The Department of
DEVELOPMENT & STORM WATER MANAGEMENT
Porter County, Indiana

County Administration Center
155 Indiana Avenue, Suite 311
Valparaiso, IN 46383
p: 219.465.3530
www.porterco.org

ADDENDUM #1

To:	Prospective Bidders
From:	Porter Co. Dept. of Development & Storm Water Management
Date:	November 8, 2024
Subject:	Parker Ditch Headwaters Restoration

The attention of all prospective bidders is called to the following Addendum.

This Addendum, designated as Addendum #1, is hereby included in and made a part of the bidding documents, whether or not attached thereto. Except as modified by this Addendum, all requirements of the bidding documents shall remain in full force and effect.

Bidder shall acknowledge the receipt of this Addendum #1 on his or her bid form.

PRE-BID MEETING SIGN-IN SHEET & MINUTES

1. The pre-bid meeting sign-in sheet and minutes are attached as Attachments A & B to this Addendum. Please note that the meeting minutes may contain clarifications related to bid items that should be considered when preparing bids for this project.

CLARIFICATIONS & MODIFICATIONS

The following clarifications and/or modifications to the bidding documents are being provided or are being made by the Department in response to questions posed and/or as determined necessary by the Department and are hereby included in and made a part of the bidding documents.

CONSTRUCTION PLANS

1. Construction Plans
   The construction plans have been revised on Sheet 18 to reference the erosion control blanket detail on Sheet 20.

TECHNICAL SPECIFICATIONS AND SPECIAL PROVISIONS

1. Technical Specifications and Special Provisions
   The Technical Specifications and Special Provisions have been revised to reflect the following:

   - DIVISION 600: "RESTORE DISTURBED AREA"
     The erosion control blanket section was updated to be consistent with the erosion control blanket detail in the plans.
   - DIVISION 700: "TIMBER MATS"
     Straw mulch and woven geotextile fabric added to the materials list to be consistent with the detail shown in the plans.
   - DIVISION 1000: "WOVEN GEOTEXTILE"
     Section added for material requirements associated with woven geotextile fabric.

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CONTRACTOR QUESTIONS

The following are questions received during bidding and all responses will be made part of the bidding documents.

1. Q: During the site visit after the pre-bid meeting, it was noted that there is a potential discrepancy at STA 256+40 between the existing conditions shown in the plans and the actual field conditions. The culvert outfall at this location was not perched as shown in the plans, which called into question the need for the proposed rock chute structure.
   A: The rock chute structure may need to be adjusted in the field if there is not a significant drop off between the replaced culvert and the receiving channel. This adjustment will be worked out between the County, Engineer, and successful bidder during construction.

2. Q: What should be done about small (<18" DBH) downed trees along the stream?
   A: Small trees like this can be removed during construction and chipped or cut on-site.

3. Q: Is the County open to adjusting the site access/limits of disturbance at the downstream end of the project within the wetland area?
   A: The County would prefer that the land disturbance stays within their regulated drainage easement.

4. Q: Could you please clarify the staking/fastening requirement for the erosion control blanket. The detail for the Variable Width 2-Stage Ditch on Sheet 18 mentions both 6" and 12" woods pegs but the detail for the Erosion Control Blanket on Sheet 20 mentions 2x4 shim wedges 12" long. The specifications then mention 12" long staples.
   A: The variable width 2-stage ditch detail has been revised to reference the erosion control blanket detail. 12" long 2x4 shim wedges or wood stakes shall be used to stake down erosion control blanket. The successful bidder will need to include their preferred stake type in their submittals prior to starting construction.

5. Q: Section 108.09 of the General Specifications mentions certified payroll being required utilizing the Federal Form known as WH-347. Could you please clarify if Davis Bacon wage rates are required for this project which is why certified payroll is being requested? To our knowledge the State of Indiana does not have prevailing wage rates.
   A: Prevailing wage rates are not required, however, Certified Payroll is required in accordance with Section 108.09 for contracts exceeding $500,000.

6. Q: Could you please clarify Section 109.06 of the General Specifications? This section mentions that the upon written request of the Department, the Contractor shall pay bills associated with the performance, observation, or inspection of the work which are the responsibility of the Department.
   A: This section relates to the additional expenses incurred by the Department due to the negligence of the contractor.

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7. Q: Will dewatering be required for installing each of the cross vanes?
   A: Dewatering is only required for culvert installation; however, the successful bidder should include all proposed dewatering areas in their submitted dewatering plan. This includes if the successful bidder anticipates needing to implement dewatering to install the cross vanes.

8. Q: The detail for the Temporary Access Path/Timber Mats show a 6" thick mulch layer and geotextile fabric going under the timber mats but the Technical Specifications do not mention any of that. Will mulch and geotextile be required with the Timber Mats or is that at the discretion of the Contractor?
   A: Yes, straw mulch and geotextile fabric should be placed under the timber mats to reduce ground disturbance within the wetlands. The successful bidder may submit alternatives for Engineer approval prior to mobilizing to the site.

9. Q: I am looking for some clarification on the Cross Vanes. In the cross sections for the Rock Cross Vanes it shows them as being more of a check dam or riffle but on the overview it shows them being Cross Vanes. Hoping to get some clarification on that. Typically we don't see cross vanes on this size of stream.
   A: The proposed structures will be installed as cross vanes to provide grade control and encourage water to flow toward the center of the channel. The cross-sections are intended to show how the cross vanes will fit into the landscape at each location.

10. Q: Are we tying the hot wire on the new cattle fence into the existing transformer?
    A: Please assume that the hot wire will be connected to a power source by the farmer.

11. Q: The Rock Chute detail on sheet 18 has a discrepancy. The profile view says revetment riprap but the cross section says class 1 riprap. I'm assuming you want revetment, but please confirm.
    A: The callout on the rock chute cross-section has been updated to show that the proposed material is INDOT revetment riprap.

PUBLIC OPENING OF BIDS

1. Public Opening of Bids

   As stated in the bidding documents, bids will be opened at 10:00 a.m., or as soon thereafter as possible, on Tuesday, November 12, 2024, at a public opening of bids to be held at the Porter Co. Administration Center, 155 Indiana Ave., Ste. 311, Valparaiso, Indiana 46383. In accordance with the bidding documents, the public opening of bids will also be conducted live via videoconference. All bidders, as well as members of the public, are welcome to attend the opening of bids, either in person or via videoconference.

   The following information may be used to access and participate in the videoconference:

   Zoom Meeting: https://us02web.zoom.us/j/82729791544?pwd=bOiZZcD0yblewNgEGOV41fCcKuM2aX.1
   Meeting ID: 827 2979 1544
   Passcode: EAScz6

   At the meeting, bids will be opened and, unless obviously non-responsive, read aloud publicly. Respondents are invited to be present at the opening of bids An abstract of the total bids will be made available to respondents after the opening of bids.

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ATTACHMENTS

- ATTACHMENT A&B - PRE-BID MEETING MINUTES & SIGN-IN SHEET
- ATTACHMENT C – REVISED CONSTRUCTION PLANS
- ATTACHMENT D – REVISED TECHNICAL SPECIFICATIONS

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ATTACHMENTS A & B
PRE-BID MEETING MINUTES & SIGN-IN SHEET

Meeting Notes

Pre-Bid Meeting Minutes

Project/File:	Parker Ditch Headwaters Restoration
Date/Time:	October 31, 2024 / 10:00 am
Location:	155 Indiana Ave., Ste. 311, Valparaiso, IN 46383
Attendees:	See attached sign-in sheet
Distribution:	Pre-bid meeting attendees

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1. Introductions:

    a. Stantec opened the meeting by welcoming the attendees and allowing for introductions around the room.

    b. Porter County Department of Development and Storm Water Management (County) staff, Stantec Staff, and prospective bidders in attendance are included on the attached sign-in sheet.

2. Project description:

    a. Stantec gave a brief overview of the project goals and scope of work.

    b. The project consists of replacing two circular CMP culvert crossings (farm crossings) with arch CMP crossings and excavating a flood bench above OHWM along approximately 550 ft of Parker Ditch, Arm 1. In-stream grade control structures will be installed along Parker Ditch. The overall purpose of the project is to improve floodplain storage and stream habitat for Parker Ditch and its tributaries on site.

3. Bidding schedule:

    a. Stantec reviewed the bidding schedule, and the County provided additional details on the due dates.

    b. Bid questions are due on Thursday, November 7, 2024.

    c. Responses to the bid questions and any necessary bid document addendums will be send out to pre-bid meeting attendees on Friday, November 8, 2024.

    d. Bids are due at 10:00 am on Tuesday, November 12, 2024.

    e. The bids will be opened after 10:00 am on Tuesday, November 12, 2024.

    f. The notice of award will be sent to the successful bidder soon after Tuesday, November 19, 2024.

4. Construction schedule:

    a. Stantec and the County stated that the construction start date will be negotiated with the successful bidder after the notice of award has been sent out.

    b. The County will take care of the land disturbance permitting in-house, which needs to be completed prior to the successful bidder initiating construction on-site.

    c. Stantec noted that there is a typo in the agenda; the substantial completion date should be Friday, October 31, 2025.

    d. Stantec and the County reviewed work restrictions that should be considered by the bidders:

        i. No work may be performed in-stream between April 1 – June 1 due to the permit restrictions.

5. Identify where bid documents can be reviewed:

    a. The County stated that the bid documents can be reviewed at the Porter County Department of Development and Storm Water Management website: https://www.portercountystormwater.org/166/Bids-RFQs

6. Review items to be submitted with the bid:

    a. Stantec and the County reviewed the items that are required to be submitted with the bid, including:

        i. Basis of Bid Form

            1. Stantec and the County stated that questions related to the quantities and scope of work associated with the bid items would be addressed in the Addendum sent out on Friday, November 8, 2024.

        ii. Responsible Bidding Submittal Requirements Form

        iii. Bidder's Work History Form

        iv. Bidder's Organizational Experience and Workload Form

        v. Bidder's Subcontractor and Supplier Form

        vi. Bid Security

            1. The County specified that the Bid Security is 10% of the total bid and can be submitted via approved methods provided in the Instructions to Bidders.

    b. The County reiterated that the 7% minority business enterprises (MBE) and 5% women's business enterprises (WBE) goals listed in the Instructions to Bidders are goals, not requirements, for prospective bidders.

c. When the successful bidder is selected, they will have to complete the following within 10 calendar days:

   i. Executed contract, performance bond (100%), payment bond (100%), and certificates of insurance.

   ii. E-verify affidavit and certification regarding investment in Iran.

d. No other questions were asked related to the items to be submitted with the bid.

7. Review construction plans and specifications:

   a. Stantec reviewed the construction plans and highlighted the major scope of work items. A summary of the scope of work items that were reviewed is included in the pre-bid meeting agenda.

8. Questions:

   a. Q: During the site visit after the pre-bid meeting, it was noted that there is a potential discrepancy at STA 256+40 between the existing conditions shown in the plans and the actual field conditions. The culvert outfall at this location was not perched as shown in the plans, which called into question the need for the proposed rock chute structure.

      i. A: The rock chute structure may need to be adjusted in the field if there is not a significant drop off between the replaced culvert and the receiving channel. This adjustment will be worked out between the County, Engineer, and successful bidder during construction.

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      i. A: Small trees like this can be removed during construction and chipped or cut on-site.

   c. Q: Is the County open to adjusting the site access/limits of disturbance at the downstream end of the project within the wetland area?

      i. A: The County would prefer that the land disturbance stays within the regulated drainage easement.

   d. Q: Could you please clarify the staking/fastening requirement for the erosion control blanket. The detail for the Variable Width 2-Stage Ditch on Sheet 18 mentions both 6” and 12” woods pegs but the detail for the Erosion Control Blanket on Sheet 20 mentions 2x4 shim wedges 12” long. The specifications then mention 12” long staples.

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i. A: The callout on the rock chute cross-section has been updated to show that the proposed material is INDOT revetment riprap.

Thank you,

Stantec Consulting Services Inc.

Jacob Cochrane
Water Resources Engineer
Mobile: 989-390-3526
jacob.cochrane@stantec.com

PARKER DITCH - HEADWATERS RESTORATION PROJECT PRE-BID MEETING SIGN IN OCTOBER 31, 2024 (10:00 AM CST)				
NAME	COMPANY	ADDRESS	OFFICE/CELL/FAX	EMAIL
Chelsey Gordon	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave.,Ste. 311 Valparaiso, IN 46383	Office: (219) 465-3652 Cell: (219)252-7499 Fax:	chelsey.gordon@porterco.org
Meredith Poore	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave.,Ste. 311 Valparaiso, IN 46383	Office: (219) 465-3632 Cell: Fax:	meredith.poore@porterco.org
Lori Larson	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave.,Ste. 311 Valparaiso, IN 46383	Office: (219) 510-9056 Cell: Fax:	lori.larson@porteco.org
Rob Goodman	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave.,Ste. 311 Valparaiso, IN 46383	Office: (219) 510-1152 Cell: Fax:	robert.goodman@porterco.org
Tom McNabb	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave.,Ste. 311 Valparaiso, IN 46383	Office: (219) 510-9058 Cell: Fax:	tom.mcnabb@porterco.org
Jacob Cochrane	Stantec		Office: Cell: 989-390-3526 Fax:	jacob.cochrane@stantec.com

PARKER DITCH - HEADWATERS RESTORATION PROJECT
PRE-BID MEETING SIGN IN
OCTOBER 31, 2024 (10:00 AM CST)

John Richardson	Stantec		Office: Cell: 574-229-8750 Fax:	john.richardson@stantec.com
Luca DeBellis	STANTEC		Office: Cell: 847-980-3115 Fax:	luca.debellis@stantec.com
ROGER MARSHALL	G E MARSHALL		Office: 2194623415 Cell: Fax:	
ERIC CANNON	G.E. MARSHALL		Office: 219-462-3415 Cell: Fax:	eric.cannon@gemarshall.com
Mike Szuter	RES		Office: Cell: 614-342-0388 Fax:	mszuter@res.us
Josh Crandall	GariUP		Office: 219-887-5233 Cell: Fax:	josh.crandall@gariup.com

PARKER DITCH - HEADWATERS RESTORATION PROJECT
PRE-BID MEETING SIGN IN
OCTOBER 31, 2024 (10:00 AM CST)

David Roe	The Stanger Group		Office: Cell: 574-238-4743 Fax:	droe@strangergroup.com
COLBY STANGER	THE STANGER GROUP		Office: Cell: 574-536-5835 Fax:	CSTANGER@STANGERGROUP.COM
Ethan Knepp	HRP Construction		Office: 574-271-7800 Cell: Fax:	EthanK@hrpconstruction.com
Jakob Goodan	Egolf Coates Excavation		Office: Cell: Fax:	jgoodan@egolfcoates.com
Robert Miller	Austgen Equipment		Office: Cell: Fax:	miller@austgenequipment.com
Will Smith	Rieth-Riley Construction Co., Inc.		Office: Cell: Fax:	wsmith@rieth-riley.com

PARKER DITCH - HEADWATERS RESTORATION PROJECT
PRE-BID MEETING SIGN IN
OCTOBER 31, 2024 (10:00 AM CST)

Jennifer Gough	Gough		Office: Cell: Fax:	jgough2@gaugninc.com
Chuck Campbell	RES, LLC		Office: Cell: Fax:	ccampbell@res.us
Kyle Weisman	H+G		Office: Cell: Fax:	Kyle@hnguu.com
Lutfe Haan	Grimmer	lhaan@grimmerconstruction.com	Office: Cell: 214-731-9097 Fax:	
			Office: Cell: Fax:	
			Office: Cell: Fax:	

PARKER DITCH - HEADWATERS RESTORATION PROJECT
PRE-BID MEETING SIGN IN
OCTOBER 31, 2024 (10:00 AM CST)

			Office: Cell: Fax:	
			Office: Cell: Fax:	
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			Office: Cell: Fax:	

The Department of
DEVELOPMENT & STORM WATER MANAGEMENT
Porter County, Indiana

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ATTACHMENT C
REVISED CONSTRUCTION PLANS

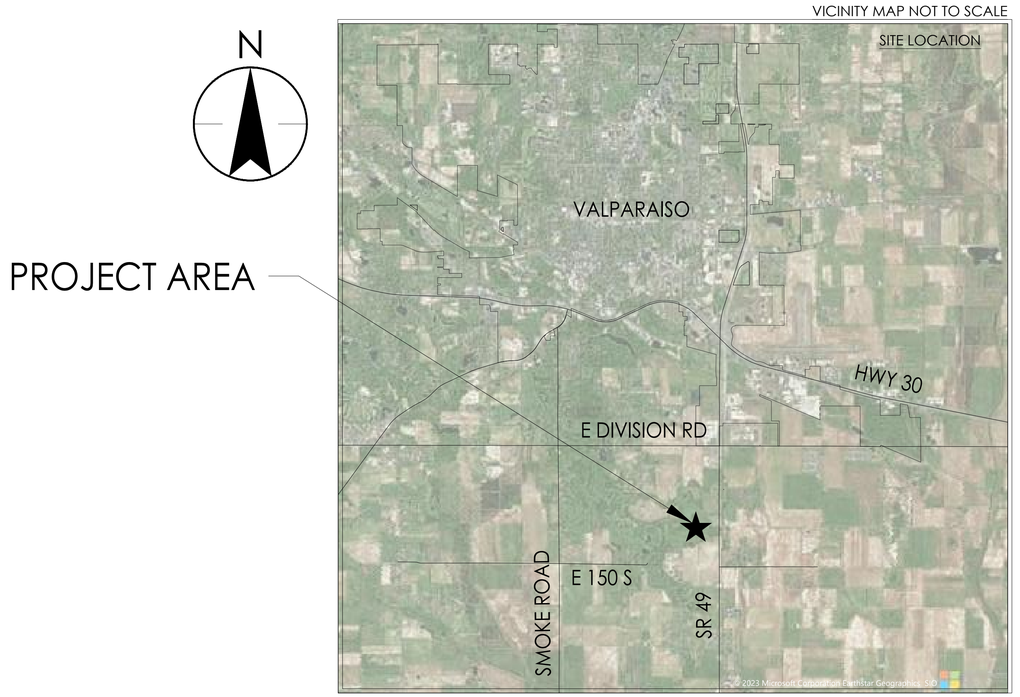
Stantec
708 ROOSEVELT ROAD
WALKERTON, INDIANA 46574
www.stantec.com

CLIENT:

PORTER COUNTY DEPARTMENT OF DEVELOPMENT
& STORMWATER MANAGEMENT
155 INDIANA AVE, SUITE 311, VALPARAISO, IN 46383

PARKER DITCH HEADWATERS RESTORATION PROJECT PORTER COUNTY, IN FINAL PLANS

VICINITY MAP NOT TO SCALE



SHEET LIST TABLE

Jeffrey N. Spicer 7/31/2024
PROJECT DESIGN ENGINEER

JEFFREY N. SPICER REGISTERED No. PE11100341 STATE OF INDIANA PROFESSIONAL ENGINEER

<u>CONSTRUCTION SEQUENCE AND EROSION AND SEDIMENT CONTROL PLAN</u>

1. EVALUATE THE SITE
   - 1.1. BEFORE CONSTRUCTION, CONTRACTOR SHALL EVALUATE THE SITE AND MARK VEGETATIVE AREAS AND TREES TO BE PROTECTED, UNIQUE AREAS TO PRESERVE, ON-SITE SEPTIC SYSTEM ABSORPTION FIELDS, AND VEGETATION SUITABLE FOR FILTER STRIPS, ESPECIALLY PERIMETER AREAS.
2. PROTECT TREES AND SENSITIVE AREAS
   - 2.1. TO PREVENT ROOT DAMAGE, DO NOT GRADE, BURN, PLACE SOIL PILES, OR PARK VEHICLES NEAR TREES OR IN AREAS MARKED FOR PRESERVATION.
   - 2.2. PLACE PLASTIC MESH OR SNOW FENCE BARRIERS AROUND THE TREES' DRIPLINES TO PROTECT THE AREA BELOW THEIR BRANCHES.
   - 2.3. PLACE A PHYSICAL BARRIER, SUCH AS PLASTIC FENCING, AROUND THE AREA DESIGNATED FOR A SEPTIC SYSTEM ABSORPTION FIELD (IF APPLICABLE).
3. INSTALL PERIMETER EROSION AND SEDIMENT CONTROLS
   - 3.1. IDENTIFY THE AREAS WHERE SEDIMENT LADEN RUNOFF COULD LEAVE THE CONSTRUCTION SITE, AND INSTALL PERIMETER CONTROLS TO MINIMIZE THE POTENTIAL FOR OFF-SITE SEDIMENTATION. IT IS IMPORTANT THAT PERIMETER CONTROLS ARE IN PLACE BEFORE ANY EARTH MOVING ACTIVITIES BEGIN.
4. PROTECT DOWN-SLOPE AREAS WITH SILT FENCES AND OTHER APPROPRIATE PRACTICES
   - 4.1. USE SILT FENCING TO TRAP SEDIMENT AS SHOWN IN THE PLANS AND IDENTIFIED BY THE ENGINEER IN THE FIELD.
5. INSTALL GRAVEL DRIVE
   - 5.1. RESTRICT ALL LOT ACCESS TO THIS DRIVE TO PREVENT VEHICLES FROM TRACKING MUD ONTO ROADWAYS.
6. PREPARE THE SITE FOR CONSTRUCTION
   - 6.1. PREPARE THE SITE FOR CONSTRUCTION. MAKE SURE ALL CONTRACTORS (ESPECIALLY THE EXCAVATING CONTRACTOR) ARE AWARE OF AREAS TO BE PROTECTED.
7. SALVAGE AND STOCKPILE TOPSOIL OR SUBSOIL
   - 7.1. TOPSOIL STRIPPING AND STOCKPILING SHALL ONLY OCCUR ALONG THE DISTURBED SECTIONS OF UT TO PARKER DITCH.
   - 7.2. REMOVE TOPSOIL (TYPICALLY THE UPPER FOUR TO SIX INCHES OF THE SOIL MATERIAL) AND STOCKPILE. REMOVE SUBSOIL AND STOCKPILE SEPARATELY FROM THE TOPSOIL.
   - 7.3. LOCATE THE STOCKPILES AWAY FROM ANY DOWNSLOPE STREET, DRIVEWAY, STREAM, LAKE, WETLAND, DITCH, OR DRAINAGE WAY.
   - 7.4. IMMEDIATELY AFTER STOCKPILING, TEMPORARY SEED THE STOCKPILES WITH ANNUAL RYE OR WINTER WHEAT AND/OR INSTALL SEDIMENT BARRIERS AROUND THE PERIMETER OF THE PILES.
8. CONSTRUCT THE PROJECT ACCORDING TO THE PLANS AND AS DIRECTED BY THE ENGINEER.
9. MAINTAIN EROSION AND SEDIMENT CONTROL PRACTICES
   - 9.1. MAINTAIN ALL EROSION AND SEDIMENT CONTROL PRACTICES UNTIL CONSTRUCTION IS COMPLETED AND THE PROJECT AREA HAS BEEN STABILIZED.
   - 9.2. INSPECT THE CONTROL PRACTICES A MINIMUM OF TWICE A WEEK AND AFTER EACH STORM EVENT, MAKING ANY NEEDED REPAIRS IMMEDIATELY.
   - 9.3. AT THE END OF EACH WORK DAY, SWEEP OR SCRAPE UP ANY SOIL TRACKED ONTO ROADWAY(S). DO NOT FLUSH AREAS WITH WATER.
10. REVEGETATE THE SITE IMMEDIATELY AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED. STABILIZE THE LOT WITH SEED AND/OR MULCH.
    - 10.1. SPREAD STOCKPILED SUBSOIL TO ROUGH GRADE.
    - 10.2. SPREAD THE STOCKPILED TOPSOIL TO A DEPTH OF FOUR TO SIX INCHES OVER ROUGH GRADED AREAS.
    - 10.3. APPLY TEMPORARY SEED ON BARE AREAS.
    - 10.4. WATER NEWLY SEEDED AREAS AS NEEDED TO KEEP THE SOIL MOIST. LESS WATERING IS NEEDED ONCE GRASS IS TWO INCHES TALL.
    - 10.5. SPREAD STRAW MULCH ON NEWLY SEEDED AREAS OR AS DESCRIBED IN THESE PLANS.
11. REMOVE REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.
    - 11.1. ONCE THE VEGETATION IS WELL ESTABLISHED, REMOVE ANY REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES.

Stantec
708 Roosevelt Road
Walkerton, IN 46574
www.stantec.com

Revision | By | Appd. | YY.MM.DD

Issued | By | Appd. | YY.MM.DD

Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORMWATER MANAGEMENT
PARKER DITCH HEADWATERS RESTORATION
BETWEEN CR 125 S & SR 49

Title
FINAL PLANS
CONSTRUCTION SEQUENCE AND ESC PLAN

Permit-Seal
JEFFREY N. SPICER REGISTERED No. PE11100341 STATE OF INDIANA PROFESSIONAL ENGINEER
7/31/2024

Project Number: 238102157

File Name: 238102157 Overview Parker Ditch.dwg

JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.

Revision 2 Sheet 2 of 23

🟩	WETLAND AREA
🟦	POND AREA
⊗	CONTROL POINT

CONTROL POINTS:

TBM#2: 5/8" IRON ROD N: 2247042.9640 E: 2964488.7870 ELEV.: 704.13 (NAVD88)	CP#8: 5/8" IRON ROD N: 2249595.9100 E: 2968037.0170 ELEV.: 722.72 (NAVD88)
CP#5: MAG NAIL N: 2247133.8350 E: 2964403.2790 ELEV.: 705.42 (NAVD88)	CP#9: 5/8" IRON ROD N: 2249861.9620 E: 2968094.3640 ELEV.: 717.70 (NAVD88)
CP#7: MAG NAIL N: 2246941.0940 E: 2964523.0070 ELEV.: 705.36 (NAVD88)	CP#10: 5/8" IRON ROD N: 2249937.7000 E: 2968148.0040 ELEV.: 724.18 (NAVD88)

Stantec

708 Roosevelt Road
Walkerton, IN 46574
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Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD

Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT
& STORMWATER MANAGEMENT

PARKER DITCH HEADWATERS RESTORATION

BETWEEN CR 125 S & SR 49

Title
FINAL PLANS
OVERVIEW

Permit-Sec

JEFFREY N. SPICER
No. PE11100341
Jeffrey N. Spicer 7/31/2024

Project Number: 238102157

File Name: 238102157_Overview_Parker Ditch.dwg

JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.

Revision	Sheet
2	3 of 23

SaveDate: 2024/07/05 3:25 PM Login: Cochrane, Jacob
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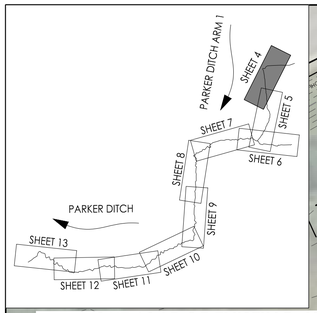


PROPOSED BANK GRADING LIMITS AND LOCATION OF NEW LIVESTOCK EXCLUSION FENCING.

32 LF PROPOSED 49" W x 33" H ARCH CMP SEE SHEET 19, DETAIL 1

EXISTING 30" CMP

EXISTING 36" CMP UNDER SR 49

55 LF PROPOSED 57" W x 36" H ARCH CMP SEE SHEET 19, DETAIL 1

PROPOSED BASE FLOW CHANNEL

MATCH LINE STA 262+26

FARM CROSSING

T20 LF EXISTING 42" CMP

XS STA. 256+50

DAYLIGHT 62 LF OF EXISTING 42" CMP AND CONSTRUCT ROCK CHUTE. SEE SHEET 18, DETAIL 1

PARKER DITCH ARM 1

PROPOSED VARIABLE WIDTH FLOOD BENCH. SEE SHEET 18, DETAIL 2.

XS STA. 260+50

TIE BANKFULL BENCH INTO MULTI STEM MULBERRY TREE AND PROTECT TREE.

TYPICAL ROCK CHUTE

EXISTING FENCE

PARKER DITCH ARM 2

EXCESS CUT MATERIAL TO BE SPREAD WITHIN A 20' OFFSET FROM TOP OF BANK TO A DEPTH NO MORE THAN 1' AND TO TRANSITION INTO THE HILL SLOPE.

APPROXIMATE DRAINAGE EASEMENT (75-FT OFFSET FROM TOP OF BANK)

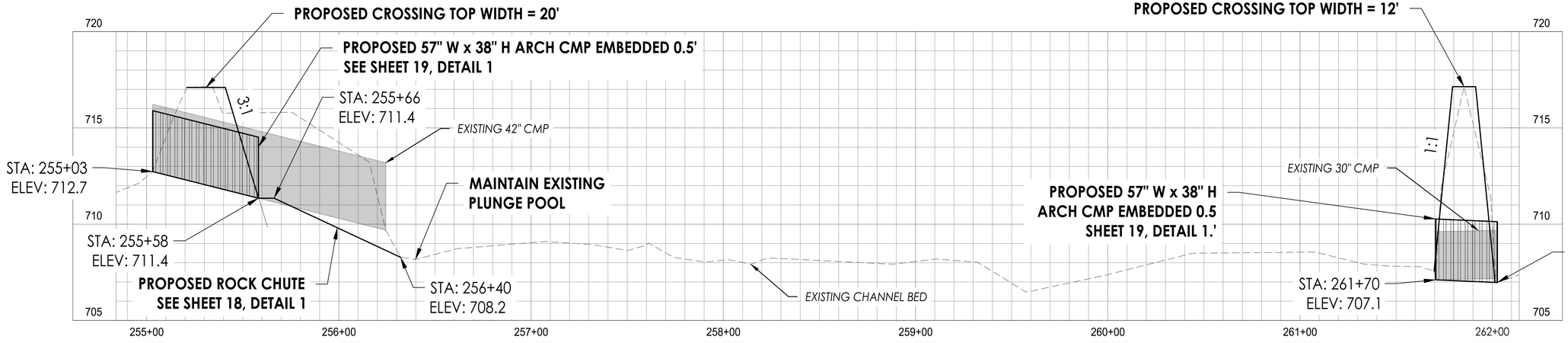
SURVEYED TREES	
POINT #	DBH (INCHES)
2726	15
2733	15
2735	15
2762	15
2763	15
2764	15
2765	30
2766	30
2767	10, 10
2768	20
2811	15
2822	15
3264	15

1"=30' (0, 15', 30', 60')

EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
EXISTING CENTERLINE ALIGNMENT
EXISTING STORMWATER PIPE
EXISTING FENCE
APPROXIMATE DRAINAGE EASEMENT
EXISTING OVERHEAD POWERLINE
PROPOSED 2-STAGE DITCH GRADING LIMITS
PROPOSED LIMIT OF BANKFULL BENCH
PROPOSED BASE FLOW CHANNEL
PROPOSED CENTERLINE ALIGNMENT
PROPOSED CULVERT PIPE
PROPOSED ROCK CHUTE
EXISTING TREE
EXISTING WETLAND

NOTES:

1. CONTRACTOR TO INSTALL NEW LIVESTOCK EXCLUSION FENCING AT THE TOP OF BANK OR AS DIRECTED BY THE ENGINEER ALONG THE PARKER DITCH ARM 1 WORK AREA, STA. 255+40 - 261+80 (SEE SHEET 22, DETAIL 2).
2. APPLY RIPARIAN SEED MIX (SEE SHEET 23, DETAIL 1) ALONG DISTURBED AREAS FROM STA. 255+40 - 261+80.
3. DRAINAGE EASEMENT BOUNDARY IS APPROXIMATELY 75-FT OFFSET FROM TOP OF BANK.



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Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD

Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORMWATER MANAGEMENT
PARKER DITCH HEADWATERS RESTORATION
BETWEEN CR 125 S & SR 49

Title
FINAL PLANS
PARKER DITCH ARM 1 PLAN & PROFILE

Permit-Sec

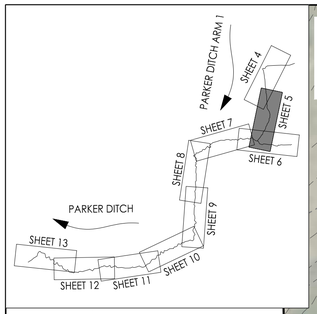
JEFFREY N. SPICER, REGISTERED No. PE11100341 STATE OF INDIANA PROFESSIONAL ENGINEER
7/8/2024

Project Number: 238102157

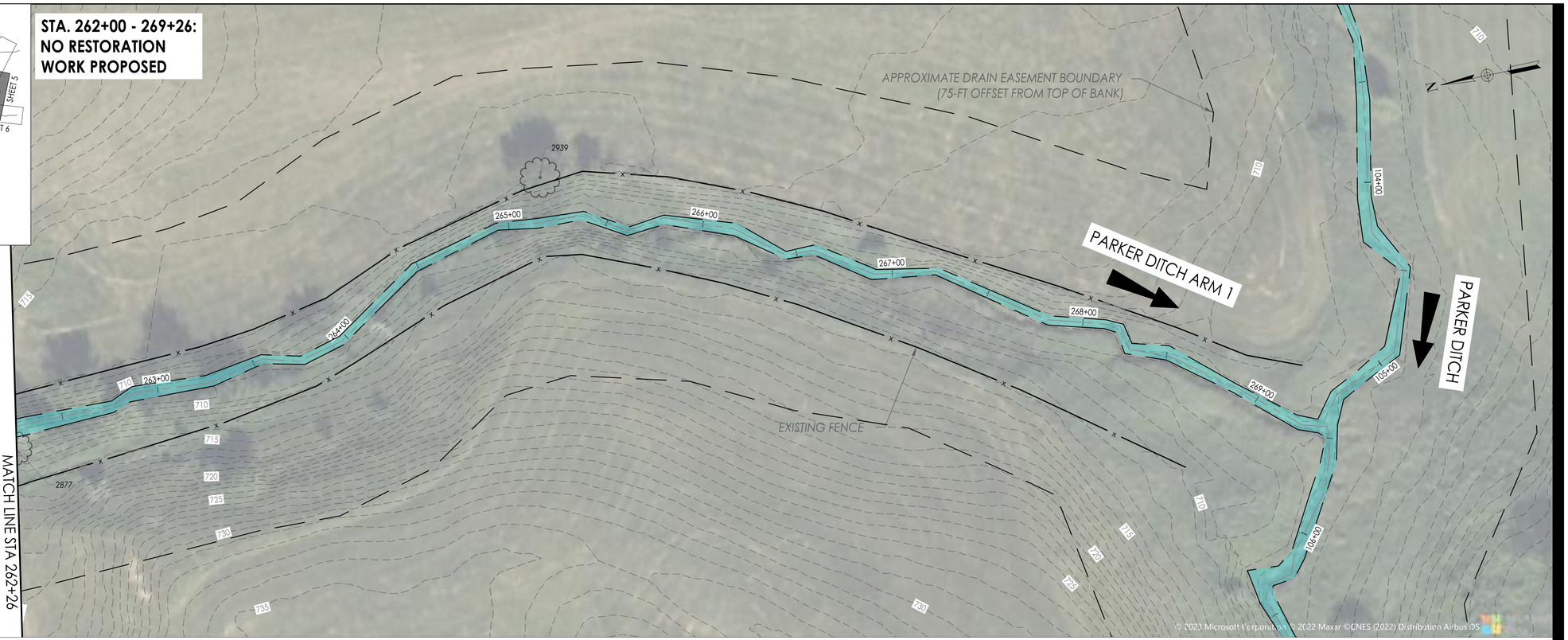
File Name: 238102157_Plans_Parker Ditch.dwg

JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.
Revision 2
Sheet 4 of 23



STA. 262+00 - 269+26: NO RESTORATION WORK PROPOSED



700 EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

100+00 EXISTING CENTERLINE ALIGNMENT

ST EXISTING STORMWATER PIPE

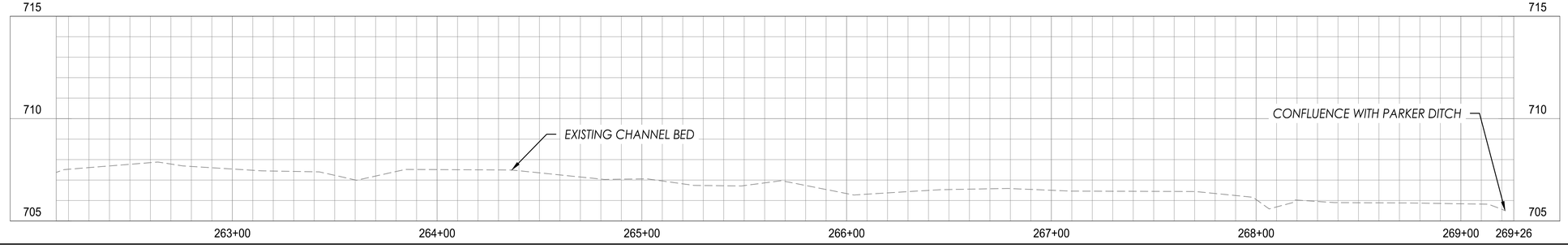
x EXISTING FENCE

PROPOSED BASE FLOW CHANNEL

APPROXIMATE DRAINAGE EASEMENT

0 15' 30' 60'
1"=30'

NOTE:
DRAINAGE EASEMENT BOUNDARY IS APPROXIMATELY 75-FT OFFSET FROM TOP OF BANK.



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PARKER DITCH HEADWATERS RESTORATION
BETWEEN CR 125 S & SR 49

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FINAL PLANS
PARKER DITCH ARM 1 PLAN & PROFILE

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JEFFREY N. SPEER
REGISTERED
No. PE11100341
STATE OF INDIANA
PROFESSIONAL ENGINEER

7/31/2024

Project Number: 238102157

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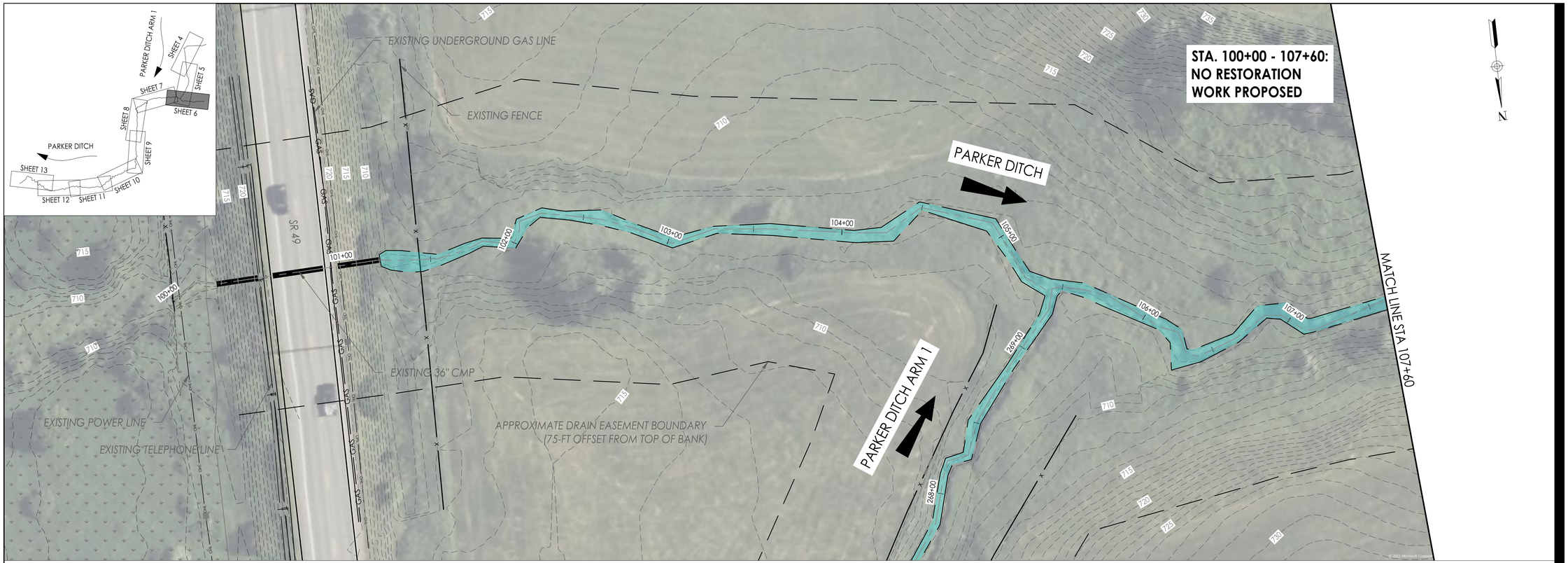
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.

Revision 2

Sheet 5 of 23



700 EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

100+00 EXISTING CENTERLINE ALIGNMENT

ST EXISTING STORMWATER PIPE

x EXISTING FENCE

APPROXIMATE DRAINAGE EASEMENT

OHL EXISTING OVERHEAD POWERLINE

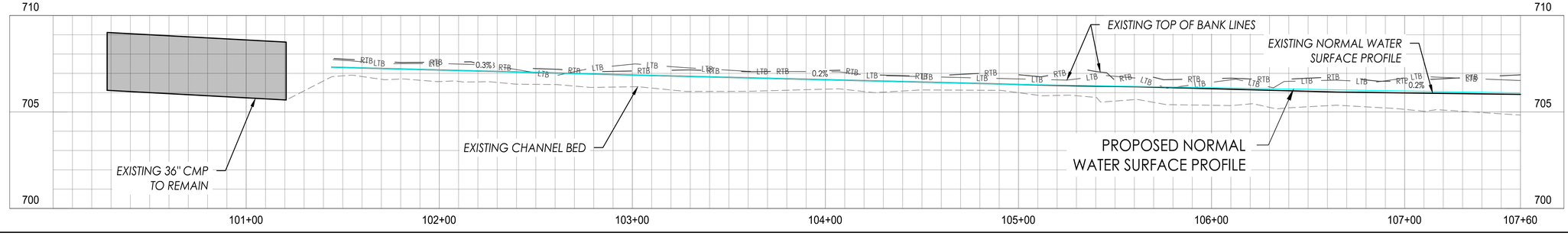
GAS GAS EXISTING GAS LINE

T EXISTING TELEPHONE LINE

PROPOSED BASE FLOW CHANNEL

0 15' 30' 60'
1"=30'

NOTE:
DRAINAGE EASEMENT BOUNDARY IS APPROXIMATELY 75-FT OFFSET FROM THE TOP OF BANK.



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Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT
& STORMWATER MANAGEMENT

PARKER DITCH HEADWATERS RESTORATION

BETWEEN CR 125 S & SR 49

Title
FINAL PLANS
PARKER DITCH PLAN & PROFILE

Permit-Sec

JEFFREY N. SPICER
REGISTERED
No. PE11100341
STATE OF INDIANA
PROFESSIONAL ENGINEER

Jeffrey N. Spicer 7/31/2024

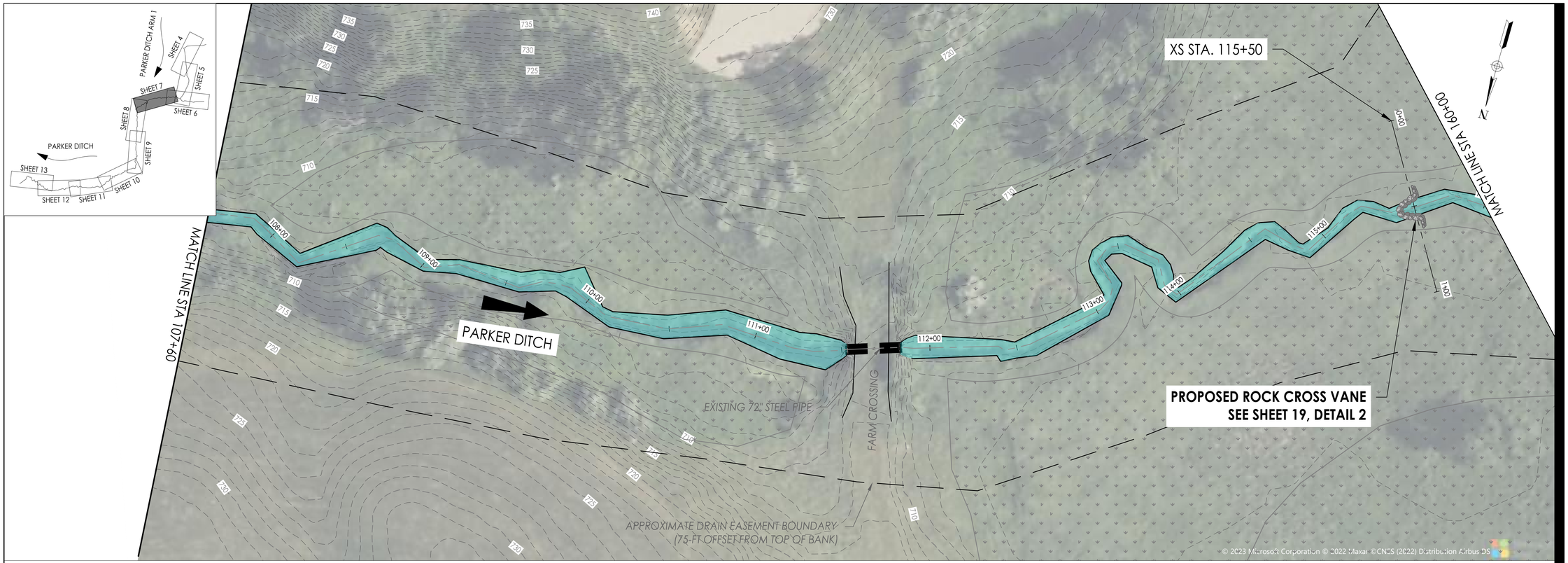
Project Number: 238102157

File Name: 238102157_Plans_Parker Ditch.dwg

JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.

Revision	Sheet
2	6 of 23



700 EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

100+00 EXISTING CENTERLINE ALIGNMENT

ST EXISTING STORMWATER PIPE

x EXISTING FENCE

PROPOSED BASE FLOW CHANNEL

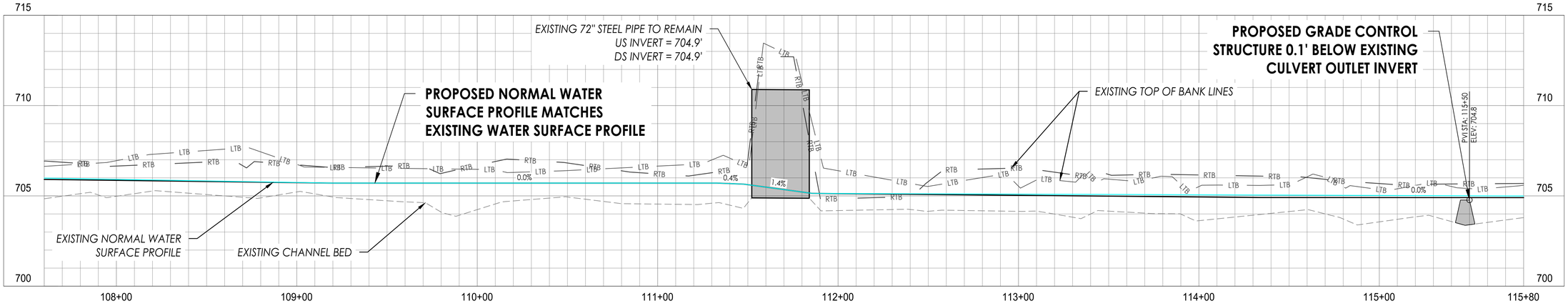
EXISTING WETLANDS

APPROXIMATE DRAINAGE EASEMENT

NOTE:

1. PROPOSED GRADE CONTROL STRUCTURE (ROCK CROSS VANE) DESIGNED TO HAVE BACKWATER EFFECT FOR 200-300 FT UPSTREAM OF THE STRUCTURE.
2. APPLY RIPARIAN SEED MIX (SEE SHEET 23, DETAIL 1) ALONG DISTURBED STREAM BANKS ADJACENT TO PROPOSED ROCK CROSS VANE.
3. SHOULD FIELD CONDITIONS NOT ALLOW FOR STRUCTURE INSTALL AT 115+50, AS DETERMINED BY THE CONTRACTOR AND ENGINEER, THEN ALTERNATIVE STRUCTURE MAY BE INSTALLED AT 114+50 WITH THE SAME INVERT ELEVATION.
4. DRAINAGE EASEMENT BOUNDARY IS APPROXIMATELY 75-FT OFFSET FROM TOP OF BANK.

0 15' 30' 60'
1"=30'



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PARKER DITCH HEADWATERS RESTORATION
BETWEEN CR 125 S & SR 49

Permit-Sec

Title
FINAL PLANS
PARKER DITCH PLAN & PROFILE

JEFFREY N. SPICER REGISTERED No. PE11100341 STATE OF Indiana PROFESSIONAL ENGINEER

Jeffrey N. Spicer 7/01/2024

Project Number: 238102157

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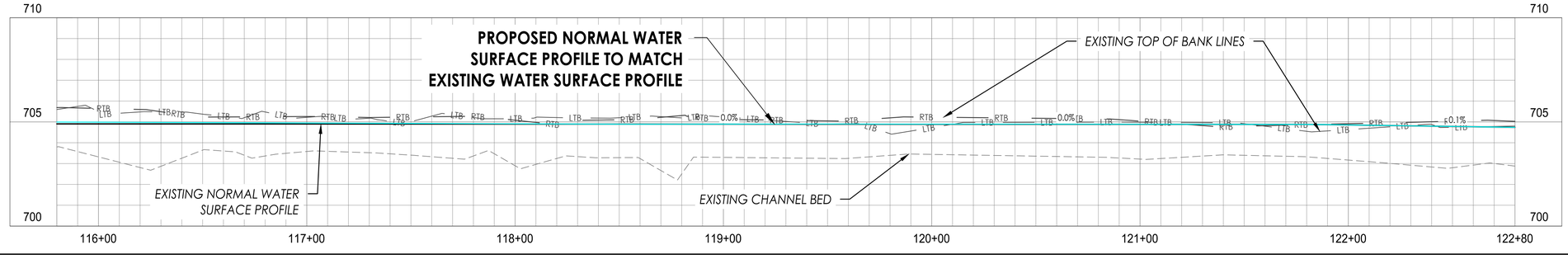
JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.
Revision 2
Sheet 7 of 23

- EXISTING MAJOR CONTOUR (700)
- EXISTING MINOR CONTOUR
- EXISTING CENTERLINE ALIGNMENT (100+00)
- EXISTING STORMWATER PIPE (ST)
- EXISTING FENCE (x)
- PROPOSED BASE FLOW CHANNEL
- EXISTING WETLANDS
- APPROXIMATE DRAINAGE EASEMENT

0 15' 30' 60'
1"=30'

NOTE:
DRAINAGE EASEMENT BOUNDARY IS APPROXIMATELY 75-FT OFFSET FROM TOP OF BANK.



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& STORMWATER MANAGEMENT
PARKER DITCH HEADWATERS RESTORATION
BETWEEN CR 125 S & SR 49

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JEFFREY N. SPICER REGISTERED No. PE11100341 STATE OF INDIANA PROFESSIONAL ENGINEER

Jeffrey N. Spicer 7/31/2024

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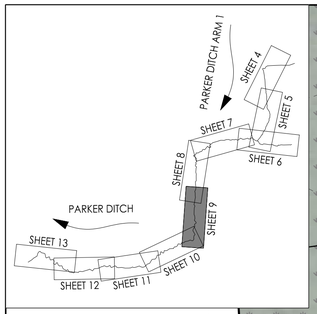
JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.
Revision 2
Sheet 8 of 23



STA. 122+80 - 130+39:
NO RESTORATION
WORK PROPOSED

APPROXIMATE DRAIN EASEMENT BOUNDARY
(75-FT OFFSET FROM TOP OF BANK)

PARKER DITCH

MATCH LINE STA 122+80

MATCH LINE STA 130+39

EXISTING BEAVER DAM

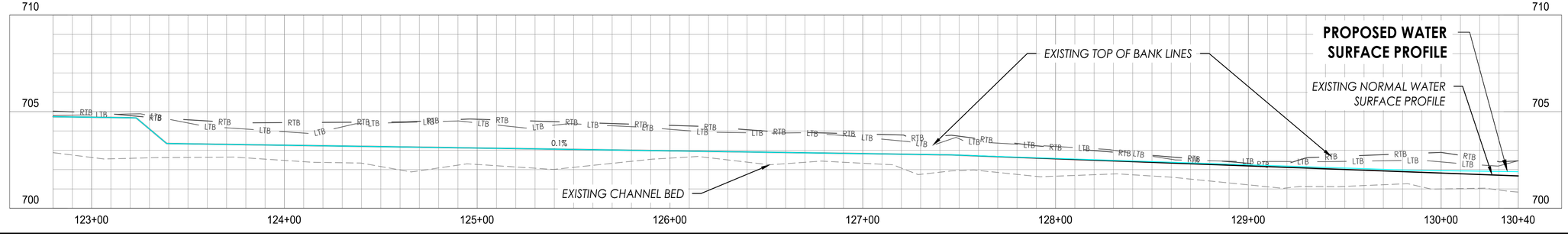
123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00

705 706 705 705

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING CENTERLINE ALIGNMENT
- EXISTING STORMWATER PIPE
- EXISTING FENCE
- PROPOSED ROCK CROSS VANE
- PROPOSED BASE FLOW CHANNEL
- EXISTING WETLANDS
- APPROXIMATE DRAINAGE EASEMENT

1"=30' 0 15' 30' 60'

NOTE:
DRAINAGE EASEMENT BOUNDARY IS APPROXIMATELY 75-FT OFFSET FROM TOP OF BANK.



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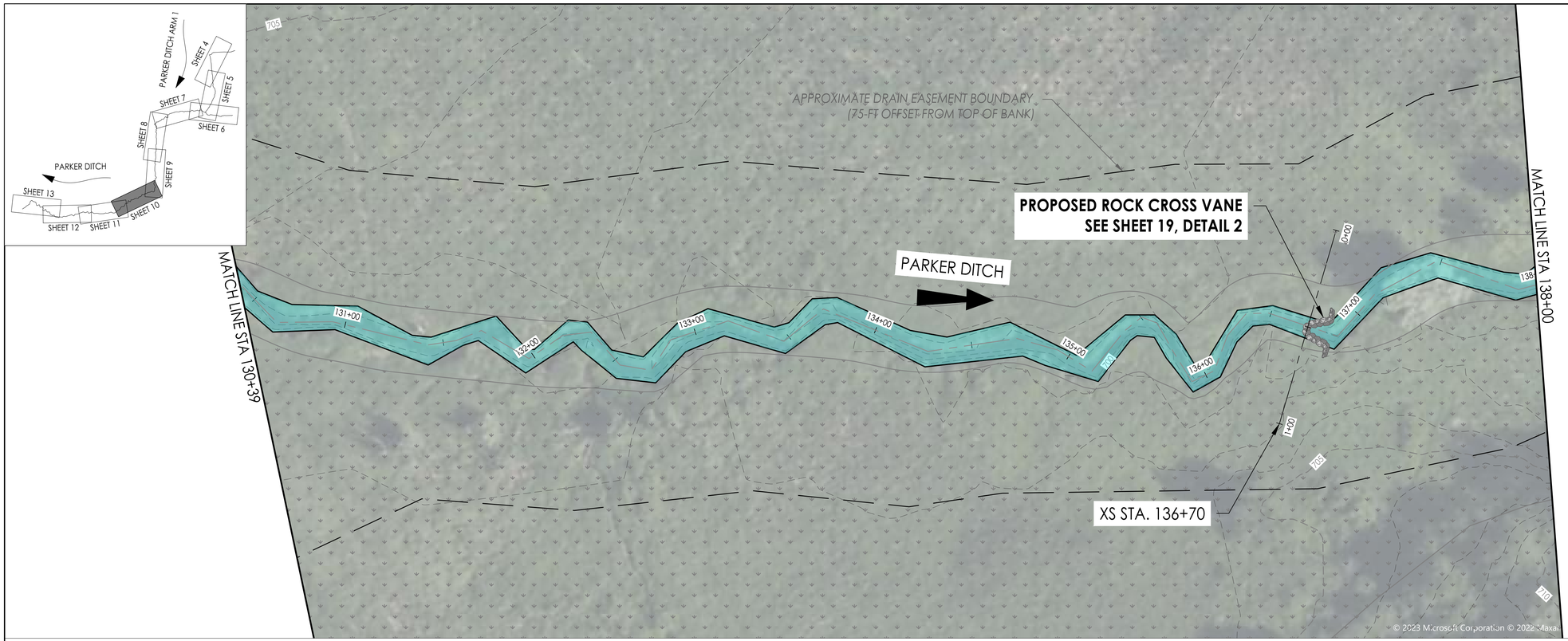
Drawing No.

Revision 2

Sheet 9 of 23



700 EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

100+00 EXISTING CENTERLINE ALIGNMENT

ST EXISTING STORMWATER PIPE

x EXISTING FENCE

PROPOSED ROCK CROSS VANE

PROPOSED BASE FLOW CHANNEL

EXISTING WETLANDS

APPROXIMATE DRAINAGE EASEMENT

NOTE:

1. PROPOSED GRADE CONTROL STRUCTURES (ROCK CROSS VANES) DESIGNED TO HAVE A BACKWATER EFFECT FOR 200-400 FT UPSTREAM OF THE STRUCTURE.
2. APPLY RIPARIAN SEED MIX (SEE SHEET 23, DETAIL 1) ALONG DISTURBED STREAM BANKS ADJACENT TO PROPOSED ROCK CROSS VANES.
3. APPLY RIPARIAN SEED MIX (SEE SHEET 23, DETAIL 1) ALONG AREAS TEMPORARILY DISTURBED BY TIMBER MAT ACCESS ROUTE (SEE SHEET 17).
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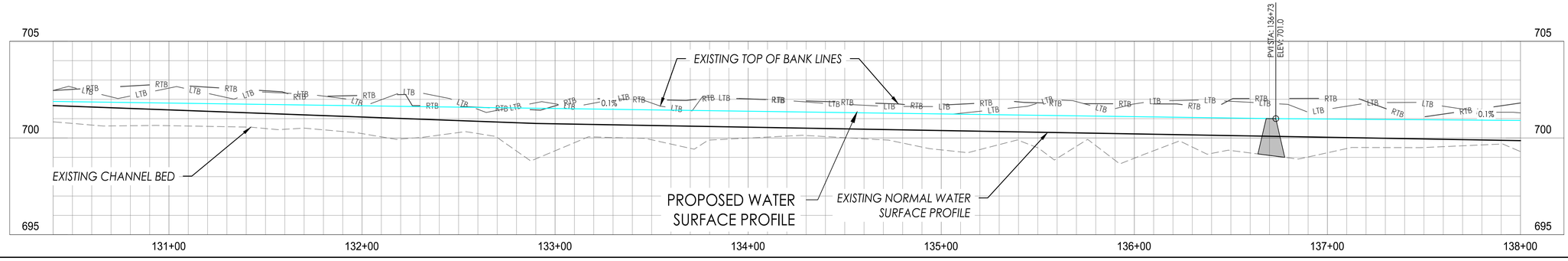

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PARKER DITCH HEADWATERS RESTORATION

BETWEEN CR 125 S & SR 49

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FINAL PLANS
PARKER DITCH PLAN & PROFILE

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JEFFREY N. SPICER REGISTERED No. PE11100341 STATE OF Indiana PROFESSIONAL ENGINEER

7/31/2024

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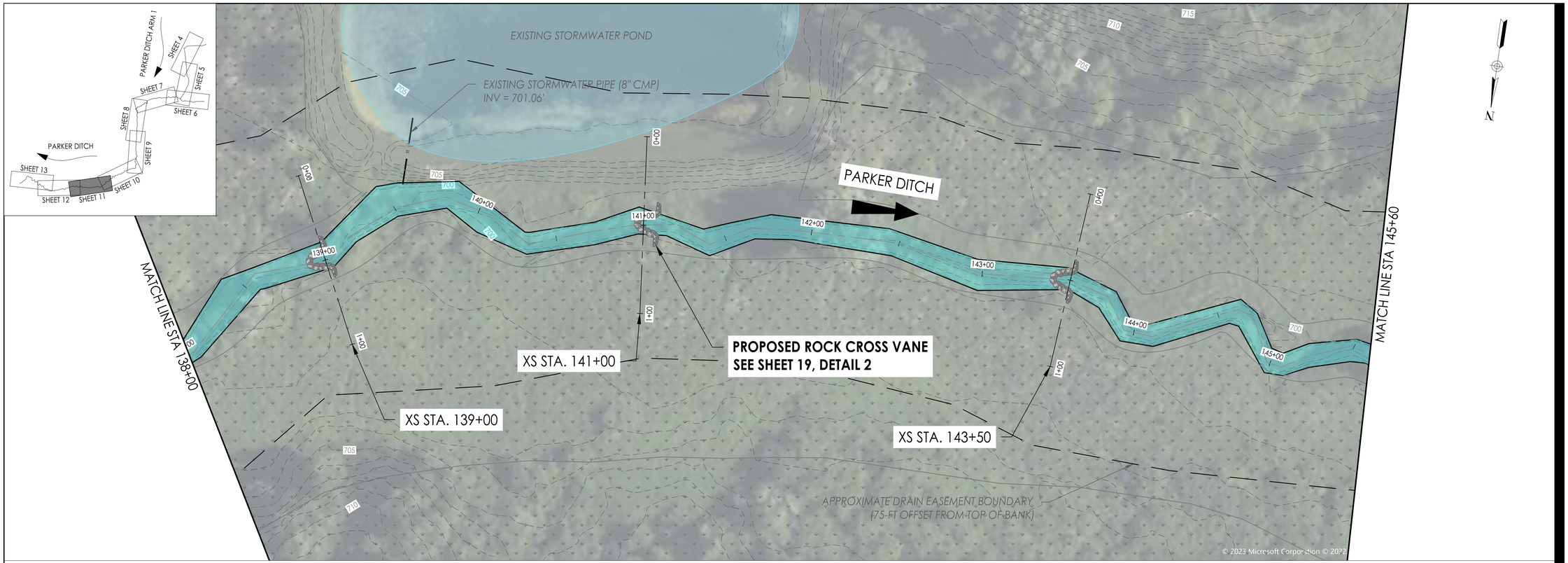
Drawing No.

Revision	Sheet
2	10 of 23



700 EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

100+00 EXISTING CENTERLINE ALIGNMENT

ST EXISTING STORMWATER PIPE

x EXISTING FENCE

PROPOSED ROCK CROSS VANE

PROPOSED BASE FLOW CHANNEL

EXISTING WETLANDS

APPROXIMATE DRAINAGE EASEMENT

NOTE:

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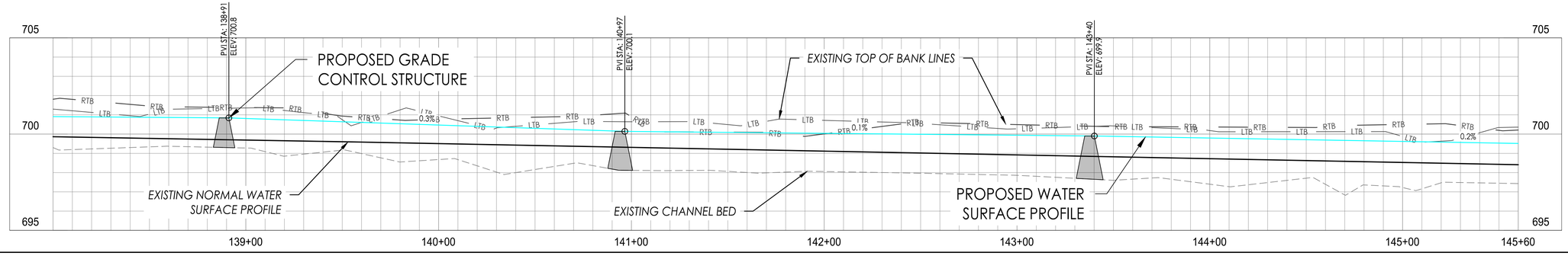

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JEFFREY N. SPICER REGISTERED No. PE11100341 STATE OF INDIANA PROFESSIONAL ENGINEER

1/31/2024

Project Number: 238102157

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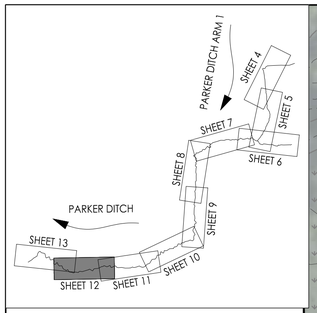
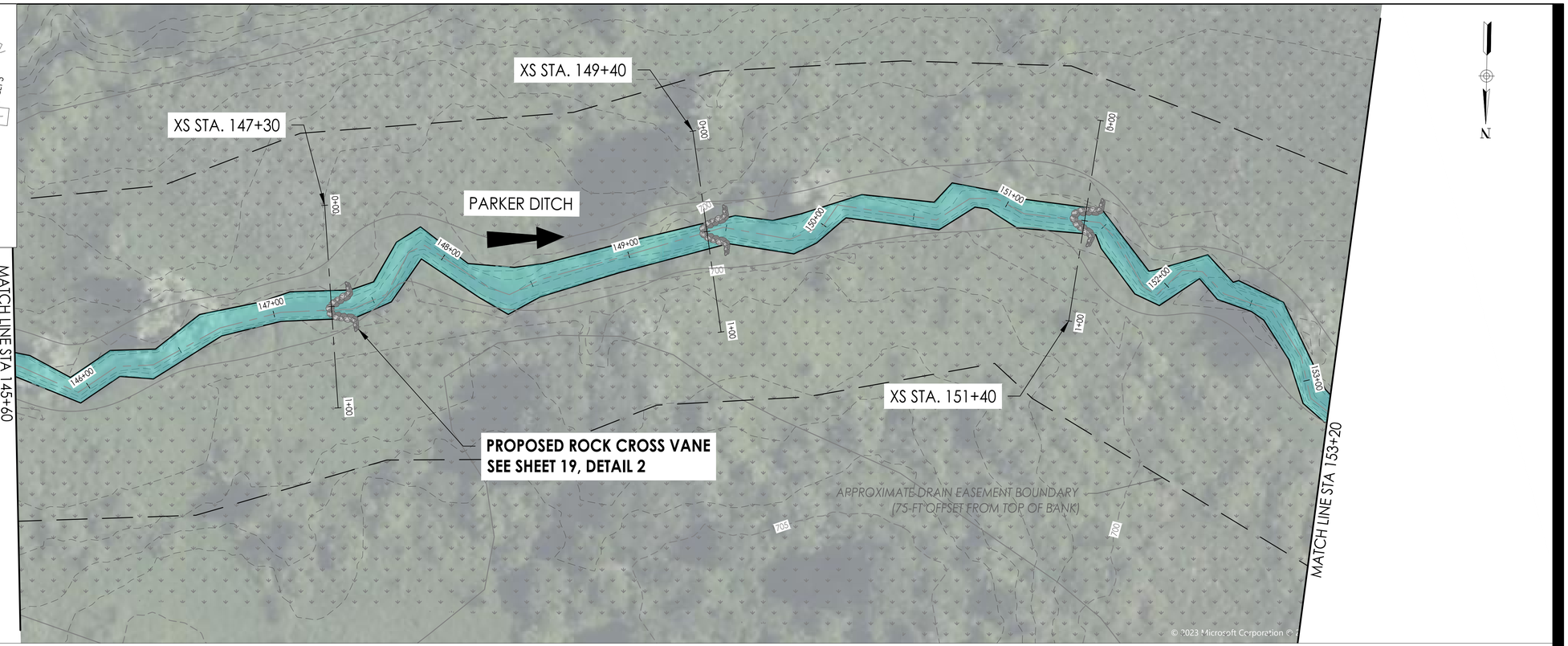
Revision 2

Sheet 11 of 23





N

EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

EXISTING CENTERLINE ALIGNMENT

EXISTING STORMWATER PIPE

EXISTING FENCE

PROPOSED ROCK CROSS VANE

PROPOSED BASE FLOW CHANNEL

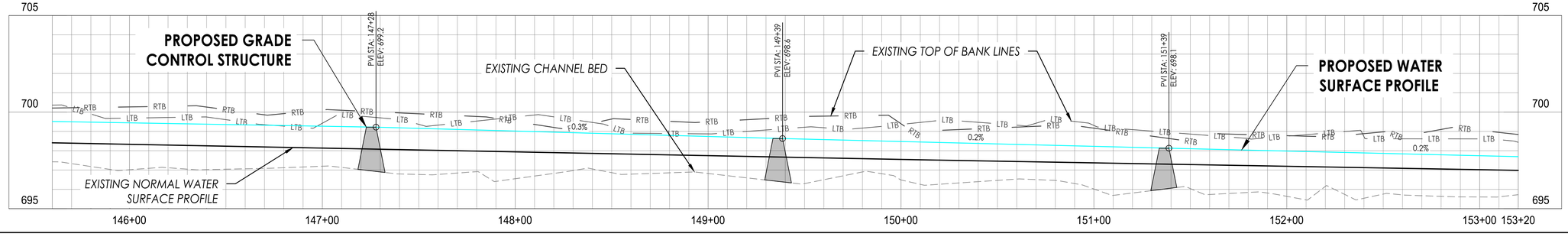
EXISTING WETLANDS

APPROXIMATE DRAINAGE EASEMENT

NOTE:

1. PROPOSED GRADE CONTROL STRUCTURES (ROCK CROSS VANES) DESIGNED TO HAVE A BACKWATER EFFECT FOR 200-400 FT UPSTREAM OF THE STRUCTURE.
2. APPLY RIPARIAN SEED MIX (SEE SHEET 23, DETAIL 1) ALONG DISTURBED STREAM BANKS ADJACENT TO PROPOSED ROCK CROSS VANES.
3. APPLY RIPARIAN SEED MIX (SEE SHEET 23, DETAIL 1) ALONG AREAS TEMPORARILY DISTURBED BY TIMBER MAT ACCESS ROUTE (SEE SHEET 17).
4. DRAINAGE EASEMENT BOUNDARY IS APPROXIMATELY 75-FT OFFSET FROM TOP OF BANK.

1"=30' 0 15' 30' 60'



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Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT
& STORMWATER MANAGEMENT

PARKER DITCH HEADWATERS RESTORATION

BETWEEN CR 125 S & SR 49

Title
FINAL PLANS
PARKER DITCH PLAN & PROFILE

Permit-Sec

JEFFREY N. SPICER
REGISTERED
No. PE11100341
STATE OF INDIANA
PROFESSIONAL ENGINEER

Jeffrey N. Spicer 7/19/2024

Project Number: 238102157

File Name: 238102157_Plans_Parker Ditch.dwg

JTC	JS	JTC	24.01.30
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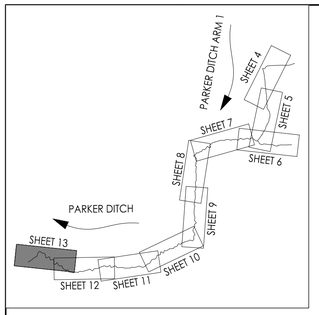
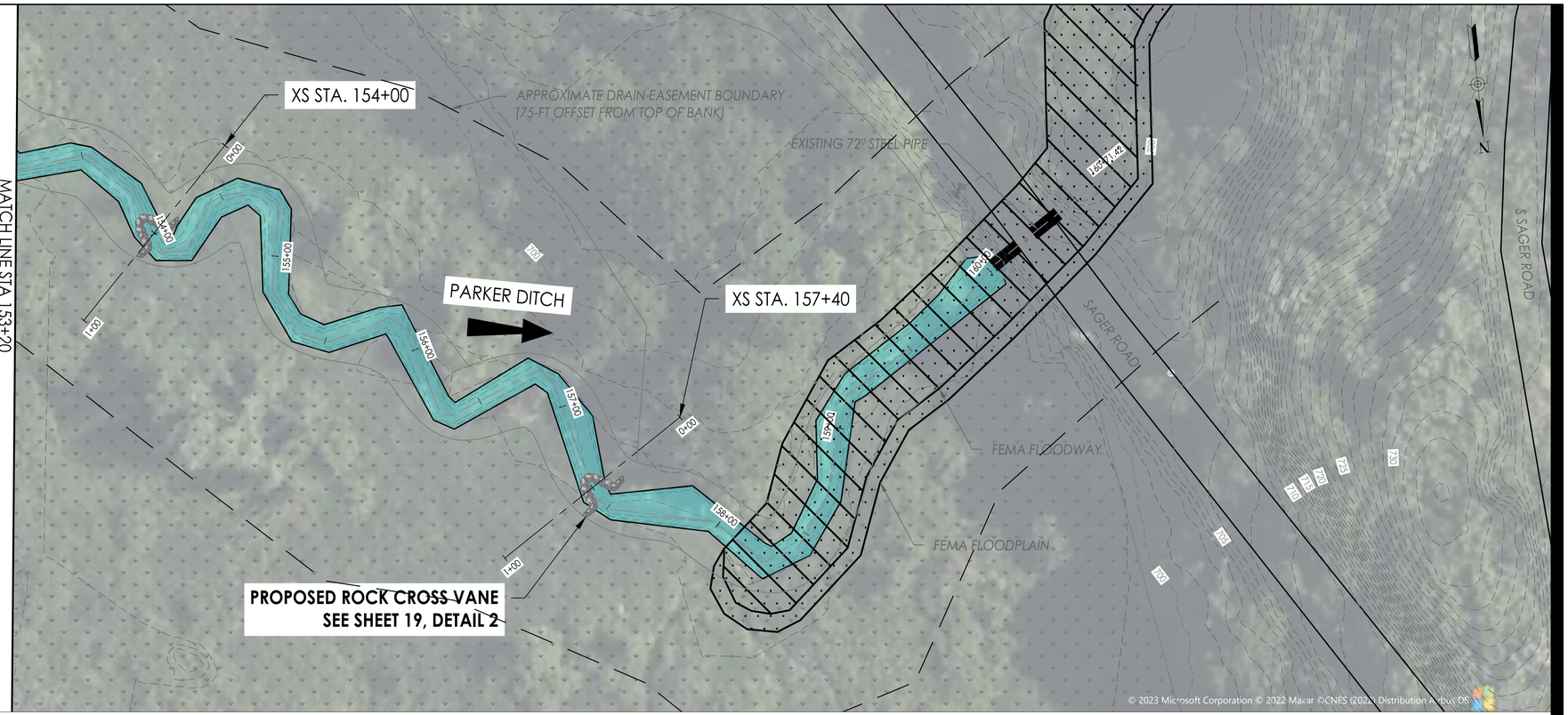
Drawing No.

Revision 2

Sheet 12 of 23



MATCH LINE STA 153+20

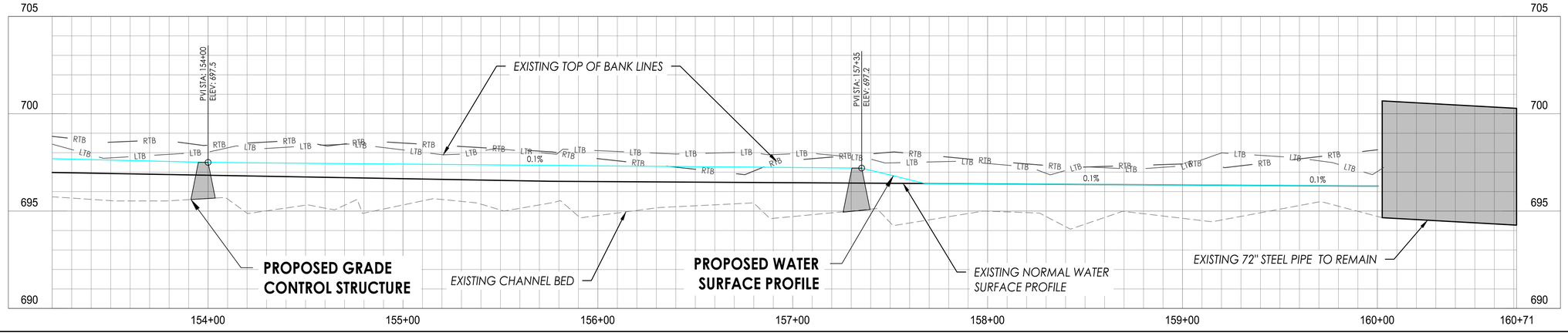


- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING CENTERLINE ALIGNMENT
- EXISTING STORMWATER PIPE
- EXISTING FENCE
- APPROXIMATE DRAINAGE EASEMENT
- PROPOSED ROCK CROSS VANE
- PROPOSED BASE FLOW CHANNEL
- FEMA FLOODWAY
- FEMA FLOODPLAIN
- EXISTING WETLANDS

NOTE:

1. PROPOSED GRADE CONTROL STRUCTURES (ROCK CROSS VANES) DESIGNED TO HAVE A BACKWATER EFFECT FOR 200-400 FT UPSTREAM OF THE STRUCTURE.
2. APPLY RIPARIAN SEED MIX (SEE SHEET 23, DETAIL 1) ALONG DISTURBED STREAM BANKS ADJACENT TO PROPOSED ROCK CROSS VANES.
3. APPLY RIPARIAN SEED MIX (SEE SHEET 23, DETAIL 1) ALONG AREAS TEMPORARILY DISTURBED BY TIMBER MAT ACCESS ROUTE (SEE SHEET 17).
4. DRAINAGE EASEMENT BOUNDARY IS APPROXIMATELY 75-FT OFFSET FROM TOP OF BANK.

1"=30' 0 15' 30' 60'



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Issued	By	Apprd.	YY.MM.DD

Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORMWATER MANAGEMENT

PARKER DITCH HEADWATERS RESTORATION

BETWEEN CR 125 S & SR 49

Title
FINAL PLANS
PARKER DITCH PLAN & PROFILE

Permit-Sec

JEFFREY N. SPICER REGISTERED No. PE11100341 STATE OF INDIANA PROFESSIONAL ENGINEER

Jeffrey N. Spicer 01/31/2024

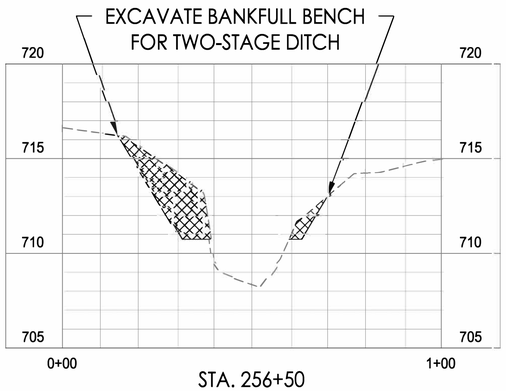
Project Number: 238102157

File Name: 238102157_Plans_Parker Ditch.dwg

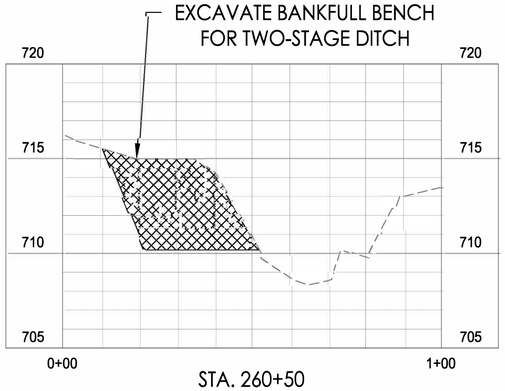
JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.

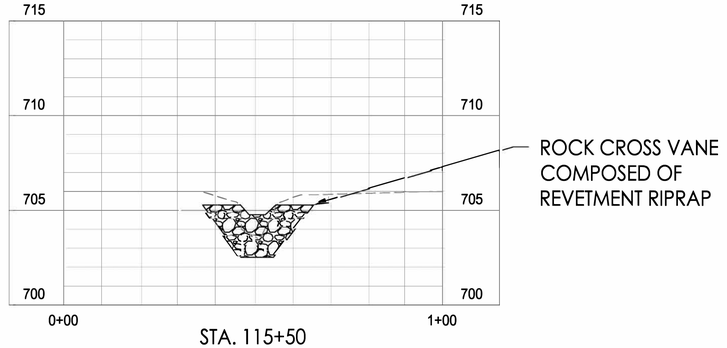
Revision	Sheet
2	13 of 23



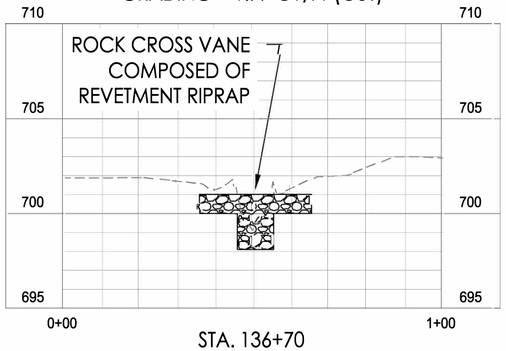
STA. 256+50
VARIABLE WIDTH TWO-STAGE DITCH
GRADING = 1.77 CY/FT (CUT)



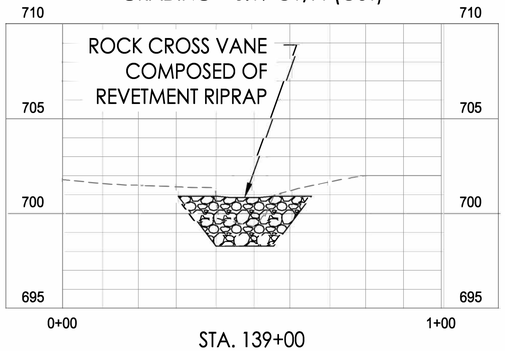
STA. 260+50
VARIABLE WIDTH TWO-STAGE DITCH
GRADING = 5.19 CY/FT (CUT)



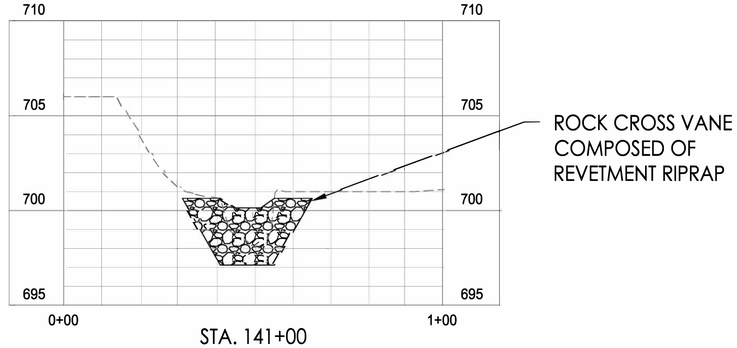
STA. 115+50
ROCK CROSS VANE INVERT = 704.8-FT



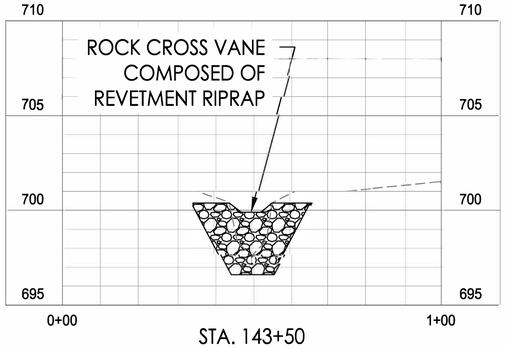
STA. 136+70
ROCK CROSS VANE INVERT = 701.0-FT



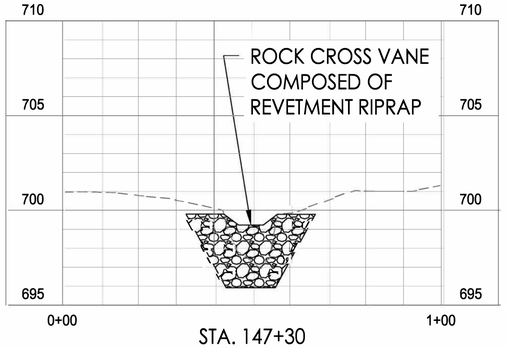
STA. 139+00
ROCK CROSS VANE INVERT = 700.8-FT



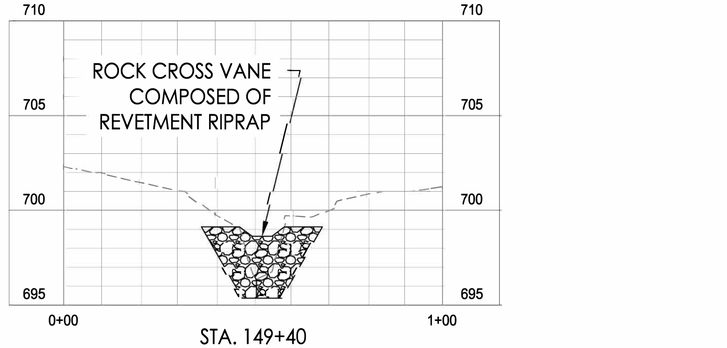
STA. 141+00
ROCK CROSS VANE INVERT = 700.1-FT



STA. 143+50
ROCK CROSS VANE INVERT = 699.9-FT



STA. 147+30
ROCK CROSS VANE INVERT = 699.2-FT



STA. 149+40
ROCK CROSS VANE INVERT = 698.6-FT

0 2' 4' 8'
1"=4'
VERTICAL

0 10' 20' 40'
1"=20'
HORIZONTAL

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Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORMWATER MANAGEMENT
PARKER DITCH HEADWATERS RESTORATION
BETWEEN CR 125 S & SR 49

Permit-Sec

Title
FINAL PLANS
CROSS-SECTIONS

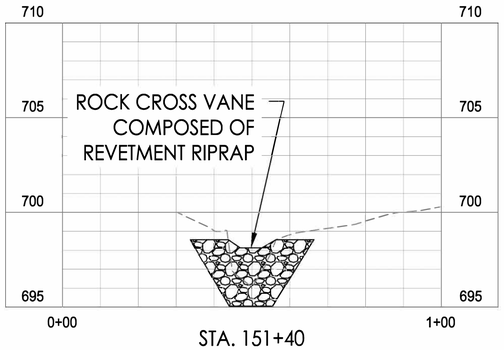
REGISTERED
JEFFREY N. JUSTICE
No. PE11100341
STATE OF INDIANA
PROFESSIONAL ENGINEER

Jeffrey N. Justice 7/31/2024

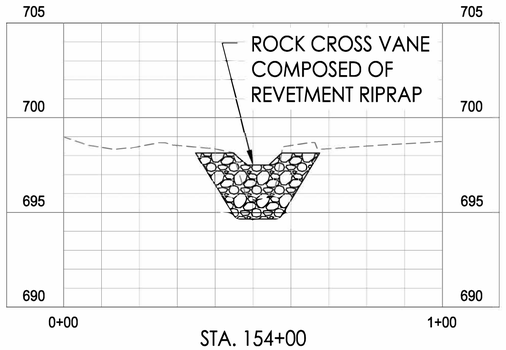
Project Number: 238102157
File Name: 238102157_Plans_Parker Ditch.dwg

JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

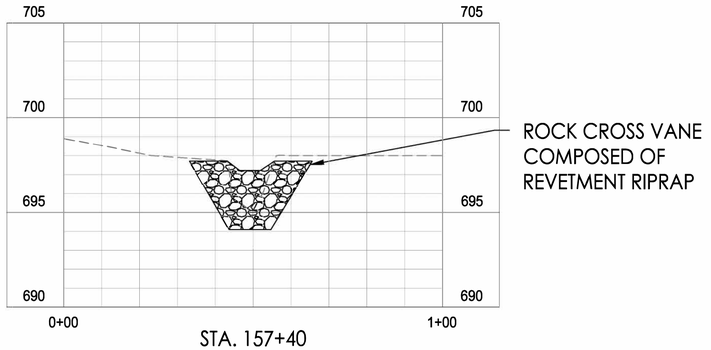
Drawing No.
Revision 2
Sheet 14 of 23



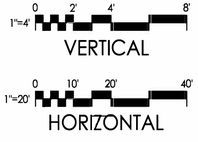
STA. 151+40
ROCK CROSS VANE INVERT = 698.1-FT



STA. 154+00
ROCK CROSS VANE INVERT = 697.5-FT



STA. 157+40
ROCK CROSS VANE INVERT = 697.2-FT



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PARKER DITCH HEADWATERS RESTORATION

BETWEEN CR 125 S & SR 49

Title
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JEFFREY N. SPICER
REGISTERED
No. PE11100341
STATE OF INDIANA
PROFESSIONAL ENGINEER

11/31/2024

Project Number: 238102157

File Name: 238102157_Plans_Parker Ditch.dwg

JTC	JS	JTC	24.01.30
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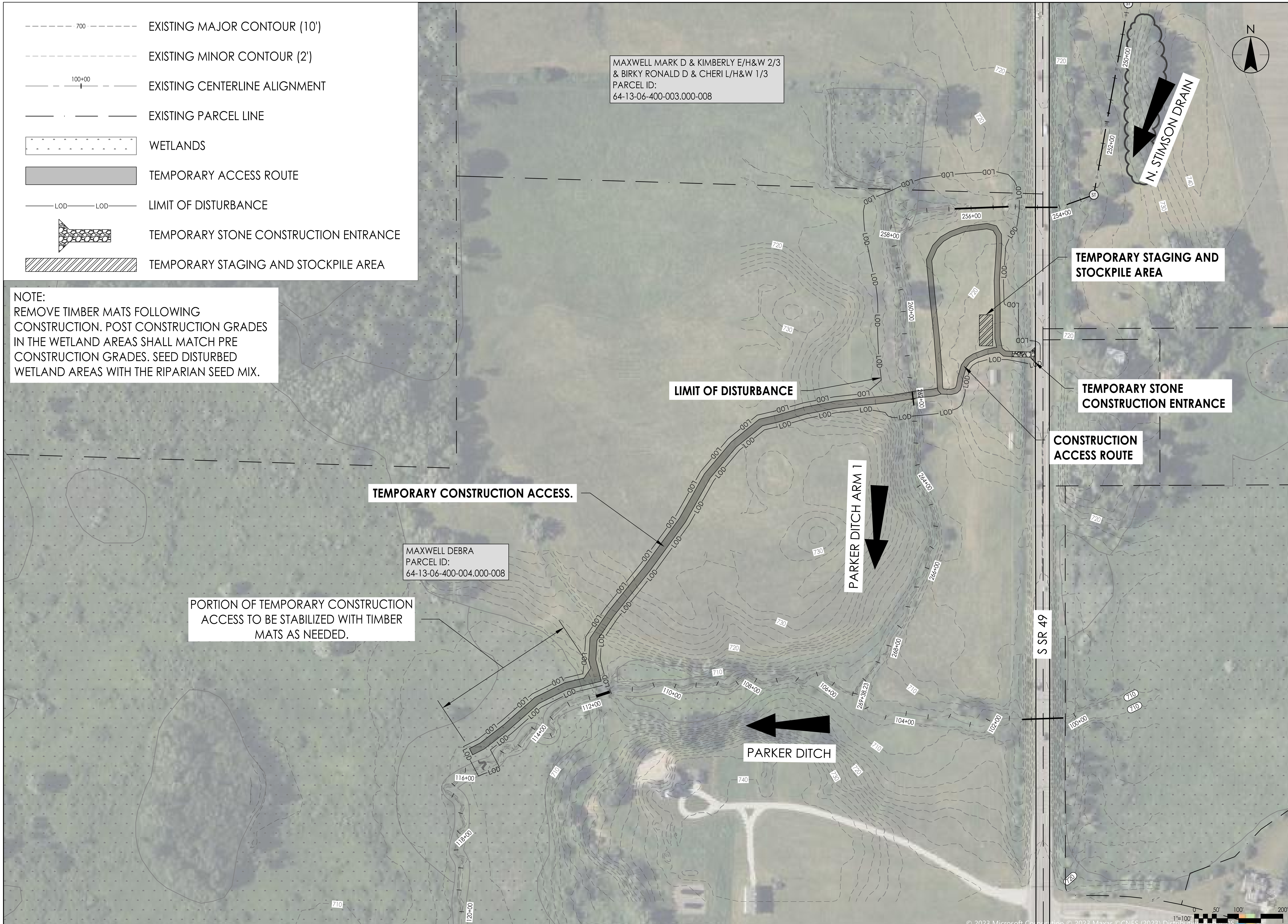
Drawing No.

Revision	Sheet
2	15 of 23



700
EXISTING MAJOR CONTOUR (10')
EXISTING MINOR CONTOUR (2')
100+00
EXISTING CENTERLINE ALIGNMENT
EXISTING PARCEL LINE
WETLANDS
TEMPORARY ACCESS ROUTE
LOD LOD
LIMIT OF DISTURBANCE
TEMPORARY STONE CONSTRUCTION ENTRANCE
TEMPORARY STAGING AND STOCKPILE AREA
NOTE:
REMOVE TIMBER MATS FOLLOWING CONSTRUCTION. POST CONSTRUCTION GRADES IN THE WETLAND AREAS SHALL MATCH PRE CONSTRUCTION GRADES. SEED DISTURBED WETLAND AREAS WITH THE RIPARIAN SEED MIX.
MAXWELL MARK D & KIMBERLY E/H&W 2/3
& BIRKY RONALD D & CHERI L/H&W 1/3
PARCEL ID:
64-13-06-400-003.000-008
MAXWELL DEBRA
PARCEL ID:
64-13-06-400-004.000-008
N
N. STIMSON DRAIN
TEMPORARY STAGING AND STOCKPILE AREA
TEMPORARY STONE CONSTRUCTION ENTRANCE
CONSTRUCTION ACCESS ROUTE
LIMIT OF DISTURBANCE
TEMPORARY CONSTRUCTION ACCESS.
PARKER DITCH ARM 1
PORTION OF TEMPORARY CONSTRUCTION ACCESS TO BE STABILIZED WITH TIMBER MATS AS NEEDED.
PARKER DITCH
S SR 49
250+00
252+00
254+00
256+00
258+00
260+00
262+00
264+00
266+00
268+00
269+38.23
100+00
102+00
104+00
106+00
108+00
110+00
112+00
114+00
116+00
118+00
120+00
1"=100'
0
50'
100'
200'
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Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORMWATER MANAGEMENT
PARKER DITCH HEADWATERS RESTORATION

BETWEEN CR 125 S & SR 49

Title
FINAL PLANS
ESC PLANS

Permit-Sec

JEFFREY N. SPICER
REGISTERED
No. PE11100341
STATE OF INDIANA
PROFESSIONAL ENGINEER

7/31/2024

Project Number: 238102157

File Name: 238102157_ESC_Parker Ditch.dwg

JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.

Revision 2

Sheet 16 of 23

- EXISTING MAJOR CONTOUR (10')
- EXISTING MINOR CONTOUR (2')
- EXISTING CENTERLINE ALIGNMENT
- EXISTING PARCEL LINE
- WETLANDS
- TEMPORARY ACCESS ROUTE
- LIMIT OF DISTURBANCE
- TEMPORARY STONE CONSTRUCTION ENTRANCE
- TEMPORARY STAGING AND STOCKPILE AREA

NOTE:
REMOVE TIMBER MATS FOLLOWING CONSTRUCTION. POST CONSTRUCTION GRADES IN THE WETLAND AREAS SHALL MATCH PRE CONSTRUCTION GRADES. SEED DISTURBED WETLAND AREAS WITH THE RIPARIAN SEED MIX.

MAXWELL DEBRA
PARCEL ID:
64-13-06-400-004.000-008

MAXWELL DEBRA
PARCEL ID:
64-13-07-201-001.000-008

MAXWELL DEBRA
PARCEL ID:
64-13-07-126-001.000-008

GRANDE PRAIRIE PHASE 2 LLC
PARCEL ID:
64-13-07-226-021.000-008

GARD BRIAN D & TIFFANY A/H&W
PARCEL ID:
64-13-07-226-004.000-008

PARSONS JAIME & RACHEL/H&W
PARCEL ID:
64-13-07-226-003.000-008

FELLER JOE E LIVING TRUST 1/2 & FELLER JACQUELINE LIVING TRUST 1/2
PARCEL ID:
64-13-07-226-002.000-008

KRUMSKE MELVIN R JR
PARCEL ID:
64-13-07-202-011.000-008

BUCHER DEAN A & PATRICIA S/H&W
PARCEL ID:
64-13-07-226-001.000-008

LANGE JON J JR & JILL A H&W
PARCEL ID:
64-13-07-202-009.000-008

Peterson Joshua
PARCEL ID:
64-13-07-129-001.000-008

BRAHAM MATTHEW E
PARCEL ID:
64-13-07-202-001.000-008

HODGES CHRISTOPHER J & HODGES KATHRINE M
PARCEL ID:
64-13-07-202-002.000-008

BUCHER B TIMOTHY & JULIE A/H&W
PARCEL ID:
64-13-07-202-012.000-008

TEMPORARY SILT FENCE

TEMPORARY STAGING AND STOCKPILE AREA

TEMPORARY STONE CONSTRUCTION ENTRANCE

TEMPORARY CONSTRUCTION ACCESS. STABILIZE WITH TIMBER MATS AS NEEDED.

LIMIT OF DISTURBANCE

PARKER DITCH

S 100 E

S SAGER RD

BUCKSKIN LN

N

0 50' 100' 200'
1"=100'

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& STORMWATER MANAGEMENT

PARKER DITCH HEADWATERS RESTORATION

BETWEEN CR 125 S & SR 49

Title
FINAL PLANS
ESC PLANS

Permit-Sec

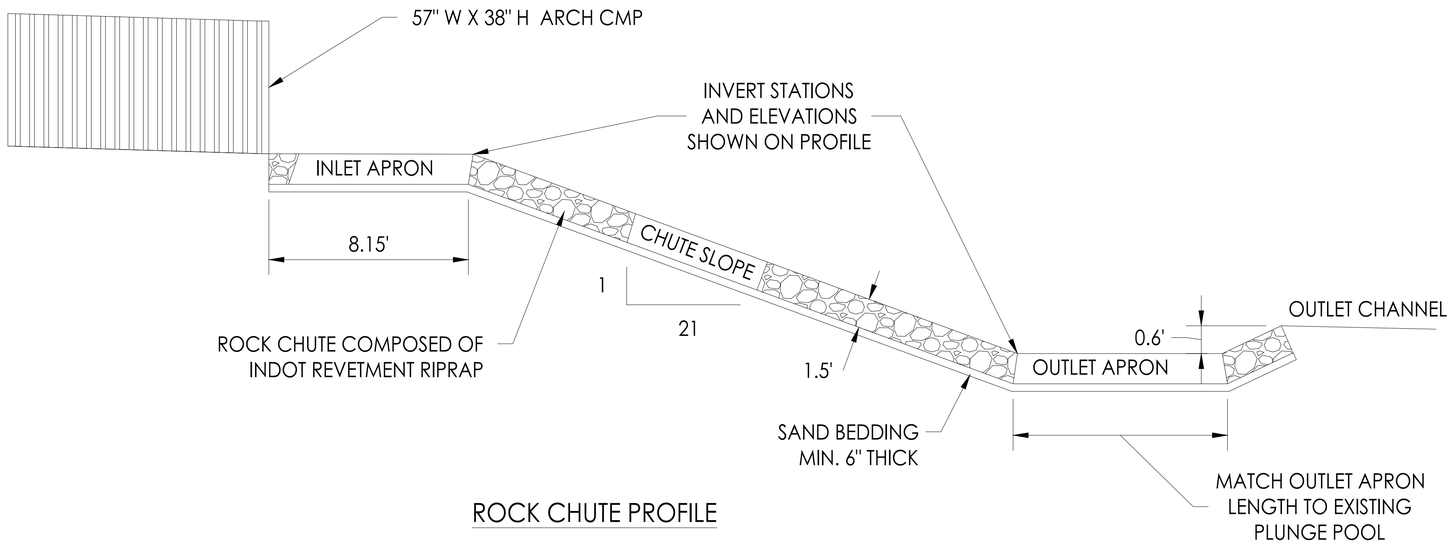
JEFFREY N. SPUR
REGISTERED
No. PE11100341
STATE OF INDIANA
PROFESSIONAL ENGINEER
7/31/2024

Project Number: 238102157

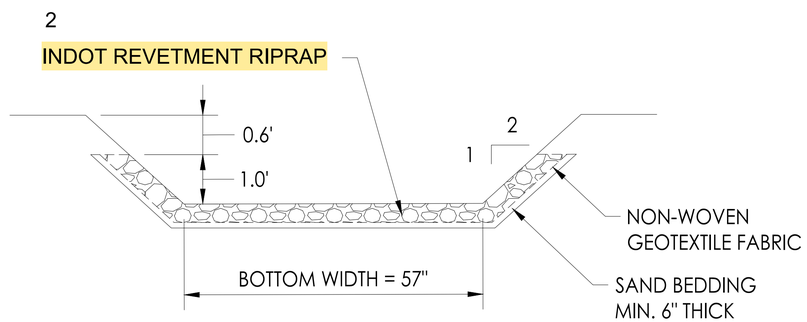
File Name: 238102157_ESC_Parker Ditch.dwg

JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.
Revision 2
Sheet 17 of 23

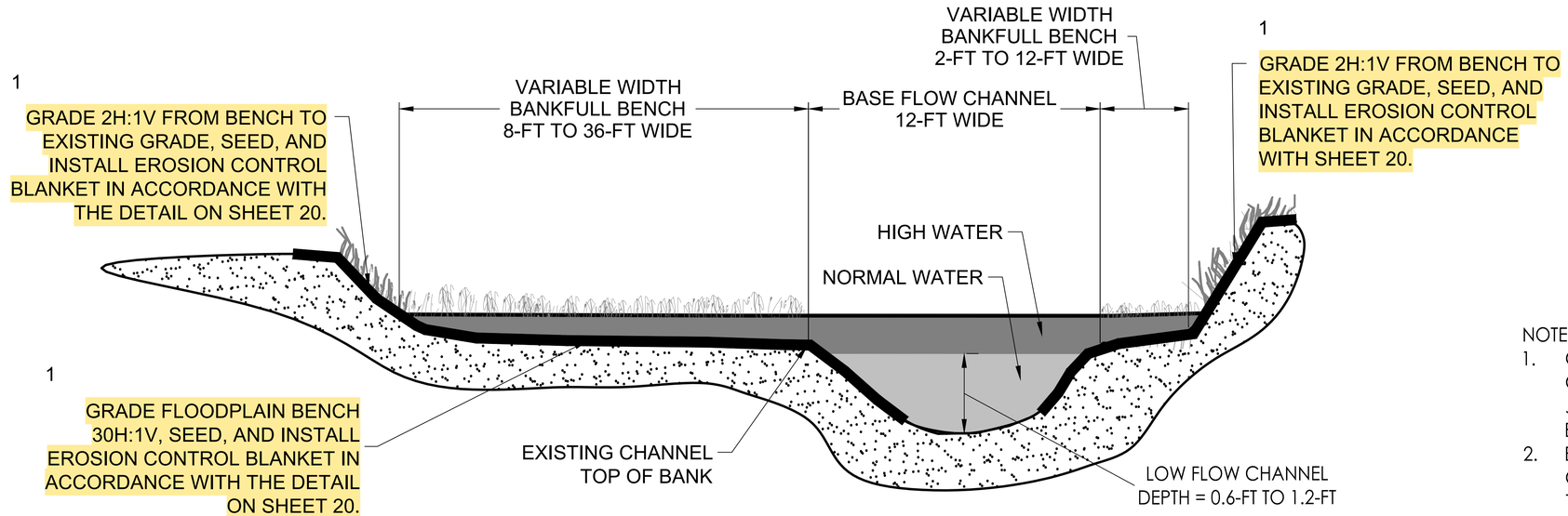


ROCK CHUTE PROFILE



ROCK CHUTE CROSS-SECTION

1/18 Rock Chute
Not to Scale



2/18 Variable Width 2-Stage Ditch
Not to Scale

NOTE:
1. GRADE DOWN AT A 2H:1V SLOPE FROM GRADING LIMITS SHOWN ON THE PLANS TO JUST ABOVE THE EXISTING CHANNEL TOP OF BANK ELEVATION.
2. EXCAVATE BANKFULL BENCH FROM THE 2H:1V GRADING TOE OF SLOPE TO THE CHANNEL TOP OF BANK.
3. BANKFULL BENCH WIDTH TO BE DETERMINED BASED ON THE GRADING LIMITS SHOWN ON THE PLANS AND THE LOCATION LOW FLOW CHANNEL TOP OF BANK IN THE FIELD.

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Revision	By	Appd.	Issued	By	Appd.
2 Rock Chute Callout Corrected	JTC	JS	24.11.08		
1 2-stage Ditch Callout updated to reference Sheet 20	JTC	JS	24.11.06		
	By	Appd.	YY.MM.DD		

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PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORMWATER MANAGEMENT
PARKER DITCH HEADWATERS RESTORATION
BETWEEN CR 125 S & SR 49

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Title
FINAL PLANS
DETAILS

JEFFREY N. SPICER
REGISTERED
No. PE11100341
STATE OF INDIANA
PROFESSIONAL ENGINEER
11/8/2024

Project Number: 238102157

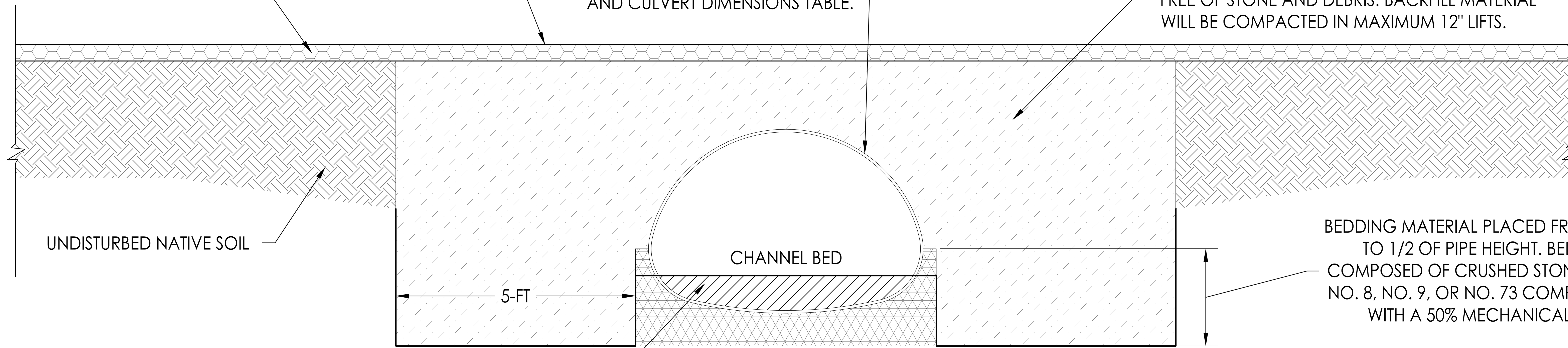
File Name: 238102157_Details.dwg

JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.

Revision 2

Sheet 18 of 23

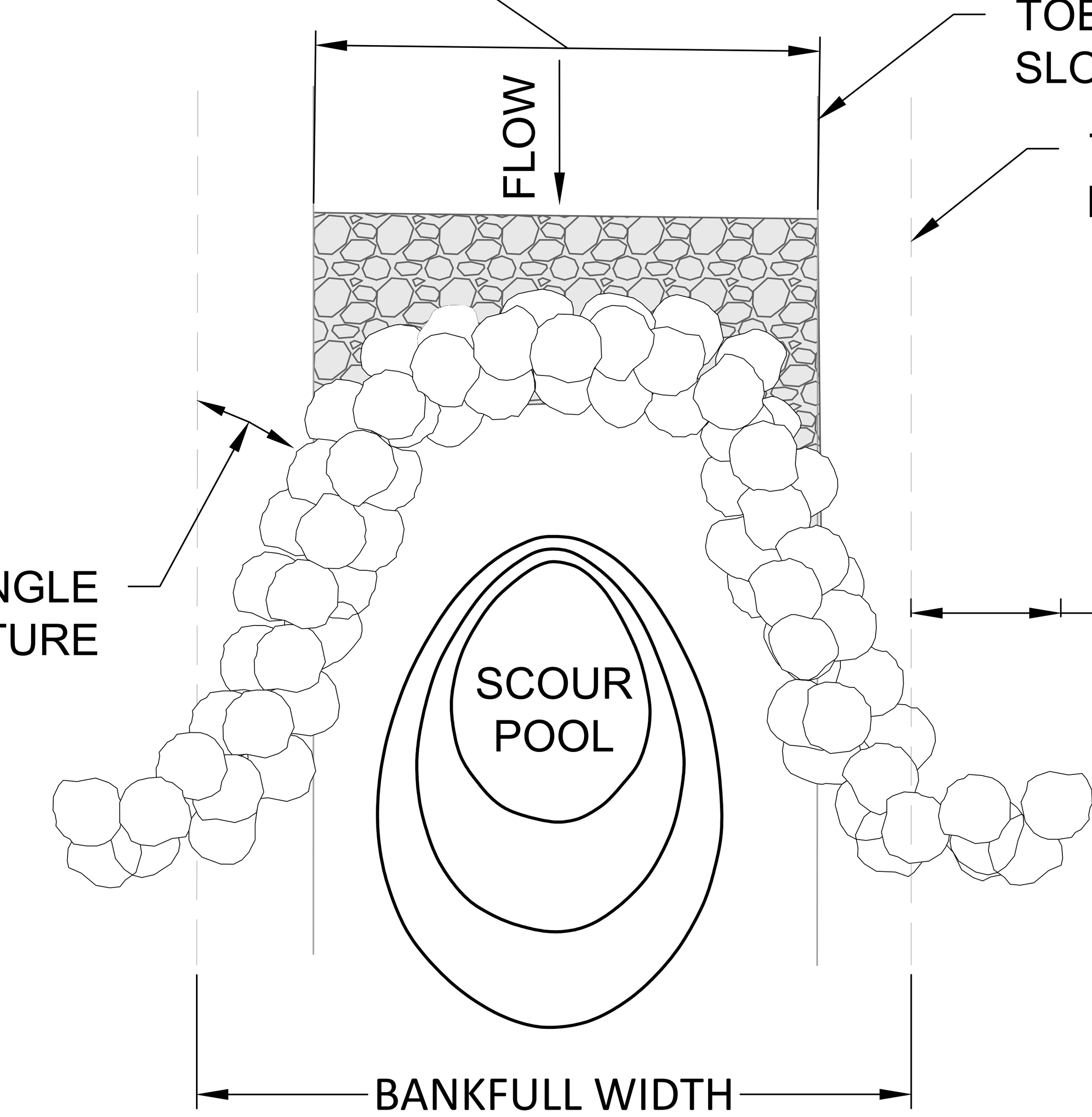


CULVERT DIMENSIONS TABLE		
DIMENSION	CULVERT #1	CULVERT #2
U/S STATION	255+03	261+70
D/S STATION	255+58	262+02
U/S INVERT	712.7'	707.1'
D/S INVERT	711.3'	707.0'
WIDTH X HEIGHT	57" X 38"	57" X 38"
ROADWAY ELEV.	717.1'	717.1'

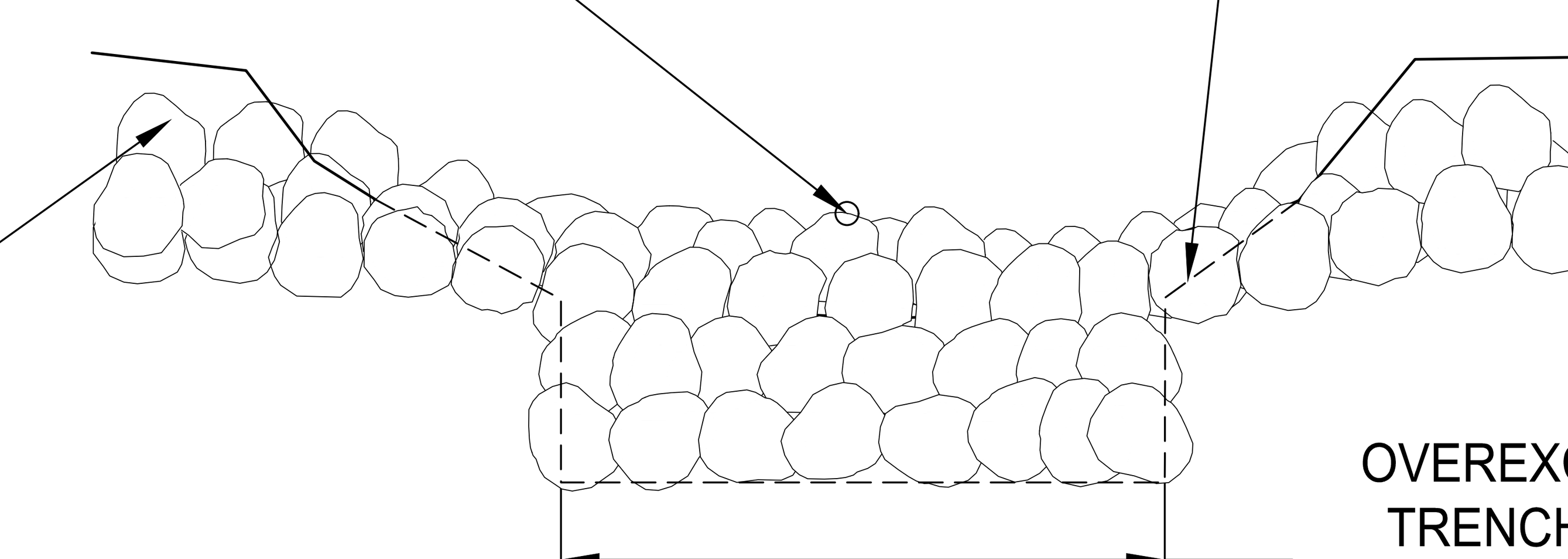
1/19 **Culvert Crossing Replacement**
Not to Scale

NOTE:
1. UPSTREAM AND DOWNSTREAM FACE OF CULVERT TO BE LINED WITH MINIMUM 1' THICK REVETMENT RIPRAP TO SERVE AS HEADWALL. UPSTREAM FACE SHOULD BE CONCAVE SHAPED EXTENDING 3-5' OUT FROM CULVERT TO FUNNEL WATER.
2. CULVERTS TO BE EMBEDDED BY PLACING REVETMENT RIPRAP AT THE CULVERT INLET AND OUTLET TO THE ELEVATIONS SHOWN ON THE PROFILE. CONTRACTOR SHALL PUSH REVETMENT RIPRAP INTO THE CULVERTS BY MANUAL OR MECHANICAL MEANS TO THE MAXIMUM EXTENT PRACTICAL WITHOUT DAMAGING THE CULVERT PIPE.

NOTE:
1. ALL ROCK TO BE COMPACTED TO MAXIMUM EXTENT PRACTICAL TO PREVENT FUTURE SETTLING.
2. INSTALL SINGLE ROW OF EROSION CONTROL BLANKET (SC150BN OR EQUIVALENT) HORIZONTALLY FROM TOE OF SLOPE TO BEYOND TOP OF BANK WITHIN DISTURBANCE AREA OF ALL ROCK CROSS VANES. SECURE WITH 24" WOOD WEDGES 3' ON CENTER.

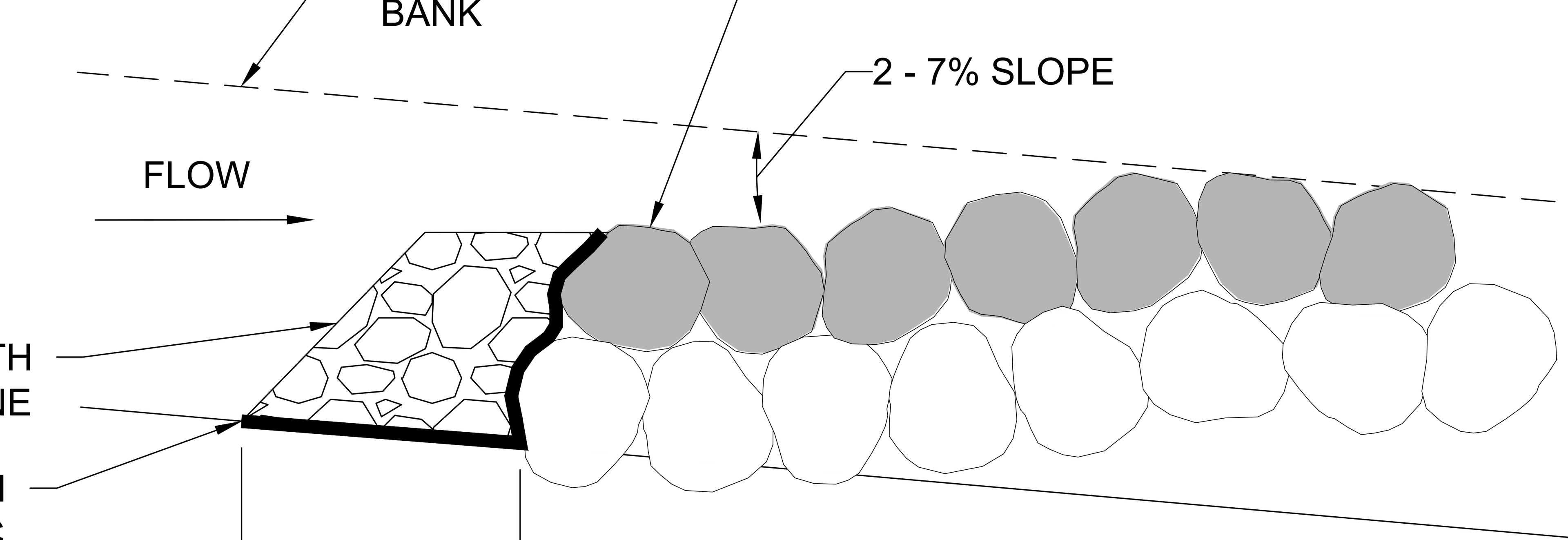


PLAN VIEW



CROSS SECTION VIEW

ROCK CROSS VANE TABLE		
STATION (FT)	INVERT ELEV. (FT)	BANK TIE OUT ELEV. (FT)
115+50	704.8	705.3
136+70	701.0	701.0
139+00	700.8	700.9
141+00	700.1	700.6
143+50	699.9	700.4
147+30	699.2	699.8
149+40	698.6	699.1
151+40	698.1	699.6
154+00	697.5	698.1
157+35	697.2	699.0



PROFILE VIEW

2/19 **Rock Cross Vane**
Not to Scale

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PARKER DITCH HEADWATERS RESTORATION
BETWEEN CR 125 S & SR 49

Title
FINAL PLANS
DETAILS

Permit-Sec

JEFFREY N. SPICER REGISTERED No. PE11100341 STATE OF INDIANA PROFESSIONAL ENGINEER
Jeffrey N. Spicer 7/31/2024

Project Number: 238102157
File Name: 238102157_Details.dwg

JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

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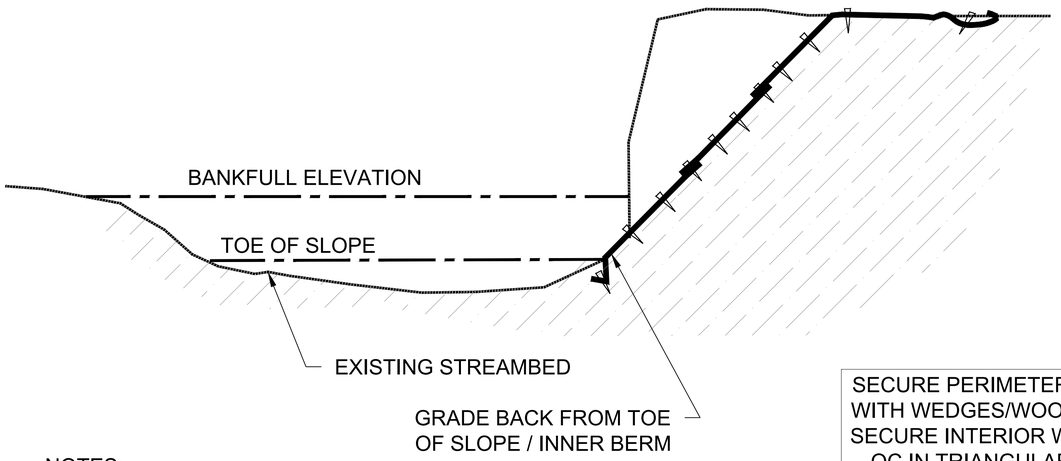
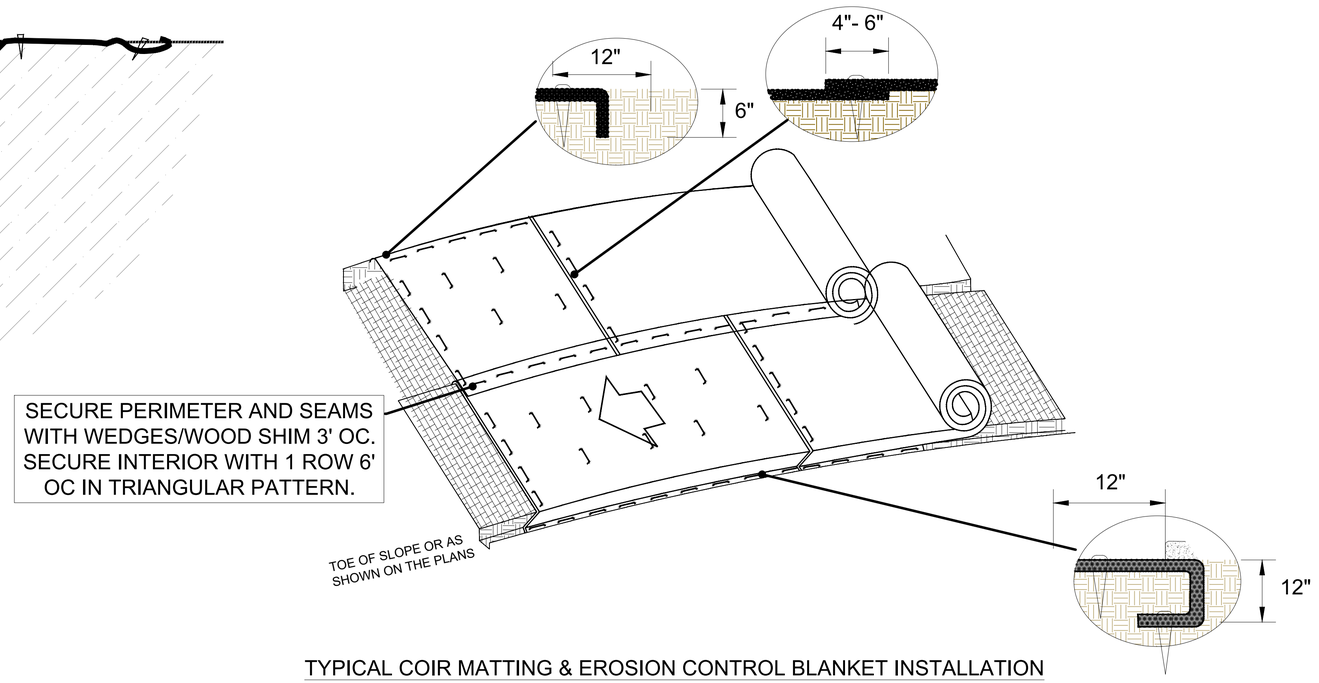


NOTES:

1. SECURE COIR MAT AND EROSION CONTROL BLANKET WITH WEDGES OR STAKES (AS DETAILED IN SPECIFICATIONS) 3' ON CENTER AROUND PERIMETER AND AT ALL SEAMS. INTERIOR CAN BE SECURED WITH 1 ROW 6' ON CENTER IN TRIANGULAR PATTERN.

BANK GRADING & INSIDE FLOODPLAIN GRADING

NOT TO SCALE



TYPICAL COIR MATTING & EROSION CONTROL BLANKET INSTALLATION

NOT TO SCALE

NOTES:

1. THE COIR MATTING PLUS STRAW BLANKET OR EROSION CONTROL BLANKET SHALL BE INSTALLED AT THE LOCATIONS, ELEVATIONS AND LENGTHS AS INDICATED ON THE PLANS.
2. PROVIDE A SMOOTH SOIL SURFACE FREE FROM STONES, CLODS, OR DEBRIS THAT WILL PREVENT THE CONTACT OF THE MATTING WITH THE SOIL.
3. AFTER SEEDING, MATTING/BLANKET SHALL BE INSTALLED ALONG THE SLOPE AS INDICATED ON THE PLANS.
4. INSTALL MATTING/BLANKETING IN THE DIRECTION OF FLOW. INSTALL MATTING/BLANKET LOOSELY AND IN FULL CONTACT WITH THE SOIL SUCH THAT THERE ARE NO CREASES IN THE MATTING.
5. THE EDGES OF THE PARALLEL MATTING/BLANKET MUST BE STAKED WITH A MINIMUM 6” OF OVERLAP SUCH THAT THE EDGE OF THE DOWN-SLOPE MATTING IS UNDER THE ONE JUST UP-SLOPE. WHEN MATTING/BLANKET MUST BE SPLICED -ALONG THE SLOPE, INSTALL END-OVER-END (SHINGLE STYLE) WITH A MINIMUM OF 6” OF OVERLAP HAVING THE UPSTREAM MATTING/BLANKET OVERLAY THE DOWNSTREAM MATTING AND STAKE.
6. INSTALL WOOD 2" X 4" SHIM WEDGES OR STAKES, MIN. 12" LONG, ACROSS THE MATTING AT ENDS, JUNCTIONS AND TRENCHES A MAXIMUM OF 3' ON CENTER. SECURE INTERIOR WITH 1 ROW OF WEDGES SPACED 6' ON CENTER IN TRIANGULAR PATTERN.
7. SECURE THE TOP SLOPE END OF THE MATTING/BLANKET A MINIMUM OF 3 FEET BEYOND THE TOP OF BANK BY ANCHORING IN A 12” DEEP TRENCH AS INDICATED ON THE PLANS.
8. ALL INSTALLATION SPECIFICATIONS ABOVE WILL APPLY UNLESS SPECIFIED DIFFERENTLY BY THE MANUFACTURER AND ALSO APPROVED BY THE OWNER OR ENGINEER.

1/20 EROSION CONTROL BLANKET

Not to Scale

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Permit-Sec

JEFFREY N. SPICER REGISTERED No. PE11100341 STATE OF INDIANA PROFESSIONAL ENGINEER

11/31/2024

Project Number: 238102157

File Name: 238102157_Details.dwg

JTC	JS	JTC	24.01.30
Dwn.	Chkd.	Dsgn.	YY.MM.DD

Drawing No.

Revision 2

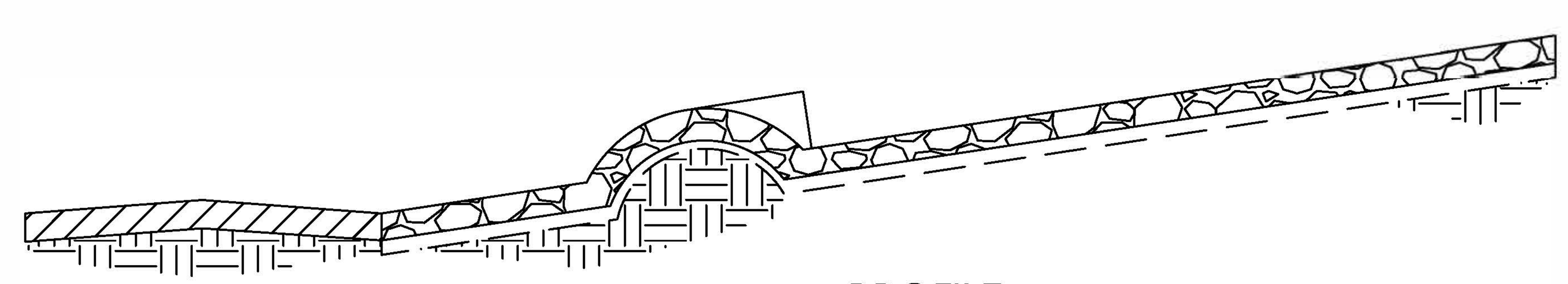
Sheet 20 of 23

REQUIREMENTS:

- MATERIAL: 1 - 2.5 IN. WASHED STONE (INDOT CA NO. 2) OVER A STABLE FOUNDATION.
- THICKNESS: 6 IN. MINIMUM,
- WIDTH: 12 FT. MINIMUM OR FULL WIDTH OF ENTRANCE/EXIT ROADWAY, WHICHEVER IS GREATER.
- LENGTH: 50 FT. MINIMUM OR OF SUFFICIENT LENGTH TO PREVENT TRACKING.

INSTALLATION:

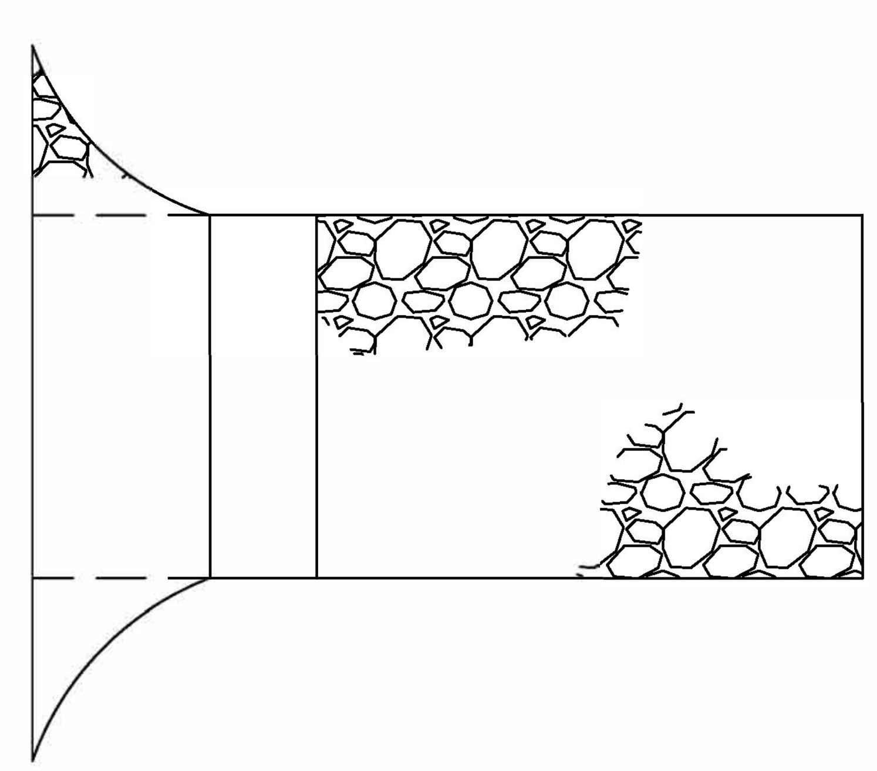
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES IN PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA, AND GRADE AND CROWN FOR POSITIVE DRAINAGE.
3. IF SLOPE TOWARDS THE ROAD EXCEEDS 2%, CONSTRUCT A 6 - 8 IN. HIGH WATER BAR (RIDGE) WITH 3:1 SIDE SLOPES ACROSS THE FOUNDATION AREA ABOUT 15 FT. FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE ROAD (SEE PROFILE).
4. PLACE STONE TO DIMENSIONS AND GRADE SHOWN IN THE EROSION/SEDIMENT CONTROL PLAN, LEAVING THE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.



PROFILE

MAINTENANCE:

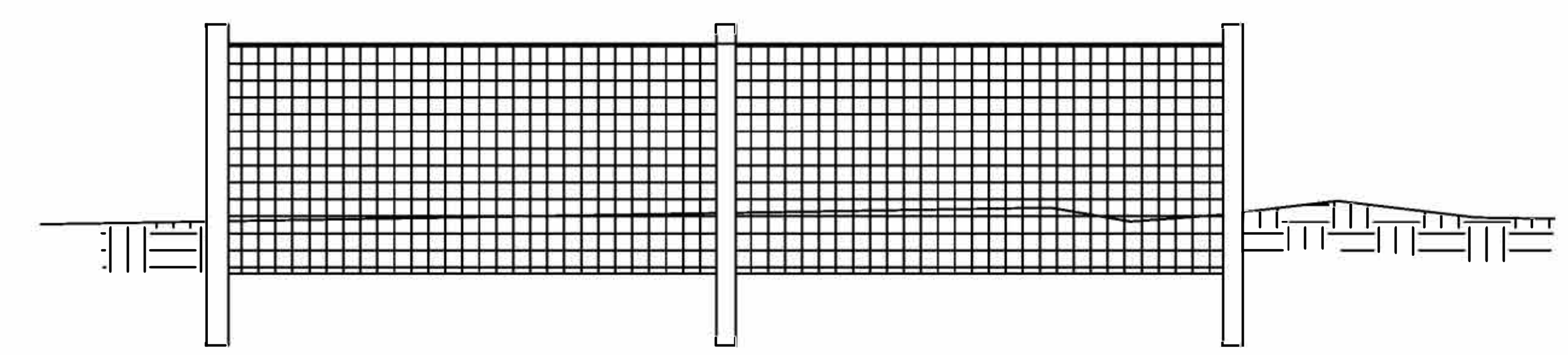
- INSPECT ENTRANCE PAD, SEDIMENT DISPOSAL AREA, AND ALL OTHER EROSION CONTROL MEASURES WEEKLY AND AFTER STORM EVENTS OR HEAVY USE. REQUIRED REPAIRS SHOULD BE COMPLETED IMMEDIATELY.
- RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
- TOP DRESS WITH CLEAN STONE AS NEEDED.
- IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING.
- REPAIR ANY PROKEN ROAD PAVEMENT IMMEDIATELY.

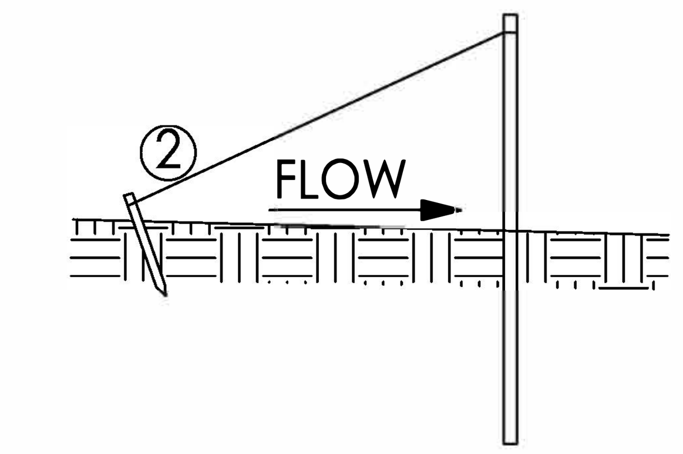


PLAN VIEW

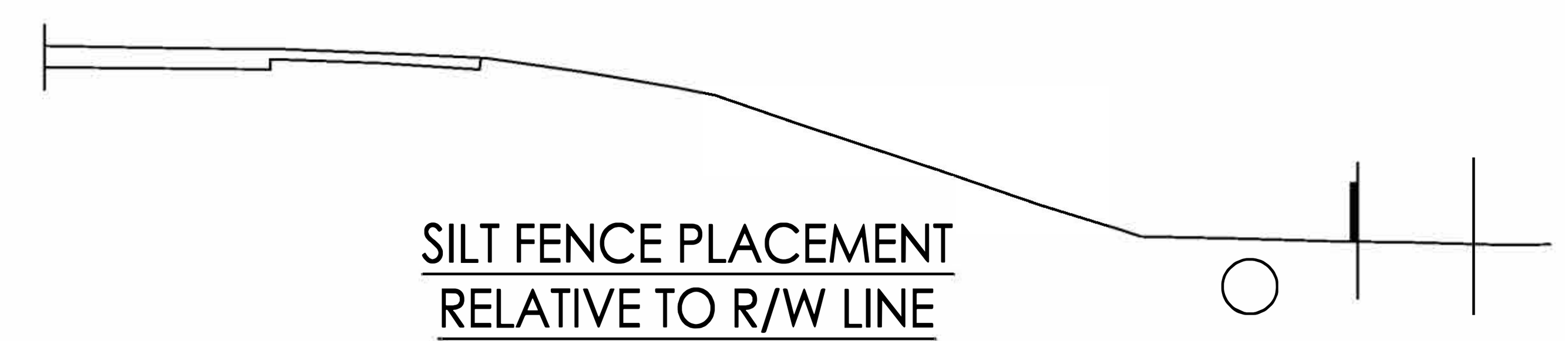
1 / 21 TEMPORARY STONE CONSTRUCTION ENTRANCE

Not to Scale - PORTER COUNTY STANDARD DRAWING II-4

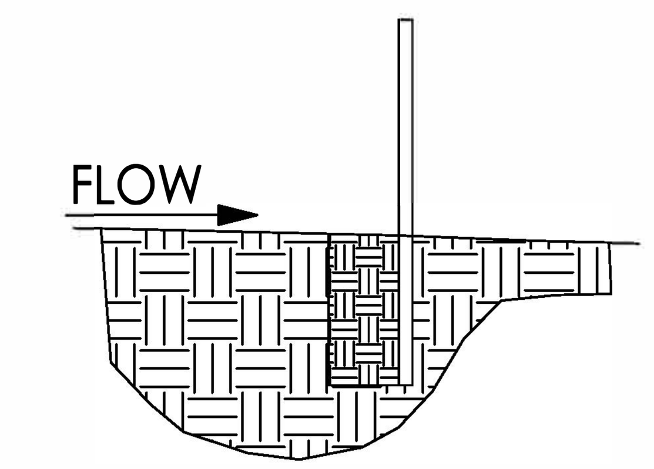




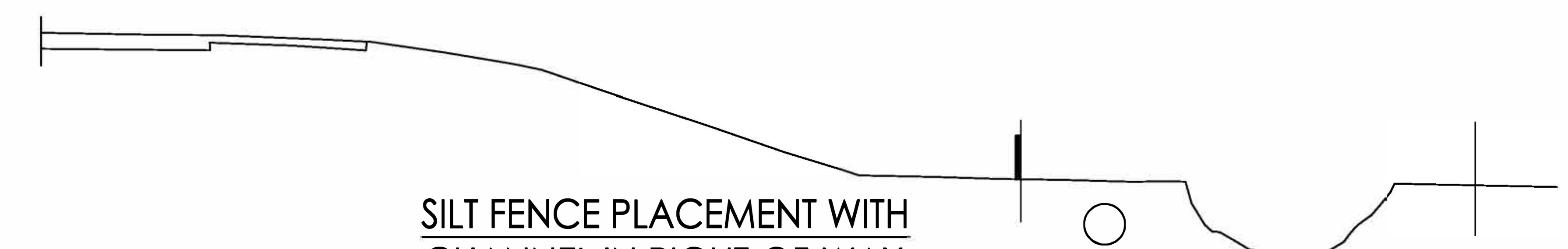
TIEBACK DETAIL



SILT FENCE PLACEMENT RELATIVE TO R/W LINE



EMBEDMENT DETAIL



SILT FENCE PLACEMENT WITH CHANNEL IN RIGHT-OF-WAY

NOTES:

1. DIMENSIONS WILL VARY BASED ON RIGHT-OF-WAY AVAILABILITY. SILT FENCE SHALL BE PLACED AS CLOSE AS POSSIBLE TO EDGE OF CONSTRUCTION LIMITS.
2. THE SPACING OF THE TIEBACKS SHALL EQUAL THE SPACING OF THE POSTS. ADDITIONAL POST DEPTH OR TIEBACKS MAY BE REQUIRED IN UNSTABLE SOILS.

% SLOPE	MAX. DISTANCE
< 50:1	100 FEET
50:1 TO 20:1	75 FEET
> 20:1	PROVIDE SURFACE STABILIZATION

INSTALLATION:

1. THE SILT FENCE SHALL BE ATTACHED TO HARDWOOD STAKES WITH HARDWOOD LATHS AND SECURED WITH FIVE 1-1/2" STAPLES. HARDWOOD STAKES SHALL BE 6' ON CENTER. THE BOTTOM 12" OF FABRIC SHALL BE LEFT UNSECURED TO ALLOW FOR ENTRENCHMENT.
2. A 6" DEEP TRENCH ALONG PROPOSED FENCE LINE SHALL BE CREATED. DRIVE THE STAKES INTO THE TRENCH 8 - 12" OR UNTIL SECURE. BE SURE TO STRETCH FABRIC TAUT WHEN DRIVING STAKES. STAKES MUST BE INSTALLED ON THE DOWNHILL OR DOWNSTREAM SIDE OF FENCE. DRAPE LOOSE END OF GEOTEXTILE INTO TRENCH, THEN BACKFILL AND COMPACT ON BOTH SIDES.
3. LIMITED TO 1/4 ACRE PER 100 LINEAR FEET OF FENCE.
4. INSTALL PARALLEL TO THE SLOPE CONTOUR.
5. DO NOT USE FOR SHALLOW CONCENTRATED OR CHANNEL FLOW.

MAINTENANCE:

1. INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.
2. IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY. NOTE: ALL REPAIRS SHOULD MEET SPECIFICATIONS OUTLINED BY THE MANUFACTURER.
3. REMOVE DEPOSITED SEDIMENT WHEN IT IS CAUSING THE FILTER FABRIC TO BULGE OR WHEN IT REACHES ONE-HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT. WHEN CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, GRADE THE SITE TO BLEND WITH THE SURROUNDING AREA, AND STABILIZE.

2 / 21 TEMPORARY SILT FENCE

Not to Scale - PORTER COUNTY STANDARD DRAWING II-12

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Revision | By | Appd. | YY.MM.DD

Issued | By | Appd. | YY.MM.DD

Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORMWATER MANAGEMENT
PARKER DITCH HEADWATERS RESTORATION
BETWEEN CR 125 S & SR 49

Title
FINAL PLANS DETAILS

Permit-Sec

JEFFREY N. SPICER REGISTERED No. PE11100341 STATE OF INDIANA PROFESSIONAL ENGINEER

7/31/2024

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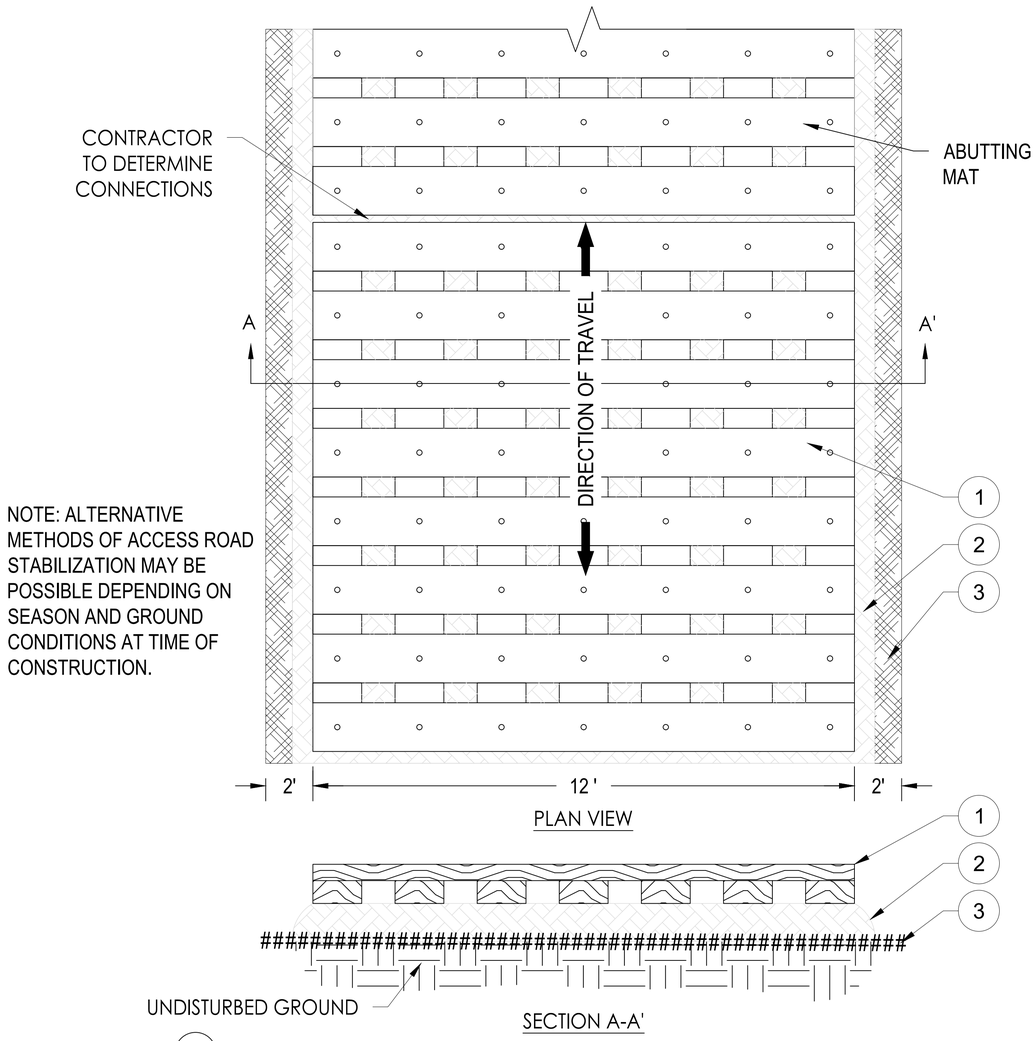
Revision 2 Sheet 21 of 23



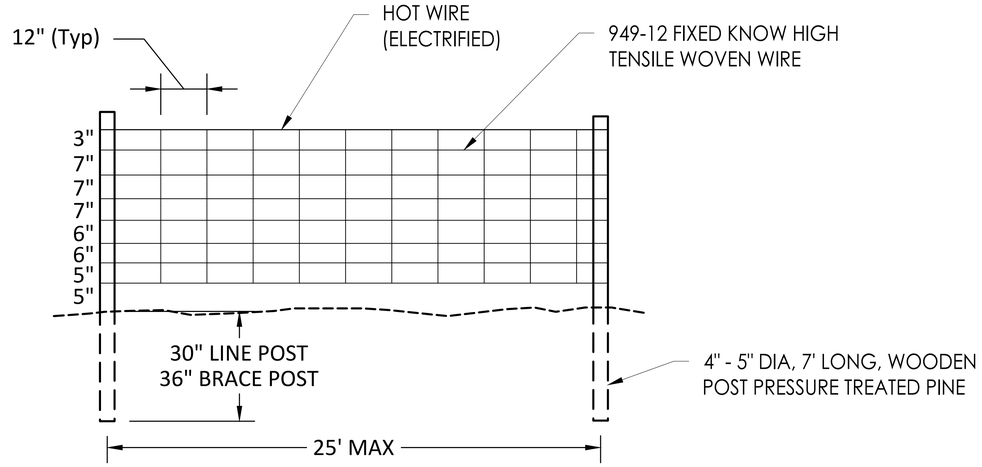
NOTE: ALTERNATIVE METHODS OF ACCESS ROAD STABILIZATION MAY BE POSSIBLE DEPENDING ON SEASON AND GROUND CONDITIONS AT TIME OF CONSTRUCTION.

(#) DETAIL KEYNOTES

1. TIMBER MAT
2. 6" THICK MULCH LAYER.
   - 2.1. REPLENISH AS NEEDED TO MAINTAIN A CONSISTENT THICKNESS.
   - 2.2. CONTRACTOR NOT TO CUT ROOTS TO PROVIDE SURFACE LEVELING.
3. WOVEN GEOTEXTILE FABRIC

1 / 22 TEMPORARY ACCESS PATH / TIMBER MATS

Not to Scale



NOTES:

1. THE FENCE SHALL MEET CLASSIFICATION FOR 949-12 FIXED KNOT HIGH TENSILE WOVEN WIRE.
2. A SINGLE STRAND HIGH TENSION ELECTRIC WIRE OF 12.5 GAUGE WITH A TENSILE RATING OF 200K PSI SHALL BE INSTALLED 24 INCHES ABOVE THE GROUND ON THE LIVESTOCK SIDE OF THE FENCE.
3. MAXIMUM SPACING BETWEEN LINE POSTS SHALL BE 25 FEET ON CENTER AND SET AT LEAST 30 INCHES INTO THE GROUND.
4. LINE POSTS SHALL BE 4"-5" DIAMETER PRESSURE TREATED PINE POSTS.
5. BRACE POSTS SHALL BE 5" DIAMETER PRESSURE TREATED PINE POSTS AND SET 36" IN THE GROUND.
6. ALL CORNERS, FENCE LINE ENDS, AND GATE OPENINGS REQUIRE DOUBLE H BRACE ASSEMBLIES. STRAIGHT LINE FENCE SHALL BE 660 FEET MAXIMUM SPACING. STRAIGHT FENCE SPANS 330 FEET OR LESS SHALL USE SINGLE H BRACE ASSEMBLIES.
7. 3/8" LOG CORNER INSULATORS SHOULD BE USED WHERE ADDITIONAL STRENGTH IS REQUIRED.
8. DOUBLE WALL 12.5 GAUGE UNDERGROUND WIRE WILL BE USED UNDER GATES.

2 / 22 WOVEN WIRE CATTLE EXCLUSION FENCE

Not to Scale

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PARKER DITCH HEADWATERS RESTORATION

BETWEEN CR 125 S & SR 49

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Drawing No.

Revision: 2

Sheet: 22 of 23

TABLE 2 - PERMANENT RIPARIAN SEED MIX		
BOTANICAL NAME	COMMON NAME	PLS OZ/ACRE
PERMANENT GRAMINOIDS		
Andropogon gerardii	Big Bluestem	20.00
Carex vulpinoidea	Fox Sedge	3.00
Panicum virgatum	Switchgrass	12.00
Elymus virginicus	Virginia Wildrye	32.00
	TOTAL	67.00
TEMPORARY COVER		
Avena sativa	Common Oat	512.00
	TOTAL	512.00
FORBS		
Symphyotrichum novae-angliae	New England Aster	0.10
Penstemon digitalis	Foxglove Beardtongue	0.75
Rudbeckia hirta	Black-eyed Susan	0.50
Monarda fistulosa	Wild Bergamot	1.35
Rudbeckia triloba	Brown-eyed Susan	0.75
Veronicastrum virginicum	Culver's Root	0.12
Oligoneuron riddellii	Riddell's Goldenrod	0.05
Eutrochium purpureum	Sweetscented Joe Pye Weed	0.20
Asclepias incarnata	Swamp Milkweed	0.25
Conoclinium coelestinum	Blue Mistflower	0.30
Pycnanthemum virginianum	Common Mountain Mint	0.30
Heliopsis helianthoides	False Sunflower	2.00
Desmodium canadense	Showy Ticktrefoil	0.30
	TOTAL	6.97

*USE PERMANENT RIPARIAN SEED MIX IN ALL DISTURBED AREAS

INSTALLATION:

SITE PREPARATION:

1. GRADE THE SITE TO ACHIEVE POSITIVE DRAINAGE.
2. ADD TOPSOIL OR COMPOST MULCH (SEE COMPOST MULCHING) TO ACHIEVE NEEDED DEPTH FOR ESTABLISHMENT OF VEGETATION. (COMPOST MATERIAL MAT BE ADDED TO IMPROVE SOIL MOISTURE HOLDING CAPACITY, SOIL FRIABILITY, AND NUTRIENT AVAILABILITY.)

SEEDING:

1. APPLY SEED UNIFORMLY BY BROADCASTING. PLANT OR COVER THE SEED TO A DEPTH OF ONE-FOURTH TO ONE-HALF INCH. ENSURE GOOD SEED-TO-SOIL CONTACT BY FIRMING THE SEEDBED WITH A ROLLER OR CULTIPACKER AFTER COMPLETING SEEDING OPERATIONS. (IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.)
2. MULCH ALL SEEDED AREAS (SEE MULCHING AND COMPOST MULCHING) AND USE APPROPRIATE METHODS TO ANCHOR THE MULCH IN PLACE. CONSIDER USING EROSION CONTROL BLANKETS ON SLOPING AREAS AND CONVEYANCE CHANNELS (SEE EROSION CONTROL BLANKET).

MAINTENANCE:

1. INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS UNTIL THE VEGETATION IS SUCCESSFULLY ESTABLISHED.
2. CHARACTERISTICS OF A SUCCESSFUL STAND INCLUDE VIGOROUS DARK GREEN OR BLUISH GREEN SEEDLINGS WITH A UNIFORM VEGETATIVE COVER DENSITY OF 90 PERCENT OR MORE.
3. CHECK FOR EROSION OR MOVEMENT OF MULCH.
4. REPAIR DAMAGED, BARE, GULLIED OR SPARSELY VEGETATED AREAS AND THEN FERTILIZE, RESEED, AND APPLY AND ANCHOR MULCH.
5. IF PLANT COVER IS SPARSE OR PATCH, EVALUATE THE PLANT MATERIALS CHOSEN, SOIL FERTILITY, MOISTURE CONDITION, AND MULCH APPLICATION; REPAIR AFFECTED AREAS EITHER BY OVERSEEDING OR PREPARING A NEW SEEDBED AND RESEEDING. APPLY AND ANCHOR MULCH ON THE NEWLY SEEDED AREAS.
6. IF VEGETATION FAILS TO GROW, CONSIDER SOIL TESTING TO DETERMINE SOIL PH OR NUTRIENT DEFICIENCY PROBLEMS. (CONTACT YOUR SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE.)
7. IF ADDITIONAL FERTILIZATION IS NEEDED TO GET A SATISFACTORY STAND, DO SO ACCORDING TO SOIL TEST RECOMMENDATIONS.
8. ADD FERTILIZER THE FOLLOWING GROWING SEASON. FERTILIZE ACCORDING TO SOIL TEST RECOMMENDATIONS.
9. FERTILIZE TURF AREAS ANNUALLY. APPLY FERTILIZER IN A SPLIT APPLICATION. FOR COOL-SEASON GRASSES, APPLY ONE-HALF OF THE FERTILIZER IN LATE SPRING AND ONE-HALF IN EARLY FALL. FOR WARM-SEASON GRASSES, APPLY ONE-THIRD IN EARLY SPRING, ONE-THIRD IN LATE SPRING, AND THE REMAINING ONE-THIRD IN MIDDLE SUMMER.

LIMITATIONS:

SEEDED SURFACES MUST NOT BE SUBJECT TO EROSIVE FLOWS.

1/23 PERMANENT SEED MIX
Not to Scale

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REGISTERED PROFESSIONAL ENGINEER
JEFFREY N. SUTTER
No. PE11100341
STATE OF INDIANA

7/31/2024

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Revision 2

Sheet 23 of 23

The Department of
DEVELOPMENT & STORM WATER MANAGEMENT
Porter County, Indiana

County Administration Center
155 Indiana Avenue, Suite 311
Valparaiso, IN 46383
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www.porterco.org

ATTACHMENT D
REVISED TECHNICAL SPECIFICATIONS AND SPECIAL PROVISIONS

TECHNICAL SPECIFICATIONS
FOR
PARKER DITCH
HEADWATERS RESTORATION

PORTER CO. DEPARTMENT OF DEVELOPMENT & STORM WATER MANAGEMENT
October 15, 2024

The following Technical Specifications shall apply to and govern the project designated as **Parker Ditch Headwaters Restoration.** Such Technical Specifications supplement the specifications contained in the documents listed in the table below and, in case of conflict with any part or parts of said specifications, the Engineer shall determine which specifications shall take precedence and govern. The following hierarchy will be applied by the Engineer in resolving any conflict, error, ambiguity, or discrepancy in or between said specifications.

Specification	**Issuing Agency**	**Adopted/Dated**
Special Provisions for Parker Ditch Headwaters Restoration	Porter Co. Department of Development & Storm Water Management	October 15, 2024
Technical Specifications for Parker Ditch Headwaters Restoration	Porter Co. Department of Development & Storm Water Management	October 15, 2024
Construction Plans for Parker Ditch Headwaters Restoration	Porter Co. Department of Development & Storm Water Management	July 31, 2024
General Specifications to the Construction & Maintenance Services Agreements	Porter Co. Department of Development & Storm Water Management	October 15, 2024

DIVISION 200
SITE PREPARATION AND EARTHWORK

CLEARING & TREE REMOVAL

DESCRIPTION
This work shall consist of performing the following items within the areas shown on the construction plans, where required to complete the work in accordance with the contract documents, and other locations identified by the Engineer.

(a) Clearing. Clearing shall consist of the removal and disposal of all downed trees and logs, regardless of diameter. It shall also consist of the cutting, removal, and disposal of all bushes, saplings, and other woody vegetation of a diameter of less than 10 in., as measured at a point 4.5 ft. above the highest adjacent grade at the base of the vegetation (i.e., diameter at breast height). It shall also consist of the removal and disposal of all other obstructions, including log jams and accumulations of rubbish of whatever nature, the removal and disposal of which is not otherwise provided for in the contract documents.

(b) Tree Removal. Tree Removal shall consist of the cutting, removal, and disposal of trees as hereinafter defined.

DEFINITIONS
Tree. A woody, perennial plant having a single main stem or trunk, the diameter of which is 10 in. or more, as measured at a point 4.5 ft. above the highest adjacent grade at the base of the tree (i.e., diameter at breast height). Those trees having a diameter less than 10 in. diameter at breast height shall be considered saplings. A multiple stem tree that forks at a point below breast height shall be considered to be a cluster of multiple individual trees. A tree that forks at or above breast height shall be considered to be a single tree. If already cut or broken off at less than 4.5 ft. above the highest adjacent grade at the base of the tree, but more than 1.0 ft. above the highest adjacent grade, the remaining trunk will be measured at the elevation of such existing cut or break.

Limits of Clearing & Tree Removal. A boundary line as shown on the construction plans or as designated by the Department.

CONSTRUCTION REQUIREMENTS
This work includes clearing and tree removal within the areas shown on the construction plans, where required to complete the work in accordance with the contract documents, and other locations identified by the Engineer

This work shall be completed in accordance with the following.

(a) Clearing. All downed trees and logs, regardless of diameter, and all other obstructions, including log jams and accumulations of rubbish of whatever nature, shall be removed and disposed of as specified below. All bushes, saplings, and other woody vegetation of a diameter of less than 10 in. diameter at breast height, shall be cut, removed, and disposed of as specified below. All bushes, saplings, and other woody vegetation of a diameter of less than 6 in. diameter at breast height shall be cut off at a height of not more than 4 in.

The Contractor shall select and use appropriate means and methods, based on the specified cutting height and the bushes, saplings, and other woody vegetation to be cut, removed, and disposed of, to conduct the work. The equipment used shall be capable of neatly and completely severing all growth at the specified cutting height.

(b) Tree Removal. All trees shall be cut and disposed of as directed by the Engineer. No mature trees are proposed for removal but should the Contractor or Engineer determine that select mature trees be appropriate or expeditious for construction then these will be removed by the contractor at no added expense. Max mature trees that would be included at no expense to the Owner would be 5 trees.

The Contractor shall select and use appropriate means and methods, based on the specified cutting height and the trees to be cut and disposed of, to conduct the work. The equipment used shall be capable of neatly and completely severing the trees at the specified cutting height. No splinters or spurs shall extend from the top or sides of any stump.

(c) Disposal of Materials. All trees, downed trees and logs, all bushes, saplings, and other woody vegetation of a diameter of less than 10 in. diameter at breast height, and all other materials removed during the Clearing & Tree Removal work shall be disposed of in accordance with the following.

The Contractor shall dispose of all materials in such a manner that public or private property will not be damaged or endangered. No on-site open burning of materials removed during the Clearing & Tree Removal work shall be allowed, unless otherwise provided for in the contract documents, or otherwise approved in writing by the Engineer. Considering the following tolerances for mulched, shredded, and/or chipped materials, materials removed during the Clearing & Tree Removal work may be mulched, shredded, and/or chipped and may be placed or left upon the site. Mulched, shredded, and/or chipped materials to be placed or left upon the site shall not be left in windrows or otherwise in a lumpy or bunched condition and shall be evenly placed or left upon the site at a depth not to exceed 3 in.

(1) Tolerances for Mulched, Shredded, and/or Chipped Material. Mulched, shredded, and/or chipped material shall be considered adequately mulched, shredded, and/or chipped and may be left in place provided that 90% of such material is smaller than 6 in., as measured in any direction, and that 50% of such material is smaller than 3 in., as measured in any direction.

The means and methods selected and used by the Contractor in the performance of the work shall minimize soil disturbance in the areas subject to the work. The Contractor will not be required to conduct Clearing & Tree Removal work in areas that are continuously wet and/or cannot otherwise be cleared with equipment, as determined in coordination with the Engineer.

Wherever areas have been disturbed as a result of the performance of the work, provided the following tolerances for ruts, Contractor, at no additional cost to the Department, shall restore such property to a condition equal to that existing before such disturbance occurred. Damage, such as ruts or wheel tracks more than 2 in. in depth or more than 12 in. in length or width, shall be repaired to the satisfaction of the Engineer. If the Contractor fails to do so, the Department may, after the expiration of a period of 48 hours after giving the Contractor notice in writing, proceed to repair such damage, and the cost thereof will be deducted from any compensation due, or which may become due, the Contractor under this or any other contract between the Contractor and the Department.

(1) Tolerances for Ruts. Disturbed areas shall be free from ruts or wheel tracks measuring more than 2 in. in depth or more than 12 in. in length or width. Disturbed areas with ruts or wheel tracks that measure more than 2 in. in depth or more than 12 in. in length or width, shall be restored to be free from such ruts or wheel tracks.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

PAYMENT
This work shall be paid for at the contract quantity and/or quantities for CLEARING & TREE REMOVAL – LUMP SUM shown on the basis of quote form.

Such unit price(s) shall include all preparation necessary to complete the work, the furnishing, transporting, and placing of all materials necessary to complete the work, as well as the cutting, removal, and disposal, including transporting, of all materials resulting from the performance of the work.

STRIP TOPSOIL

DESCRIPTION
This work shall consist of the stripping of topsoil from the existing surface of trenches and other cut areas and the existing surface of embankments and other fill areas and the transportation of materials generated during such stripping work to stockpile areas located on the project site. Stripping of topsoil will only be required along the UT to Parker Ditch related to the two-stage ditch grading.

CONSTRUCTION REQUIREMENTS
Topsoil shall be stripped from the existing surface of trenches and other cut areas and the existing surface of embankments and other fill areas, as shown on the construction plans. Topsoil shall be stripped to a depth of 6 IN, or as directed by the Engineer, and stockpiled on the project site near the areas where it is to be spread.

MEASUREMENT
This work shall be considered as incidental to the work and the various other items of work involved and will not be measured for payment.

PAYMENT
This work will not be paid for directly but shall be considered as included in the various other items of work involved and shall be included in the unit prices for such items and no additional compensation will be allowed.

EXCAVATION

DESCRIPTION

This work shall consist of the excavation of materials from trenches and other cut areas and the transportation of materials generated during such excavation work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site.

Along UT to Parker Ditch, the grading associated with the rock chute, culvert replacements, and 2-stage channel excavation (Sta 255+03 to 262+02) has been calculated and is included in Table 1. Some of the cut material generated will be used as backfill over top of the proposed culverts. Excess cut material is to be spread within a 20' offset from top of bank (~Elev 715) to a depth no more than 1' and to transition into the hill slope. If excess spoils still remain, additional spoils spreading areas will be identified by the Engineer and Owner. All spoils to be permanently seeded and straw mulched. Permanent seed has been accounted for in these technical specifications, but straw mulch will be incidental to the work.

Table 1: Grading Summary

Proposed Practice	Station Range	Cut Volume (CY)	Fill Volume (CY)
Culvert Replacement	255+03 – 255+58	125	150
Rock Chute	255+58 – 256+40	155	0
Two-Stage Channel	256+40 – 261+70	1,665	0
Culvert Replacement	261+70 – 262+02	255	300
	Total	2,200	450
	Net	1,750 CY (cut)	

CONSTRUCTION REQUIREMENTS

(a) Preparation

Prior to starting the excavation work, necessary clearing and tree removal, mowing, hand removal, and/or topsoil stripping work shall be conducted within the work area and within any fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site, in accordance with these technical specifications.

(b) Excavation

All excavation work shall be conducted in accordance with the lines, grades, and elevations shown on the construction plans; there shall be no deviation from such lines, grades, and elevations, without the written consent of the Engineer.

All suitable materials generated during the excavation work, including, but not limited to, earth, gravel, rock, stone, boulders, and broken concrete not containing exposed rebar, shall be re-used in the work, as described below, provided that such materials meet all applicable materials specifications. Excess suitable material will be allowed to be spread on site and seeded. Materials generated during the excavation work that are not suitable for re-use in the work shall be removed and disposed of off-site in a responsible and lawful manner.

Suitable earth, gravel, rock, stone, and boulders generated during the excavation work may be placed in fill areas, embankment locations, spoil disposal areas, or stockpile areas, provided that such materials are placed and compacted in accordance with the contract documents. Suitable broken concrete not containing exposed rebar generated during the channel excavation work may also be used in fill areas, embankment locations, spoil disposal areas, or stockpile areas, provided that such materials are placed and compacted to the satisfaction of the Engineer, buried under a minimum of two feet of earth, and do not create an unsightly appearance or conflict with the natural topography of the area. Suitable gravel, rock, and broken concrete not containing exposed rebar generated during the excavation work may also be used as coarse aggregate, provided that such materials meet all applicable materials specifications. Suitable rock, stone, boulders, and broken concrete not containing exposed rebar generated during the excavation work may also be used as rip rap, provided that such materials meet all applicable materials specifications.

(c) Classification

All excavation work will be classified by the Engineer. All excavation work will be classified as GRADING, except that excavation work conducted in rock shall be classified as ROCK EXCAVATION.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

PAYMENT
This work shall be paid for at the contract unit price(s) per cubic yard for GRADING.

Such unit price(s) shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all labor, tools, equipment, and other incidental items necessary to complete the work. The transportation of materials generated during such excavation work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall also be considered as incidental to this work. The spreading of suitable excess excavation material within the drain easement shown in the construction plans shall be incidental to this work.

The removal and disposal, including transportation, of materials generated during the excavation work that are not suitable for re-use in the work will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, provided the completion of such work is provided for in the contract documents. If the completion of such work is not provided for in the contract documents, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL will be paid for according to Article 109.05.

FILL

DESCRIPTION
This work shall consist of the construction of embankments and other fill areas on the project site by transporting, spreading, and tamping or compacting suitable material above the surface of the existing grade.

CONSTRUCTION REQUIREMENTS
(a) Preparation
Prior to starting the construction of an embankment or other fill area, necessary clearing and tree removal, mowing, hand removal, and/or topsoil stripping work shall be conducted within the work area in accordance with these technical specifications.

The existing ground surface within the embankment or other fill area shall then be scarified or tilled to a minimum of 3 IN deep to prepare the ground surface for the placement of fill. Fill shall not be placed on frozen earth.

When embankments and other fill areas are located on existing slopes, or if existing slopes are included in embankments or other fill areas, the existing slopes shall be scarified or tilled to a minimum of 3 IN deep to prepare the ground surface for the placement of fill. If additional precautions for binding the fill to the ground surface are justified, steps shall be cut into the existing slopes before the construction of the embankment or other fill area begins.

(b) Fill
Embankments and other fill areas shall be constructed of suitable materials that will compact and develop stability. No sod, frozen material, or any material which, by decay or otherwise, might cause settlement shall be placed or allowed to remain in embankments or other fill areas. Embankments and other fill areas shall be constructed to the height and width deemed necessary to provide for shrinkage during compaction. Upon completion, the embankments and other fill areas shall be according to the lines, grades, and cross sections shown on the construction plans.

When embankments and other fill areas are constructed of materials generated during excavation work, such materials shall be well distributed, and sufficient earth or other fine material shall be incorporated within them when they are deposited to fill interstices and provide solid embankments and surfaces. No rock, stones or broken concrete more than 4 IN in largest dimension shall be permitted within a vertical distance of 12 IN from the surface of the finished grade.

Pieces of concrete, not exceeding 2 SF for any area of surface, and large rocks and boulders may be placed in embankments and other fill areas without being broken up, provided they are well embedded, and the interstices filled with smaller pieces or smaller material in a manner to give a density satisfactory to the Engineer. The lifts of the smaller pieces or smaller material shall not exceed 8 IN in depth.

So far as practicable, each lift of material shall extend the entire length and width of the embankment or other fill area. The material shall be leveled by means of bulldozers, graders, or other equipment approved by the Engineer. Each lift shall be not more than 8 IN thick when in loose condition, uniform in cross section, and thoroughly compacted before the next lift is started. Each lift of material shall be disked sufficiently to break down oversized clods, mix the different materials, secure a uniform moisture content, and ensure uniform density and compaction. Disking may be omitted if the fill material consists of sand or gravel.

The use of drag line excavators or similar equipment which excavate and deposit material in large unit masses will not be permitted, unless all materials excavated in this manner are spread as provided herein and compacted in accordance with these technical specifications, or as directed by the Engineer.

(c) Compaction
If the height of the embankment or other fill area is less than 1-1/2 FT, all lifts shall be compacted to not less than 95 percent of the standard laboratory density. If the height of the embankment or other fill area is between 1-1/2 FT and 3 FT, the first lift shall be compacted to not less than 90 percent, and the balance to a minimum of 95 percent of the standard laboratory density. If the height of the embankment or other fill area exceeds 3 FT in

height, the lower 1/3 of the embankment or surface, but not to exceed the lower 2 FT, shall be compacted in a manner that will yield a minimum of 90 percent of standard laboratory density to the uppermost lift of that portion of the embankment or other fill area. The next 1 FT of the embankment or other fill area shall be compacted to not less than 93 percent, and the balance of the embankment or other fill area shall be compacted to not less than 95 percent of the standard laboratory density.

The top 2 FT of all embankments and other fill areas shall not contain more than 120 percent of the optimum moisture determined according to AASHTO T 99 (Method C). The Contractor will be permitted the use of an approved additive to effect a quicker drying time.

The standard laboratory density shall be the maximum dry density determined according to AASHTO T 99 (Method C). A coarse particle correction according to AASHTO T 224 shall be used.

The dry density of the compacted embankment or other fill area will be determined by the Engineer at regular intervals according to AASHTO T 191, AASHTO T 310, or by other methods approved by the Engineer.

The embankment or other fill area shall be sprinkled with water when it is necessary to increase the moisture content of the soil to permit the fill area or embankment location to be constructed to the densities indicated above.

Compacting equipment and compacting operations shall be coordinated with the rate of placing fill material so that the required density is obtained.

Special care shall be exercised in compacting embankments and other fill areas adjacent to structures and in sharp depressions. Where such areas are inaccessible to the compacting equipment being used, the material shall be placed in 8 IN lifts and uniformly compacted with suitable mechanical equipment. Embankment and other fill areas placed adjacent to a structure shall not contain more than 110 percent of the optimum moisture determined according to AASHTO T 99 (Method C).

MEASUREMENT
This work shall be considered as incidental to the work and the various other items of work involved and will not be measured for payment.

PAYMENT
This work shall be paid for at the contract unit price(s) per cubic yard for GRADING.

Such unit price(s) shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all labor, tools, equipment, and other incidental items necessary to complete the work. The transportation of materials generated during such excavation work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall also be considered as incidental to this work.

The removal and disposal, including transportation, of materials generated during the excavation work that are not suitable for re-use in the work will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, provided the completion of such work is provided for in the contract documents. If the completion of such work is not provided for in the contract documents, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL will be paid for according to Article 109.05.

GRADING DITCHES & SWALES

DESCRIPTION
This work shall consist of the creation of new swales, ditches, and other small channels and/or the deepening, widening, or straightening of existing swales, ditches, and other small channels and the transportation of materials generated during such grading work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site.

CONSTRUCTION REQUIREMENTS
(a) Preparation
Prior to starting the grading work, necessary clearing and tree removal, mowing, hand removal, and/or topsoil stripping work shall be conducted within the work area and within any fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site, in accordance with these technical specifications.

(b) Grading
All grading work on swales, ditches, and other small channels shall be conducted in accordance with the lines, grades, and elevations shown on the construction plans; there shall be no deviation from such lines, grades, and elevations, without the written consent of the Engineer.

All suitable materials generated during the grading work, including, but not limited to, earth, gravel, rock, stone, boulders, and broken concrete not containing exposed rebar, shall be re-used in the work, as described below, provided that such materials meet all applicable materials specifications. Materials generated during the grading work that are not suitable for re-use in the work shall be removed and disposed of off-site in a responsible and lawful manner.

Suitable earth, gravel, rock, stone, and boulders generated during the grading work may be placed in fill areas, embankment locations, spoil disposal areas, or stockpile areas, provided that such materials are placed and compacted in accordance with the contract documents. Suitable broken concrete not containing exposed rebar generated during the grading work may also be used in fill areas, embankment locations, spoil disposal areas, or stockpile areas, provided that such materials are placed and compacted to the satisfaction of the Engineer, buried under a minimum of two feet of earth, and do not create an unsightly appearance or conflict with the natural topography of the area. Suitable gravel, rock, and broken concrete not containing exposed rebar generated during the grading work may also be used as coarse aggregate, provided that such materials meet all applicable materials specifications. Suitable rock, stone, boulders, and broken concrete not containing exposed rebar generated during the grading work may also be used as rip rap, provided that such materials meet all applicable materials specifications.

Materials generated during the grading work that are not suitable for re-use in the work shall be removed and disposed of off-site in a licensed landfill, recycled, reused, or otherwise disposed of in accordance with local, state, and federal laws and regulations. Should the Contractor choose to dispose of such materials at a clean construction and demolition debris (CCDD) facility or at an uncontaminated soil fill operation, it shall be the Contractor’s responsibility to have the pH of the material tested to ensure the value is between 6.25 and 9.0, inclusive. A copy of the pH test results shall be provided to the Engineer.

When the Contractor removes and disposes of materials generated during the grading work that are not suitable for re-use in the work, the Contractor shall obtain written approval from the owner of such off-site location and present such written approval to the Engineer prior to using such location. The approval of the proposed off-site disposal site shall be according to Article 107.17.

(c) Finishing
Within swales, ditches, and other small channels designated for this work, all irregularities shall be smoothed out, depressions shall be filled in, and the swale, ditch, or other small channel shall be shaped, trimmed, and finished uniformly to the lines, grades, and elevations shown on the construction plans and blended into the existing adjacent grade.

Finished surfaces shall be cleaned up for final acceptance. All unsuitable material, debris, and rubbish, resulting from construction operations, or otherwise occurring within the finished surface, and all stones more than 6 IN in the largest dimension, shall be removed from the finished surface and disposed of in accordance with these technical specifications. The degree of finish required shall be that which can be obtained by use of suitable mechanical equipment, with only such hand labor as special conditions may require. Following finishing, the finished surface shall have a smooth appearance and shall be relatively free of dirt clods, stones, woody debris, rubbish, and other irregularities.

MEASUREMENT
This work shall be considered as incidental to the work and the various other items of work involved and will not be measured for payment.

PAYMENT
This work will not be paid for directly but shall be considered as included in the various other items of work involved and shall be included in the unit prices for such items and no additional compensation will be allowed.

BEDDING & INITIAL BACKFILL

DESCRIPTION
This work shall consist of furnishing, transporting, and placing coarse aggregate for the bedding and initial backfill to be installed at the bottom of all trenches excavated during the performance of the work for the purpose of installing culverts.

This work also includes the transportation of suitable surplus excavated material from trenches, such suitable surplus excavated material having been replaced by bedding and initial backfill, to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site. Surplus excavated material not suitable for use in fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall be removed and disposed of off-site in a licensed landfill, recycled, reused, or otherwise disposed of in accordance with local, state, and federal laws and regulations.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) Bedding & Initial Backfill

CONSTRUCTION REQUIREMENTS
The installation of bedding and initial backfill shall be completed in accordance with these technical specifications.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

PAYMENT
This work shall be considered as incidental to the work and the various other items of work involved and will not be measured for payment.

The removal and disposal, including transportation, of surplus excavated materials that are not suitable for re-use in the work will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, provided the completion of such work is provided for in the contract documents. If the completion of such work is not provided for in the contract documents, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL will be paid for according to Article 109.05.

STRUCTURE BACKFILL

DESCRIPTION
This work shall consist of furnishing, transporting, and placing suitable excavated material for backfilling the entire space between the sides of all excavations made during the performance of the work for the purpose of installing culverts and the outside of such structures as detailed in the plans.

This work also includes the transportation of suitable surplus excavated material from such excavations to fill areas associated with the proposed culverts.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) Suitable Excavated Material
(2) Structure Backfill

CONSTRUCTION REQUIREMENTS
The installation of structure backfill shall be completed in accordance with the plans and these technical specifications.

MEASUREMENT
This work shall not be measured for payment but shall be considered complete following inspection and acceptance of the work by the Department.

PAYMENT
This work shall be considered as incidental to the work and the various other items of work involved and will not be measured for payment.

SPREAD TOPSOIL

DESCRIPTION
This work pertains only to the restoration work along UT to Parker Ditch. This work shall consist of the transportation of materials from topsoil stockpile areas located on the project site to disturbed areas located on the project site and the spreading of such materials over such disturbed areas.

CONSTRUCTION REQUIREMENTS
Topsoil shall be spread over disturbed areas located on the project site, such as trenches and other cut areas and embankments, spoils areas and other fill areas, as shown on the construction plans. Topsoil shall be spread over such disturbed areas to a depth of 6 IN, or as directed by the Engineer, and firmly tamped or compacted.

So far as practicable, each lift of topsoil shall extend the entire length and width of the disturbed area. The material shall be spread by means of bulldozers, graders, or other equipment approved by the Engineer. Each lift of material shall be disked sufficiently to break down oversized clods, mix the different materials, secure a uniform moisture content, and ensure uniform density and compaction.

All spreading work shall be conducted in accordance with the lines, grades, and elevations shown on the construction plans; there shall be no deviation from such lines, grades, and elevations, without the written consent of the Engineer.

MEASUREMENT
This work shall be considered as incidental to the work and the various other items of work involved and will not be measured for payment.

PAYMENT
This work will not be paid for directly but shall be considered as included in the various other items of work involved and shall be included in the unit prices for such items and no additional compensation will be allowed.

SHAPING, TRIMMING & FINISHING

DESCRIPTION
This work shall consist of the shaping, trimming, and finishing of disturbed areas located on the project site, the cleaning up of disturbed areas located on the project site, and completing the work for acceptance.

CONSTRUCTION REQUIREMENTS

(a) Grading
Within disturbed areas located on the project site, all irregularities shall be smoothed out, depressions shall be filled in, and the entire disturbed area shall be shaped, trimmed, and finished uniformly to the lines, grades, and elevations shown on the construction plans and blended into the existing adjacent grade.

(b) Finishing
Finished surfaces shall be cleaned up for final acceptance. All unsuitable material, debris, and rubbish, resulting from construction operations, or otherwise occurring within the finished surface, and all stones more than 6 IN in the largest dimension, shall be removed from the finished surface and disposed of in accordance with these technical specifications. The degree of finish required shall be that which can be obtained by use of suitable mechanical equipment, with only such hand labor as special conditions may require. Following finishing, the finished surface shall have a smooth appearance and shall be relatively free of dirt clods, stones, woody debris, rubbish, and other irregularities.

MEASUREMENT
This work shall be considered as incidental to the work and the various other items of work involved and will not be measured for payment.

PAYMENT
This work will not be paid for directly but shall be considered as included in the various other items of work involved and shall be included in the unit prices for such items and no additional compensation will be allowed.

STONE

DESCRIPTION
All stone detailed in this section is intended to be material installed as indicated in the plans and as directed by the Engineer for installation of the various project features such as culverts, rock chute, and rock cross vanes.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) INDOT Revetment Riprap (well graded material sized 3 inches to 12 inches).
(2) INDOT Class I Riprap (well graded material sized 3 inches to 24 inches).
(3) INDOT No. 8 Stone (Commercial grade 1″ material down to 3/8″ material)

CONSTRUCTION REQUIREMENTS
The installation of stone shall be completed in accordance with these technical specifications and the location and dimension in the plans or as directed by the Engineer

MEASUREMENT
This work shall be measured based on submitted delivery lift tickets.

This work shall be paid for at the contract quantity for the various types of stone shown on the basis of quote or basis of bid form.

PAYMENT
This work shall be paid for at the contract unit price(s) per ton for the following stone materials shown on the basis of quote or basis of bid form:

MATERIALS
(1) INDOT Revetment Riprap
(2) INDOT Class I Riprap
(3) INDOT No. 8 Stone

Such unit price(s) shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all labor, tools, equipment, and other incidental items necessary to complete the work. The transportation of materials generated during such excavation work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall also be considered as incidental to this work.

The removal and disposal, including transportation, of materials generated during the excavation work that are not suitable for re-use in the work will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, provided the completion of such work is provided for in the contract documents. If the completion of such work is not provided for in the contract documents, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL will be paid for according to Article 109.05.

DIVISION 300
DRAINAGE AND STORMWATER MANAGEMENT

CULVERT

DESCRIPTION
This work shall consist of constructing culverts as shown on the construction plans.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) Rigid Pipe
    a. Corrugated Metal Pipe (CMP)
(2) Structure Bedding
(3) Structure Backfill

CONSTRUCTION REQUIREMENTS
This work shall be completed in accordance with the Porter County Supplemental Design and Construction Standards/Specifications and these technical specifications. In case of conflict between these technical specifications and any part or parts of said Porter County Supplemental Design and Construction Standards/Specifications, the Engineer shall determine which specifications shall take precedence and govern.

(a) Excavation
Culverts shall be constructed in trenches free of water, excavated either in embankments or natural ground. Trenches shall be dewatered through the use of diversion channels or other methods approved by the Engineer before proceeding with the construction.

Trenches shall be excavated in accordance with the Culvert Crossing Replacement detail in the construction plans. If the width of the trench exceeds the maximum horizontal dimension specified in the construction plans as a result of careless or faulty construction methods, that portion of the trench shall be corrected by backfilling in 8 IN lifts and again excavating the trench to the required width.

Trenches shall be excavated so that vertical faces are maintained at least to an elevation 12 IN above the top of the culvert. If the trench has been made deeper than necessary, the foundation shall be brought to the proper grade by the addition of well compacted bedding material.

Where a firm foundation is not encountered at the bottom of the trench due to the presence of unsuitable material, such as soft or spongy soil, unstable soil, or rock in either ledge or boulder formation is encountered at locations along the line of the culvert and at the grade established for the culvert, the material or rock shall be removed and replaced before proceeding with the construction. The unsuitable material shall be removed to a depth determined by the Engineer for the width of the trench and replaced with well compacted bedding material. Rock shall be removed to an elevation 1 FT lower than the bottom of the pipe or to a depth equal to 1/2 IN/FT of ultimate fill height over the top of the pipe, whichever is the greater depth, for the width of the trench, and replaced with well compacted bedding material. Bedding material shall be placed in 8 IN lifts and compacted by mechanical means to the satisfaction of the Engineer.

All excavated material not suitable for re-use on the work shall be disposed of in accordance with these technical specifications.

(b) Foundation
Well compacted bedding material shall be placed to a depth of 6 IN below the culvert to 1/2 of the culvert height. Bedding material shall be placed along the entire width of the trench for the entire length of the pipe, except where the culvert outlets from the embankment or the existing slope, the last 3 FT of the pipe shall be bedded in

suitable excavated material, as described below. The bedding material and/or suitable excavated material shall be compacted by mechanical means to the satisfaction of the Engineer.

(c) Laying Culverts
No culvert shall be placed until the trench and the prepared foundation have been approved by the Engineer.

The trench shall be kept free from water while the pipe is being placed and until the joints have been sealed. Trenches shall be dewatered through the use of diversion channels or other methods approved by the Engineer before proceeding with the construction.

The laying of pipes shall be started at the outlet end with the spigot ends pointing in the direction of flow, and shall proceed toward the inlet end with pipes abutting and true to line and grade. The ends of pipes shall be carefully cleaned before the pipes are lowered into the trenches, and the pipes shall be lowered so as to avoid unnecessary handling in the trench.

As each length of pipe is laid, the mouth of the pipe shall be properly protected to prevent the entrance of earth or the bedding material. The pipes shall be fitted and matched so that when laid in the work they will form a culvert with a smooth, uniform invert. Each section of pipe shall be pushed or pulled to the section in place to ensure tight joints. Pipe having a diameter greater than 42 IN shall be set or "brought home" with a winch, come-a-long, or other positive means.

CMP pipe shall be joined according to the manufacturer's specifications using a Type 10-C band and appropriate gasket material between the pipe and band.

(d) Backfilling
As soon as the condition of the culvert will permit, the entire width of the trench shall be backfilled with structure backfill material to a height of at least 1 FT above the top of the pipe, except where the culvert outlets from the embankment or the existing slope, the initial backfill material around and above the last 3 FT of the pipe shall be suitable excavated material, as described below. All initial backfill material shall be deposited in such a manner as not to damage the pipe. The initial backfill material shall be placed longitudinally along the pipe and the filling of the trench shall be carried on simultaneously on both sides of the pipe. Upon finishing placement of the initial backfill material, the elevation of the initial backfill material on each side of the pipe shall be the same and the space under the pipe shall be completely filled. The initial backfill material shall be placed in 8 IN lifts and compacted by mechanical means to the satisfaction of the Engineer.

The installed pipe and its embedment (i.e., bedding and backfill) shall not be disturbed when using movable trench boxes and shields, sheet pile, or other trench protection.

The remainder of the trench shall be backfilled to the existing adjacent grade or finished surface as rapidly as the condition of the culvert will permit. The final backfill material shall consist of suitable excavated material from the trench or trench backfill, as specified in the contract documents or as follows:

(1) Trench Backfill. For trenches made in the subgrade of a proposed or existing pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk, and trenches where the inner edge of the trench is within 2 FT of the edge of a proposed or existing pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk, the remainder of the trench shall be backfilled with trench backfill material meeting the requirements of these technical specifications. The material shall be placed in lifts not exceeding 8 IN in depth and compacted to a minimum of 95 percent of standard lab density by mechanical means.

(2) Suitable Excavated Material. For all other trenches, the remainder of the trench shall be backfilled with suitable excavated material. The material shall be from excavation or borrow, free from large or frozen lumps, clods, or rock, and meeting the approval of the Engineer. The material shall be placed in lifts not exceeding 8 IN in depth, and compacted to 95 percent of standard lab density by mechanical means.

Before compaction, each lift shall be wetted or dried to bring the moisture content within 80 to 110 percent of optimum as determined according to AASHTO T 99 (Method C).

When sheeting and bracing have been used, sufficient bracing shall be left across the trench as the backfilling progresses to hold the sides firmly in place without caving or settlement. This bracing shall be removed as soon as practicable. Any depressions which may develop within the area involved in the construction operation due to settlement of the backfill material shall be filled in a manner meeting the approval of the Engineer.

When the Contractor constructs the trench with sloped or benched sides, backfilling for the full width of the excavation shall be as herein specified, except that no additional compensation will be allowed for backfill material required outside the vertical limits of the specified trench width.

(e) Shaping, Trimming & Finishing
After backfilling has been completed, the top of the trench shall be shaped, trimmed, and finished to the lines, grades, and elevations shown on the construction plans, in accordance with these technical specifications.

MEASUREMENT
CULVERT shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity and/or quantities shown on the basis of quote or basis of bid form for CULVERT of the diameter, material, and class and/or type specified in the contract documents. The entire length of CULVERT necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

EXCAVATION FOR CULVERT will be measured for payment in accordance with these technical specifications.

DEWATERING FOR CULVERT will be measured for payment in accordance with these technical specifications.

BEDDING FOR CULVERT will be measured for payment in accordance with these technical specifications.

TRENCH BACKFILL FOR CULVERT will be measured for payment in accordance with these technical specifications.

PAYMENT
CULVERT shall paid for at the contract unit price(s) per each CULVERT installed and accepted by the Engineer of the diameter, material, and class and/or type specified in the contract documents.

Such unit price shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all material, labor, tools, equipment, and other incidental items necessary to complete the work.

EXCAVATION FOR CULVERT shall be paid for in accordance with these technical specifications.

DEWATERING FOR CULVERT shall be paid for in accordance with these technical specifications.

BEDDING FOR CULVERT shall be paid for in accordance with these technical specifications.

TRENCH BACKFILL FOR CULVERT shall be paid for in accordance with these technical specifications.

ROCK CHUTE

DESCRIPTION
This work shall consist of constructing the rock chute as shown on the construction plans.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) INDOT Revetment Riprap
(2) Non-woven geotextile
(3) Sand bedding

CONSTRUCTION REQUIREMENTS
This work shall be completed in accordance with the Porter County Supplemental Design and Construction Standards/Specifications and these technical specifications. In case of conflict between these technical specifications and any part or parts of said Porter County Supplemental Design and Construction Standards/Specifications, the Engineer shall determine which specifications shall take precedence and govern.

(a) Excavation

Rock chute shall be constructed in excavations free of water, excavated either in embankments or natural ground. Excavations shall be dewatered through the use of water diversion or other methods approved by the Engineer before proceeding with the construction.

Where a firm foundation is not encountered at the bottom of the excavation due to the presence of unsuitable material, such as soft or spongy soil, unstable soil, or rock in either ledge or boulder formation is encountered at the bottom of the excavation, the material or rock shall be removed and replaced before proceeding with the construction.

The unsuitable material shall be removed to a depth determined by the Engineer for the diameter or length and width of the excavation and replaced with well compacted bedding material. Rock shall be removed to an elevation 1 FT lower than the bottom of the rock chute for the width of the excavation and replaced with well compacted bedding material. Bedding material shall be placed in 8 IN lifts and compacted by mechanical means to the satisfaction of the Engineer.

All excavated material not suitable for re-use on the work shall be disposed of in accordance with these technical specifications.

(b) Foundation

Well compacted sand bedding material as shown in the plans shall be placed along the entire length and width of the excavation. The sand bedding material shall be compacted by mechanical means to the satisfaction of the Engineer.

Place geotextile fabric on top of the sand bedding material and tamp down to ensure there are no void spaces between the sand bedding and geotextile fabric. Geotextile fabric shall be placed such that the upslope sheet of fabric overlaps the downslope sheet.

(c) Riprap Placement

Place INDOT Revetment riprap along the length and width of the rock chute according to the dimensions shown in the plans. The rock chute shall be graded such that flow is concentrated to the center of the chute. Tamp down by mechanical means or hand place INDOT Revetment riprap to ensure a somewhat smooth surface with minimal void spaces between rocks.

MEASUREMENT
When this work includes construction of a rock chute, this work shall be paid for at the contract quantity and/or quantities shown on the basis of quote or basis of bid form for ROCK CHUTE of the dimensions and material specified in the contract documents. The entire quantity of ROCK CHUTES necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

INDOT REVETMENT RIPRAP will not be measured and will be included in the cost for ROCK CHUTE installation.

NON-WOVEN GEOTEXTILE will not be measured and will be included in the cost for ROCK CHUTE installation.

SAND BEDDING will not be measured and will be included in the cost for ROCK CHUTE installation.

PAYMENT
Construction of ROCK CHUTE shall paid for at the contract unit price(s) per each for ROCK CHUTE of the dimensions and material specified in the contract documents.

Such unit prices shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all material, labor, tools, equipment, and other incidental items necessary to complete the work.

GRADING shall be paid for in accordance with these technical specifications.

INDOT REVETMENT RIPRAP shall be incidental to ROCK CHUTE installation.

NON-WOVEN GEOTEXTILE shall be incidental to ROCK CHUTE installation.

SAND BEDDING shall be incidental to ROCK CHUTE installation.

ROCK CROSS VANE

DESCRIPTION
This work shall consist of constructing the rock cross vane as shown on the construction plans.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) Revetment Riprap
(2) INDOT #5 stone
(3) Non-woven geotextile

CONSTRUCTION REQUIREMENTS
This work shall be completed in accordance with the Porter County Supplemental Design and Construction Standards/Specifications and these technical specifications. In case of conflict between these technical specifications and any part or parts of said Porter County Supplemental Design and Construction Standards/Specifications, the Engineer shall determine which specifications shall take precedence and govern.

(a) Excavation

Rock cross vane shall be constructed in excavations free of water, excavated either in embankments or natural ground. Excavations shall be dewatered through the use of water diversion or other methods approved by the Engineer before proceeding with the construction.

Excavate into the stream bank to the limits/extents shown on the Plans and to a minimum 2’ depth below stream bed elevation.

Where a firm foundation is not encountered at the bottom of the excavation due to the presence of unsuitable material, such as soft or spongy soil, unstable soil, or rock in either ledge or boulder formation is encountered at the bottom of the excavation, the material or rock shall be removed and replaced before proceeding with the construction.

The unsuitable material shall be removed to a depth determined by the Engineer for the diameter or length and width of the excavation and replaced with well compacted bedding material. Rock shall be removed to an elevation 1 FT lower than the bottom of the rock chute for the width of the excavation and replaced with well compacted bedding material. Bedding material shall be placed in 8 IN lifts and compacted by mechanical means to the satisfaction of the Engineer.

All excavated material not suitable for re-use on the work shall be disposed of in accordance with these technical specifications.

(b) Riprap Placement

Install revetment riprap into the trench in a continuous line according to the angles and dimensions shown on the Plans The structure should be near symmetrical from a plan view perspective.

Revetment riprap shall contact adjacent revetment riprap within the upper 1/10 of the rock’s height and attempt to maximize contact between stones. Revetment riprap at the contact points between stones shall determine if structure meets elevations identified in the Plans. The lowest elevation shall be in the center of the channel and shall match the elevation shown in the Plan structure tables. Top of revetment riprap shall with successive stones form a relatively uniform surface having the lowest elevation in the center of the channel matching elevations shown on the Plan structure tables. Revetment riprap to extend minimum 12” below proposed bed surface elevation across the entire channel width.

Place non-woven geotextile from the upstream top edge, along the upstream face, and continue 5 ft upstream of the rock cross vane. Backfill INDOT #5 stone on top of the non-woven geotextile such that the rock tapers down from the invert elevation of the rock cross vane to the proposed channel bed elevation.

MEASUREMENT
When this work includes construction of a rock cross vane, this work shall be paid for at the contract quantity and/or quantities shown on the basis of quote or basis of bid form for ROCK CROSS VANE of the dimensions and material specified in the contract documents. The entire quantity of ROCK CROSS VANE necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

INDOT REVETMENT RIPRAP will not be measured and will be included in the cost for ROCK CROSS VANE installation.

INDOT #5 RIPRAP will not be measured and will be included in the cost for ROCK CROSS VANE installation.

NON-WOVEN GEOTEXTILE will not be measured and will be included in the cost for ROCK CROSS VANE installation.

PAYMENT
Construction of ROCK CROSS VANE shall be paid for at the contract unit price(s) per each for ROCK CROSS VANE of the dimensions and material specified in the contract documents.

Such unit prices shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all material, labor, tools, equipment, and other incidental items necessary to complete the work.

GRADING shall be paid for in accordance with these technical specifications.

INDOT REVETMENT RIPRAP shall be incidental to ROCK CROSS VANE installation.

INDOT #5 RIPRAP shall be incidental to ROCK CROSS VANE installation.

NON-WOVEN GEOTEXTILE shall be incidental to ROCK CROSS VANE installation.

DIVISION 500
EROSION AND SEDIMENT CONTROL

TEMPORARY CONSTRUCTION ENTRANCE

DESCRIPTION
This work shall consist of the creation of temporary construction entrances at the locations shown on the construction plans or where otherwise required to complete the work in accordance with the contract documents. This work shall also include maintaining temporary construction entrances throughout the performance of the work and restoring areas disturbed as a result of the installation and maintenance of such temporary construction entrances.

CONSTRUCTION REQUIREMENTS
Temporary construction entrances shall be confined to those locations indicated on the construction plans or as approved by the Engineer and shall avoid wetland areas. Where equipment or vehicles related to the performance of the work are operated on any portion of any public or private roadway adjacent to such temporary construction entrances, the Contractor shall maintain such roadway free from all dirt and debris at all times. If dirt or debris are carried on to such roadway by equipment or vehicles related to the performance of the work, the Contractor shall immediately clean the pavement of all dirt and debris.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for TEMPORARY CONSTRUCTION ENTRANCE shown on the basis of quote or basis of bid form. The entire quantity of TEMPORARY CONSTRUCTION ENTRANCE shown on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price(s) per each for TEMPORARY CONSTRUCTION ENTRANCE.

Such unit price(s) shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all labor, tools, equipment, and other incidental items necessary to complete the work.

TEMPORARY PERIMETER SEDIMENT CONTROL

DESCRIPTION
This work shall consist of the creation of temporary perimeter sediment control at the locations shown on the construction plans or where otherwise required to complete the work in accordance with the contract documents and to ensure avoidable sediment does not make it into waterways. This work shall also include maintaining temporary perimeter sediment control throughout the performance of the work and restoring areas disturbed as a result of the installation and maintenance of such temporary perimeter and sediment control.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) Silt Fence

DEFINITIONS
Rain Event. A rain event shall be defined as a precipitation event that results in a total measured precipitation accumulation equal to, or greater than, one-half (0.5) inch of rainfall.

CONSTRUCTION REQUIREMENTS
Temporary perimeter sediment control shall be confined to those locations indicated on the construction plans or as approved by the Engineer. The Contractor shall conduct inspection of the temporary perimeter sediment control and such temporary perimeter sediment control shall be maintained in accordance with manufacturer recommendations continually throughout the duration of the work and through establishment of adequate stabilizing vegetation. The temporary perimeter sediment control shall be inspected within 24 hours of each rain event and at least once every seven calendar days.

MEASUREMENT
When this work includes installation and maintenance of temporary perimeter sediment control, this work shall be paid for at the contract quantity shown on the basis of bid form per linear foot (LF) of TEMPORARY PERIMETER SEDIMENT CONTROL measured along the surface of the ground. The entire quantity of TEMPORARY PERIMETER SEDIMENT CONTROL necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price(s) per each for TEMPORARY PERIMETER SEDIMENT CONTROL.

Such unit price(s) shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all labor, tools, equipment, and other incidental items necessary to complete the work.

DIVISION 600
LANDSCAPING

RESTORE DISTURBED AREA

DESCRIPTION
This work shall consist of preparation and furnishing, transporting, and placing topsoil, plant seed, erosion control blanket, and straw mulch over areas disturbed during the performance of the work, including, but not limited to, temporary construction entrances, construction access routes, stream banks, wetland areas, pasture areas and other areas disturbed during the performance of the work. It shall include the restoration of those areas shown in the construction plans and, as directed by the Engineer, other areas disturbed during the performance of the work.

MATERIALS
Materials for the restoration of disturbed areas shall be in accordance with the following materials specifications, which are presented elsewhere in these Technical Specifications.

MATERIALS
(1) Topsoil
(2) Permanent Riparian Seed Mix
(3) Erosion Control Blanket

CONSTRUCTION REQUIREMENTS
Restoration of the disturbed area shall begin by raking, scarifying, tilling, or blading the soil surface to a minimum of 1 in. deep to prepare the disturbed area for the placement of topsoil, fertilizer, and/or plant seed. The soil surface shall be shaped, trimmed, and finished uniformly and blended into the existing adjacent grade. Topsoil may be placed over the disturbed area as needed to smooth out the soil surface, fill in ruts, wheel tracks, and depressions, and blend the disturbed area into the existing adjacent grade. Following preparation of the disturbed area, the soil surface shall have a relatively smooth appearance and shall be relatively free of dirt clods, rocks, sticks, and other irregularities.

Once the surface of the disturbed area has been prepared, , the appropriate plant seed, as outlined below, shall be installed in the disturbed area.

PLANT SEED

(1) Permanent Seed Mix. Permanent Riparian Seed mix shall be installed in areas disturbed during the performance of the work, as shown in the construction plans and as directed by the Engineer.

Pasture areas disturbed during construction shall be seeded with annual ryegrass or tall fescue as approved by the landowner.

The appropriate plant seed shall be installed in the disturbed area using seeding equipment or methods approved by the Engineer. If requested by the Contractor, the Engineer will consider the use of broadcast seeding or hydraulic seeding. Regardless of the seeding method used, the Contractor shall ensure that the disturbed area receives the appropriate plant seed at the seeding rates specified in the plans.

Installation of plant seed in disturbed areas shall occur upon completion of final grading. Under no circumstances shall plant seed be installed when the ground surface is frozen or overly saturated.

After the appropriate plant seed has been installed in the disturbed area, as appropriate, mulch or erosion control blanket shall be installed over the disturbed area, as outlined below.

STRAW MULCH

(1) Straw Mulch. Straw mulch shall be uniformly applied over all disturbed areas with a slope of flatter than 3:1 (H:V). Disturbed areas located in row crop areas shall not receive straw mulch, unless otherwise directed by the Engineer.

EROSION CONTROL BLANKET

(1) NAG SC150BN Erosion Control Blanket. North American Green (NAG) SC150BN erosion control blanket, or equivalent, as approved by the Engineer, shall be installed over all disturbed areas.

In order to prevent erosion of the underlying soil surface and washout of the underlying plant seed, the erosion control blanket or straw mulch shall be installed within 24 hours of the installation of the plant seed.

Erosion control blanket shall be installed in accordance with the manufacturer's instructions. It shall be laid out flat, evenly, and smoothly over the disturbed area, without stretching the blanket. The erosion control blanket shall be installed horizontally along the slope, parallel to the streambank typically starting at toe of slope within the channel.

Erosion control blanket of insufficient width or length to fully cover the disturbed area shall be lapped. Overlaps in the erosion control blanket shall be placed so that any upslope section of erosion control blanket will overlap the downslope section. The minimum overlap for lapped sections is 6 in.

Erosion control blanket shall be placed in firm contact with the underlying soil surface and then fastened to the underlying soil surface with minimum 12 in. long 2" x 4" shim wedges or wood stakes on 3 ft. centers across the perimeter and seams and on 6 ft. centers in a triangular pattern on the interior.

MEASUREMENT
This work includes the restoration of all areas disturbed during performance of the work and the various items of work involved, including, but not limited to, temporary construction entrances, construction access routes, storm sewer trenches, stream banks, wetland areas, and pasture areas and other areas disturbed during the performance of the work. This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for RESTORE DISTURBED AREAS shown on the basis of quote or basis of bid form.

EROSION CONTROL BLANKET will be measured for payment based on the coverage area blanket is applied to.

PAYMENT
This work will be paid for at the contract unit price per lump sum for RESTORE DISTURBED AREAS.

This work shall be paid for at the contract unit price(s) per square yard for EROSION CONTROL BLANKET.

Such unit price(s) shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all labor, tools, equipment, and other incidental items necessary to complete the work.

CATTLE EXCLUSION FENCING

DESCRIPTION
This work shall consist of installation of livestock exclusion fencing including fence posts and fencing as shown in the plans.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) 4-5” diameter, 7’ long pressure treated posts
(2) 949-12 fixed know high tensile woven wire

CONSTRUCTION REQUIREMENTS
This work shall be completed in accordance with the detail included in the plans and installed in locations indicated on the plans or as indicated by the Engineer or Owner.

MEASUREMENT
When this work includes construction of Livestock Exclusion Fencing, this work shall be paid for at the contract quantity and/or quantities shown on the basis of quote or basis of bid form for CATTLE EXCLUSION FENCING. The entire quantity of CATTLE EXCLUSION FENCING necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

PAYMENT
Construction of CATTLE EXCLUSION FENCING shall paid for at the contract unit price(s) per linear foot for CATTLE EXCLUSION FENCING.

Such unit prices shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all material, labor, tools, equipment, and other incidental items necessary to complete the work.

DIVISION 700
INCIDENTAL CONSTRUCTION

TIMBER MATS

DESCRIPTION
This work shall consist of preparation and furnishing, transporting, placing, and using timber mats to provide temporary staging and an equipment work platform within delineated wetland areas at the locations shown on the construction plans, near areas of structure installation, or where otherwise required to complete the work in accordance with the contract documents. This work shall also include maintaining timber mats throughout the performance of the work and restoring areas disturbed as a result of the installation of such timber mats.

MATERIALS
Materials for timber mats shall be in accordance with the following materials specifications, which are presented elsewhere in these Technical Specifications.

MATERIALS
(1) Timber Mats
(2) Straw Mulch
(3) Woven Geotextile Fabric

CONSTRUCTION REQUIREMENTS
Timber mats shall be used as needed to provide temporary staging and an equipment work platform within delineated wetland areas at the locations shown on the construction plans, near areas of structure installation, or where otherwise required to complete the work in accordance with the contract documents. Timber mats shall be used within delineated wetland areas to minimize impacts to such wetland areas by construction equipment and construction activities. Timber mats found to be in a damaged condition or a condition which otherwise renders them unable to protect wetland areas from construction equipment and construction activities shall be removed and immediately replaced.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for TIMBER MATS shown on the basis of quote or basis of bid form. The entire quantity of TIMBER MATS shown on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price(s) per square yard for TIMBER MATS.

Such unit price(s) shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all labor, tools, equipment, and other incidental items necessary to complete the work.

DEWATERING

DESCRIPTION
This work shall consist of implementation of an approved dewatering plan, which shall have been prepared by the Contractor, submitted to the Engineer for approval, and approved by the Engineer prior to the start of the work.

In accordance with the approved dewatering plan, this work shall include preparation, earthwork, and furnishing, transporting, and placing materials to construct dewatering structures (e.g., dewatering sump, dewatering bag) and furnishing, transporting, placing, and operating dewatering equipment (e.g., bypass pump, evacuation pump) in order to complete the work in accordance with the construction plans. This work shall also include maintaining dewatering structures and equipment during the performance of the work, removing dewatering structures and equipment prior to completion of the work, and restoring areas disturbed as a result of the installation and removal of dewatering structures and equipment.

MATERIALS
Materials shall be in accordance with the approved dewatering plan.

SUBMITTALS
Prior to the start of the work, the Contractor shall develop a dewatering plan and shall submit such dewatering plan to the Engineer for approval. Approval of the dewatering plan is required prior to the start of the work. The Contractor shall coordinate with the Engineer as needed to develop such dewatering plan.

If dewatering will be used to create the dry conditions necessary to construct storm sewer structures (culverts), work areas shall be isolated using non-erodible materials, such as rock, sandbags, or pre-fabricated rigid cofferdams, and such dewatering shall be performed in a manner that maintains flow downstream of the work area. If dewatering will be used, dewatering pump discharge locations shall be adequately protected from erosion. Discharges shall be routed through an appropriate sediment control measure (e.g., dewatering bag, rock apron), approved by the Engineer before being routed downstream.

CONSTRUCTION REQUIREMENTS
Construction shall be in accordance with the approved dewatering plan.

MEASUREMENT
This work shall be considered as incidental to the work and the various other items of work involved and will not be measured for payment.

PAYMENT
This work will not be paid for directly but shall be considered as included in the various other items of work involved and shall be included in the unit prices for such items and no additional compensation will be allowed.

DIVISION 1000
MATERIALS

SILT FENCE
Silt fence shall be “36 IN INDOT Silt Fence”, as manufactured by LCS, LLC, or equivalent, as approved by the Engineer.

TIMBER MATS
Timber mats shall be constructed of mixed dense hardwood timbers with lifting bolts installed on both ends of the mat, countersunk nuts, and flush-cut long bolts, and shall be at least as thick as the minimum thickness recommended by the manufacturer to carry and distribute the loading exerted by the construction equipment that will be used during the performance of the work. Alternative methods and materials may be implemented as long as they are approved by the Owner and Engineer prior to being implemented. The contractor is responsible for submitting alternatives for approval prior to mobilizing to the site.

STRUCTURE BEDDING
Bedding and initial backfill shall be CRUSHED STONE or GRAVEL INDOT #8, #9, or #73 COMPACTED AGGREGATE with a 50% mechanical crush count.

STRUCTURE BACKFILL
Structure backfill shall be sand, sandy loam, or loam free of stone or debris.

TOPSOIL
Topsoil shall be loamy soil from the “A horizon” of the onsite soil profile and shall be relatively free from large plant material, roots, sticks, rocks, and other materials larger than 0.5 in. in diameter and other litter or waste. 90 percent of the topsoil shall pass a No. 10 sieve (i.e., 0.0787 in.). It shall have an organic content of between one and ten percent, its pH shall be between 5.5 and 8.0, and it shall be capable of germinating native plant material.

PERMANENT SEED MIX
Permanent Seed Mix shall be in accordance with the plans and as described below. Any substitutions to the Permanent Seed Mix shall be approved by the engineer.

DESCRIPTION
Grass seed shall be healthy, with an origin as close as possible to the project site.

QUALITY
All seed shall be handled and packed in a manner appropriate for the particular plant species included in the seed mix, with regard for the soil and climate conditions present at the time and place of packing, the soil and climate conditions present at the project site, the time that the plant seed will be in transit to the project site, and for the time that the plant seed will be in storage at the project site. All precautions customary to good trade practices shall be taken to ensure that the grass seed is delivered to the site in good and healthy condition. Inspection shall occur at the time of delivery for disease and insect infestation, in accordance with all applicable state and federal laws.

Seeding shall occur promptly following delivery of the grass seed. If seeding will be significantly delayed following delivery, precautions shall be taken to protect the grass seed and maintain its healthy condition. Seed shall be stored in a shaded area when ambient temperatures exceed 72°F.

NAG SC150BN EROSION CONTROL BLANKET
Erosion control blanket shall be North American Green (NAG) SC150BN erosion control blanket, or equivalent, as approved by the Engineer.

The extended-term double net erosion control blanket shall be a machine-produced mat of 70% agricultural straw and 30% coconut fiber with a functional longevity of up to 18 months. The blanket shall be of consistent thickness

with the straw and coconut evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with a 100% biodegradable woven natural organic fiber netting. The netting shall consist of machine directional strands formed from two intertwined yarns with cross directional strands interwoven through the twisted machine strands (commonly referred to as Leno weave) to form an approximate 0.50 x 1.0 in. (1.27 x 2.54 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

The blanket shall have the following properties.

(1) Matrix. The content of the matrix shall be 70% agricultural straw fiber and 30% coconut fiber.

(2) Top Netting. The netting shall consist of machine directional strands formed from two intertwined yarns with cross directional strands interwoven through the twisted machine strands (commonly referred to as Leno weave) to form an approximate 0.50 x 1.0 in. (1.27 x 2.54 cm) mesh. Thread. Biodegradable.

(3) Stitch Spacing. 1.5 inches on center (1.5 in./O.C.).

STONE

All stone detailed in this section is intended to be material installed as indicated in the plans and as directed by the Engineer for installation of the various project features such as culverts, rock chute, and rock cross vanes.

MATERIALS

(1) INDOT Revetment Riprap (well graded material sized 3 inches to 12 inches).
(2) INDOT Class I Riprap (well graded material sized 3 inches to 24 inches).
(3) INDOT No. 8 Stone (Commercial grade 1 inch material down to 3/8 inch material)

SAND BEDDING

Sand used for sand bedding shall be consistent with INDOT Standard Specifications, Section 903.01, and be free of organics, rocks, or other debris.

NON-WOVEN GEOTEXTILE

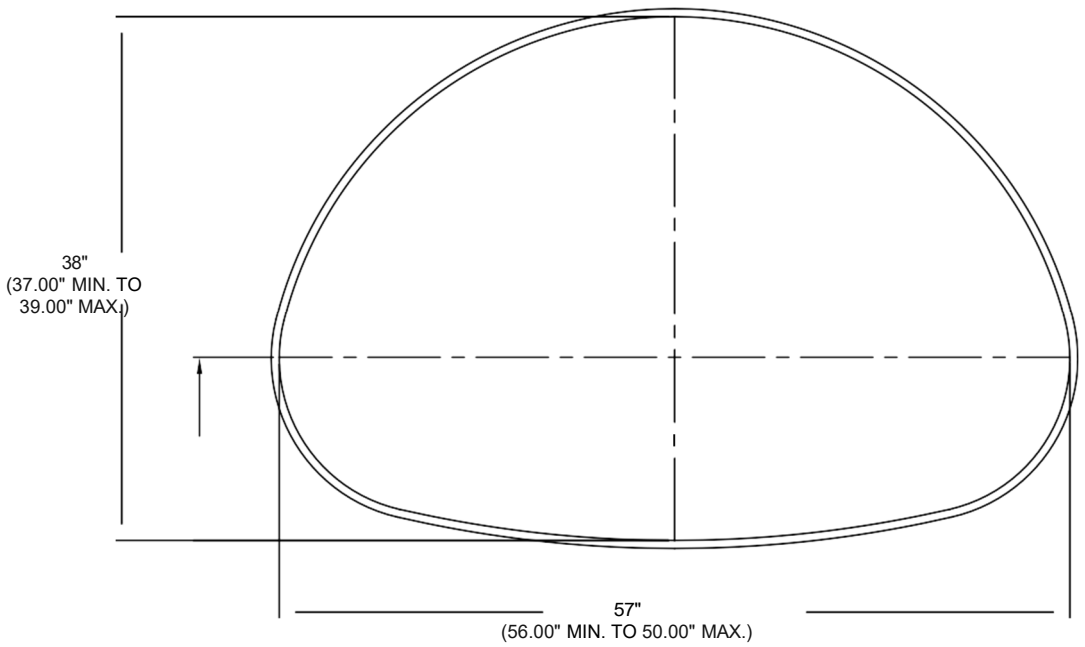
Non-woven geotextile fabric shall be consistent with INDOT Standard Specifications, Section 918.02, for Type 1A non-woven geotextile. Geotextile shall be non-woven and consist of at least 85% long chain synthetic polymers. Geotextile shall contain stabilizers or inhibitors added to the base polymer mix to make the filaments and yarns resistant to deterioration caused by ultraviolet radiation exposure. Geotextile shall be produced such that the yarns and fibers retain their relative positions. The non-woven geotextile shall be needle punched, heat bonded or resin bonded.

WOVEN GEOTEXTILE

Woven geotextile fabric shall be consistent with INDOT Standard Specifications, Section 918.02, for Type 1MA woven geotextile. Geotextile shall be woven and consist of at least 85% long chain synthetic polymers. Geotextile shall contain stabilizers or inhibitors added to the base polymer mix to make the filaments and yarns resistant to deterioration caused by ultraviolet radiation exposure. Geotextile shall be produced such that the yarns and fibers retain their relative positions.

CORRUGATED METAL PIPE (CMP)

Culverts shall consist of corrugated metal arch culverts in accordance with the plans and as shown in typical details from Contech shown below. Alternatives from other manufacturers will only be accepted with approval of the Engineer.



NOMINAL 57" X 38"

NOTES:

1. ALL DIMENSIONS ARE TO THE INSIDE CORRUGATION CREST UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
3. RISE AND SPAN DIMENSIONS ACCOUNT FOR SPECIFICATION TOLERANCES FROM NOMINAL DIMENSIONS. (AASHTO M 36 STEEL, M 196 ALUMINUM, ASTM A 760 STEEL, B 745 ALUMINUM).

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