



ADDENDUM #1

To: Prospective Bidders
From: Porter Co. Dept. of Development & Storm Water Management
Date: November 26, 2024
Subject: Olney Road Drainage Improvements

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 attached 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. Such clarifications and/or modifications are attached as Attachment C.

CONTRACTOR QUESTIONS

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

Q1: There is no line item for construction engineering. Which line item should we consider this incidental to?

A1: *Construction engineering can be incidental to any of the lump sum items, at the contractor's discretion.*

Q2: The Specifications call for a preconstruction video to be performed, what line item should we consider this incidental to?

A2: *The preconstruction video can be incidental to any of the lump sum items, at the contractor's discretion.*

Q3: Want to confirm that flowable fill is not required under CR 450 W?

A3: *Flowable fill is not required. The Pipe Bedding and Backfill Under Existing Pavement has been updated per Attachment C – Clarifications and/or Modifications to this Addendum.*

Q4: Can #53 slag be utilized under the asphalt pavement? Drawing states that #53 aggregate, spec states to be in accordance with INDOT 904, which allows for slag.

A4: *No, INDOT certified No. 53 limestone shall be used. The Porter County Supplemental Design & Construction Standards also apply to and govern the project and such Standards do not allow for the use of slag.*

Q5: Is flowable fill required as backfill for pipe under/within the pavement loading zone?

A5: *Flowable fill is not required.*

Q6: Detail VII-A2 on Plan Sheet 9: The detail calls for flowable fill under the road.

A6: *This is incorrect. Flowable fill is not required, please use No. 53 Stone as shown in other details. The drawings will be updated via addendum.*

Q7: What are anticipated subsurface conditions and soils? Were there any soil borings?

A7: *Subsurface soil conditions are not known. No soil borings were performed during design. Likely clayey soil along the stream, with siltier soils present moving away from the stream, but this is not known for certain.*

Q8: Is there any information on anticipated groundwater elevations?

A8: *There is no information on anticipated groundwater elevations. Per Section 02220 of the technical specifications, the contractor is expected to keep excavations free of water to avoid impacting the work and provide and maintain adequate dewatering equipment to remove and dispose of surface water and groundwater entering excavations.*

Q9: Can crushed concrete be used instead of INDOT #53 limestone?

A9: *No, granular backfill shall be INDOT certified limestone in accordance with Porter Co. standards.*

ATTACHMENTS

- ATTACHMENT A&B - PRE-BID MEETING MINUTES & SIGN-IN SHEET
- ATTACHMENT C – CLARIFICATIONS AND/OR MODIFICATIONS TO PROJECT MANUAL



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

**Porter Co. Dept. of Development & Stormwater Management
Olney Road Drainage Improvements**

**Pre-Bid Meeting Notes
Discussion Agenda**

**Meeting notes are shown in red italics.*

November 21, 2024, 11:00 AM

Porter Co. Administration Center, 155 Indiana Ave., Ste. 311, Valparaiso, IN
also via Videoconference

1. Sign-In & Introductions

- Please include name, company, and contact information on Sign-In Sheet
 - *Sign-in sheet attached.*

2. Project Overview

- The project is located at and near the intersection of Nantucket Road and Olney Road, between CR 450 W and Oxford Road, in the New South Haven Subdivision. Improvements will be made in the right-of-way as well as in easements in the side and rear yards of properties along the north side of Nantucket Road. The project is located in Section 31, Township 36 North, Range 6 West, in Portage Township, Porter County, Indiana.
- The work shall include approximately 828 linear feet of pipe ranging in size from 12-inch to 24-inch, 8 storm structures including manholes and inlets, removal of existing storm sewer infrastructure, site clearing and grubbing, and all associated excavation, bedding, backfill, testing, pavement repair, erosion control, maintenance of traffic, site restoration, and other incidental work required for a complete installation.
- This is a unit price contract.

3. Bidding Requirements – see additional details in the project manual

- a. Bid Form
 - i. Examination of Bidding Documents & Site
 - ii. Acknowledgement of Addenda
 - iii. Basis of Bid Form
- b. Responsible Bidding Submittal Requirements Form
- c. Bidder's Work History Form
- d. Bidder's Organizational Experience and Workload Form
- e. Bidder's Subcontractor and Supplier Form
 - List entities rendering services or supplies in an amount in excess of 10% of Total Bid

- f. Bid Security
 - In an amount not less than 10% of Total Bid

4. Contract Award

- All bids remain subject to acceptance for 60 days after the opening of bids
- Lowest responsive and responsible bidder whose bid is determined to be in the best interests of the project
- Notice of award issued to successful bidder
 - *December 10, 2024 is the anticipated award date.*

5. Signing of Agreement

- Within 10 days of receipt of notice of award, successful bidder shall sign and deliver agreement; contract security (i.e., performance bond – 100% of contract value, payment bond – 100% of contract value); certificate(s) of insurance, incl. insurance policy endorsements; and, E-Verify Affidavit & Certification Regarding Investments in Iran

6. Notice to Proceed/Earliest Date to Begin Work

- In order to provide Owner with the time needed to acquire all necessary easements and landowner agreements and address encumbrances related to Contractor's use of the site (i.e., necessary utility relocations), earliest date to begin work is Jul. 1, 2025.
- American Rescue Plan Act requires all funds to be obligated by Dec. 31, 2024.
- *With regards to the earliest date to begin work, Porter Co. recognizes the uncertainty associated with the future cost of supplies and materials to be incorporated into the work. Porter Co. can pay for materials purchased and safely stored prior to their use in the work, in accordance with the specifications. See Section 109.08 of the General Specifications for additional information.*

7. Project Description

- 828 LF of new storm sewer, including 155 LF RCP, Class III or greater, 673 LF of open-specification pipe material; 8 storm sewer structures, including 1 inlet and 7 manholes in a new alignment and profile
- Abandon or remove existing storm sewer and storm sewer structures as indicated; abandon in place will be via bulkhead and pumping flowable fill, per technical specifications
- Final backfill in pavement loading zone to be Granular Backfill, Class IB (No. 53); placement, compaction, and testing, per technical specifications
- Utilities:
 - Utility crossings indicated on Sheets 5 & 6, based on available information; information presented is not guaranteed
 - Protect existing utilities at all utility crossings

- Storm sewer profile and alignment designed to avoid utilities to maximum extent practicable
- Utility box north of Nantucket Road on Line B (Sheet 06) is a relatively recent addition and was not present at the time of survey. Connecting utility lines have not been surveyed. Additional utility coordination is required.
- *Coordination with NIPSCO will be needed for work in close proximity to power poles (support of poles, temporary removal of guy wires, etc.)*
- Pavement cut and restoration
 - Saw cut and full depth repair storm sewer trench, including portions of curb, gutter, sidewalk, and curb ramp.
 - Quantities are based on limits of construction and governing construction requirements; unless a change is made to the limits of construction or otherwise previously approved by Porter County, additional quantities will not be authorized.
 - *Curb ramp replacement is in kind. The project is not striving for ADA compliance as existing sidewalks and conditions are not ADA compliant.*
- Maintenance of Traffic
 - Road closure restrictions, per County Standards, technical specifications, and special provisions.
 - Partial road closures limited to 30 days.
 - Full road closures are limited to 2 consecutive days, with prior approval by the County
 - Maintain traffic for residents at all times and coordinate with residents during construction, particularly when limiting access to Olney Road. Olney Road is a dead-end road.
- Site Restoration
 - Limit/reduce the disturbance to the stream along Line A.
 - Topdress with topsoil, install grass seed, install erosion control blanket (North American Green SC150 or equal)
 - Lump sum based on based on limits of construction and governing construction requirements; unless a change is made to the limits of construction by Porter County, additional payment will not be authorized.
- Over-Excavation of Poor Soils w/ Granular Backfill, Class IA at Bottom of Trench
 - Undistributed quantity of unsuitable soil removal and replacement with suitable material. Item as Ordered by Engineer. Use as authorized by Porter County; entire quantity may not be used.

8. Notable Dates

- a. Pre-Bid Meeting: Thu., Nov. 21, 2024, 11:00 a.m.
- b. Last Day for Questions: Mon., Nov. 25, 2024, 12:00 p.m. local time. Final addendum to be issued by 4:30 p.m. local time, Tue., Nov. 26, 2024.

- c. Bids Due: Tue., Dec. 3, 2024, 10:00 a.m. local time at the Porter Co. Auditor's Department, 155 Indiana Ave., Ste. 204, Valparaiso, IN 46383.
- d. Bid Opening: Tue., Dec. 3, 2024, 10:00 a.m. local time, or as soon as possible thereafter, at the Dept. of Development & Storm Water Management, 155 Indiana Ave., Ste. 311, Valparaiso, IN 46383. Also via videoconference.
- e. Anticipated Contract Award: Tue., Dec. 10, 2024 9:00 a.m. local time during a meeting of the Porter Co. Storm Water Management Board.
- f. Earliest Date to Begin Work: Jul. 1, 2025
- g. Substantial Completion: Nov. 30, 2025
- h. Final Completion: 60 days following Substantial Completion

9. Questions

Q1: Is flowable fill required as backfill for pipe under/within the pavement loading zone?

A1: Flowable fill is not required.

Q2: Detail VII-A2 on Plan Sheet 9: The detail calls for flowable fill under the road.

A2: This is incorrect. Flowable fill is not required, please use No. 53 Stone as shown in other details. The drawings will be updated via addendum.

Q3: What are anticipated subsurface conditions and soils? Were there any soil borings?

A3: Subsurface conditions are not known. No soil borings were performed during design. Likely clayey soils along the stream, with siltier soils present moving away from the stream, but this is not known for certain.

Q4: Is there any information on anticipated groundwater elevations?

A4: There is no information on anticipated groundwater elevations. Per Section 02220 of the technical specifications, the contractor is expected to keep excavations free of water to avoid impacting the work and provide and maintain adequate dewatering equipment to remove and dispose of surface water and groundwater entering excavations.

Q5: Can crushed concrete be used instead of INDOT #53 limestone?

A5: No, granular backfill shall be INDOT certified limestone in accordance with Porter Co. standards.

NEW SOUTH HAVEN SUBDIVISION - OLNEY ROAD DRAINAGE IMPROVEMENTS
 PRE-BID MEETING SIGN IN
 November 21, 2024 (11:00 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	chelsey.gordon@porterco.org
			Cell: (219)252-7499	
			Fax:	
Meredith Poore	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave., Ste. 311 Valparaiso, IN 46383	Office: (219) 465-3632	meredith.poore@porterco.org
			Cell:	
			Fax:	
Lori Larson	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave., Ste. 311 Valparaiso, IN 46383	Office: (219) 510-9056	lori.larson@porterco.org
			Cell:	
			Fax:	
Rob Goodman	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave., Ste. 311 Valparaiso, IN 46383	Office: (219) 510-1152	robert.goodman@porterco.org
			Cell:	
			Fax:	
Tom McNabb	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave., Ste. 311 Valparaiso, IN 46383	Office: (219) 510-9058	tom.mcnabb@porterco.org
			Cell:	
			Fax:	
Josh Crandall	Gariup Construction	3965 Harrison St. Gary, IN. 46408	Office: 219-887-5233	josh.crandall@gariup.com
			Cell:	
			Fax:	

Ch

MP

NOT Present

TM

NEW SOUTH HAVEN SUBDIVISION - OLNEY ROAD DRAINAGE IMPROVEMENTS

PRE-BID MEETING SIGN IN

November 21, 2024 (11:00 AM CST)

Blaine Howell	Wessler Engineering	379 E 84 th Dr Merrillville, IN 46410	Office: 317-224-2848 Cell: Fax:	Blaine.H@wesslerengineering.com
MICHAEL JOJOTNEY	WESSLER ENGINEERING	379 E 84 th DR. MERRILLVILLE, IN 46410	Office: (219) 235-9869 Cell: (773) 947-4230 Fax:	MICHAELW@WESSLER ENGINEERING.COM
Jakob Goodan	Egolf Coates Excavation		Office: Cell: Fax:	jgoodan@egolfcoates.com
Austin Miller	G.E. Marshall, Inc.		Office: Cell: Fax:	austin.miller@ gmarshall.com
Michael Tiller	Grimmer Construction		Office: Cell: Fax:	mtiller@grimmer construction.com
Will Smith	Riem-Riley Construction Co., Inc.		Office: Cell: Fax:	wsmith@ riem-riley.com

NEW SOUTH HAVEN SUBDIVISION - OLNEY ROAD DRAINAGE IMPROVEMENTS

PRE-BID MEETING SIGN IN

November 21, 2024 (11:00 AM CST)

Matt Vetor	Gough, Inc.		Office:	mvetor@goughinc. com
			Cell:	
			Fax:	
			Office:	
			Cell:	
			Fax:	
			Office:	
			Cell:	
			Fax:	
			Office:	
			Cell:	
			Fax:	



**ATTACHMENT C
CLARIFICATIONS AND/OR MODIFICATIONS**

PORTER COUNTY DEPT. OF DEVELOPMENT & STORM WATER MANAGEMENT, INDIANA
OLNEY ROAD DRAINAGE IMPROVEMENTS

ADDENDUM NO. 1

to

DRAWINGS, SPECIFICATIONS, AND CONTRACT DOCUMENTS

The items in this and any other Addendum issued prior to the Bid date and time shall be incorporated into the Construction Bid and acknowledged on the Bid Attachment.

PROJECT MANUAL/SPECIFICATIONS

ITEM NO. 01 – SECTION 01990 – PAY ITEMS

REPLACE Section 01990 with the attached Section 01990
Item 10 Abandon Pipe (Varying Sizes) language revised to flowable fill instead of non-shrink grout.

ITEM NO. 02 – SECTION 02720 – STORM SEWER SYSTEMS

REPLACE Section 02720 with the attached Section 02720
HDPE pipe material specifications removed.

DRAWINGS

ITEM NO. 03 – DRAWINGS, SHEET NO. 04, EXISTING CONDITIONS AND DEMOLITION PLAN

REPLACE Sheet No. 04 with the attached Sheet No. 04
AP specification in legend and keyed notes revised to flowable fill instead of non-shrink grout.

ITEM NO. 04 – DRAWINGS, SHEET NO. 09, PORTER COUNTY STANDARD DETAILS

REPLACE Sheet No. 09 with the attached Sheet No. 09
“Pipe Bedding and Backfill Under Existing Pavement” detail replaced with updated “Road Cut and Repair” detail.

ITEM NO. 05 – DRAWINGS, SHEET NO. 12, STRUCTURE DATA TABLE

REPLACE Sheet No. 12 with the attached Sheet No. 12

ISSUED: November 26, 2024

WESSLER ENGINEERING, INC.



W. Blaine Howell, P.E., Assistant Project Manager
Reg. Engineer No. 12200268
State of Indiana



SECTION 01990 – PAY ITEMS

PART 1 - GENERAL

1.01 Summary

A. Section Includes

1. Measurement and payment for unit price Work. Payments will be made to the Contractor for the actual quantities of Work performed or materials furnished in accordance with the Drawings and Specifications.
2. The scheduled quantities of Work to be completed and materials to be furnished may each be increased or decreased without invalidating the unit price bid. The unit price bid for an item will only be subject to reevaluation and adjustment if the variation in estimated quantities meets all the conditions stated in Article 104.03 of the General Specifications.

1.02 Unit Prices

A. Measurement and Payment

1. Make all measurements and check all dimensions necessary for the proper construction of the Work called for by the Drawings and Specifications. During the execution of the Work, make all necessary measurements to prevent nonconformity in said Work and record such accurate measurements to the construction on a set of construction drawings to be submitted to the Engineer.
2. The method of measuring the Work for payment under the various pay items shall be as indicated in Pay Items below. In any event, the unit or lump sum price stated in the Contract to be paid for the respective item shall include, and be payment in full for, the installation complete in all details and ready for use and operation as specified and as indicated on the Drawings.
3. Payment will be made under each item only for such Work that is not specifically included under other items.
4. All items paid for on a price per linear foot basis will be measured and paid for to the nearest foot unless noted otherwise.

B. Incidental Work

1. The following Incidental Work shall be included in the unit price of each applicable pay item in this Section. No extra payment will be made for Incidental Work, which shall include the furnishing of all labor, material, and equipment necessary to complete the Work, including:
 - a. construction engineering; utility locating; supporting and protecting utility poles, conduits, and lines;
 - b. recording of construction areas
 - c. excavating; sheeting; shoring; dewatering, including treatment and disposal; bypass piping and pumping;
 - d. hauling; placing; spreading; compacting; testing of materials; and placing, maintaining, removing, and disposing of any temporary materials;

- e. pipe bedding; installation; jointing; haunching; initial backfilling; trench and final backfilling;
- f. core drilling; connecting piping to existing and new structures or pipes; locating, extending, providing fittings, and connecting existing pipes into the new drainage system; grouting and sealing pipe penetrations; installing tops and castings;
- g. repairing/replacing existing sewers, laterals, drainage structures, water mains, service lines, irrigation system components, curbs and gutters, sidewalks, pavement, field tiles, and other items damaged or affected by the Work;
- h. flushing and cleaning pipes, appurtenances, and structures; pipe and structure testing;
- i. testing of pipes and structures, including but not limited to, hydrostatic testing; leakage testing; bacteriological tests; mandrel testing; vacuum testing; etc. as specified;
- j. removing and disposing of excess and demolished structures, piping, material, and debris;
- k. preparing concrete and asphalt surfaces; sawcutting; formwork; forming; reinforcing; doweling; placing materials; finishing, tooling, and jointing; curing; protecting; slump tests; compression tests; other specified testing; pavement markings
- l. permitting; safety; street cleaning;
- m. installing erosion control measures prior to and during construction; providing on-going maintenance of erosion control measures until seeding and paving are established; bank restoration at stream crossings;
- n. initial clean-up and restoration;
- o. installing and removing temporary structures, signs, and fencing; removing and replacing signs, mailboxes, fencing, landscaping, and other items; and
- p. other Incidental Work necessary to complete the Work as specified and as indicated on the Drawings.

1.03 Pay Items

Item 1 Mobilization, Demobilization, Bonds, and Insurance (LSUM)

Description: The Work for Mobilization, Demobilization, Bonds, and Insurance shall include all costs associated with mobilization; demobilization; bonds; insurance; and digital recording of existing conditions as specified in the Contract Documents. The price of this item shall be an amount not to exceed 5 percent of the total bid price.

Measurement: No measurement will be made.

Basis of Payment: Mobilization, Demobilization, Bonds, and Insurance will be paid for at the contract lump sum (LSUM) price listed in the itemized Bid Attachment. Not more than 60 percent of this item will be paid at the time the contractor has mobilized and started Work. The remaining 40 percent will be paid after all Work is complete and ready for final payment and all equipment and materials have been demobilized.

Item 2 Temporary Erosion and Sediment Control (LSUM)

Description: The Work for Temporary Erosion and Sediment Control shall include preparation of areas to receive temporary erosion control measures including removing undesirable debris such as construction materials, woody debris, rocks, silt/sediment, etc.; temporary seeding;

temporary erosion control measures including silt fence, fiber filtration tubes, straw bales, check dams, inlet protection, erosion control blanket, construction entrances, concrete washout, temporary seeding, temporary mulch, etc.; installation and on-going maintenance of the erosion control measures until seeding or paving has been established; removing any temporary erosion control measures at the completion of the Work; and all Incidental Work necessary for a complete installation as specified and as shown on the Drawings.

Measurement: No measurement will be made.

Basis of Payment: Erosion and Sediment Control will be paid for at the contract lump sum (LSUM) price listed in the itemized Bid Attachment. Payment will be based on the percentage of Work completed for this specific pay item in the opinion of the Engineer.

Item 3 Maintenance of Traffic (LSUM)

Description: The Work for Maintenance of Traffic shall include providing and installing signage, flaggers, barrels, barricades, and other temporary traffic control facilities; developing detailed traffic control plans including detour plans (if required); and all Incidental Work necessary to maintain traffic throughout the construction of the project in accordance with the Drawings, the Specifications, and requirements of local, county, and state agencies having jurisdiction.

Measurement: No measurement will be made.

Basis of Payment: Maintenance of Traffic will be paid for at the contract lump sum (LSUM) price listed in the itemized Bid Attachment. Payment will be based on the percentage of Work completed for this specific pay item in the opinion of the Engineer.

Item 4 Final Cleanup and Restoration (LSUM)

Description: The Work for Final Cleanup and Restoration shall include removing excess material and debris; final grading; topsoil; seed; mulch; sod; turf reinforcement mat; fertilizer; initial 30-day watering period; and all Incidental Work necessary for a complete installation as specified and as shown on the Drawings. The price of this item shall be an amount not less than 3 percent of the total bid price.

Measurement: No measurement will be made.

Basis of Payment: Final Cleanup and Restoration will be paid for at the contract lump sum (LSUM) price listed in the itemized Bid Attachment. Payment will not be made until such time as the site cleanup and restoration are 100 percent complete in the opinion of the Engineer.

Item 5 Clearing and Grubbing (LSUM)

Description: The Work for Clearing and Grubbing shall include clearing; grubbing; embankment construction; aerating; stockpiling; proof rolling; compacting; rough grading; ditch grading; tree trimming; removing, hauling, and disposing of existing equipment, structures, pipes, asphalt, concrete, vegetation, soil, other material, and debris; and all Incidental Work necessary for a complete installation as specified and as indicated in the Drawings.

Measurement: Clearing and Grubbing will be measured on a lump sum (LSUM) basis.

Basis of Payment: Clearing and Grubbing will be paid for at the contract lump sum (LSUM) price listed in the itemized Bid Attachment. Payment will be based on the percentage of Work completed for this specific pay item in the opinion of the Engineer.

Item 6 Tree Removal, 12-Inch Diameter and Smaller, All Types (EACH)

Description: The Work for Tree Removal, 12-inch Diameter and Smaller, All Types shall include cutting down branches and trunk; stump removal; off-site disposal of tree debris; and all Incidental Work necessary for a complete removal as specified and as indicated on the Drawings.

Measurement: Tree Removal, 12-inch Diameter and Smaller, All Types will be measured per each (EACH) 12-inch diameter and smaller tree removed where denoted on the Drawings, regardless of the type of tree. Unauthorized tree removal will not be measured.

Basis of Payment: Tree Removal, 12-inch Diameter and Smaller, All Types will be paid for at the contract unit price per each (EACH) 12-inch diameter and smaller tree, measured and removed, as listed in the itemized Bid Attachment. Payment will not be granted for unauthorized tree removal.

Item 7 Tree Removal, Larger Than 12-Inch Diameter, All Types (EACH)

Description: The Work for Tree Removal, Larger than 12-inch Diameter, All Types shall include cutting down branches and trunk; stump removal; off-site disposal of tree debris; and all Incidental Work necessary for a complete removal as specified and as indicated on the Drawings.

Measurement: Tree Removal, Larger than 12-inch Diameter, All Types will be measured per each (EACH) tree larger than 12 inches in diameter removed where denoted on the Drawings, regardless of the type of tree. Unauthorized tree removal will not be measured.

Basis of Payment: Tree Removal, Larger than 12-inch Diameter, All Types will be paid for at the contract unit price per each (EACH) tree larger than 12 inches in diameter, measured and removed, as listed in the itemized Bid Attachment. Payment will not be granted for unauthorized tree removal.

Item 8 Pavement Removal (All Types) (SYS)

Description: The Work for Pavement Removal, All Types shall include removal and disposal of existing materials; and all Incidental Work necessary for a complete removal as specified and as shown on the Drawings.

Measurement: Pavement Removal, All Types will be measured on a per square yard (SYS) basis for the actual area of drive removed within the limits shown on the Drawings. Unauthorized work beyond the limits shown on the Drawings will not be measured.

Basis of Payment: Pavement Removal, All Types will be paid for at the contract unit price per square yard (SYS) of drive removed as listed in the itemized Bid Attachment. Payment will not be granted for unauthorized backfill.

Item 9 Remove Curb (LF)

Description: The Work for Curb Removal, All Types shall include saw cutting; curb removal; hauling and off-site disposal of curb debris; and all Incidental Work necessary for a complete removal as specified and as indicated on the Drawings.

Measurement: Curb Removal, All Types will be measured on a per linear foot (LF) basis for the actual length of curb removed within the limits shown on the Drawings. Unauthorized work beyond the limits shown on the Drawings will not be measured for payment.

Basis of Payment: Curb Removal, All Types will be paid for at the contract unit price per linear foot (LF) of curb removed as listed in the itemized Bid Attachment. Payment will not be granted for unauthorized curb removal.

Item 10 Abandon Pipe (Varying Sizes) (CYS)

Description: The Work for Abandon Pipe (Varying Sizes) shall include filling pipe completely with flowable fill; plugging abandoned pipe penetrations in existing structures which are to remain in place; and all Incidental Work necessary for a complete abandonment as specified and as shown on the Drawings.

Measurement: Abandon Pipe (Varying Sizes) will be measured on a per cubic yard (CYS) basis for the actual volume of flowable fill used to abandon pipe within the limits shown on the Drawings. Unauthorized work beyond the limits shown on the Drawings will not be measured for payment.

Basis of Payment: Payment for Abandon Pipe will be made at the applicable contract unit price per cubic yard for the size listed in the Itemized Bid Attachment. Payment will not be granted for unauthorized work.

Item 11 Pipe Removal (Varying Sizes) (LF)

Description: The Work for Pipe Removal shall include excavating; removing, hauling, and disposal of pipe; and all Incidental Work necessary for a complete removal as specified and as indicated on the Drawings.

Measurement: Pipe Removal will be measured on a per linear foot (LF) basis for the size and length of pipe removed.

Basis of Payment: Pipe Removal will be paid for at the contract unit price per linear foot (LF) of pipe removed for each size listed in the itemized Bid Attachment.

Item 12 Structure Removal (Varying Sizes and Types) (EA)

Payment for Structure Removal will be made at the applicable Contract unit price per each for all sizes and types, which price shall include excavating, removing, hauling off, and off-site disposal of existing structure and associated debris; filling, backfilling, and grading; and all Incidental Work necessary for a complete demolition as specified and as shown on the Drawings.

Description: The Work for Structure Removal shall include removing and disposal of manhole, catch basin or inlet; and all Incidental Work necessary for a complete removal as specified and as indicated on the Drawings.

Measurement: Structure Removal will be measured per each (EA) structure removed.

Basis of Payment: Structure Removal will be paid for at the contract unit price per each (EA) structure removed as listed in the itemized Bid Attachment.

Item 13 Compacted Aggregate Base, No. 53 (TON)

Description: The Work for Compacted Aggregate Base, No. 53 shall include subgrade preparation; aggregate; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings.

Measurement: Compacted Aggregate Base, No. 53 will be measured on a per ton (TON) basis for the amount of aggregate installed within the limits shown on the Drawings. Unauthorized work beyond the limits shown on the Drawings will not be measured.

Basis of Payment: Compacted Aggregate Base, No. 53 will be paid for at the contract unit price per ton (TON) as listed in the itemized Bid Attachment. Supply weight tickets for actual amount of aggregate installed for payment. Payment will not be granted for unauthorized work outside the limits shown.

Item 14 HMA Surface, Type B (TON)

Description: The Work for HMA Surface, Type B shall include subsurface preparation; HMA mixture; tack coat; density testing; adjusting utility frames and covers; joint sealant; replacing pavement markings; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings.

Measurement: HMA Surface, Type B will be measured on a per ton (TON) basis for the actual amount of HMA Surface installed within the limits shown on the Drawings. Unauthorized work beyond the limits shown on the Drawings will not be measured.

Basis of Payment: HMA Surface, Type B will be paid for at the contract unit price per ton (TON) of HMA Surface installed as listed in the itemized Bid Attachment. Supply weight tickets for actual amount of HMA Surface installed for payment. Payment will not be granted for unauthorized work outside the limits shown.

Item 15 HMA Intermediate, Type B (TON)

Description: The Work for HMA Intermediate, Type B shall include subsurface preparation; HMA mixture; tack coat; density testing; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings.

Measurement: HMA Intermediate, Type B will be measured on a per ton (TON) basis for the actual amount of HMA Intermediate installed within the limits shown on the Drawings. Unauthorized work beyond the limits shown on the Drawings will not be measured.

Basis of Payment: HMA Intermediate, Type B will be paid for at the contract unit price per ton (TON) of HMA Intermediate installed as listed in the itemized Bid Attachment. Supply weight tickets for actual amount of HMA Intermediate installed for payment. Payment will not be granted for unauthorized work outside the limits shown.

Item 16 Concrete Swale, 4” (SYS)

Description: The Work for Concrete Swale, 4” shall include subgrade preparation; tack coat; compacted aggregate base; concrete; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings.

Measurement: Concrete Swale 4” will be measured on a per square yard (SYS) basis for the actual area of pavement installed within the limits shown on the Drawings. Unauthorized work beyond the limits shown on the Drawings will not be measured.

Basis of Payment: Concrete Swale 4” will be paid for at the contract unit price per square yard (SYS) of pavement installed listed in the itemized Bid Attachment. Payment will not be granted for unauthorized work outside the limits shown.

Item 17 ADA Ramp, Concrete (SYS)

Description: The Work for ADA Ramp shall include detectable warning elements; tack coat; concrete; compacted aggregate base; elevation transitions; pavement patching; and all Incidental Work necessary for a complete installation as specified and as shown on the Drawings.

Measurement: ADA Ramp will be measured on a per square yard (SYS) basis for the actual area of ramp installed within the limits shown on the Drawings. Unauthorized work beyond the limits shown on the Drawings will not be measured.

Basis of Payment: ADA Ramp will be paid for at the contract unit price per square yard (SYS) of ramp installed listed in the itemized Bid Attachment. Payment will not be granted for unauthorized work outside the limits shown.

Item 18 Concrete Rolled Curb (LF)

Description: The Work for Concrete Rolled Curb shall include tack coat; compacted aggregate base; connecting to existing adjacent curb and gutter; concrete; variable curb height; sealing; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings.

Measurement: Concrete Rolled Curb will be measured on a per linear foot (LF) basis for the actual length of curb installed, to the next nearest joint from the allowable excavation limits as specified. Unauthorized work beyond the limits shown on the Drawings will not be measured.

Basis of Payment: Concrete Rolled Curb will be paid for at the contract unit price per linear foot (LFT) of curb installed listed in the itemized Bid Attachment. Payment will not be granted for unauthorized work outside the limits shown.

Item 19 Inlet, Type 1 (EA)

Description: The Work for Inlet, Type 1 shall include structure; frame and casting; flexible watertight seals; non-shrink grout; joint materials; crushed stone base; granular backfill; connecting to existing or new pipes including core drilling and modifying openings; removal of existing pipe; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings.

Measurement: Inlet, Type 1 will be measured on a per each (EA) basis for the actual quantity of inlets installed.

Basis of Payment: Inlet, Type 1 will be paid for at the contract unit price per each (EA) inlet installed as listed in the itemized Bid Attachment. Payment will not be granted for additional material in cases of over-excavation.

Item 20-23 Storm Manhole (Varying Sizes) (EA)

Description: The Work for Manhole shall include structure sections; adjusting rings; frame and casting; flexible watertight seals; non-shrink grout; joint materials; installation of and modification to flow channels and benchwalls; crushed stone base; granular backfill; connecting to existing or new pipes including core drilling and modifying openings; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings.

Measurement: Manhole will be measured on a per each (EA) basis for the actual quantity of manholes installed. The depth of manholes shall be measured from the invert elevation of the manhole effluent line to the rim elevation or existing ground surface, whichever is greater.

Basis of Payment: Manhole will be paid for at the contract unit price per each (EA) manhole installed for the size, type, and depth as listed in the itemized Bid Attachment. Payment will not be granted for additional material in cases of over-excavation.

Item 24 Extend Pipe, 15" (LF)

Description: The Work for Extend Pipe shall include excavation; sheeting and bracing; trenching; bedding; pipe; fittings, adaptors, couplings, and other appurtenances; haunching; initial backfill; final backfill; compaction; grading; field quality control; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings. Pipe to pipe connections of different materials shall use a Marmac Dissimilar Pipe Coupler, Fernco Coupling with Stainless Steel Bands, or approved equal.

Measurement: Extend Pipe will be measured horizontally along the centerline of the pipe on a per linear foot (LF) basis from center of upstream structure to center of downstream structure. The actual length of pipe will be measured where there is no structure connection. The depth of pipe will be based on the average depth as measured from the top of the structure casting to the applicable pipe invert elevation at the upstream and downstream ends.

Basis of Payment: Extend Pipe will be paid for at the contract unit price per linear foot (LF) of pipe installed for each size, type, and depth range listed in the itemized Bid Attachment. A separate payment will not be made for a dissimilar pipe coupler; it will be included in the cost of the pipe extension.

Item 25-26 Pipe (Varying Sizes, Types, and Depths) (LF)

Description: The Work for Pipe shall include excavation; sheeting and bracing; trenching; bedding; pipe; fittings, adaptors, couplings, and other appurtenances; haunching; initial backfill; final backfill; compaction; grading; field quality control; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings.

Measurement: Pipe will be measured horizontally along the centerline of the pipe on a per linear foot (LF) basis from center of upstream structure to center of downstream structure. The actual length of pipe will be measured where there is no structure connection. The depth of pipe will be based on the average depth as measured from the top of the structure casting to the applicable pipe invert elevation at the upstream and downstream ends.

Basis of Payment: Pipe will be paid for at the contract unit price per linear foot (LF) of pipe installed for each size, type, and depth range listed in the itemized Bid Attachment.

Item 27-29 Pipe w/ Granular Backfill (Varying Sizes, Types, and Depths) (LF)

Description: The Work for Pipe w/ Granular Backfill shall include excavation; sheeting and bracing; trenching; bedding; pipe; fittings, adaptors, couplings, and other appurtenances; haunching; initial backfill; final backfill; compaction; grading; field quality control; pipe; fittings, adaptors, couplings, and other appurtenances; granular backfill; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings.

Granular backfill is required in the Pavement/Structure Loading Zone. If any portion of the pipe trench is within the Loading Zone, the entire trench width in that portion shall receive granular backfill. Loading Zone areas are indicated on the Drawings; however, the Contractor is responsible for abiding by the granular backfill requirements in other areas should pipe alignments be adjusted and moved into the Loading Zone during construction.

Measurement: Pipe w/ Granular Backfill will be measured horizontally along the centerline of the pipe on a per linear foot (LF) basis from center of upstream structure to center of downstream structure. The actual length of pipe will be measured where there is no structure connection. The depth of pipe will be based on the average depth as measured from the top of the structure casting to the applicable pipe invert elevation at the upstream and downstream ends.

Basis of Payment: Pipe w/ Granular Backfill will be paid for at the contract unit price per linear foot (LF) of pipe installed for each size, type, and depth range listed in the itemized Bid Attachment.

Item 30 Fence Removal and Reinstallation (LF)

Description: The Work for Fence Removal and Reinstallation shall include removing or temporarily relocating existing fence; reinstalling or replacing the fence in its original location; and all Incidental Work necessary for a complete installation as specified and as indicated on the Drawings.

Measurement: Fence Removal and Reinstallation will be measured on a per linear foot (LF) basis for the length of fence removed and replaced as specified and as indicated on the Drawings. Unauthorized work beyond the limits shown on the Drawings will not be measured.

Basis of Payment: Fence Removal and Reinstallation will be paid for at the contract unit price per linear foot (LF) of fence removed and replaced listed in the itemized Bid Attachment. Payment will not be granted for unauthorized work outside the limits shown.

Item 31 Over-Excavation of Poor Soils w/ Granular Backfill (Undistributed) (CYS)

Description: The Work for Over-Excavation of Poor Soils w/Granular Backfill shall include excavation, removal, and disposal of existing poor soils as identified by the Owner or their designated representative; replacement of excavated material with granular backfill; and all Incidental Work necessary for complete removal and replacement as specified and as indicated on the Drawings.

Measurement: Over-Excavation of Poor Soils w/Granular Backfill will be measured on a per cubic yard (CYS) basis for the actual amount of material removed below the depth specified for pipe bedding, and as measured in the field during construction. Compensation will not be made for unauthorized work not agreed upon by the Owner prior to removal.

Basis of Payment: Over-Excavation of Poor Soils w/Granular Backfill will be paid for at the contract unit price per cubic yard (CYS) as listed in the itemized Bid Attachment.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

-END-

SECTION 02720 - STORM SEWER SYSTEMS

PART 1 - GENERAL

1.01 Summary

A. Section Includes: Furnishing and installing storm sewers, inlets, catch basins, manholes, other drainage structures, and appurtenances.

B. Related Sections

1. Section 02220 - Trenching, Backfilling and Compaction for Utilities

1.02 References

A. American Association of State Highway and Transportation Officials (AASHTO), latest editions

1. CONCRETE

- a. AASHTO M170 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe (ASTM C76)
- b. AASHTO M199 - Standard Specification for Precast Reinforced Concrete Manhole Sections (ASTM C478)

2. CORRUGATED METAL

- a. AASHTO M36 - Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains (ASTM A760)

B. American Society for Testing and Materials (ASTM), latest editions

1. CONCRETE

- a. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- b. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
- c. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
- d. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections
- e. ASTM C928 - Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
- f. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants

2. CASTINGS

- a. ASTM A48 - Standard Specification for Gray Iron Castings

3. CORRUGATED METAL

- a. ASTM A760 - Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains
- b. ASTM A929 - Standard Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe

- 4. PLASTIC
 - a. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals
 - b. ASTM D1784 -Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds
 - c. ASTM D2412 -Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading
 - d. ASTM D3034 -Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
 - e. ASTM D3212 -Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
 - f. ASTM D3350 -Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
 - g. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
 - h. ASTM F679 - Standard Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings

C. Indiana Department of Transportation (INDOT) Standard Specifications, latest edition

- 1. Section 901 - PCC Materials
- 2. Section 904 - Aggregates
- 3. Section 907 - Concrete, Clay, and Plastic Drainage Components
- 4. Section 908 - Metal Pipe
- 5. Section 910 - Metal Materials

D. Porter County Supplemental Design & Construction Standards & Specifications

- 1. Section 8.09 – Utilities
- 2. Section 8.18 – Standard Drawings

1.03 Submittals

A. Product Data

- 1. Pipe
- 2. Structures
- 3. Castings
- 4. Manhole Steps

1.04 Delivery, Storage, and Handling

A. Pipe possessing defects including, but not limited to the following, will be rejected for installation:

- 1. Variations from straight centerline
- 2. Elliptical shape in round pipe
- 3. Lack of rigidity
- 4. Illegible markings as required herein

5. Bruised, broken, or otherwise damaged metallic or bituminous coating or liner, as applicable
 6. Deep or excessive gouges, dents, bends, or scratches on the pipe wall
 7. Fractures, punctures, or cracks passing through the pipe wall
 8. Damaged or cracked ends where such damage would prevent making a satisfactory joint
- B. Concrete pipe and structures possessing defects including, but not limited to the following, will be rejected for installation:
1. Fractures or cracks passing through the wall
 2. Honeycombed or open texture which would adversely affect the function of the sections
 3. Ends of sections are not normal to the walls and centerline of the section

PART 2 - PRODUCTS

2.01 Corrugated Metal Pipe (CMP) – ONLY FOR OPTIONAL USE IN THE 15" PIPE EXTENSION

A. Pipe Material

1. CMP of continuous lock seam or welded seam construction from end to end of each length of pipe (helical corrugations), conforming to AASHTO M36 and INDOT Standard Specification Section 908.
2. Aluminum coated steel Type II corrugated pipe fabricated in accordance with ASTM A760 for the gauge indicated below:
 - a. 14 gauge for 12- to 36-inch diameter
 - b. 12 gauge for 42-inch and larger diameter
3. Zinc coated (galvanized) steel pipe manufactured in accordance with ASTM A760, fabricated from zinc-coated steel sheet material conforming to ASTM A929.
4. Sheet metal used to fabricate pipe shall be the same brand from the same manufacturer in any one length of finished pipe.

B. Joints

1. External coupling bands with corrugations that mesh with the corrugations of the pipe and which conform to ASTM A760.
2. Provide coupling bands of the same gauge and coating material as the pipe for which the band is used.

C. Pipe Markings

1. Each length of CMP shall be clearly marked with the following information at a minimum:
 - a. Name of manufacturer or identification symbol
 - b. Alloy and temper
 - c. Specified thickness
 - d. ASTM designation
 - e. Heat number
 - f. Nominal pipe size

2.02 Polyvinyl Chloride (PVC) Pipe

A. Pipe Material

1. Solid wall gravity flow PVC storm sewer pipe and fittings with bell and spigot joints with elastomeric seals and smooth inner walls in accordance with ASTM D3034 (SDR-35, 12-inch to 15-inch diameter), ASTM F679 (PS 46, 18- to 36-inch diameter), and INDOT Standard Specification Section 907.
2. Minimum cell class in accordance with ASTM D1784:
 - a. Cell class 12364 for 12-inch to 15-inch diameter pipes
 - b. Cell class 12454 for 18-inch to 36-inch diameter pipes.
3. Pipe shall have minimum stiffness of 46 psi when tested in accordance with ASTM D2412.
4. Manufacturers
 - a. Sani-21 by Diamond Plastics Corporation
 - b. Ring-Tite by JM Eagle
 - c. Or approved equal

B. Joints

1. Flexible, gasketed compression type joints so that, when assembled, the gasket inside the bell is compressed radially on the pipe spigot to form a soil-tight seal. Assemble joints in accordance with the pipe manufacturer's instructions and ASTM D3212.
2. Gaskets conforming to ASTM F477

C. Fittings

1. Manufactured fittings such as wyes, tees, elbows, or adaptors will not be accepted for use in place of storm sewer manholes, inlets, catch basins, or drain basins unless otherwise indicated on the Drawings.

D. Pipe Markings

1. Provide pipe with each length clearly marked with the following information:
 - a. Name of manufacturer or identification symbol
 - b. Trade name or trademark
 - c. Nominal pipe size
 - d. Production/extrusion code
 - e. Material and cell class designation
 - f. ASTM designation

2.03 Lift Holes in Concrete Structures and Pipe

- A. Lift holes shall only be allowed in precast concrete structures, sections, and pipe as specified below. All permissible lift holes shall be machine cast or drilled.

B. Lift Hole Repairs

1. Use stiff, non-shrink, rapid setting, rapid hardening, concrete patching material meeting the requirements of ASTM C928 R-2 or R-3 and mixed in accordance with manufacturer's installation instructions.
2. Hand-place the material after first washing out the hole with water. Completely fill the void created by the lift hole with the material.
3. Cover the repaired area with a minimum 12 x 12-inch piece of joint wrap material secured to the pipe.
4. Secure the joint wrap material to the pipe using a method that holds the fabric in place during the placement and compaction of backfill. Use grout mixtures, mastics, or strapping devices to secure the fabric to the pipe.
5. Lift hole repairs shall be properly finished, cured, and sound.

C. Lift hole plugs are not acceptable.

D. Any alternate methods shall be submitted to Engineer for review.

2.04 Reinforced Concrete Pipe (RCP)

A. Pipe Material

1. Class III or greater, Wall B type RCP conforming to ASTM C76, AASHTO M170, and INDOT Standard Specification Section 907.
2. Precast reinforced concrete pipe shall be from a source listed in the INDOT list of certified precast concrete producers.

B. Joints

1. Tongue and groove joints with compression type rubber gasket conforming to ASTM C443.

C. Fittings: Provide fabricated wye and tee branches.

D. Lift holes are only allowed in concrete pipe with an inside diameter more than 54 inches.

2.05 Precast Concrete Manholes, Inlets, and Accessories

A. Lift holes: Provide precast concrete sections with no more than 3 holes cast or drilled in the section for handling.

B. Precast Concrete Manholes

1. Provide precast concrete manholes
 - a. Cone section: eccentric cone section conforming to ASTM C478
 - b. Flat top: where necessary, provide flat top section conforming to ASTM C478
2. Bases and Risers/barrels conforming to ASTM C478, AASHTO M199, and INDOT Standard Specification Section 907.
3. Precast concrete floor or form with Class A concrete. Floor shall be sloped to the sewer invert.
4. Gaskets shall be 1/2-inch diameter flexible butyl rubber conforming to ASTM C990 for all manhole section joints, including the chimney section(s) and frame/casting. Provide Kent seal or approved equal.

C. Precast Concrete Inlets

1. Provide precast concrete inlets to the dimensions as shown on the Drawings.

D. Castings

1. Cast iron frames and covers in accordance with ASTM A48 Class 35B and INDOT Standard Specification Section 910 unless otherwise shown on the drawings.
2. Supply all frames and covers from one manufacturer.
3. Provide frames and covers rated for traffic, of non-rocking design, with machined horizontal and vertical bearing surfaces.
4. Provide manhole frame and cover as shown in structure data table on Drawings or approved equal. Storm manhole covers shall have the words "STORM SEWER" cast in recessed letters 2 inches in height.
5. Provide inlet and catch basin frames and covers as shown in structure data table on Drawings or approved equal. Casting shall have the words "DUMP NO WASTE! DRAINS TO WATERWAYS!" cast in raised or recessed letters 1 inch in height and shall have a symbol of a fish cast with the message.

E. Steps

1. Provide steps in all structures 4 feet deep or greater in accordance with AASHTO M199 and INDOT Standard Specification Section 907 with:
 - a. Minimum 10 inches of clear step width
 - b. Copolymer polypropylene coated steel steps meeting the requirements of ASTM D4101 and composed of deformed 1/2-inch minimum diameter reinforcing steel in accordance with ASTM A615, Grade 60.
 - c. Non-coated cast iron steps will not be accepted.
2. Manufacturers
 - a. M.A. Industries, Inc.
 - b. American Step Company, Inc.
 - c. Or approved equal

F. Pipe to Structure Connections

1. Pipe penetration holes shall be either pre-formed by manufacturer or core drilled in the field.
2. For concrete pipe and RCP, provide non-shrink grout mixture of 2 parts No. 23 fine aggregate in accordance with INDOT Standard Specification Section 904 and 1 part Portland cement.
3. For PVC pipe, provide flexible neoprene molded boot or resilient seal which conforms to ASTM C923.
 - a. Provide Kor-N-Seal boot as manufactured by National Pollution Control Systems, Inc. or approved equal.
 - b. Provide resilient seal as manufactured by A-Lok or approved equal.

PART 3 - EXECUTION

3.01 Examination

A. Verification of Conditions

1. Before installing piping, verify location, depth, type of joint needed, and size of pipe to which connection is proposed.
2. Assure that lines can be run as proposed. Notify Engineer immediately for approval of any necessary deviation before lines are run.
3. Work all lengths of pipe into place without forcing.

3.02 Installation

A. Storm Sewer Pipe and Accessories

1. Lay storm sewer pipe uniformly to line and grade so that finished storm sewer will present a uniform conduit.
2. Set line and grade by means of laser beam and target for alignment and grade.
3. Lay storm sewer pipe progressively upgrade in a manner to form close, concentric joints with smooth bottom inverts.
4. Maintain 18 inches of vertical separation and 10 feet of horizontal separation between new storm sewer and new or existing water mains unless otherwise directed. Notify Engineer immediately of all instances where separation cannot be maintained.
5. After joint is made, place sufficient bedding material along each side of the pipe to prevent conditions that might tend to move the pipe off line or grade.
6. Temporarily plug installed piping systems at end of each day's Work or other interruption of progress on a given line. Plug shall be adequate to prevent entry of animals and entrance or insertion of deleterious materials and shall be installed in a manner satisfactory to the Engineer.
7. Securely attach fabricated branches for wyes and tees to wall of pipe in such a manner as to not restrict or otherwise interfere with flow characteristics of the pipe.
8. Complete all field-cutting of pipe in a neat, trim manner using a hand or power saw. Field cutting of closed profile pipe requires any exposed channels be sealed in accordance with the manufacturer's instruction.
9. If any existing drainage tile systems are encountered during construction, reconstruct the tile to its original conditions or connect tile to the new storm drainage system as approved by the Engineer.

B. Precast Concrete Manholes, Inlets, Catch Basins, and Accessories

1. Unless otherwise indicated, provide 0.1 foot sewer invert drop through manholes.
2. Keep structure excavations free from water during construction.
3. Fill all areas excavated below the depth required for the manhole base with compacted granular backfill or No. 8 crushed stone at Contractor's expense.
4. Install precast concrete risers and adjusting rings in such combination that the manhole frame will be at the proper elevation. Supply a minimum of 1 adjusting ring for each manhole. Adjusting rings shall be a minimum of 2 inches and maximum of 6 inches in height. Supply precast concrete riser sections for adjustment greater than 6 inches in height.

5. Casting frames and adjusting rings should be set in a full mortar bed or as otherwise approved.
 - a. Provide non-shrink grout mixture of 2 parts No. 23 fine aggregate in accordance with INDOT Standard Specification Section 904 and 1 part Portland cement.
6. Install manhole frame to grade and centered.
7. Install steps beginning at 8 inches below the top of the cone or flat top section. Install steps at 10 inches on center minimum to 16 inches on center maximum, continuous and spaced uniformly.
8. Install steps with minimum 3-inch wall embedment and minimum 4-inch clear distance projection from the wall as measured from the point of embedment.
9. Install precast concrete base, risers, cone, and flat top sections so that the axis of the manhole is vertical.
10. Install precast concrete inlets and catch basins so that the axis of the structure is vertical.
11. Install gaskets for joints in accordance with the manufacturer's instructions. Wrap riser joints with external joint seals in accordance with manufacturer's instructions.
12. Prior to backfilling, fill all holes used for handling with rapid setting patch material or with precast concrete plugs secured with Portland cement mortar.
13. Unless otherwise indicated, set castings for all structures at finish grade level. Adjust castings to the satisfaction of the Engineer, at Contractor's expense.
14. Remove all debris and excess soil from structures after installation and prior to flushing the storm sewer pipes, to the satisfaction of the Engineer.

3.03 Field Quality Control

A. Tests

1. Deflection Test for Flexible Pipes
 - a. Pipe materials considered flexible include:
 - 1) PVC
 - b. Perform testing in presence of Engineer.
 - c. Perform deflection testing on all flexible pipes after the final backfill has been in place for at least 30 days.
 - d. Perform deflection test using a mandrel pulled by hand for pipe with a diameter of 24 inches or smaller. The mandrel (go/no-go) device shall be cylindrical in shape and constructed with 9 or 10 evenly spaced arms or prongs.
 - e. For pipe with a diameter of greater than 24 inches, deflection measurements other than by a mandrel shall be used.
 - f. No pipe shall exceed a vertical deflection of 5 percent. Uncover, replace, and retest any pipe not passing the deflection test until a satisfactory result is achieved.

B. Inspection

1. Closed-circuit Television Inspection (CCTV)
 - a. Televisé all mainline storm sewers (manhole to manhole).
 - b. Televisé all lateral storm sewers (manhole to inlet, inlet to inlet, etc.).
 - c. Perform all CCTV inspection in presence of Engineer.
 - d. Perform all CCTV inspection after the final backfill has been in place for at least 30 days.
 - e. Perform deflection testing on all CCTV inspection after the final backfill has been in place for at least 30 days.

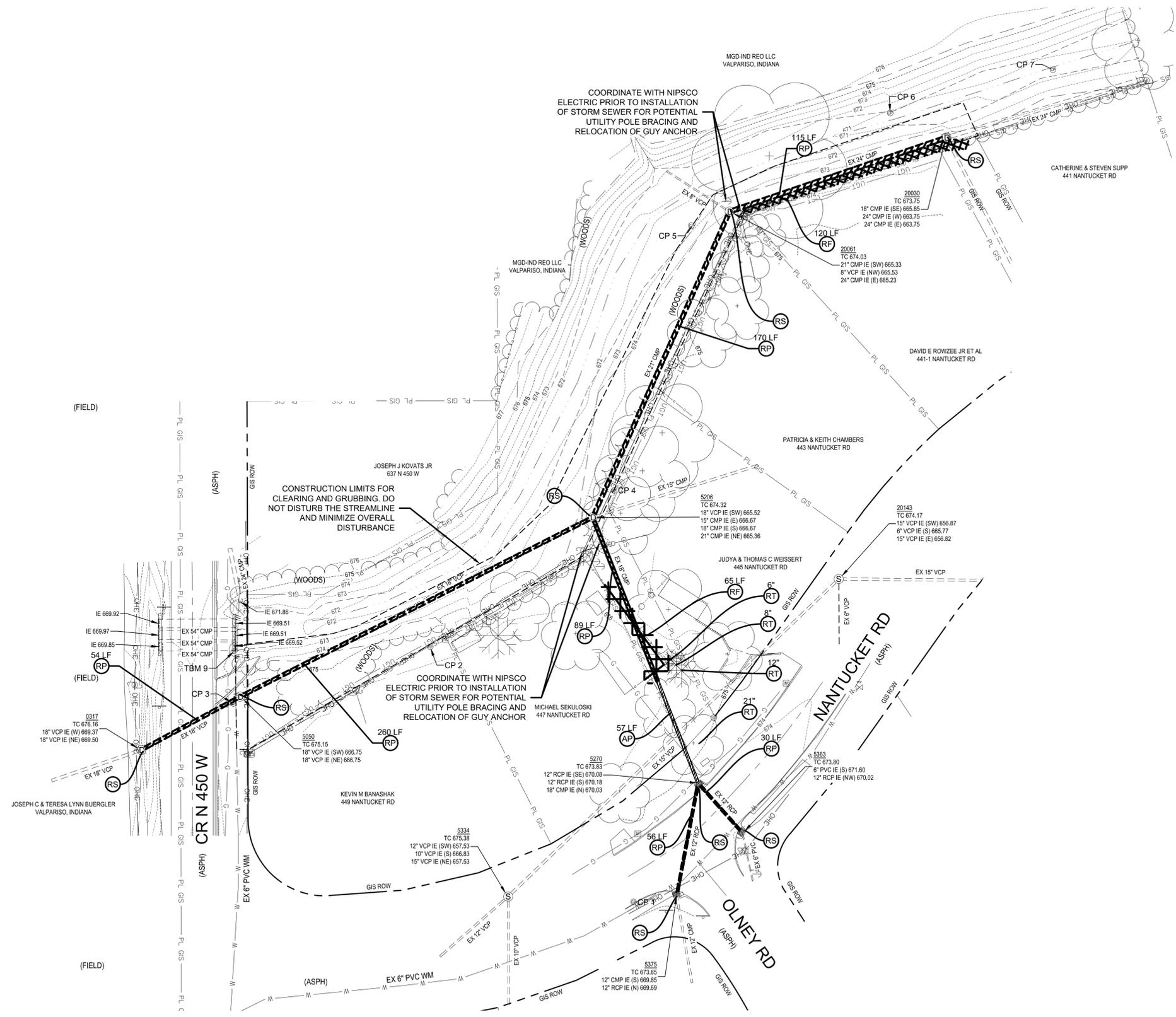
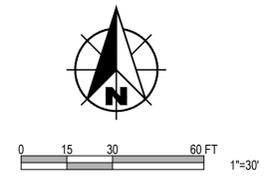
- f. Clean all new storm sewers prior to CCTV inspection. The image shall be clear, so the interior condition of the pipe is easily evaluated.
- g. Correct all unacceptable conditions found during the CCTV inspection and re-televiser until no unacceptable conditions are found.
- h. Unacceptable conditions are conditions that adversely affect the ability of the system to function as designed or to be properly maintained and may include, but are not limited to, the following:
 - 1) Protruding taps
 - 2) Cracked or faulty pipe
 - 3) Misaligned or deformed pipe
 - 4) Debris in line
 - 5) Infiltration/exfiltration
 - 6) Excessive gaps at joints
 - 7) Bellies or sags with a depth greater than or equal to 10 percent of the pipe diameter (maximum of 3 inches) or a length greater than 25 feet
- i. Submit a copy of the CCTV recording within 14 calendar days of the inspection on a digital media storage device compatible for playback on a personal computer (USB flash drive acceptable).

3.04 Cleaning

- A. Clean all new storm sewers after installation and before testing to the satisfaction of the Engineer.

-END-

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LEGEND AND KEYED NOTES

- RP REMOVE PIPE COMPLETELY
- RS REMOVE STRUCTURE
- RF REMOVE AND REINSTALL FENCE
- RT REMOVE TREE
- AP ABANDON PIPE WITH FLOWABLE FILL

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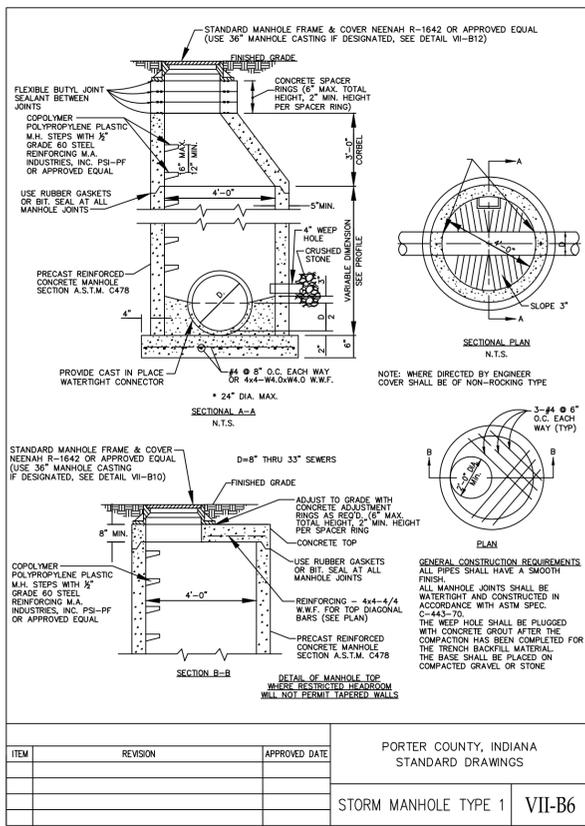
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	ISSUE DATE	NOVEMBER 2024				
	PROJECT NUMBER	255822-TO1				



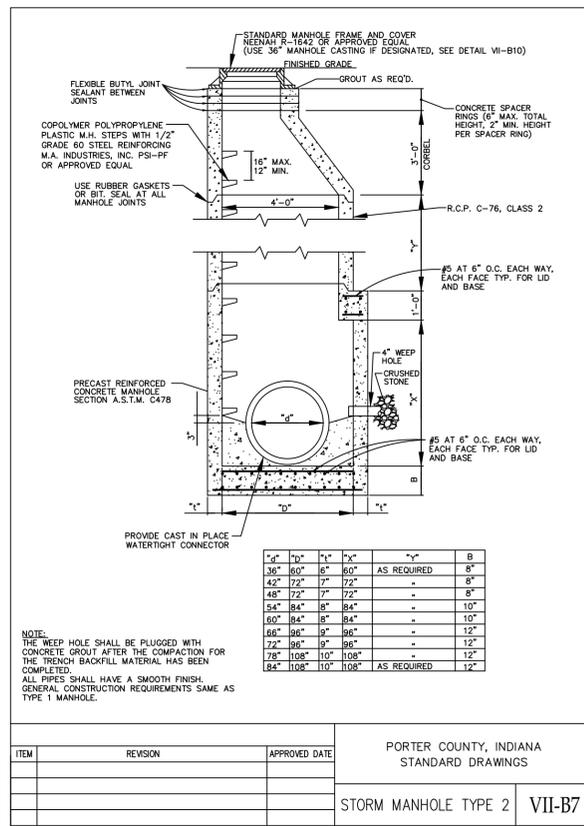
OLNEY ROAD DRAINAGE IMPROVEMENTS
 PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORM WATER MANAGEMENT
 NEW SOUTH HAVEN SUBDIVISION - VALPARAISO, IN

EXISTING CONDITIONS AND DEMOLITION PLAN

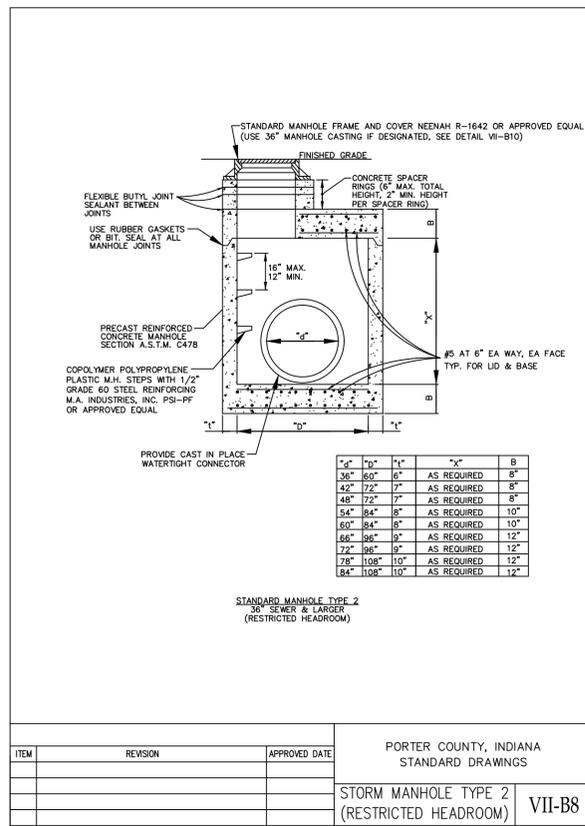
SHEET NO.	04
TOTAL SHEETS	12



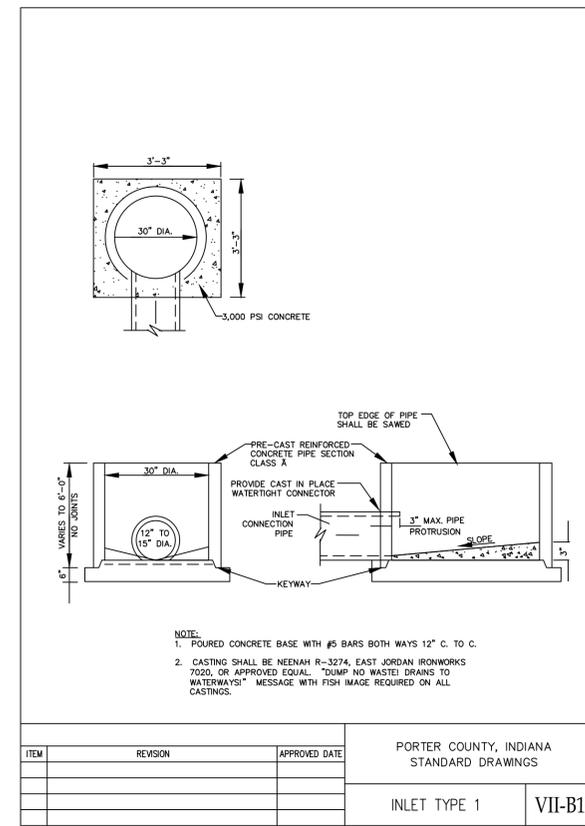
ITEM	REVISION	APPROVED DATE	PORTER COUNTY, INDIANA STANDARD DRAWINGS
			STORM MANHOLE TYPE 1 VII-B6



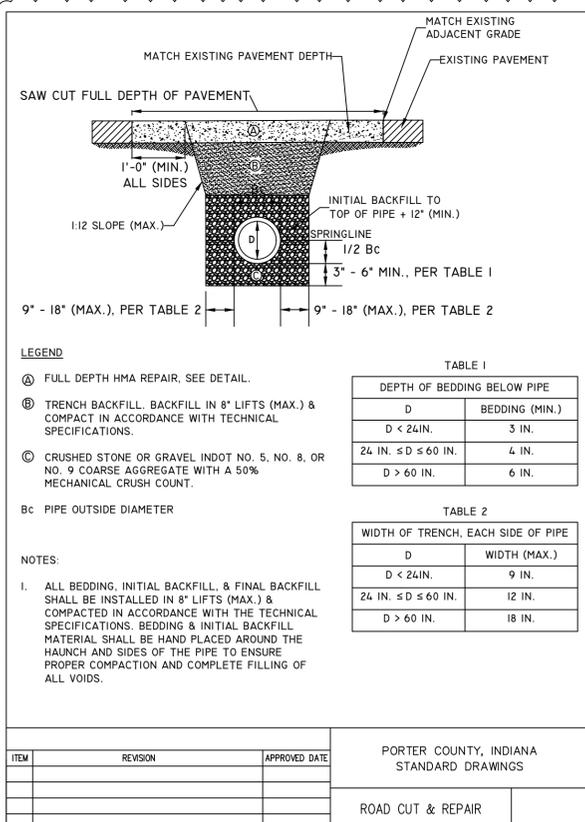
ITEM	REVISION	APPROVED DATE	PORTER COUNTY, INDIANA STANDARD DRAWINGS
			STORM MANHOLE TYPE 2 VII-B7



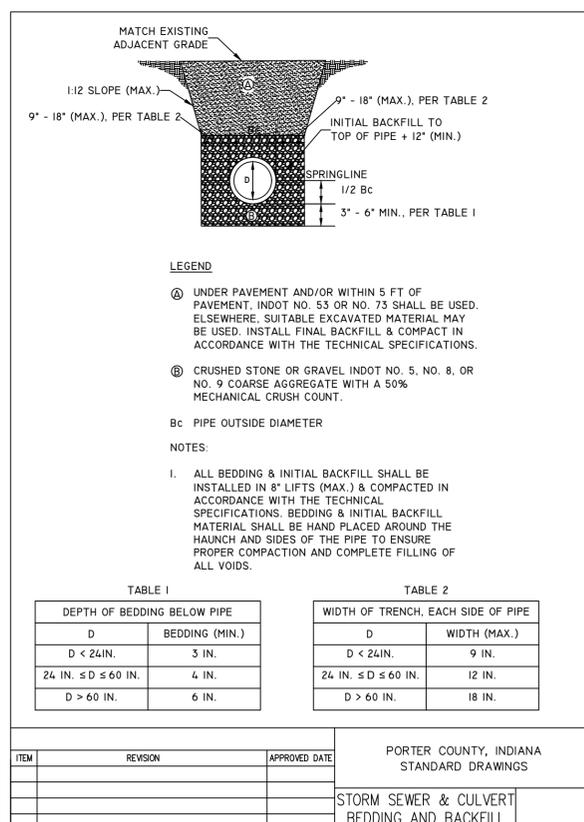
ITEM	REVISION	APPROVED DATE	PORTER COUNTY, INDIANA STANDARD DRAWINGS
			STORM MANHOLE TYPE 2 (RESTRICTED HEADROOM) VII-B8



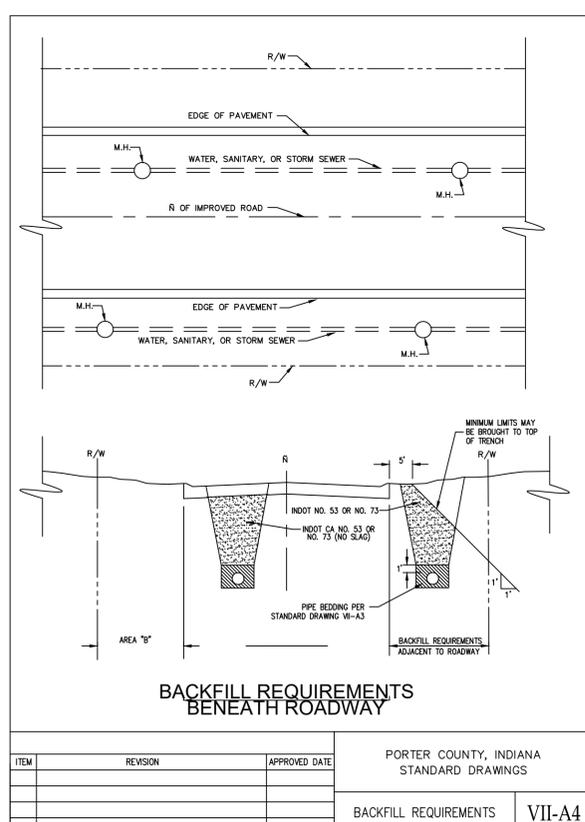
ITEM	REVISION	APPROVED DATE	PORTER COUNTY, INDIANA STANDARD DRAWINGS
			INLET TYPE 1 VII-B13



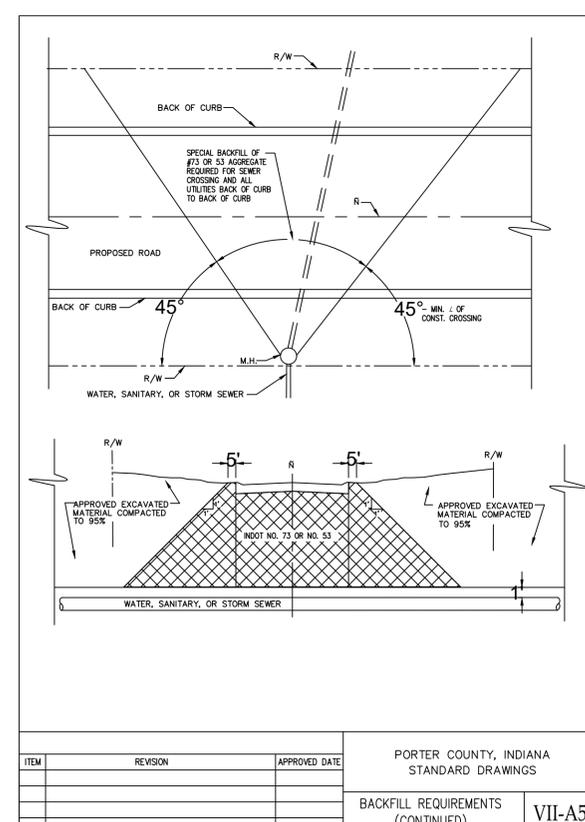
ITEM	REVISION	APPROVED DATE	PORTER COUNTY, INDIANA STANDARD DRAWINGS
			ROAD CUT & REPAIR



ITEM	REVISION	APPROVED DATE	PORTER COUNTY, INDIANA STANDARD DRAWINGS
			STORM SEWER & CULVERT BEDDING AND BACKFILL



ITEM	REVISION	APPROVED DATE	PORTER COUNTY, INDIANA STANDARD DRAWINGS
			BACKFILL REQUIREMENTS VII-A4



ITEM	REVISION	APPROVED DATE	PORTER COUNTY, INDIANA STANDARD DRAWINGS
			BACKFILL REQUIREMENTS (CONTINUED) VII-A5

NOTE:
* FROM "PORTER COUNTY, IN - SUPPLEMENTAL DESIGN AND CONSTRUCTION STANDARDS / SPECIFICATIONS", ADOPTED NOVEMBER 19, 2013.

Drawing: X:\Porter County\255822-TO1\Olney Road\DWG\Sheet\255822-TO1.dwg | Layout: PC1 | Plotfile: 11/26/2024 @ 12:05:27 | User: savedby:transil

SCALE VERIFICATION	DRAWN BY	TWL	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	KNM	1	11/26/2024	TWL	ADDENDUM 1
	APPROVED BY	WBH				
	ISSUE DATE					
	NOVEMBER 2024					
	PROJECT NUMBER					
	255822-TO1					



OLNEY ROAD DRAINAGE IMPROVEMENTS
 PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORM WATER MANAGEMENT
 NEW SOUTH HAVEN SUBDIVISION - VALPARAISO, IN
PORTER COUNTY STANDARD DETAILS

SHEET NO.
09
TOTAL SHEETS
12

Drawing: X:\Porter County\255822-Porter County\RD\DWG\Sheets\255822-TO1-01.dwg | Layout: SD1 | Plotted: 11/26/24 @ 10:55:29 | LastSavedBy: travisi

STRUCTURE TABLE					
STRUCTURE NAME:	STATION	CASTINGS MODEL NO.	STRUCTURE DETAIL	PIPES IN:	PIPES OUT
A10	10+00	NEENAH R-1642 RIM: 672.84	60 INCH TYPE 2 MANHOLE	FROM A20, 24" PIPE INV IN: 663.85, 122 LF @ 0.50% FROM EXISTING, 18" CMP INV IN: 665.85	TO EXISTING, 24" CMP INV OUT: 663.75
A20	11+22	NEENAH R-1642 RIM: 673.44	48 INCH STANDARD TYPE 1 MANHOLE	FROM A30, 24" PIPE INV IN: 664.55, 175 LF @ 0.50% FROM EXISTING, 8" VCP INV IN: 665.53	TO A10, 24" PIPE INV OUT: 664.46, 122 LF @ 0.50%
A30	12+96	NEENAH R-1642 RIM: 674.11	72 INCH TYPE 2 MANHOLE	FROM A40, 18" PIPE INV IN: 665.92, 218 LF @ 0.50% FROM B10, 18" PIPE INV IN: 667.32, 150 LF @ 0.45% FROM EXISTING, 15" PIPE INV IN: 666.67	TO A20, 24" PIPE INV OUT: 665.42, 175 LF @ 0.50%
A40	15+14	NEENAH R-1642 RIM: 675.76	48 INCH STANDARD TYPE 1 MANHOLE	FROM A50, 18" RCP INV IN: 667.11, 46 LF @ 0.49%	TO A30, 18" PIPE INV OUT: 667.01, 218 LF @ 0.50%
A50	15+60	HAALA CG48TM RIM: 672.96	48 INCH STANDARD TYPE 1 MANHOLE	FROM EXISTING, 18" CMP INV IN: 669.37	TO A40, 18" RCP INV OUT: 667.33, 46 LF @ 0.49%
B10	11+50	NEENAH R-3246 RIM: 673.73	84 INCH TYPE 2 MANHOLE	FROM B21, 12" RCP INV IN: 670.22, 38 LF @ 0.35% FROM B20, 12" RCP INV IN: 668.50, 71 LF @ 1.69%	TO A30, 18" PIPE INV OUT: 668.00, 150 LF @ 0.45%
B20	12+21	NEENAH R-3274 RIM: 673.75	48 INCH FLAT TOP TYPE 1 MANHOLE	FROM EXISTING, 12" CMP INV IN: 669.85	TO B10, 12" RCP INV OUT: 669.70, 71 LF @ 1.69%
B21	11+82 21.4' L	NEENAH R-3274 RIM: 673.70	INLET TYPE 1	FROM EXISTING, 6" PVC INV IN: 671.60	TO B10, 12" RCP INV OUT: 670.35, 38 LF @ 0.35%

SCALE VERIFICATION BAR IS ONE INCH LONG ON ORIGINAL DRAWING 	DRAWN BY	TWL	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	KNM	1	11/26/2024	TWL	ADDENDUM 1
	APPROVED BY	WBH				
	ISSUE DATE					
	NOVEMBER 2024					
	PROJECT NUMBER					
	255822-TO1					



OLNEY ROAD DRAINAGE IMPROVEMENTS

PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORM WATER MANAGEMENT
NEW SOUTH HAVEN SUBDIVISION - VALPARAISO, IN

STRUCTURE DATA TABLE

SHEET NO.	12
TOTAL SHEETS	12