


09/28/2019

See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols  
See Sheet 1C-1 TO 1C-2 For Survey Control Sheets

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

|            |           |
|------------|-----------|
| T.I.P. NO. | SHEET NO. |
| BR-0112    | UC-1      |



1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107

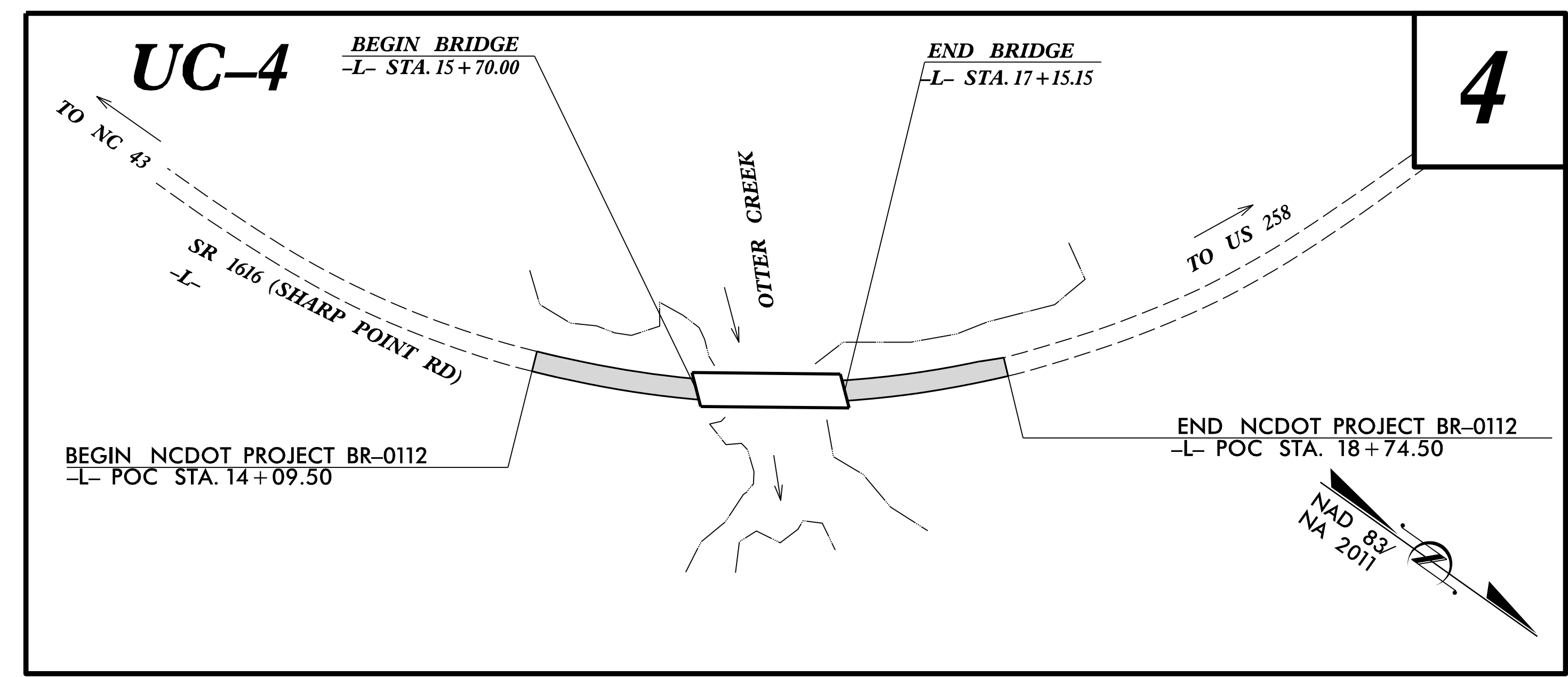
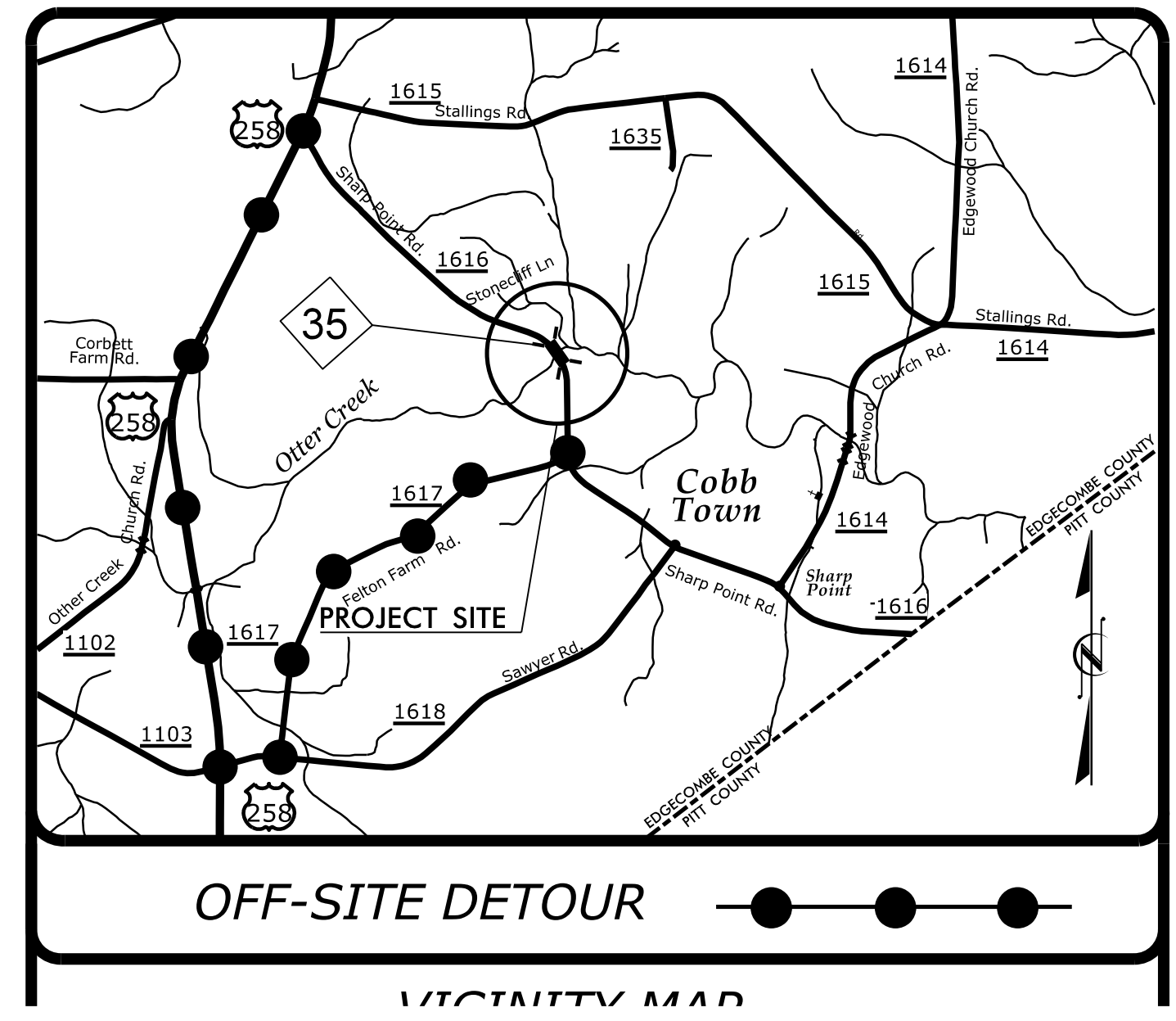
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

## UTILITY CONSTRUCTION PLANS EDGECOMBE COUNTY

LOCATION: BRIDGE NO. 320035 OVER OTTER CREEK  
ON SR 1616 (SHARP POINT RD.)

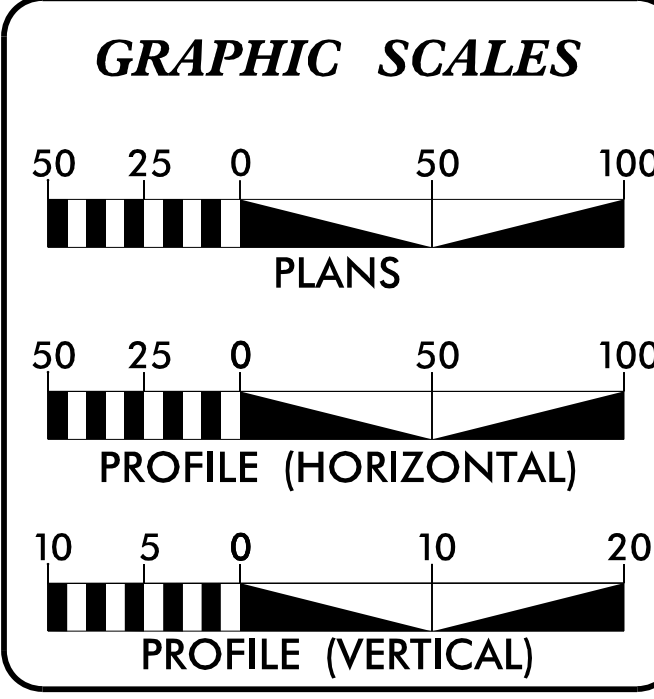
TYPE OF WORK: RELOCATION OF WATER LINE

PROJECT: BR-0112



DOCUMENT NOT CONSIDERED FINAL  
UNTIL ALL SIGNATURES ARE COMPLETED

CONTRACT:




| SHEET NO.        | DESCRIPTION          |
|------------------|----------------------|
| UC-1             | TITLE SHEET          |
| UC-2             | SYMBOLOLOGY SHEET    |
| UC-3             | GENERAL NOTES SHEET  |
| UC-3A THRU UC-3B | DETAIL SHEETS        |
| UC-4             | PLAN & PROFILE SHEET |

WATER AND SEWER OWNERS ON PROJECT

(1) EDGECOMBE COUNTY (WATER)

PREPARED IN THE OFFICE OF:



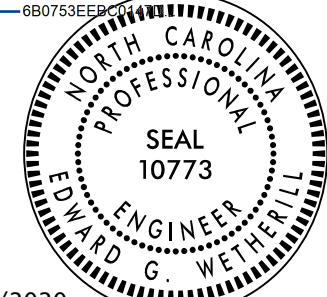
1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
License No. F-0377  
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

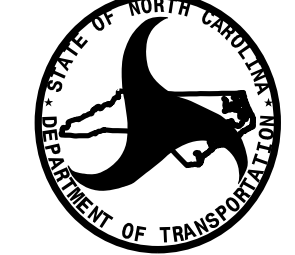
EDWARD G. WETHERILL, PE UTILITY ENGINEER  
SCOTT L. KENNEDY UTILITY DESIGN ENGINEER  
JOHN D. SCHRINER, PLS PROJECT UTILITY COORDINATOR

SEAL

DocuSigned by:  
Edward G. Wetherill



4/7/2020  
UTILITY CONSTRUCTION PLANS ONLY



DIVISION OF HIGHWAYS  
UTILITIES UNIT  
1555 MAIL SERVICES CENTER  
RALEIGH NC 27699-1555  
PHONE (919) 707-6690  
FAX (919) 250-4151

Nabil Hamdan UTILITIES REGIONAL ENGINEER  
Kifah A. Kamil UTILITIES ENGINEER  
Kyle Pleasant UTILITIES AREA COORDINATOR  
Larry James UTILITIES COORDINATOR

4/7/2020  
I:\UC\Proj\BR-0112\uc\_1\SH.dgn  
USER:skennedy



5/14/19

# UTILITY CONSTRUCTION

|   |                       |  |
|---|-----------------------|--|
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b>  | PROJECT REFERENCE NO. | SHEET NO.  |
|   | BR-0112               | UC-3   |
|   | DESIGNED BY: SLK      |  |
|   | DRAWN BY: SLK         |  |
|   | CHECKED BY: MVZ       |  |
| APPROVED BY: MVZ  |                       |  |
| REVISED:  |                       |  |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION   |                       | UTILITY CONSTRUCTION PLANS ONLY  |
| UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151  |                       | 1223 Jones Franklin Rd. Raleigh, N.C. 27696 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107 |
| TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION |                       |  |

## GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.
2. THE EXISTING UTILITIES BELONG TO EDGECOMBE COUNTY.
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

## WATER INSTALLATION NOTES:

- 1) CONTRACTOR SHALL COORDINATE ALL PROPOSED WORK WITH EDGECOMBE COUNTY UTILITIES COORDINATOR MR. STEVE COBB AT 252-823-3848 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
- 2) CONTRACTOR SHALL FULLY INSTALL, PRESSURE & LEAKAGE TEST, AND CHLORINATE NEW WATER MAIN PRIOR TO CONNECTION TO EXISTING SYSTEM.
- 3) CONTRACTOR SHALL PERFORM THE CONNECTION DURING OFF PEAK HOURS WITH A MAXIMUM SHUT DOWN TIME OF FIVE HOURS. (12 PM MIDNIGHT TO 5 AM)
- 4) ANY WORK OR TEST PERFORMED WITHOUT NOTIFICATION AND CONTACT WITH EDGECOMBE COUNTY FIELD INSPECTORS SHALL BE PERFORMED AT THE CONTRACTOR'S RISK. TESTING SHALL BE PERFORMED IN THE PRESENCE OF EDGECOMBE COUNTY PERSONNEL. CONTACT MR. STEVE COBB, UTILITIES COORDINATOR.
- 5) OPERATION OF EXISTING GATE VALVES SHALL BE DONE BY EDGECOMBE COUNTY OPERATIONS STAFF. CONTACT MR. STEVE COBB, EDGECOMBE COUNTY UTILITIES COORDINATOR.
- 6) TIE NEW WATER MAIN INTO EXISTING. INSTALL THRUST BLOCKS AND RODDING.
- 7) NEW WATER MAIN SHALL NOT BE CONNECTED TO EXISTING MAIN WITHOUT PRIOR APPROVAL AND COORDINATION WITH EDGECOMBE COUNTY.
- 8) CONTRACTOR SHALL ALLOW HDPE PIPE 24 HOURS TO RELAX AFTER PULLING IS COMPLETE AND BEFORE IT IS CONNECTED VIA TRANSITION COUPLINGS TO THE OTHER D.I. PIPE.
- 9) HDPE SIZING - THE INSIDE DIAMETER OF HDPE WATER PIPE SHALL BE EQUAL TO OR GREATER THAN THE INSIDE DIAMETER OF THE WATER PIPE IT IS CONNECTED TO.

## PROJECT SPECIFIC NOTES:

1. PROPOSED WATER LINE FROM -WL- LINE STATION 10+00 +/- TO 10+75 +/- SHALL BE 6" R.J. DIP, INSTALLED BY OPEN CUT METHOD, AND FROM -WL- LINE STATION 10+75 +/- TO 14+40 +/- SHALL BE 8" DR9 (200 PSI) HDPE (DIPS/IPS), INSTALLED BY DIRECTIONAL DRILL METHOD, AND FROM -WL- LINE STATION 14+40 +/- TO 14+82 +/- SHALL BE 6" R.J. DIP, INSTALLED BY OPEN CUT METHOD.
2. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.
3. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL, IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTINGS FOR ONE WEEK FROM THE TIME OF INSTALLATION.

## UTILITY CONSTRUCTION

CONTRACTOR SHALL EVALUATE THE EXISTING SOILS BENEATH THE STREAM BED AND INSTALL THE DIRECTIONAL DRILL AT A DEPTH OF 10' OR DEEPER (AT HIS DISCRETION) BELOW THE CREEK BOTTOM TO ALLEVIATE THE POSSIBILITY OF DRILLING SLURRY LEAK DURING INSTALLATION. THE CONTRACTOR SHALL SUBMIT A SEALED BORING PLAN PRIOR TO CONSTRUCTION PER THE NCDOT STANDARD SPECIFICATIONS SUB-ARTICLE 1550-3(B).


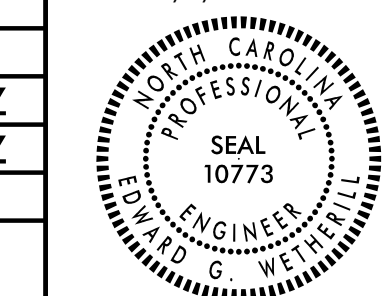
CONTRACTOR SHALL PROVIDE DRILLING LOG OF DIRECTIONAL DRILL. SHOW HORIZONTAL AND VERTICAL LOCATION OF THE DRILLING HEAD EVERY 10' IN PLAN DIMENSION.

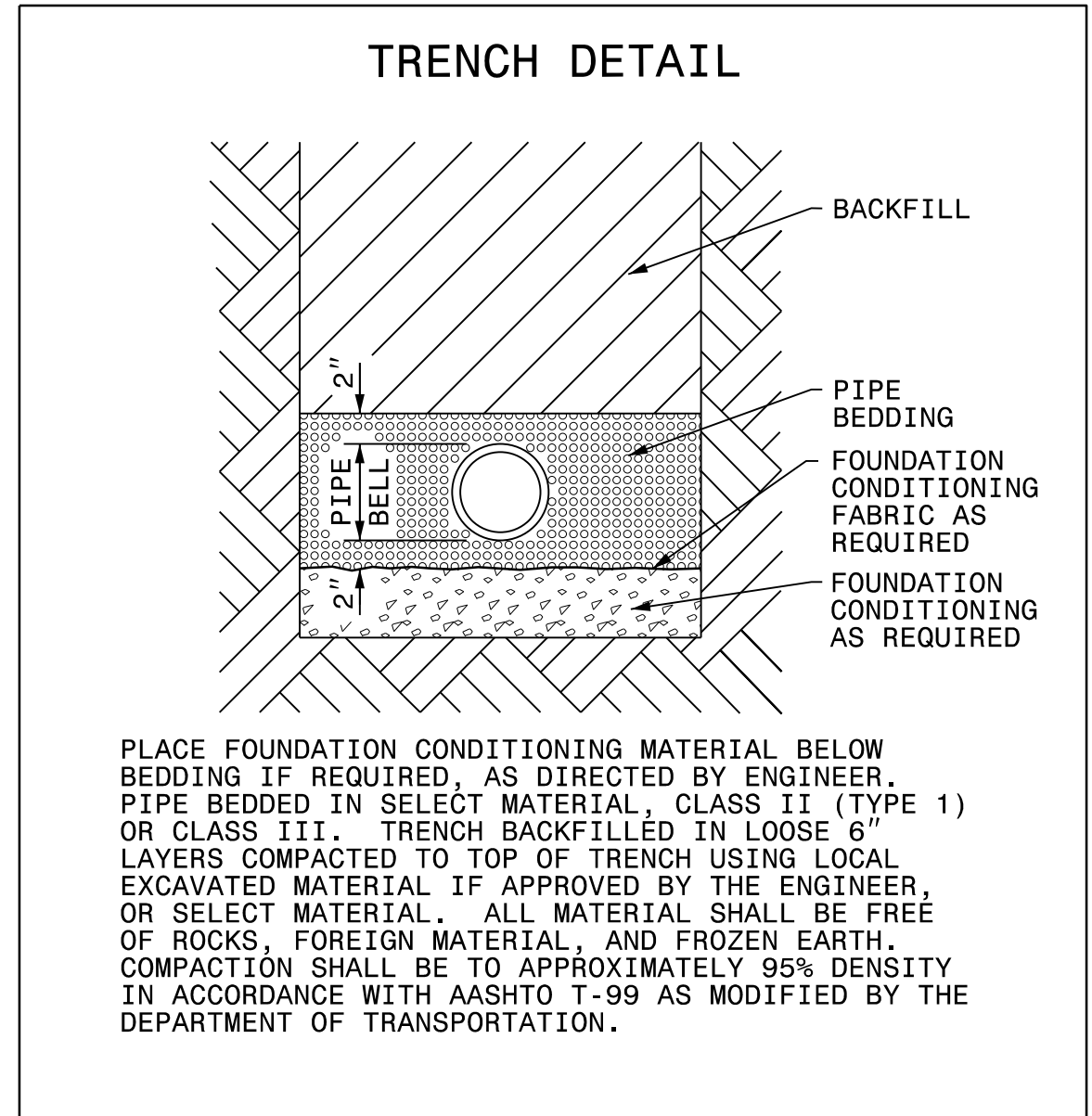
ALL WATERLINE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST NCDOT AND NCDEQ DWR PWS STANDARDS AND SPECIFICATIONS.

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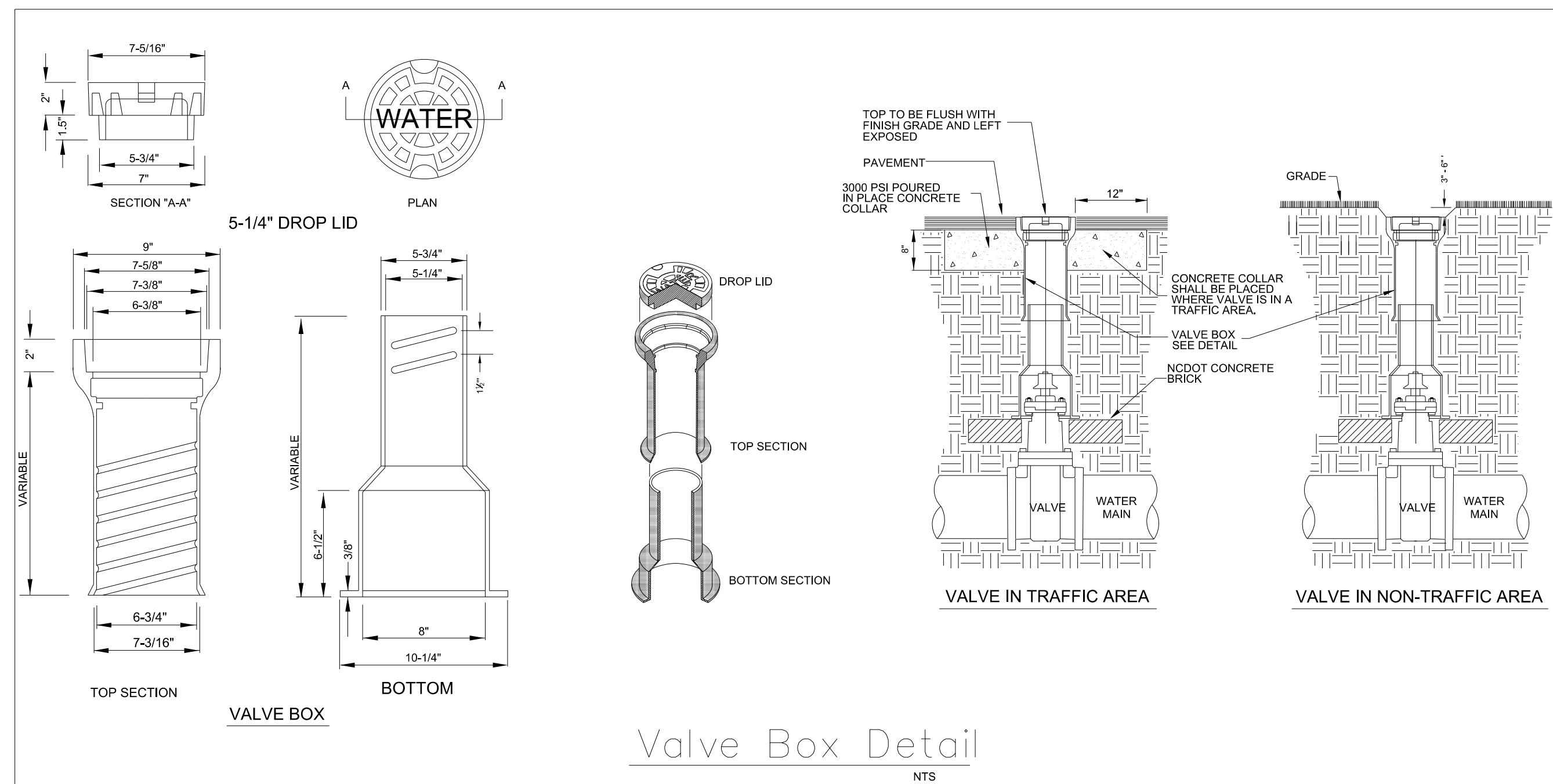
8/17/99

REVISIONS

|  |                                  |   |
|--|----------------------------------|---|
| BRIDGE 320035  | PROJECT REFERENCE NO.<br>BR-0112 | SHEET NO.<br>UC-3A  |
| UTILITY CONSTRUCTION PLANS   | DESIGNED BY: SLK                 | 4/17/2020   |
|  1223 Jones Franklin Rd.<br>Raleigh, N.C. 27606<br>License No. F-0377<br>Bus: 919 851 8077<br>Fax: 919 851 8107 | DRAWN BY: SLK                    |  |
|  | CHECKED BY: MVZ                  |   |
| TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN<br>CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION   | APPROVED BY: MVZ                 | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION                                   |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED   | REVISED:                         | UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151          |

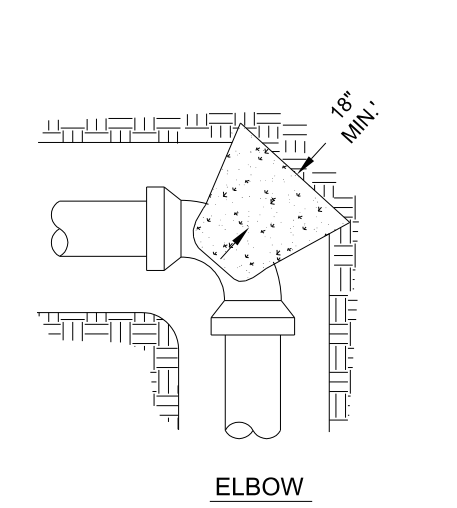


## UTILITY CONSTRUCTION

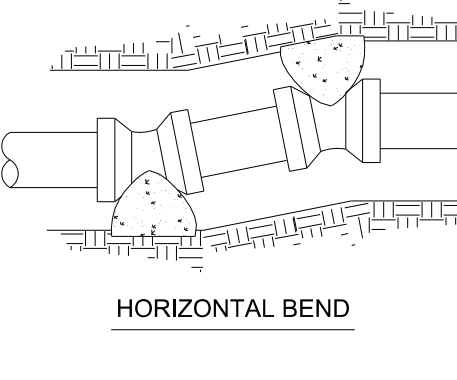


### CONCRETE THRUST BLOCK DETAIL

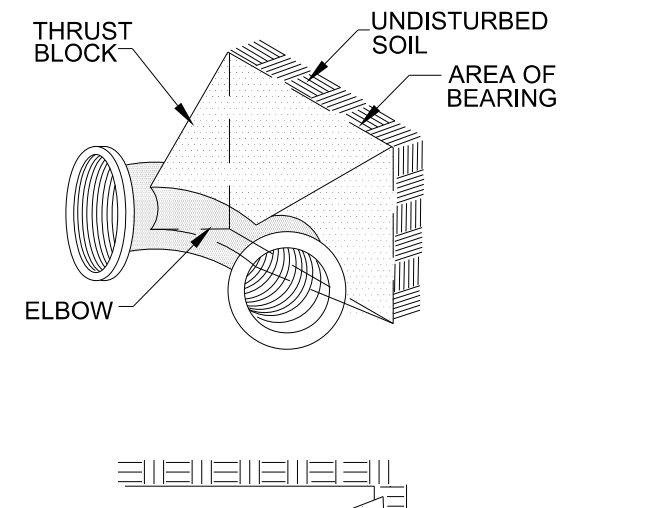
NTS



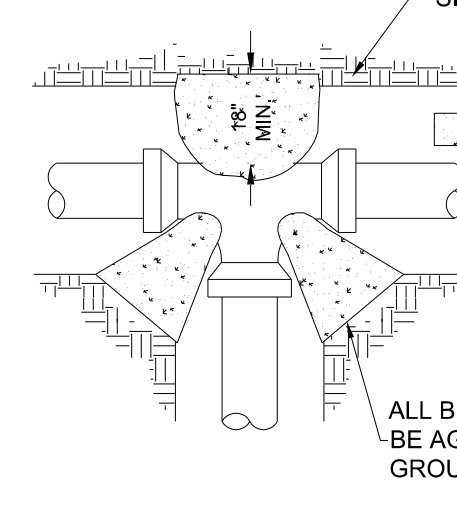
ELBOW



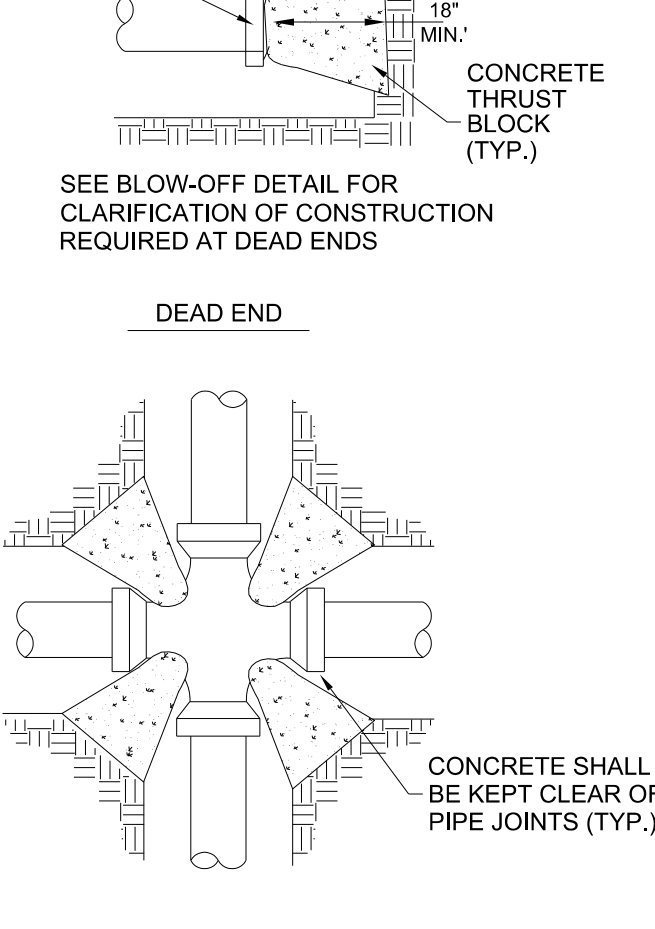
HORIZONTAL BEND



DEAD END



TEE



CROSS

SEE BLOW-OFF DETAIL FOR CLARIFICATION OF CONSTRUCTION REQUIRED AT DEAD ENDS

CONCRETE SHALL BE KEPT CLEAR OF PIPE JOINTS (TYP.)

ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED GROUND (TYP.)

**NOTES:**

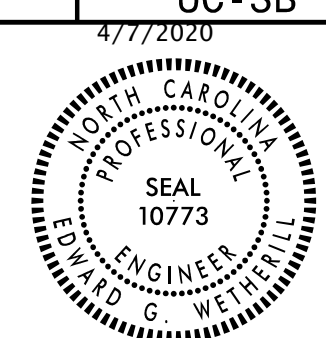
- THRUST BLOCKS SHALL BE INSTALLED ON PVC WATER DISTRIBUTION LINES 6" THRU 12" DIA. IN THE MANNER SHOWN.
- PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
- SAC-CRETE SHALL NOT BE ALLOWED.
- NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
- CONCRETE SHALL BE A MINIMUM 3,000 PSI.
- ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL.

| THRUST BLOCKING SCHEDULE |   |              |              |               |               |               |
|--------------------------|---|--------------|--------------|---------------|---------------|---------------|
| FITTING SIZE (IN.)       | 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)   |
| 6                        | 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)   |
| 16                       | 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                       | 4.60 (0.52)   | 9.20 (0.76)  | 18.00 (1.32) | 33.30 (3.60)  | 23.30 (1.87)  | 23.30 (1.87)  |
| 24                       | 6.70 (0.75)   | 13.20 (0.97) | 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) |

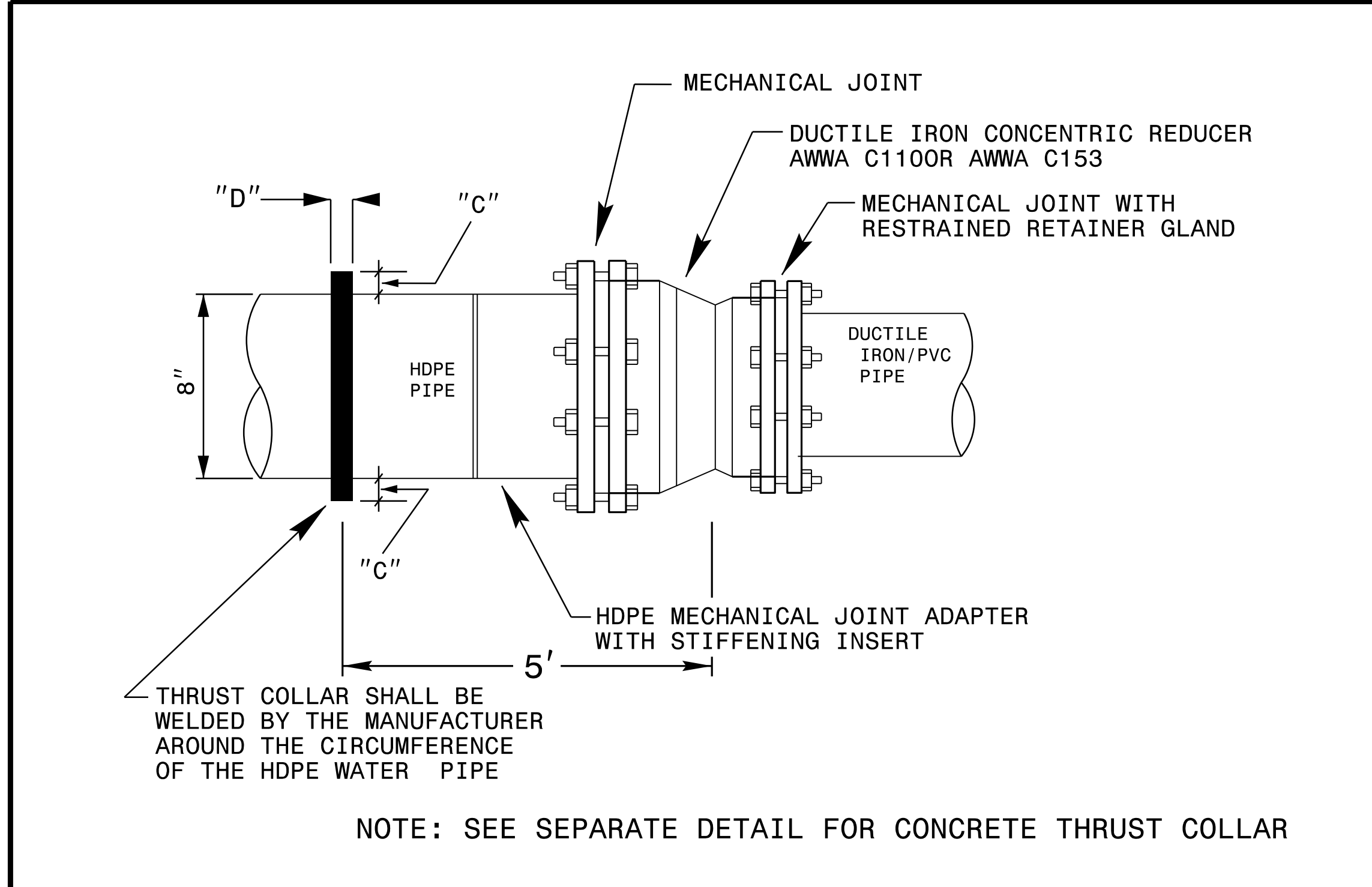
NOTE: Values given are based on 200 psi water pressure and 2000 lb/sf soil bearing capacity. Soils with less bearing capacity such as muck, peat or soft clay will require greater blocking areas and volumes.

The thrust blocking shown above is based on the use of mechanical joint as shown on plans.

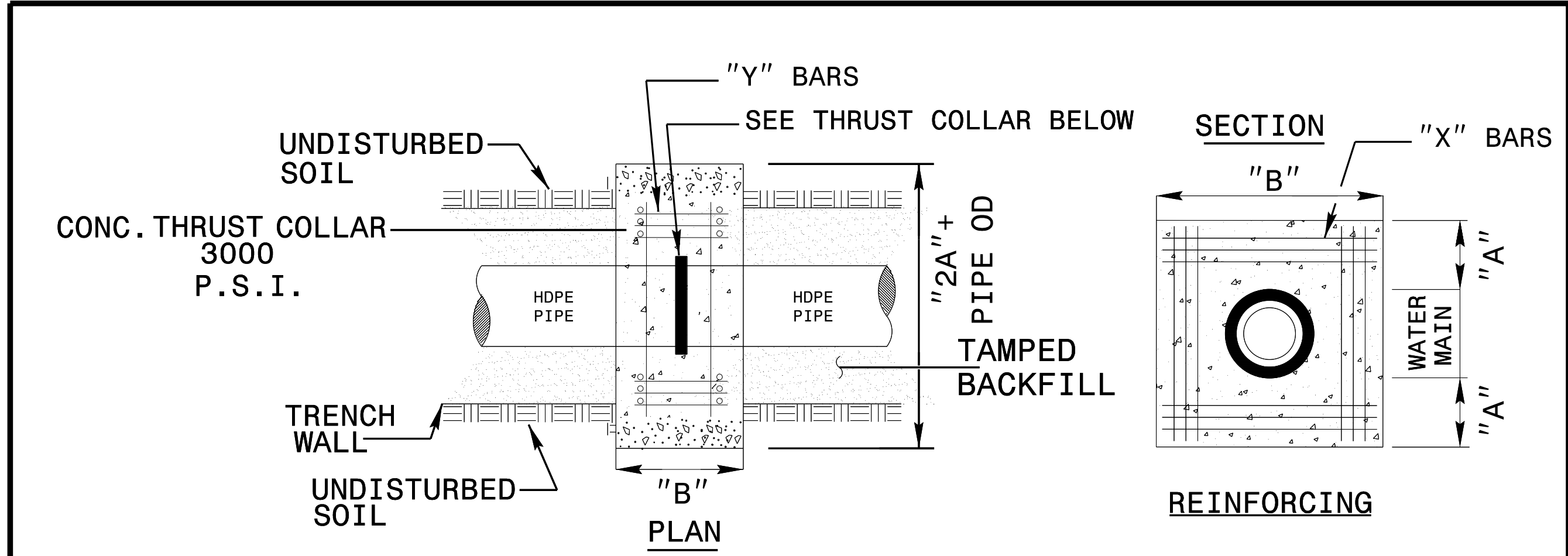
4/7/2020 ut\_rdu\_uc3a\_psh.dgn

|   |  |
|---|--|
| PROJECT REFERENCE NO.<br>B-6002   | SHEET NO.<br>UC-3B   |
| DESIGNED BY: SLK  |  |
| DRAWN BY: SLK   |  |
| CHECKED BY: MVZ   |  |
| APPROVED BY: MVZ  |  |
| REVISED:  |  |
| NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION<br>UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |  |

UTILITY CONSTRUCTION



TRANSITION DETAIL FROM HDPE TO DI/PVC WATER PIPE



POSSIBLE STEEL REINFORCEMENT TO BE VERIFIED BY CONTRACTOR'S ENGINEER

8" WATER MAIN= 12-NO. 5 BARS  
 BARS PLACED AS SHOWN  
 IN EACH FACE (X BARS) +  
 6 - NO.5 BARS IN EACH FACE (Y BARS)  
 TOTAL 24 "X" BARS & 12 "Y" BARS  
 PER THRUST COLLAR.

DIMENSIONS "A, B, C, D, & X/Y" SHALL BE DETERMINED BY CONTRACTOR'S DESIGN ENGINEER.

CONCRETE THRUST COLLAR DETAIL - 8" WATER LINE

NOTE:  
 CONTRACTOR TO PROVIDE P.E. SEALED DESIGNED SHOP DRAWINGS FOR THRUST COLLARS BASED UPON ACTUAL ON-SITE EXISTING SOILS IN ACCORDANCE WITH THE LATEST NCDOT STANDARDS AND SPECIFICATIONS.

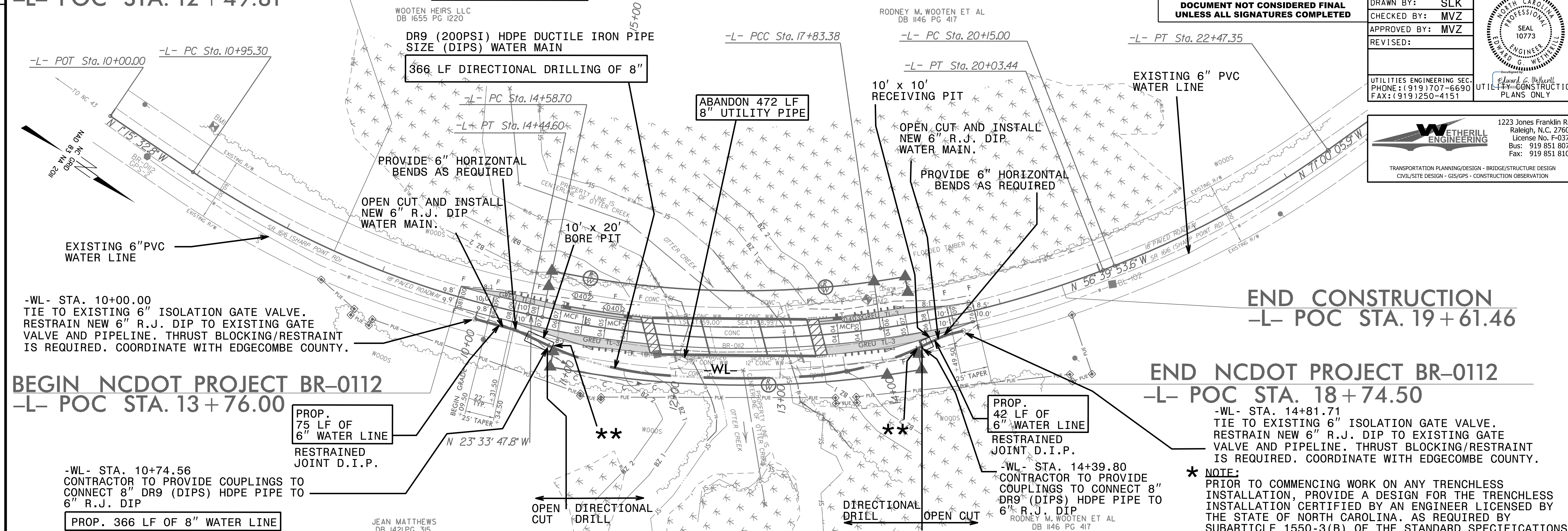
8/17/99

**BEGIN CONSTRUCTION**  
-L- POC STA. 12 + 49.81

THRUST BLOCKING/  
RESTRAINT IS REQUIRED

PROPOSED 150 LBS. DUCTILE  
IRON WATER PIPE FITTINGS

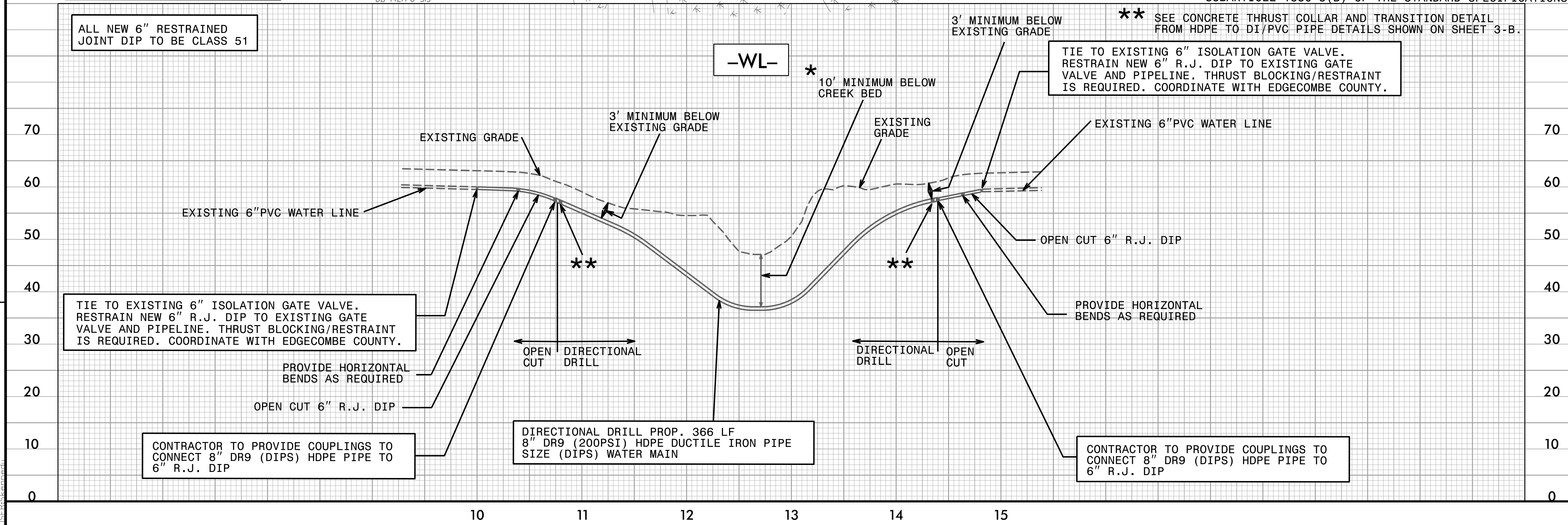
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| BRIDGE# 320035   | PROJECT REFERENCE NO.<br>BR-0112 | SHEET NO.<br>UC-4                  |
| UTILITY CONSTRUCTION PLANS   | DESIGNED BY: SLK                 | 4/7/2020                           |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b>   | DRAWN BY: SLK                    |                                    |
|  | CHECKED BY: MVZ                  |                                    |
|  | APPROVED BY: MVZ                 |                                    |
|  | REVISED:                         |                                    |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |                                  | UTILITY CONSTRUCTION<br>PLANS ONLY |



**BEGIN NCDOT PROJECT BR-0112**  
-L- POC STA. 13 + 76.00

**END NCDOT PROJECT BR-0112**  
-L- POC STA. 18 + 74.50

**END CONSTRUCTION**  
-L- POC STA. 19 + 61.46



REVISIONS

4/7/2020  
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