

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION 6

PLANS
Letting Date: September 1, 2021

CONTRACT ID: D6D1.POC.012

TIP NO.: -----

FEDERAL AID NO.: 17106.1078011

WBS ELEMENT NO.: 17106.1078011

ROUTE NO.: NC 904

LOCATION: 0.53 MI. S. OF NC 130

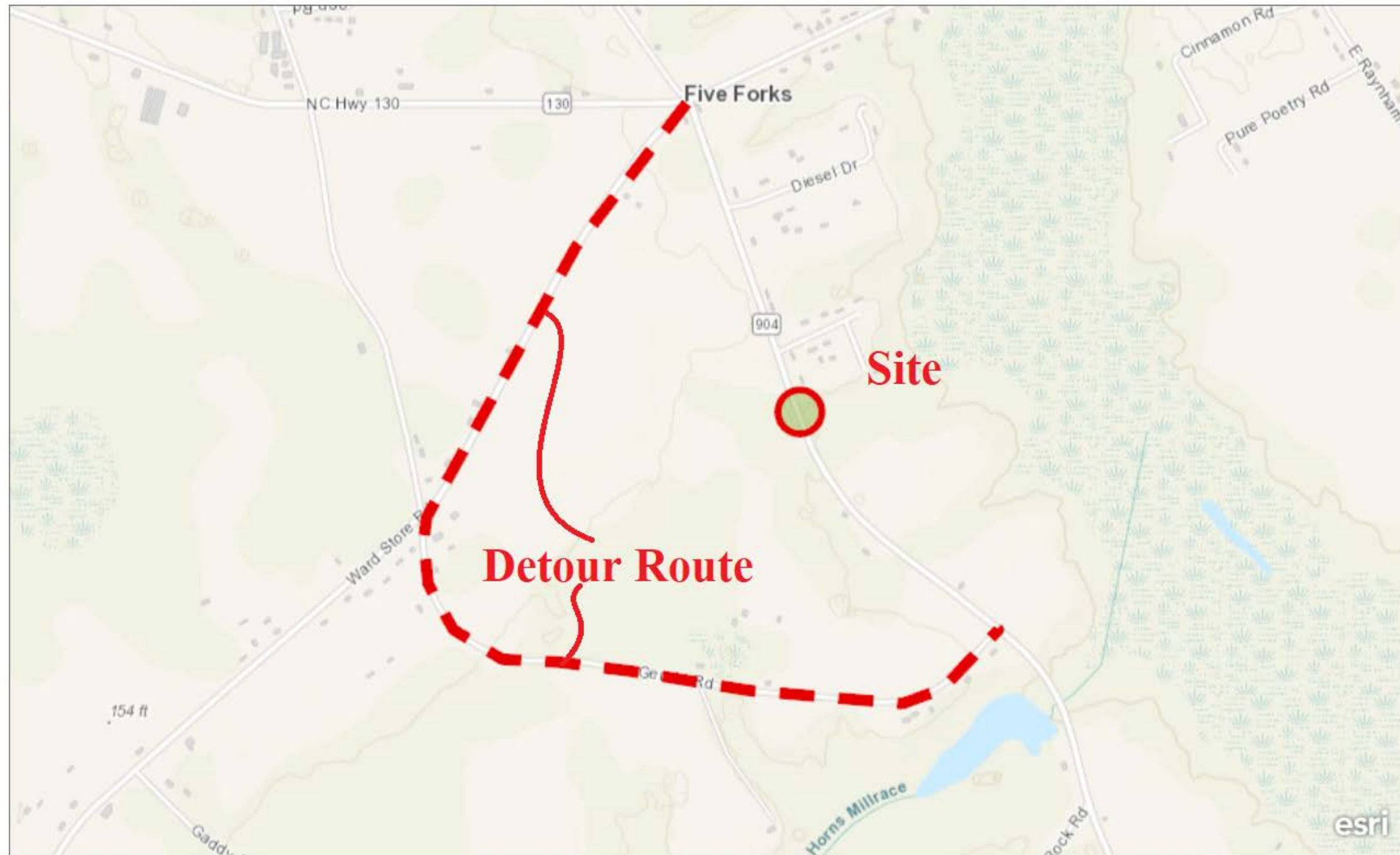
COUNTY: ROBESON

TYPE OF WORK: PIPE REMOVAL & REPLACEMENT

CONSTRUCTION NOTES:

1. **Description:** This project will replace the existing 24" RCP located approx. 0.53 miles South of NC 130 on NC 904, and install one 42" RCP, Class V with Reinforced Concrete Endwalls. Endwalls shall be in accordance with Standard Drawing 838.01 Sheet 1 of 3. All work shall be in accordance with NCDOT Standard Specifications, the Standard Drawings, as well as existing contract documentation.
2. **Road Closure:** Prior to closing NC 904, the Contractor shall provide the Engineer with the date for the proposed closure of NC 904 no less than 14 days prior, in writing. The Contractor shall install all traffic control devices for the road closures, including but not limited to signs, stands, Type III barricades, and trail blazing signs. Road closure shall be in accordance with Std. Dwg. 1101.03. Contractor may perform flagging operations as needed prior to and after planned closure for the installation of the proposed pipe. All flagging operations shall be in accordance with applicable sections of Standard Specifications and Standard Drawings. NC 904 may be closed for a maximum duration of fourteen (14) days under Intermediate Contract Time 2.
3. **Utility Surveys:** No utility surveys have been made by the Department. The Contractor shall investigate and determine any conflicts with utilities, and shall advise the Department of any conflicts prior to the closing of NC 904 and the commencement of Intermediate Contract Time 2.
4. **8" Water Line:** Water line construction shall be in accordance with attached Water Line Plans.
5. **New Pipe Burial Requirement:** The proposed 42" pipe shall be buried to 20% of its diameter.
6. **Permits:** This project shall fully incorporate Water Quality General Cert. No. 4132, Nationwide Permit 3, and the NPDES. All dewatering shall be in accordance with the BMP Manual.
7. **Non-nylon matting:** Non-nylon matting shall be used in areas inside and immediately adjacent to jurisdictional areas. Payment for non-nylon matting will be made under "Matting for Erosion Control" as contained in the contract.
8. **Dewatering:** Dewatering shall be payable as a Lump Sum Item, and shall include by-pass pumping, silt bags, pumps, hoses, and other items as required to dewater the site, pump clean water around the site, discharge said clean water on a dissipater device, and maintain the site in a dry condition for the construction of the proposed pipe. Water being run through a silt bag must pass through an approved BMP, such as #57 Stone, prior to discharge. No additional payments will be made. Once the new pipe has been installed, the Contractor shall remove the impervious dikes in a manner so as not to cause excess silting to occur.
9. **Existing Riser:** A riser structure has been placed on the upstream end of this pipe, outside of the DOT Right of Way. The Department contacted the landowner, Alford Davis, on 7/7/2021 and the landowner advised it is permissible to remove the riser structure. The Contractor shall remove and dispose of the existing riser structure. Removal of the riser structure is incidental to Grading and Pipe Removal.
10. **Existing Concrete Slabs:** There are existing concrete slabs from a previous drainage structure under the roadway, as shown in the pictures below. Removal of all previous remnants of drainage structures, those visible and those that may currently be hidden, shall be considered incidental to Grading and Pipe Removal. As such, no additional compensation shall be granted.
11. **Waste & Borrow:** All waste shall be removed to an approved waste facility. Borrow shall be obtained from approved sources.
12. **Certified Payroll:** Certified payroll copies are required for this project.

VICINITY MAP & DETOUR ROUTE



0.3mi

State of North Carolina DOT, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA



Upstream



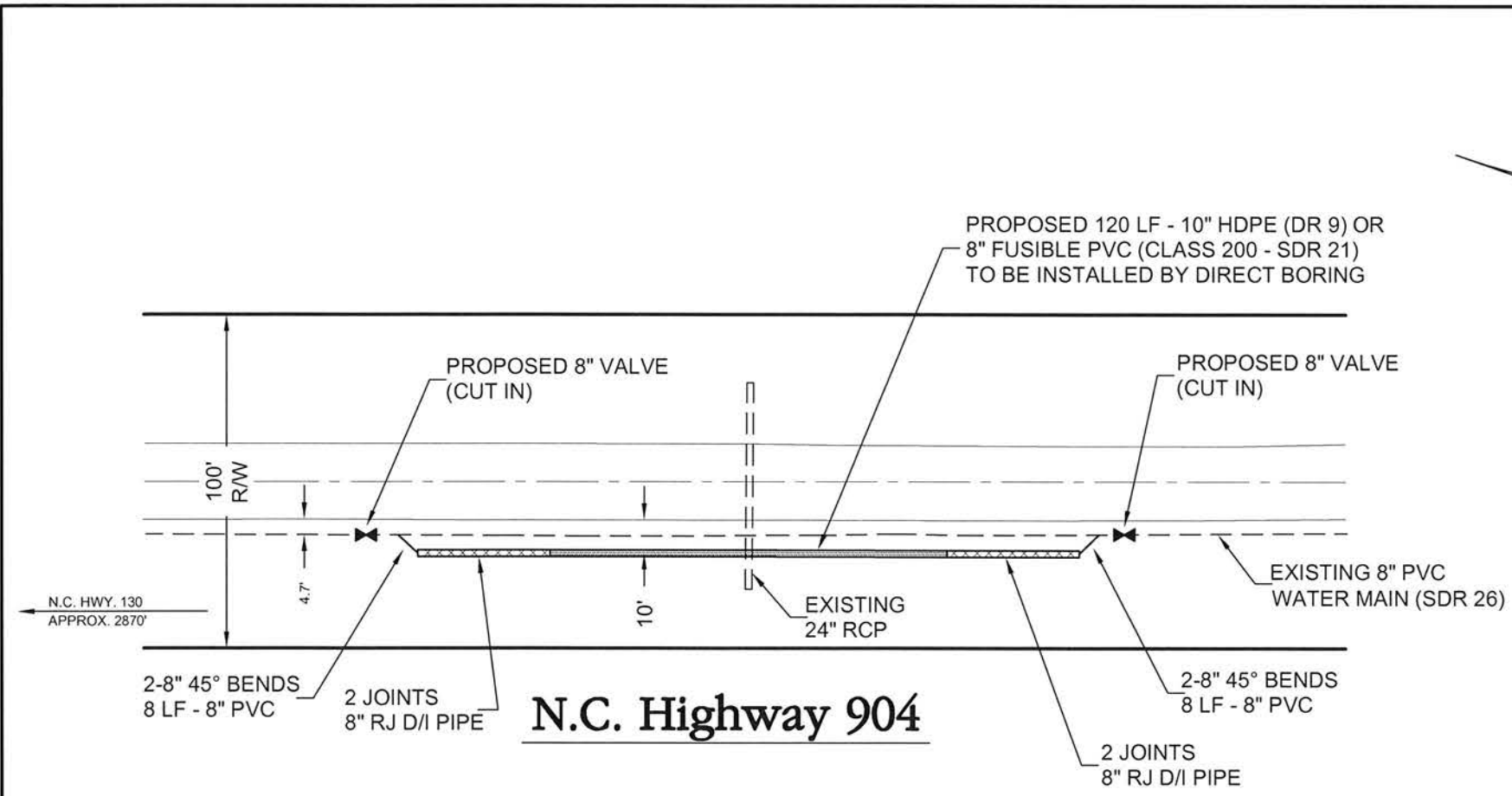
Upstream



Upstream



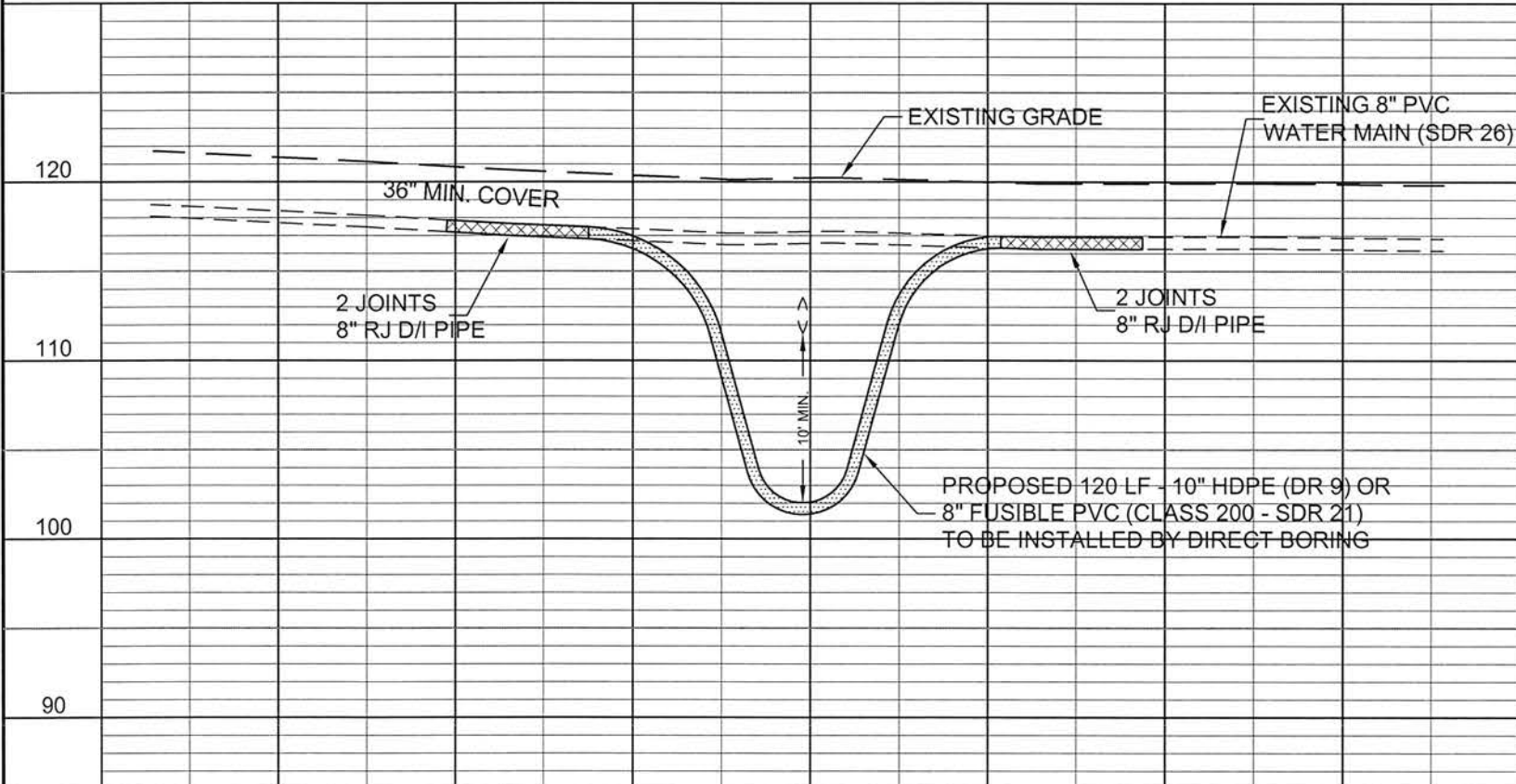
Downstream



NOTE: CONTRACTOR SHALL CONTACT TELEPHONE CO., GAS CO., ELECTRICAL CO., COUNTY WATER DEPARTMENT AND ANY APPLICABLE PUBLIC WORKS DEPARTMENT FOR LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.



<input type="checkbox"/>	Preliminary - Do not use for construction
<input type="checkbox"/>	Progress Drawings - Do not use for construction
<input type="checkbox"/>	Preliminary Plat - Not for recordation, conveyances, or sales
<input type="checkbox"/>	Final Drawing - Not released for construction
<input type="checkbox"/>	Final Drawing - For Review Purposes Only
<input checked="" type="checkbox"/>	Final Drawing - Released For Construction

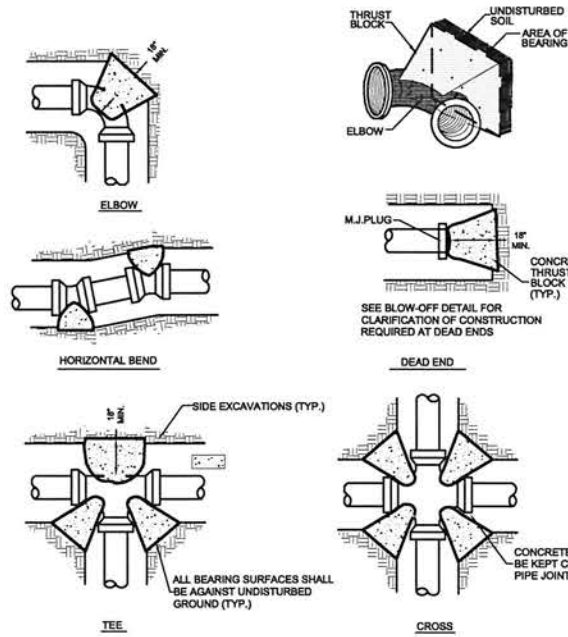


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 Consulting Engineers
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Robeson County Water
 Direct Bore
 N.C. Highway 904
 Plan & Profile

REVISIONS	PROJECT: ROBESON COUNTY COUNTY-WIDE WATER SYSTEM DIRECT BORE ON N.C. HIGHWAY 904	
	FOR: COUNTY OF ROBESON	
FILE:	LOCATION: N-34.464454 W-79.197364	
	ROUTE: N.C. HIGHWAY 904	
	SCALE: 1"=50'H; 1"=10'V DATE: MARCH 2021 DRAWN: CBB CHECKED: SRN	DRAWING NO. SHEET 1 OF 1

<input type="checkbox"/>	Preliminary - Do not use for construction
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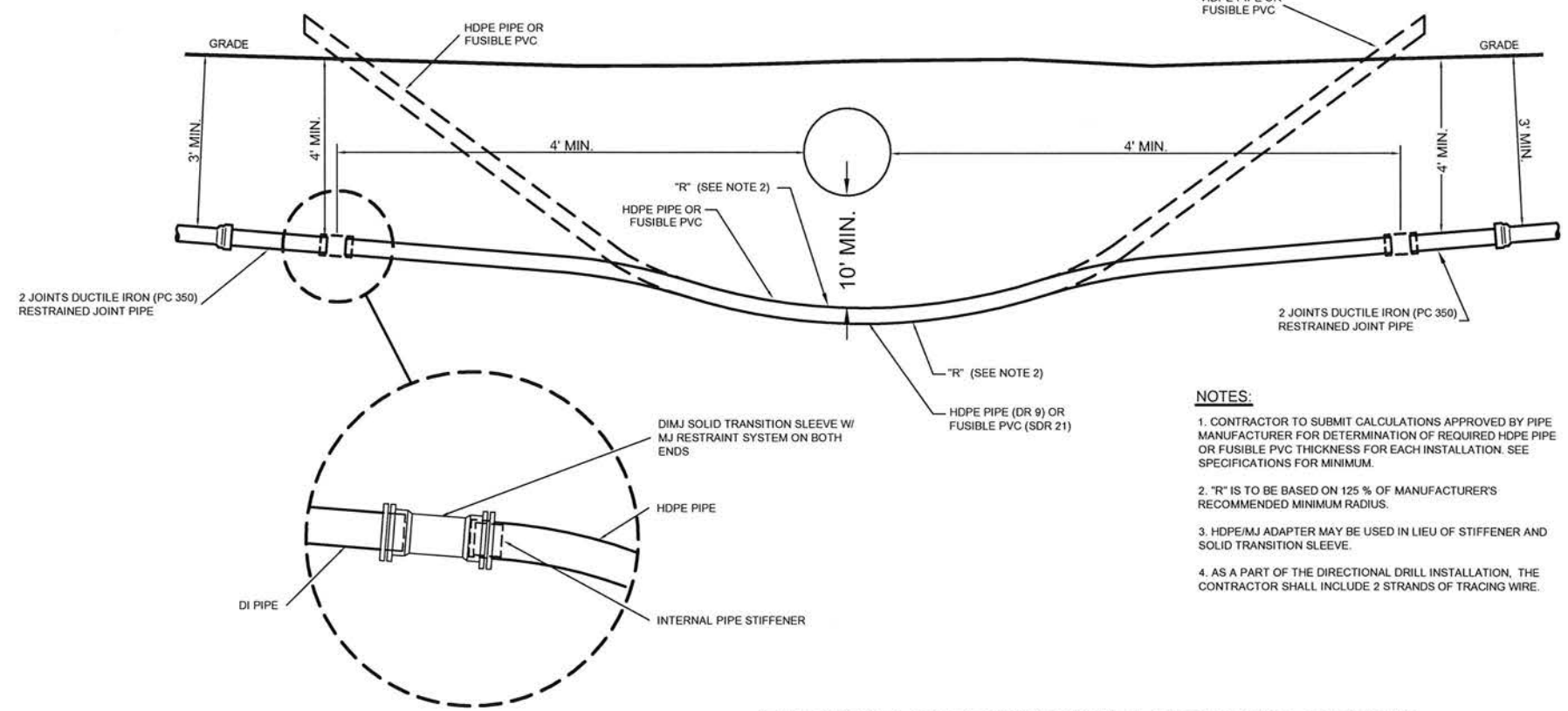


CONCRETE THRUST BLOCK DETAIL
NTS

FITTING SIZE (IN.)	THRUST BLOCKING SCHEDULE					
	MINIMUM BLOCKING AREA AND VOLUME IN S.F. AND (C.Y.)					
	11 1/4"	22 1/2"	45"	90"	TEE	PLUG
2			0.23 (0.11)	0.38 (0.11)	0.30 (0.11)	0.30 (0.11)
4			0.83 (0.18)	1.35 (0.18)	0.98 (0.18)	0.98 (0.18)
8	0.40 (0.01)	0.80 (0.02)	1.73 (0.20)	3.00 (0.33)	2.17 (0.25)	2.17 (0.25)
8	0.80 (0.02)	1.50 (0.04)	3.08 (0.34)	5.40 (0.60)	3.83 (0.42)	3.83 (0.42)
10	1.20 (0.03)	2.30 (0.07)	4.72 (0.52)	8.40 (0.94)	5.92 (0.66)	5.92 (0.66)
12	1.70 (0.05)	3.30 (0.12)	6.82 (0.75)	12.00 (1.33)	8.48 (0.94)	8.48 (0.94)
18	3.00 (0.33)	5.90 (0.65)	11.60 (0.86)	21.30 (1.57)	15.00 (0.97)	15.00 (0.97)
20	4.80 (0.52)	9.20 (0.78)	18.00 (1.32)	33.30 (3.50)	23.30 (1.87)	23.30 (1.87)
24	8.70 (0.75)	13.20 (0.87)	26.00 (2.28)	48.00 (5.29)	33.60 (3.24)	33.60 (3.24)
30	10.40 (0.77)	20.70 (1.80)	40.60 (4.45)	75.00 (10.30)	52.50 (6.32)	52.50 (6.32)
36	15.00 (1.28)	29.80 (3.11)	58.40 (7.67)	108.0 (17.90)	75.60 (10.90)	75.60 (10.90)

NOTE: Values given are based on 150 psi water pressure and 2000 lb/ft² soil bearing capacity. Soils with less bearing capacity such as muck, peat or soft clay will require greater blocking areas and volumes.
The thrust blocking shown above is based on the use of mechanical joint as shown on plans.

- NOTES:
- THRUST BLOCKS SHALL BE INSTALLED ON PVC WATER DISTRIBUTION LINES 8" THRU 12" DIA. IN THE MANNER SHOWN.
 - PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
 - SAC-CRETE SHALL NOT BE ALLOWED.
 - NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
 - CONCRETE SHALL BE A MINIMUM 3,000 PSI.
 - ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL.



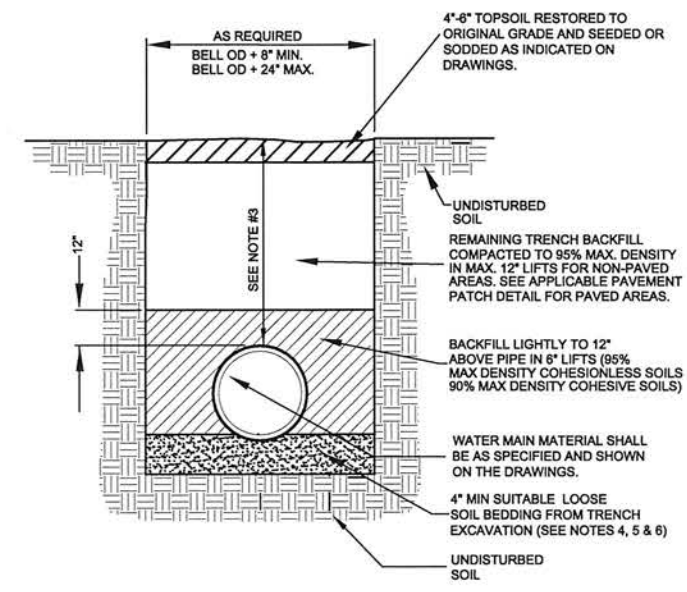
TYPICAL DIRECTIONAL BORING DETAIL
PIPE CROSSING NTS

- NOTES:
- CONTRACTOR TO SUBMIT CALCULATIONS APPROVED BY PIPE MANUFACTURER FOR DETERMINATION OF REQUIRED HDPE PIPE OR FUSIBLE PVC THICKNESS FOR EACH INSTALLATION. SEE SPECIFICATIONS FOR MINIMUM.
 - "R" IS TO BE BASED ON 125% OF MANUFACTURER'S RECOMMENDED MINIMUM RADIUS.
 - HDPE/MJ ADAPTER MAY BE USED IN LIEU OF STIFFENER AND SOLID TRANSITION SLEEVE.
 - AS A PART OF THE DIRECTIONAL DRILL INSTALLATION, THE CONTRACTOR SHALL INCLUDE 2 STRANDS OF TRACING WIRE.

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Robeson County Water
Direct Bore
N.C. Highway 904
Details

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	FOR: COUNTY OF ROBESON
FILE:	LOCATION: N-34.464454 W-79.197364
	ROUTE: N.C. HIGHWAY 904 SUBDIVISION:
	SCALE: NONE DATE: MARCH 2021 DRAWN: CBB CHECKED: SRN
	DRAWING NO. SHEET D-1 OF



WATER MAIN BEDDING DETAIL
NTS

- NOTES:
- ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", CHAPTER XV11 OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON SITE AT ALL TIMES DURING EXCAVATION AND BACKFILLING.
 - CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN PAVED AREAS. TRENCH WIDTH SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.
 - SEE PLANS FOR MINIMUM COVER.
 - LOOSE SOIL OR SELECT MATERIAL IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
 - BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. BEDDING MATERIAL WILL NOT BE PAID FOR UNLESS SPECIFICALLY APPROVED BY THE PROJECT REPRESENTATIVE AND ONLY FOR THE AUTHORIZED QUANTITY.
 - WHERE NATIVE SOIL IS DETERMINED TO BE ADEQUATE BY THE ENGINEER, NO EXCAVATION BELOW THE BOTTOM OF PIPE IS REQUIRED.
 - BEDDING MATERIAL SHALL BE PROPERLY RODDED AND COMPACTED AROUND THE PIPE HAUNCHES.
 - TEST FOR DENSITY OF COMPACTION MAY BE MADE AT THE OPTION OF THE ENGINEER AND DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE ENGINEER MAY HAVE COMPACTION TEST PERFORMED AFTER THE BACKFILL IS COMPLETE. CONTRACTOR SHALL BE REQUIRED TO EXCAVATE TO VARIOUS ELEVATIONS FOR DENSITY TESTING EXCAVATION, BACKFILL AND RECOMPACTION SHALL BE PERFORMED AT NO ADDITIONAL COSTS TO THE OWNER.

