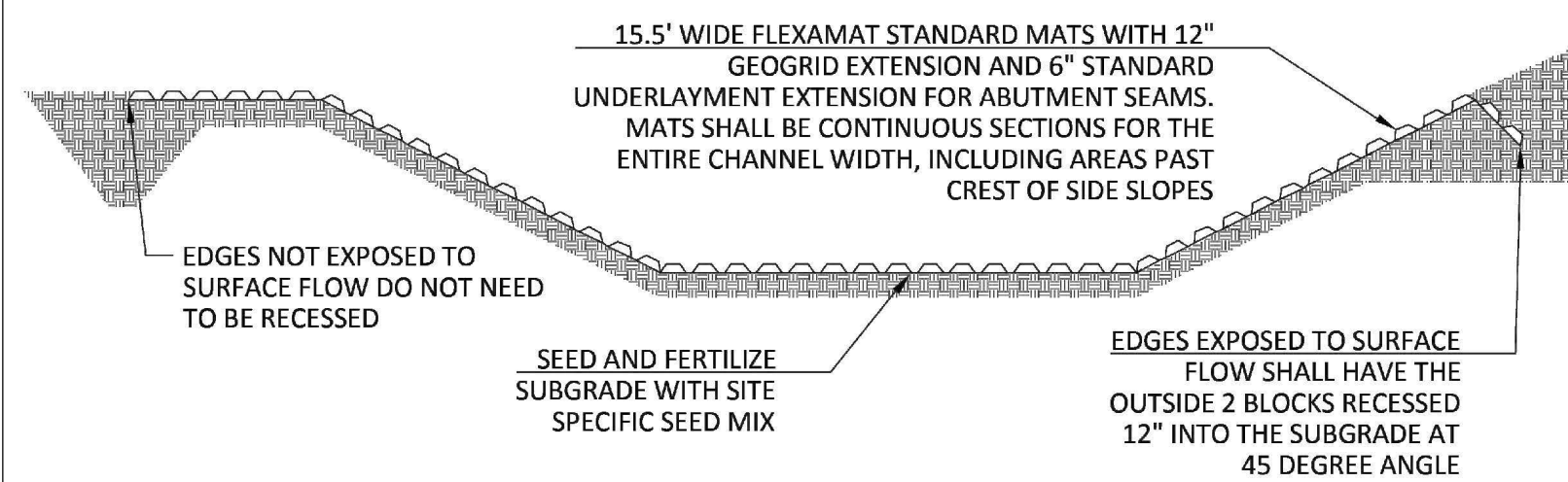
SCALE VERIFICATION	DRAWN BY	MRE	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	MKA				
	APPROVED BY	JRF				
	ISSUE DATE	FEBRUARY 2023				
	PROJECT NUMBER	256422-04-001				



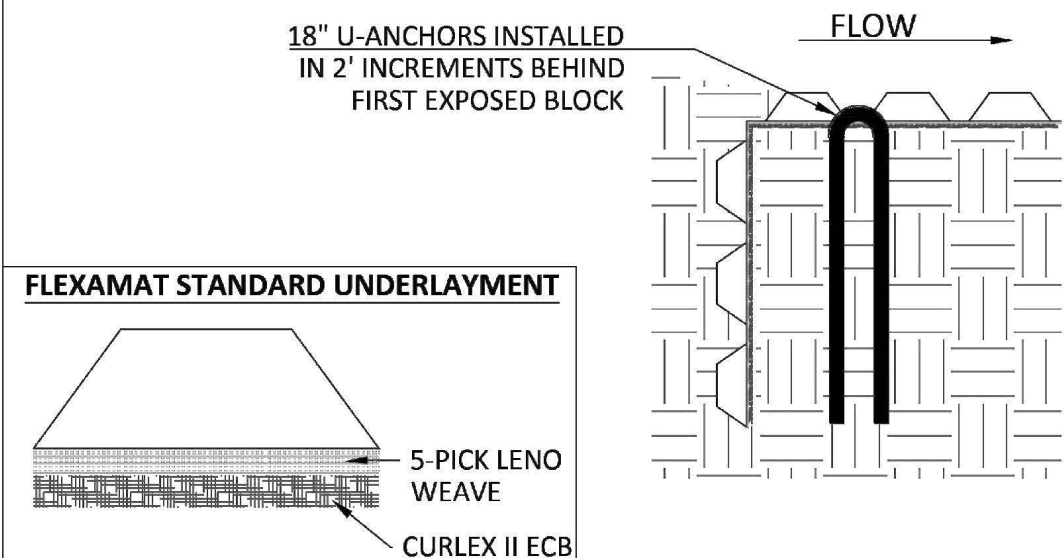
APRYL DRIVE CULVERT REPLACEMENT
CITY OF GREENWOOD, INDIANA
EROSION CONTROL DETAILS

SHEET NO.
13
TOTAL SHEETS
14

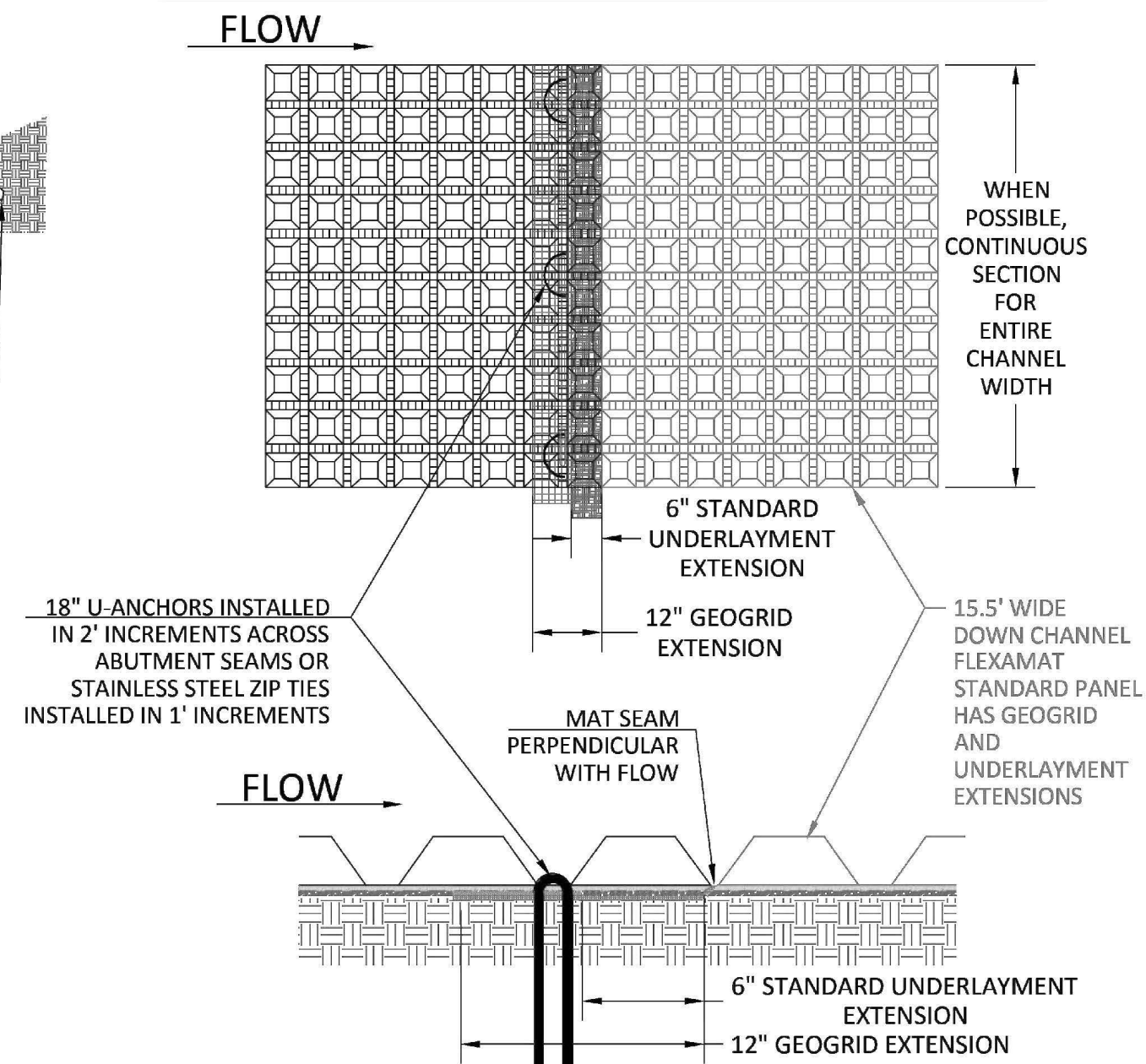
METHOD FOR TREATING EDGES EXPOSED TO SURFACE SHEET FLOW



LEADING AND ENDING ANCHOR TRENCH



ABUTMENT METHOD FOR SEAMS PERPENDICULAR WITH FLOW



FLEXAMAT STANDARD - CHANNEL LAYOUT PERPENDICULAR TO FLOW

- CONSTRUCTION NOTES:**
1. AN AUTHORIZED MANUFACTURERS REPRESENTATIVE SHALL BE ONSITE FOR THE START OF THE INSTALLATION.
 2. GRADE CHANNEL SO THAT WATER WILL FLOW DOWN CENTER OF THE CHANNEL AND BE CONTAINED TO THE CHANNEL. 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.
 3. PRIOR TO FLEXAMAT STANDARD INSTALLATION, SEED AND FERTILIZE SUBGRADE WITH SITE SPECIFIC SEED MIX IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS.
 4. INSTALL FLEXAMAT STANDARD ROLLS THAT ARE 15.5' WIDE WITH A 12\"/>

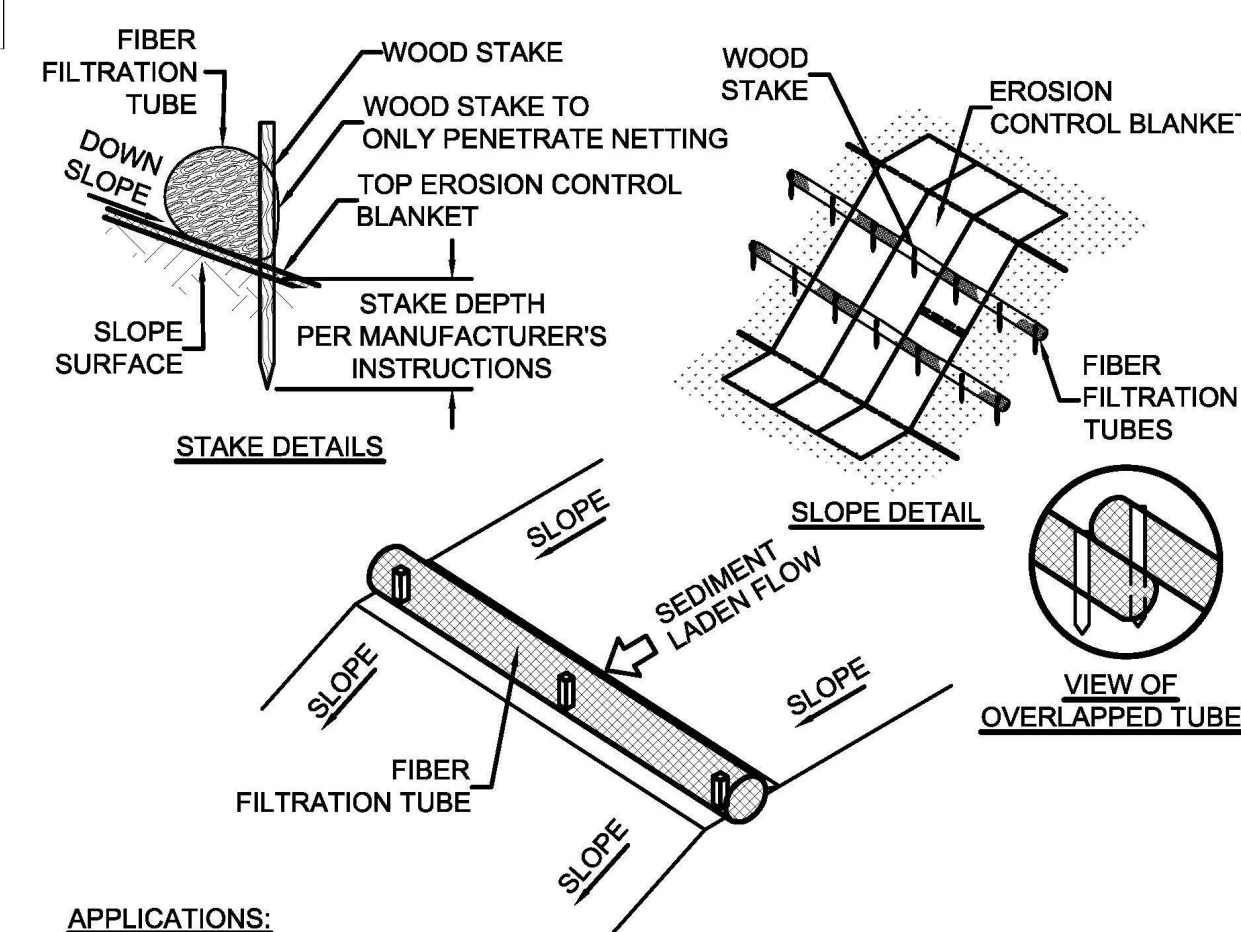
MOTZ ENTERPRISES, INC.

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



FLEXAMAT CHANNEL PROTECTION

SCALE: NONE



APPLICATIONS:

1. TOP OF SLOPES.
2. AT PROJECT PERIMETER.

INSTALLATION:

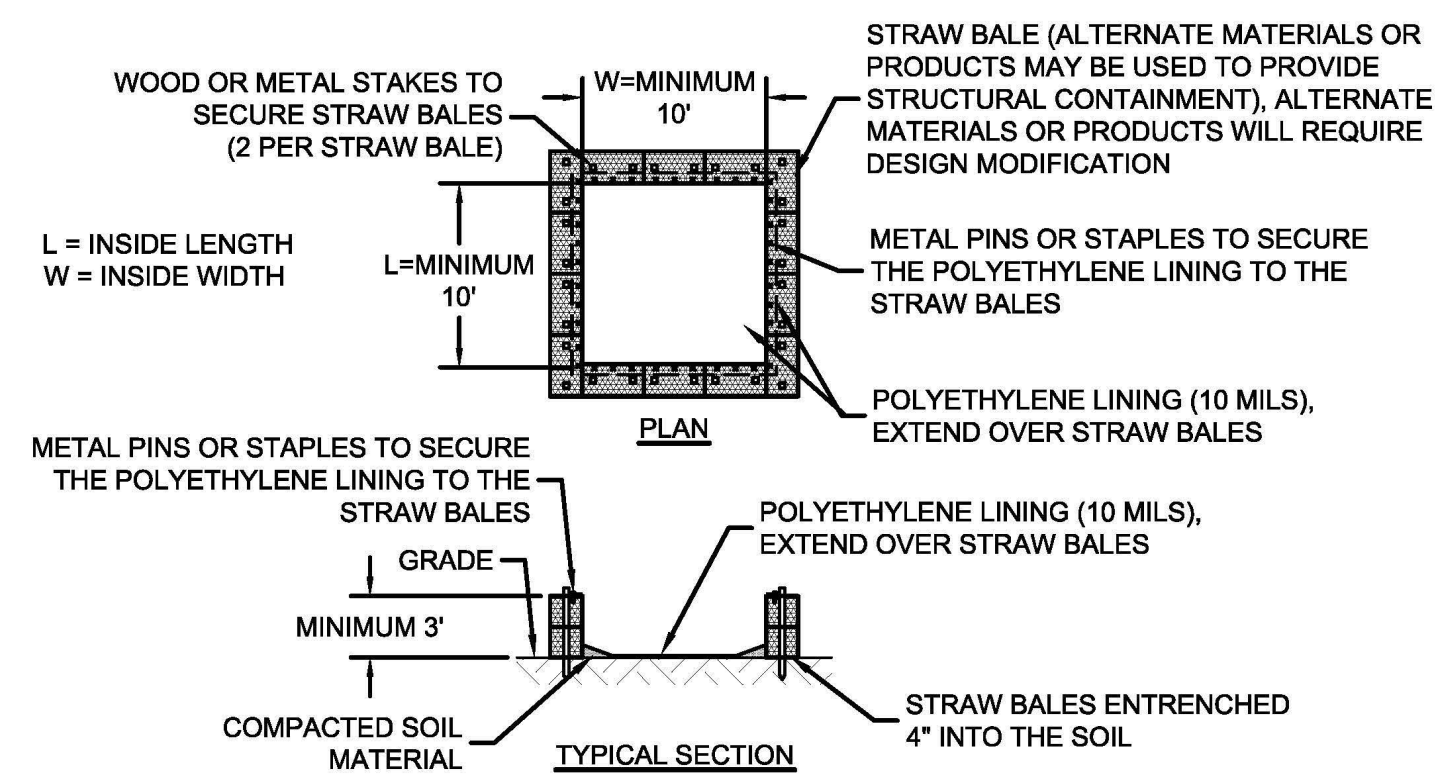
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. USE THE APPROPRIATE SIZE, LENGTH AND DISTANCE BETWEEN TUBES AS SPECIFIED BY THE MANUFACTURER.
3. ENTRENCH PER MANUFACTURER'S INSTRUCTIONS.

MAINTENANCE:

1. REMOVE ALL ACCUMULATED SEDIMENT WHEN IT REACHES 1/4 THE HEIGHT OF THE TUBE.
2. REPAIR ERODED AND DAMAGED AREAS.
3. IF PONDING BECOMES EXCESSIVE DUE TO REDUCED FILTERING CAPACITY, REMOVE THE TUBE AND EITHER RECONSTRUCT OR REPLACE WITH NEW PRODUCT.
4. INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.

FIBER FILTRATION TUBES - SLOPE

SCALE: NONE



NOTES:

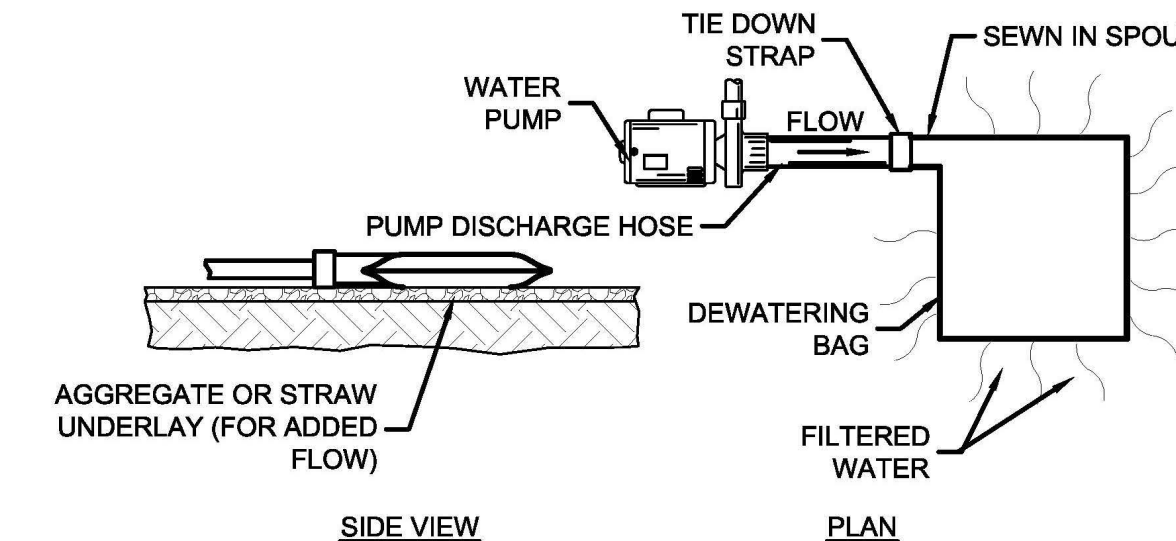
1. LOCATE WASHOUTS AT LEAST 50' FROM ANY CREEKS, WETLANDS, DITCHES, KARST FEATURES, OR STORM DRAIN/CONVEYANCES.
- WASHOUT PROCEDURES:**
1. DO NOT LEAVE EXCESS MUD IN THE CHUTES OR HOPPER AFTER POURING CONCRETE. MAKE EVERY EFFORT TO EMPTY THE CHUTE AND HOPPER AT THE POUR. THE LESS MATERIAL LEFT IN THE CHUTES AND HOPPER, THE QUICKER AND EASIER THE CLEANOUT. SMALL AMOUNTS OF EXCESS CONCRETE (NOT WASHOUT WATER) MAY BE DISPOSED OF IN AREAS THAT WILL NOT FLOW TO AN AREA THAT IS TO BE PROTECTED.
 2. SCRAPE AS MUCH MATERIAL FROM THE CHUTES AS POSSIBLE BEFORE WASHING THEM. USE NON-WATER CLEANING METHODS TO MINIMIZE THE CHANCE FOR WASTE TO FLOW OFF SITE.
 3. STOP WASHING OUT IN AN AREA IF YOU OBSERVE WATER RUNNING OFF THE DESIGNATED AREA OR IF THE WATER IS NOT BEING CONTAINED WITHIN THE WASHOUT AREA.
 4. DO NOT BACK FLUSH EQUIPMENT AT THE PROJECT SITE.
 5. DO NOT USE ADDITIVES WITH WASH WATER.
 6. DO NOT WASH OUT OR DRAIN WASTE WATERS TO STORM DRAINS, WETLANDS, STREAMS, RIVERS, CREEKS, DITCHES OR STREETS.

MAINTENANCE:

1. MAINTENANCE REQUIREMENTS PROVIDED IN SPECIFICATIONS.

CONCRETE WASHOUT

SCALE: NONE



MECHANICAL PROPERTIES	TEST METHOD	UNITS	INDUSTRY STANDARD
GRAB TENSILE STRENGTH	ASTM D4632	kN (LB)	0.9 (205) X 0.9 (205)
GRAB TENSILE ELONGATION	ASTM D4632	%	60 X 50
PUNCTURE STRENGTH	ASTM D4833	kN (LB)	0.58 (130)
MULLEN BURST STRENGTH	ASTM D3786	kPa (PSI)	2618 (380)
TRAPEZOID TEAR STRENGTH	ASTM D4533	kN (LB)	0.36 (80) X 0.36 (80)
UV RESISTANCE	ASTM D4355	%	70
APPARENT OPENING SIZE	ASTM D4751	Mm (US STD SIEVE)	0.180 (80)
FLOW RATE	ASTM D4491	1/MIN/M ² (GAL/MIN/FT ²)	3866 (95)
PERMITTIVITY	ASTM D4491	S ⁻¹	1.2

MAINTENANCE:

1. DURING THE ACTIVE DEWATERING PROCESS, INSPECTION OF THE PUMPING BAG SHOULD BE REVIEWED FREQUENTLY. SPECIAL ATTENTION SHOULD BE PAID TO THE BUFFER AREA FOR ANY SIGN OF EROSION AND CONCENTRATION OF FLOW. OBSERVE WHERE POSSIBLE THE VISUAL QUALITY OF THE EFFLUENT AND DETERMINE IF ADDITIONAL TREATMENT CAN BE PROVIDED.
2. DISPOSE OF ACCUMULATED SEDIMENT REMOVED DURING PUMPING OPERATIONS IN CONFORMANCE WITH THE SPECIFICATIONS.
3. REPLACE THE BAG OR DISPOSE OF SILT WHEN HALF FULL OF SEDIMENT OR WHEN SEDIMENT HAS REDUCED THE FLOW RATE TO AN IMPRACTICAL RATE.

SOURCE:
KRISTAR
DANDY DEWATERING BAG
SEDCATCH

PUMPING BAG

SCALE: NONE

**90% DESIGN DRAWINGS
NOT FOR CONSTRUCTION
12/14/2022**

SCALE VERIFICATION	DRAWN BY	MRE	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING 	CHECKED BY	MKA				
	APPROVED BY	JRF				
	ISSUE DATE	FEBRUARY 2023				
	PROJECT NUMBER	256422-04-001				



APRYL DRIVE CULVERT REPLACEMENT

CITY OF GREENWOOD, INDIANA

EROSION CONTROL DETAILS

SHEET NO.

14

TOTAL SHEETS

14

EXHIBIT 3

Stream Impacts

STREAM IMPACTS

Apryl Drive Culvert Replacement – Exhibit 3

Water Body Name: Tracy Ditch

Description of Impacts: The project includes replacement of a waterway crossing where Apryl Drive crosses Tracy Ditch. The existing crossing is comprised of twin 71-inch by 47-inch corrugated metal pipe (CMP) arches at the bottom of the ditch, approximately 66-ft in length, and a single 42-inch by 29-inch CMP arch centered above the lower pipes, approximately 60-ft in length. The proposed structure will be a 66-ft-8-inch long reinforced three-sided concrete structure with an 8-ft span, a 5-ft rise, and a 1-ft sump. Associated flexamat, wingwalls, and footings are also proposed.

Replacing the three small culvert openings with one large opening at the appropriate elevation will increase the hydraulic capacity of the crossing and improve the natural habitat and flow associated with Tracy Ditch. Replacing the existing rip rap with flexamat vegetated concrete block mat will also improve conditions.

Two temporary dams (sandbags, steel plates, aquadams or clean aggregate with plastic liner) and a pump-around will be used to temporarily divert flow during the replacement. Excavated soil will be retained on site and replaced following culvert installation. Following installation, pre-construction contours will be restored and seed, straw mulch and erosion control blanket will be installed above the ordinary high water mark (OHWM) to stabilize the banks.

The waterway impact dimensions, temporary fill, and proposed excavation and fill are shown in Exhibit 2: Plan and Profile Sheets and summarized in the table below:

Type of Fill Below the OHWM (790.11)	Fill Below OHWM (cubic yards)	Fill Below OHWM (linear feet)	Fill Below OHWM (ft ²)	Fill Below OHWM (acres)
Temporary Dam (sandbag, steel plates, aquadams, or clean aggregate with plastic liner)	17.43 yd ³	15 ft	221.71 ft ²	0.005
Flexamat	22.25 yd ³	75 ft	1,201.5 ft ²	0.028
Concrete wingwalls/headwalls /footings	2 yd ³	2 ft	23.08 ft ²	0.0005
3- sided concrete culvert	56.6 yd ³	66.57 ft	645.25	0.015
Total	98.28 yd ³	158.57 ft	2,091.54	0.049

EXHIBIT 4

Correspondence with DNR Indiana Natural Heritage Data Center



DATA REQUEST

State Form 56461 (R3 / 4-21)
DEPARTMENT OF NATURAL RESOURCES

Please submit this form by e-mail:
INHDCdatarequest@dnr.IN.gov
Or fax: 317-974-2008
Or mail:
Indiana Natural Heritage Data Center
IN DNR Nature Preserves
402 W. Washington Street, Rm W267
Indianapolis, Indiana 46204



FOR OFFICE USE ONLY

Invoice number

Fee

Date returned (month, day, year)

Check number / last four digits credit card number

Paid date (month, day, year)

INSTRUCTIONS: E-mail, fax, or mail to contact above:

1. This completed Data Request form. Form and information available at <https://www.in.gov/dnr/nature-preserves/heritage-data-center/about-inhdc/>.
2. A map showing the project location and extent, include the nearest major road intersection for verification. Additional pages showing the general area may be provided. Construction CAD drawings are not required or needed.
3. If the project boundary is large, complex, or a linear corridor, please provide a GIS shapefile.
4. The charge is \$42 per one half hour, one half hour minimum, per IC 14-10-2-1. An invoice will be included with the completed request response. This fee is waived for non-profit organizations, other governmental agencies, and educational research projects.
5. Please feel free to include any further information that you believe will help us best serve your project needs.

Date submitted (month, day, year) 09/08/2022

CONTACT INFORMATION			
Name Tim Gallagher			
Company Wessler Engineering			
Address (number and street) 6219 S East Street		City Indianapolis	State IN
		ZIP code 46227	
Telephone number (317) 788-4551	Fax number ()	E-mail address TimG@wesslerengineering.com	

PROJECT INFORMATION				
Name of project Tracy Legal Drain Culvert Replacement				
Project number 256422-04-001				
Description The project shall consist of the replacement of an existing legal drain crossing culvert located on Apryl Drive in Greenwood, Indiana. The project will include the removal of the existing structure, installation of a new culvert and end treatments. It will include the restoration of pavement, curb, asphalt trail, and sidewalks. New sidewalks, guardrail and perimeter fencing will be installed				
Location latitude (decimal degrees or UTM 16 N) 39.598690		Location longitude (decimal degrees or UTM 16 N) -86.109218		
County Johnson	Topographic quadrant Greenwood	Section 05	Township 13 North	Range 4 East
Project address (number and street, city, state, and ZIP code) (if applicable) N/A				
Purpose of request <input checked="" type="checkbox"/> Permit Application (DNR, IDEM, USACE) <input type="checkbox"/> Research Project <input type="checkbox"/> Siting Survey <input type="checkbox"/> USDA Rural Development <input type="checkbox"/> Other:				
Requested search radius <input checked="" type="checkbox"/> Default 0.5 mile <input type="checkbox"/> Custom distance:				
Project Funding <input type="checkbox"/> Private <input checked="" type="checkbox"/> Governmental (Local / Federal) <input type="checkbox"/> Educational <input type="checkbox"/> Non-Profit				

Division of Nature Preserves
402 W. Washington St., Rm W267
Indianapolis, IN 46204-2739

September 9, 2022

Tim Gallagher
Wessler Engineering
6219 S East Street
Indianapolis, IN 46227

Dear Tim Gallagher:

I am responding to your request for information on the threatened or endangered (T&E) species, high quality natural communities, and natural areas for the Tracy Legal Drain Culvert Replacement Project located in Johnson County, Indiana. The Indiana Natural Heritage Data Center has been checked and there are no T&E species or significant areas documented within 0.5 mile of the project area.

If you need a general environmental review of the project from DNR, you can submit the project information to Christie Stanifer, DNR Environmental Coordinator, at environmentalreview@dnr.in.gov (preferred) or send to the street address below. For more help or guidance contact Christie Stanifer at cstanifer@dnr.in.gov.

Department of Natural Resources
Environmental Review
Division of Fish and Wildlife
402 W. Washington Street, Room W273
Indianapolis, IN 46204

The information I am providing does not preclude the requirement for further consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973. If you have concerns about potential Endangered Species Act issues you should contact the Service at their Bloomington, Indiana office.

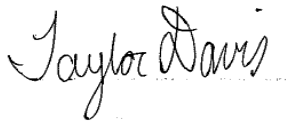
U.S. Fish and Wildlife Service
620 South Walker St.
Bloomington, Indiana 47403-2121
(812)334-4261

Please note that the Indiana Natural Heritage Data Center relies on the observations of many individuals for our data. In most cases, the information is not the result of comprehensive field surveys conducted at particular sites. Therefore, our statement that there are no documented significant natural features at a site should not be interpreted to mean that the site does not support special plants or animals.

Due to the dynamic nature and sensitivity of the data, this information should not be used for any project other than that for which it was originally intended. It may be necessary for you to request updated material from us in order to base your planning decisions on the most current information.

Thank you for contacting the Indiana Natural Heritage Data Center. You may reach me at (317)233-2558 you have any questions or need additional information.

Sincerely,

A handwritten signature in cursive script that reads "Taylor Davis". The signature is written in black ink on a white background.

Taylor Davis
Indiana Natural Heritage Data Center

EXHIBIT 5

Photo Orientation Map & Photo Documentation



Map Source: Indiana Map
Map Date: 12/15/2022

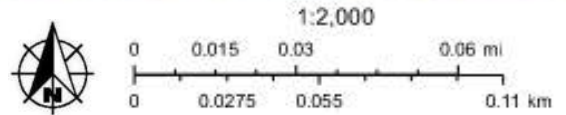


EXHIBIT 5: PHOTO ORIENTATION MAP & PHOTO DOCUMENTATION

Photo No. 1



View: Apryl Drive, facing west.
Description: Existing bridge over Tracy Ditch.

Photo No. 2



View: Tracy Ditch culvert, facing southwest.
Description: The north end of the culvert over Tracy Ditch.

Photo No. 3



View: Tracy Ditch, facing north.
Description: Tracy Ditch north of the bridge.

Photo No. 4



View: Tracy Ditch culvert, facing northwest.
Description: The south end of the culvert over Tracy Ditch.

EXHIBIT 5: PHOTO ORIENTATION MAP & PHOTO DOCUMENTATION

Photo No. 5



View: Tracy Ditch, facing south.
Description: Tracy Ditch south of the bridge.

Photo No. 6



View: The concrete on the north side of the bridge over Tracy Ditch.
Description: The pavement above the culvert has begun to collapse.

Photo No. 7



View: Tracy Ditch, facing north.
Description: Tracy Ditch north of the bridge.

Photo No. 8



View: Tracy Ditch, facing south.
Description: Tracy Ditch south of the bridge.