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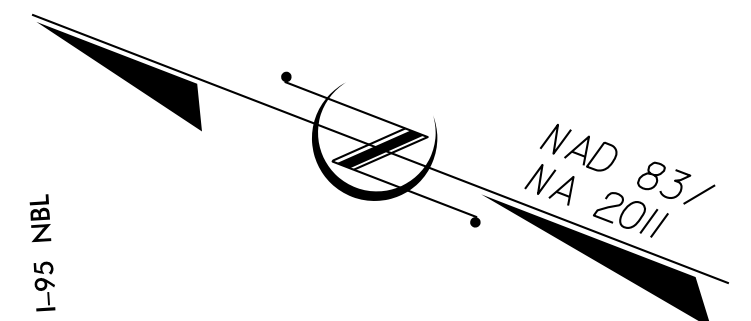
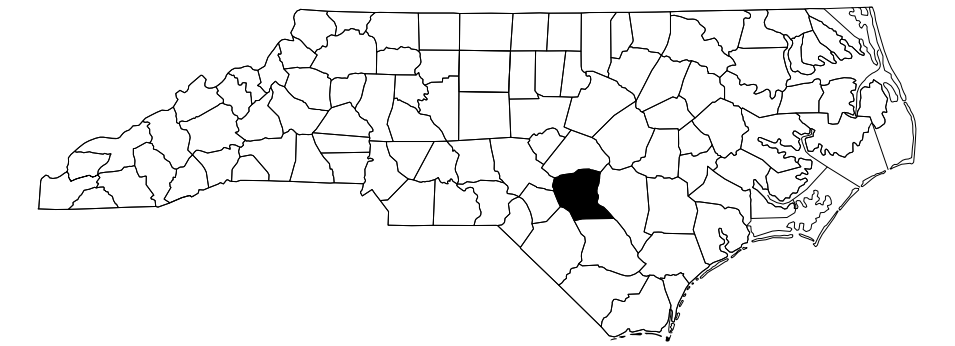
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T.I.P. NO.	SHEET NO.
B-4491	UC-1

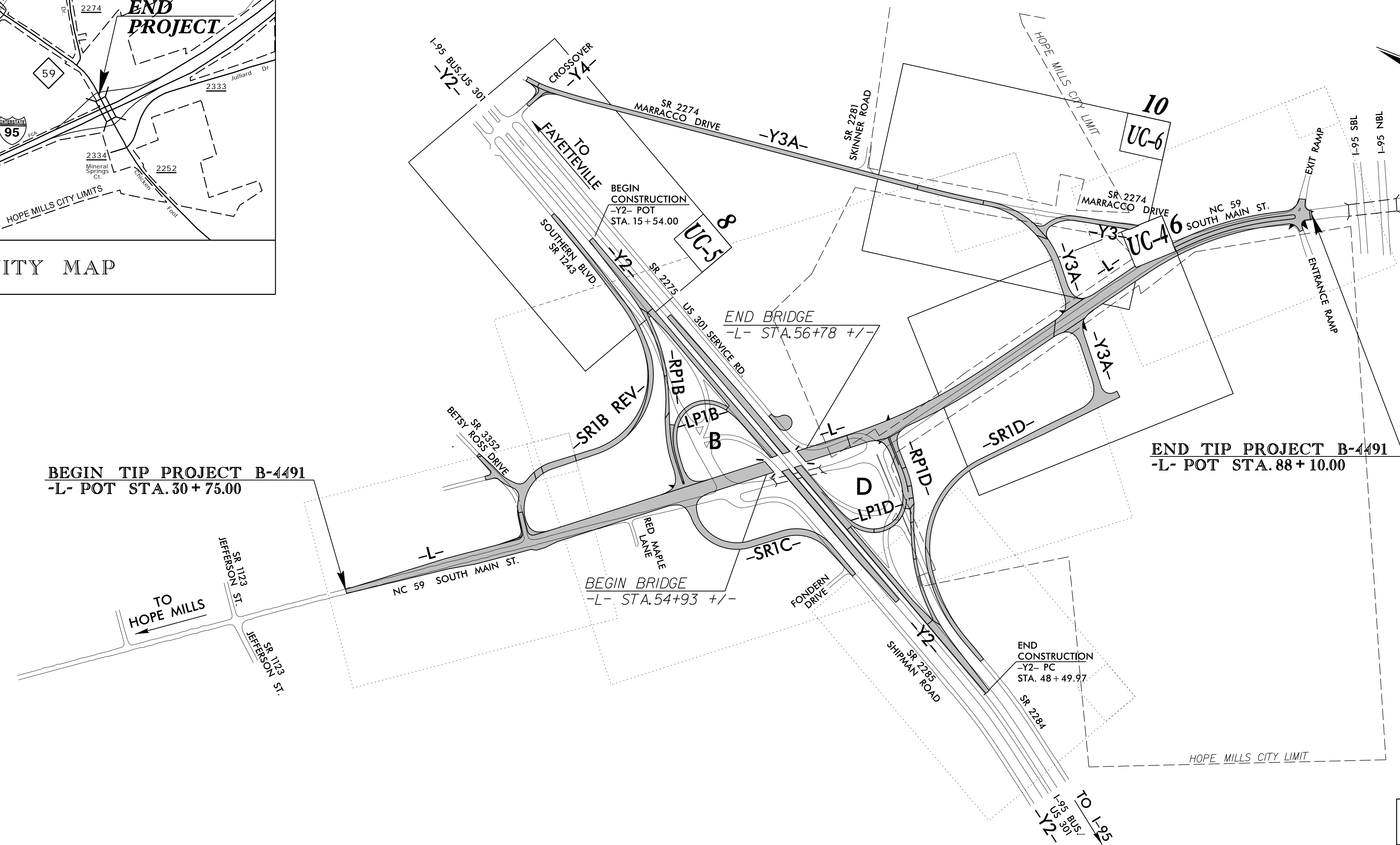
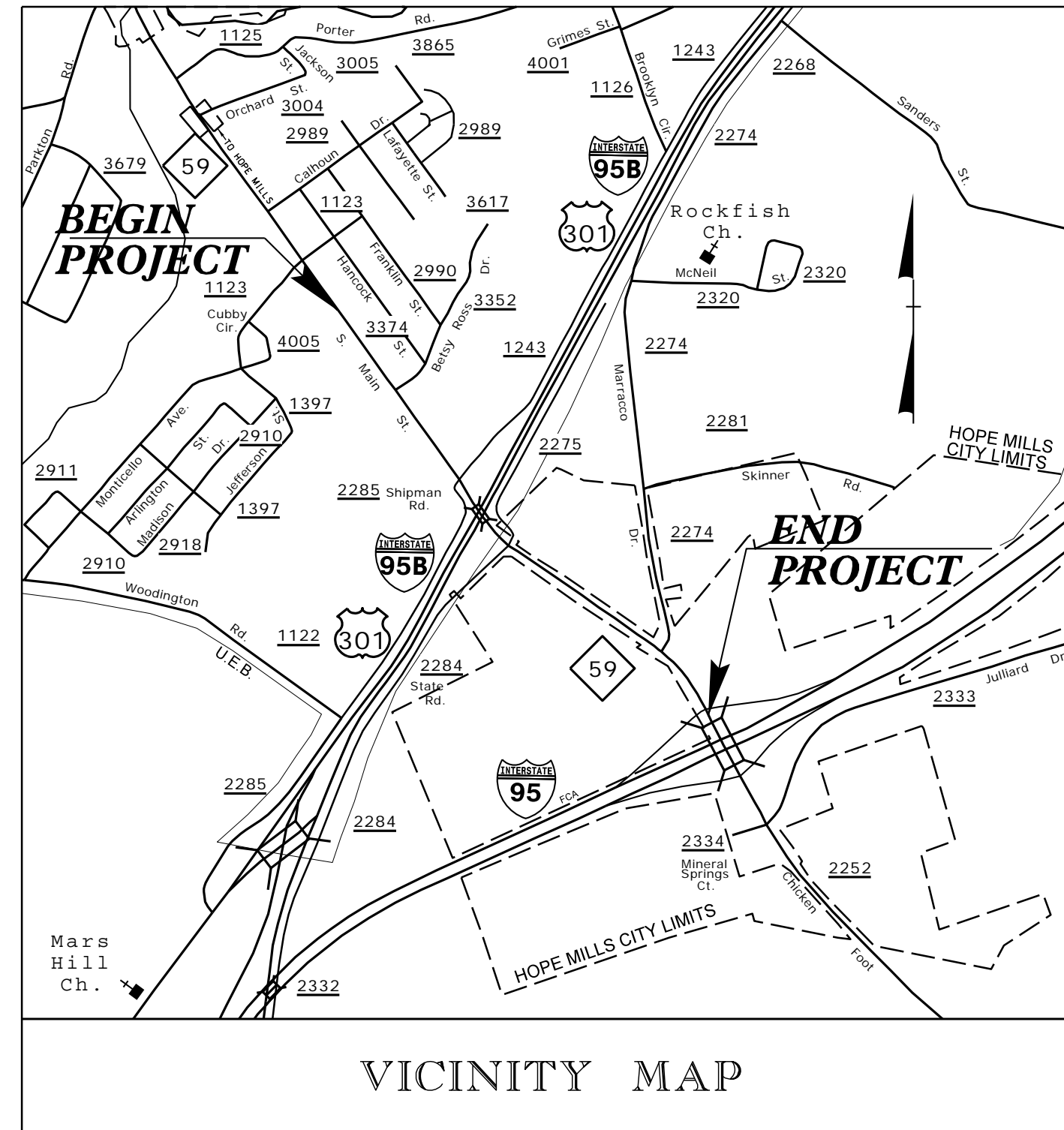
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# UTILITY CONSTRUCTION PLANS CUMBERLAND COUNTY

LOCATION: BRIDGE NO. 22 OVER I-95 BUSINESS /US 301 ON NC 59  
TYPE OF WORK: WATER AND SEWER RELOCATION



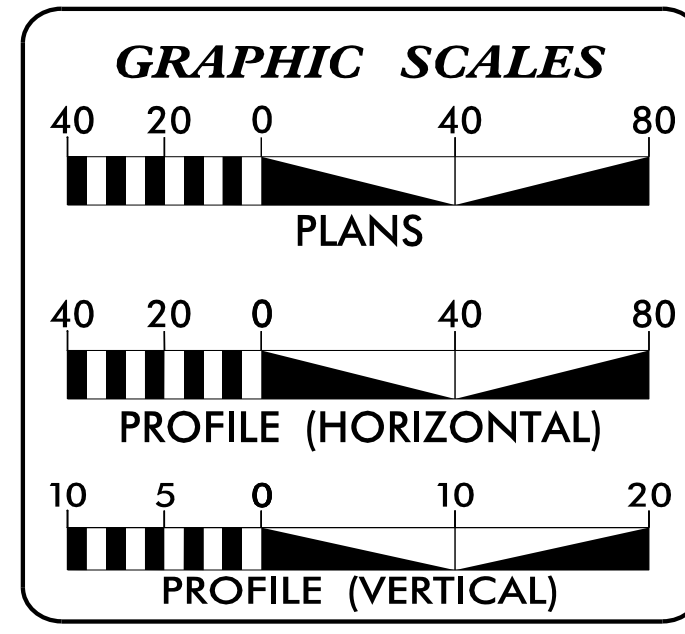
**TIP PROJECT: B-4491**



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UNLESS ALL SIGNATURES COMPLETED

**SUBMITTAL:** FINAL UTILITY PLANS  
**DATE:** NOVEMBER 2017

**CONTRACT:**



SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	GENERAL NOTES
UC-3A THRU UC-3H	CONSTRUCTION DETAILS
UC-4 THRU UC-6	UTILITY CONSTRUCTION SHEETS
UC-7	PROFILE SHEET

**WATER AND SEWER OWNERS ON PROJECT**

(A) WATER: PWC OF FAYETTEVILLE  
(B) SANITARY SEWER: PWC OF FAYETTEVILLE

PREPARED IN THE OFFICE OF:

**AECOM**

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6259 (fax)  
F - 0342

Steve Scruggs, PE UTILITY PROJECT MANAGER  
Brandy Creech PROJECT UTILITY COORDINATOR  
Gary Swinson PROJECT UTILITY ENGINEER

SEAL

D. Stephen Scruggs  
10666  
12/5/2017

DIVISION OF HIGHWAYS  
UTILITIES UNIT  
1555 MAIL SERVICES CENTER  
RALEIGH NC 27699-1555  
PHONE (919) 707-6690  
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Bo Hemphill, PE UTILITIES REGIONAL ENGINEER  
Nabil Hamdan UTILITIES ENGINEER  
Donna Jackson, PE UTILITIES AREA COORDINATOR  
Dayton Martin UTILITIES COORDINATOR

\$\$\$\$\$SYS TIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$

5/14/99

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITIES PLAN SHEET SYMBOLS**

**PROPOSED WATER SYMBOLS**

Water Line (Sized as Shown)	..... 12" WL .....
11 1/4 Degree Bend	..... + >
22 1/2 Degree Bend	..... + >
45 Degree Bend	..... + X
90 Degree Bend	..... + †
Plug	.....
Tee	..... +
Cross	..... +
Reducer	..... ▶
Gate Valve	..... GV
Butterfly Valve	..... BV
Tapping Valve	..... TGV
Line Stop	..... LS
Line Stop with Bypass	..... LS/BP
Blow Off	..... BO
Fire Hydrant	..... PFH
Relocate Fire Hydrant	..... RFH
Remove Fire Hydrant	..... REM FH
Water Meter	..... PWM
Relocate Water Meter	..... RWM
Remove Water Meter	..... REM WM
Water Pump Station	..... PS(W)
RPZ Backflow Preventer	..... PRPZ
DCV Backflow Preventer	..... PBFP
Relocate RPZ Backflow Preventer	..... RRPZ
Relocate DCV Backflow Preventer	..... RBFP

**PROPOSED SEWER SYMBOLS**

Gravity Sewer Line (Sized as Shown)	..... 12" SS .....
Force Main Sewer Line (Sized as Shown)	..... 12" FSS .....
Manhole (Sized per Note)	..... •
Sewer Pump Station	..... PS(SS)

**PROPOSED MISCELLANEOUS UTILITIES SYMBOLS**

Power Pole	..... ⦿
Telephone Pole	..... ⦿
Joint Use Pole	..... ⦿
Telephone Pedestal	..... TEL PED
Utility Line by Others (Type as Shown)	..... PROP O/H POW LINES .....
Trenchless Installation	..... 12" TL INSTALL .....
Encasement by Open Cut	..... 24" ENCAS BY OC .....
Encasement	.....

Thrust Block	.....
Air Release Valve	..... AR
Utility Vault	..... UV
Concrete Pier	..... CP
Steel Pier	..... SP
Plan Note	..... NOTE
Pay Item Note	..... PAY ITEM

**EXISTING UTILITIES SYMBOLS**

Power Pole	..... ⦿	*Underground Power Line	..... P .....
Telephone Pole	..... ⦿	*Underground Telephone Cable	..... T .....
Joint Use Pole	..... ⦿	*Underground Telephone Conduit	..... TC .....
Utility Pole	..... •	*Underground Fiber Optics Telephone Cable	..... T FO .....
Utility Pole with Base	..... □	*Underground TV Cable	..... TV .....
H-Frame Pole	..... ••	*Underground Fiber Optics TV Cable	.....
Power Transmission Line Tower	..... ☒	*Underground Gas Pipeline	..... G .....
Water Manhole	..... ⊙	Aboveground Gas Pipeline	..... A/G Gas .....
Power Manhole	..... ⊙	*Underground Water Line	..... W .....
Telephone Manhole	..... ⊙	Aboveground Water Line	..... A/G Water .....
Sanitary Sewer Manhole	..... ⊙	*Underground Gravity Sanitary Sewer Line	..... SS .....
Hand Hole for Cable	..... □	Aboveground Gravity Sanitary Sewer Line	..... A/G Sanitary Sewer .....
Power Transformer	..... ⊠	*Underground SS Forced Main Line	..... FSS .....
Telephone Pedestal	..... □	Underground Unknown Utility Line	..... ?UTL .....
CATV Pedestal	..... □	SUE Test Hole	..... ⦿
Gas Valve	..... ◇	Water Meter	..... ⊖
Gas Meter	..... ⊖	Water Valve	..... ⊙
Located Miscellaneous Utility Object	..... ⊙	Fire Hydrant	..... ⊖
Abandoned According to Utility Records	..... AATUR	Sanitary Sewer Cleanout	..... ⊙
End of Information	..... E.O.I.		

\*For Existing Utilities  
 Utility Line Drawn from Record (Type as Shown) ..... ?UTL .....  
 Designated Utility Line (Type as Shown) ..... ?UTL .....

# UTILITY CONSTRUCTION NOTES

Prepared In the Office of:

## AECOM

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6259 (fax)  
F - 0342

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PROJECT REFERENCE NO. <b>B-4491</b>	SHEET NO. <b>UC-3</b>
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	2/5/2017 UTILITY CONSTRUCTION PLANS ONLY

## UTILITY CONSTRUCTION

### 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 WATER AND SEWER UTILITIES ARE OWNED BY THE FAYETTEVILLE PUBLIC WORKS COMMISSION.

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 OPPROTUNITY 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.

10. ALL WATER MAIN PIPE 6" AND LARGER SHALL BE DUCTILE IRON.

11. ALL 2" WATER MAIN PIPE SHALL BE SDR 21 PVC.

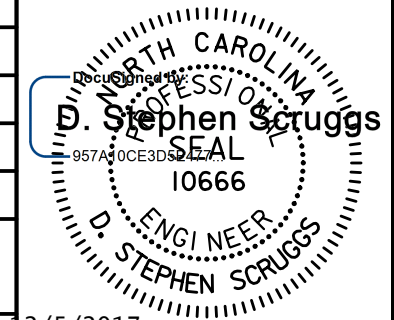
12. ALL 2" WATER MAIN VALVES SHALL BE BALL VALVES AND SHALL BE INSTALLED VERTICAL.

13. ALL WATER MAIN VALVES 6" AND LARGER SHALL BE GATE VALVES AND SHALL BE INSTALLED VERTICAL.

14. ALL VALVES AND FITTINGS 4" TO 12" SHALL BE RESTRAINED BY MANUFACTURED RESTRAINED SYSTEMS AS INDICATED IN DETAIL W.18 SHEET UC-3D. CONCRETE BLOCKING SHALL NOT BE USED EXCEPT AS INDICATED ON DETAIL W.17 SHEET UC-3D.

15. PIPE WITHIN CASINGS SHALL HAVE A RESTRAINED JOINT SYSTEM DESIGNED AND MANUFACTURED BY THE PIPE SUPPLIER (FACTORY RESTRAINED JOINT PIPE) AS INDICATED IN DETAIL M.6 SHEET UC-3H SUITABLE FOR INSTALLATION WITHIN THE CASING.

16. ALL PRESSURE PIPE 16" AND LARGER WILL REQUIRE FACTORY RESTRAINED JOINTS.

PROJECT REFERENCE NO.	SHEET NO.
B-4491	UC-3A
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	2/5/2017 UTILITY CONSTRUCTION PLANS ONLY

# UTILITY CONSTRUCTION


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- CONTRACTOR SHALL REPAIR ALL WATER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO THE FAYPWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYPWC STANDARDS. CONTRACTOR SHALL NOT OPERATE FAYPWC WATER MAIN VALVES WITHOUT FAYPWC APPROVAL AND SHALL COORDINATE ALL VALVE CLOSINGS WITH FAYPWC.
- THE CONTRACTOR SHALL NOT USE HOUSE HOSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THRU RESIDENT'S METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENT'S PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SCREENS, ETC.
- WATER MAINS AND LATERALS SHALL BE INSTALLED UTILIZING A FAYPWC APPROVED CUT-SHEET INDICATING INSTALLATION DEPTH.
- TRANSFER OF WATER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
  - INSTALL, TEST AND STERILIZE NEW MAIN AND LATERALS. LATERALS SHALL BE INSTALLED 18" INSIDE RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY FAYPWC.
  - TRANSFER EXISTING METER TO NEW METER BOX AND THE NEW WATER LATERAL TO EXISTING DOMESTIC SERVICE UTILIZING BRASS FITTINGS. SAME METER NUMBER SHALL BE INSTALLED ON SAME ADDRESS AND/OR CUSTOMER. BLOW OFF SERVICE AT HOSE BIBB ON HOUSE ONLY AFTER METER HAS BEEN TRANSFERRED.
  - AFTER ALL SERVICES ARE TRANSFERRED TO THE NEW SYSTEM, SHUT OFF VALVE ON EXISTING SYSTEM AND ABANDON EXISTING MAINS IN ACCORDANCE WITH FAYPWC DETAILS.
  - CONTRACTOR SHALL SUPPLY NEW METER BOXES AND DISPOSE OF EXISTING METER BOXES.
- WHEN MAIN IS NOT TO BE ABANDONED, CONTRACTOR SHALL UNCOVER OLD CORPORATION AT MAIN, CLOSE AND PLUG CORPORATION TO ABANDON OLD SERVICE.
- ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH FAYPWC REQUIREMENTS.


- SEPARATION REQUIREMENTS:
  - LATERAL SEPARATION OF SEWERS AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
    - THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
    - THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
  - CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE DUCTILE IRON IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
  - CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE DUCTILE IRON IN ACCORDANCE WITH FAYPWC REQUIREMENTS. A FULL JOINT OF DUCTILE IRON PIPE SHALL BE INSTALLED ON THE WATER MAIN CENTERED AT THE POINT OF CROSSING.
  - CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 12-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A WATER LINE CROSSING OVER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IN ADDITION, THREE AND A HALF (3.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN OR IT SHALL BE DUCTILE IRON. IF DUCTILE IRON PIPE IS USED THEN TWO AN A HALF (2.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN AND A MINIMUM OF 4-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND THE STORM DRAINAGE LINE. WHERE A WATER MAIN CROSSES UNDER A STORM DRAINAGE LINE THE MINIMUM OF TWELVE (12) INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED AND THE WATER MAIN SHALL BE DUCTILE IRON FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE CROSSING.

- WATER OUTAGES:** THE CONTRACTOR SHALL SCHEDULE A COORDINATION MEETING WITH THE FAYPWC PROJECT COORDINATOR AND PROJECT ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO ANY PLANNED WATER OUTAGE. THE COORDINATION MEETING SHALL BE CONDUCTED PRIOR TO ANY NOTICES BEING ISSUED. ADDITIONALLY, THE CONTRACTOR SHALL LOCATE (VERTICALLY AND HORIZONTALLY) ANY UTILITIES WITHIN THE WORK AREA, IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS. THE LOCATIONS OF ALL UTILITIES WITHIN THE WORK AREA SHALL BE DETERMINED PRIOR TO THE COORDINATION MEETING. ANY CONFLICTS WITH THE PENDING WORK AND THE EXISTING UTILITIES SHALL BE IDENTIFIED, AND A PLAN FOR RESOLVING ANY CONFLICTS SHALL BE PRESENTED. THE PURPOSE OF THIS COORDINATION MEETING IS TO ENSURE THAT THE CONTRACTOR HAS A GOOD UNDERSTANDING OF THE REQUIREMENTS RELATED TO THE PENDING OUTAGE, VERIFY THAT THERE ARE NO UTILITY CONFLICTS THAT WILL PREVENT THE WORK FROM BEING COMPLETED, ALL EQUIPMENT IS IN GOOD WORKING ORDER, ALL EQUIPMENT IS FUNCTIONAL, ALL MATERIALS ARE ON SITE, ALL NECESSARY TOOLS ARE ON SITE, DISCUSS ANY NECESSARY CONTINGENCY PLANS, AND ANY OTHER ITEMS NECESSARY TO ENSURE THAT THE FAYETTEVILLE PUBLIC WORKS COMMISSION HAS CONFIDENCE THAT THE WORK CAN BE ACCOMPLISHED WITHIN THE GIVEN TIME PERIOD. SHOULD, FOR ANY REASON, THE FAYETTEVILLE PUBLIC WORKS COMMISSION DEEM THAT THE CONTRACTOR IS NOT PREPARED FOR THE PROPOSED OUTAGE, THE OUTAGE NOTIFICATIONS WILL NOT BE DISTRIBUTED AND THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS.
 

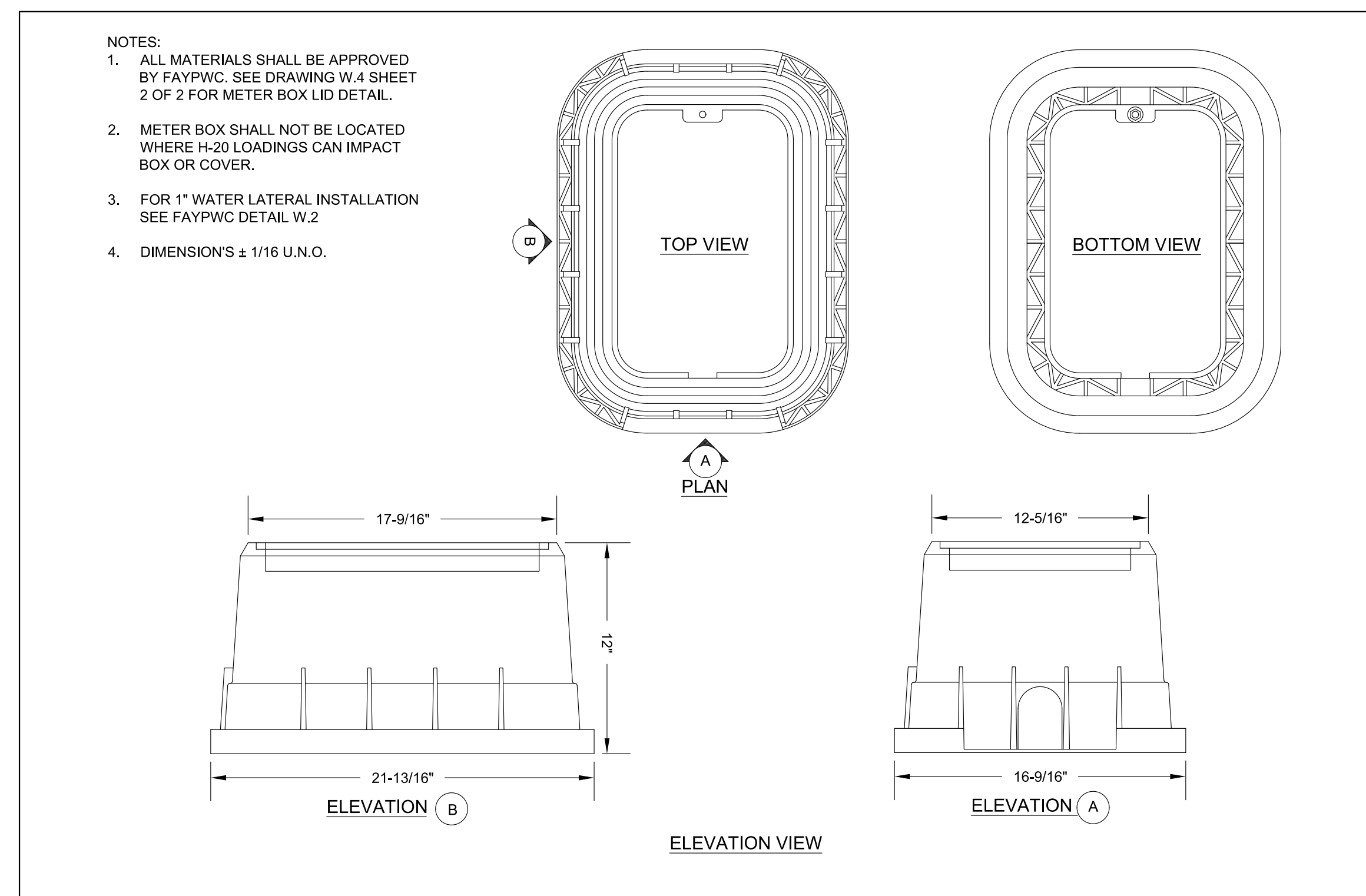
ONCE THE WATER OUTAGE NOTIFICATIONS HAVE BEEN ISSUED, A FOLLOW-UP COORDINATION MEETING WITH THE FAYPWC PROJECT COORDINATOR AND PROJECT ENGINEER SHALL BE HELD A MINIMUM OF 24 HOURS PRIOR TO THE SCHEDULED OUTAGE. THE PURPOSE OF THIS MEETING IS TO VERIFY THAT THE CONTRACTOR IS PREPARED TO PROCEED WITH THE OUTAGE, AND THAT ALL EQUIPMENT, MATERIALS, TOOLS, AND ALL OTHER INCIDENTALS ARE ON THE PROJECT SITE AND FUNCTIONING. IF FOR ANY REASON THE FAYETTEVILLE PUBLIC WORKS COMMISSION DEEMS THAT THE CONTRACTOR IS NOT PREPARED, THE OUTAGE SHALL BE POSTPONED AND ALL CUSTOMERS IMMEDIATELY NOTIFIED OF THE CANCELLATION. THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS.


WATER UTILITY NOTES			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO. DATE REVISION		
SHEET NO. 1 OF 2	DWG. NO.	W.1	DWG. BY:	FAYPWC		1	01/05	REVISED NOTE 5A
	DATE:	JULY 01, 2017	APPROVED BY:	J.E.G.		2	07/11	REVISED NOTES & ADDED NOTE 6
						3	07/01/16	ADDED NOTE 6

W1-WATER-UTILITY-NOTES.dwg

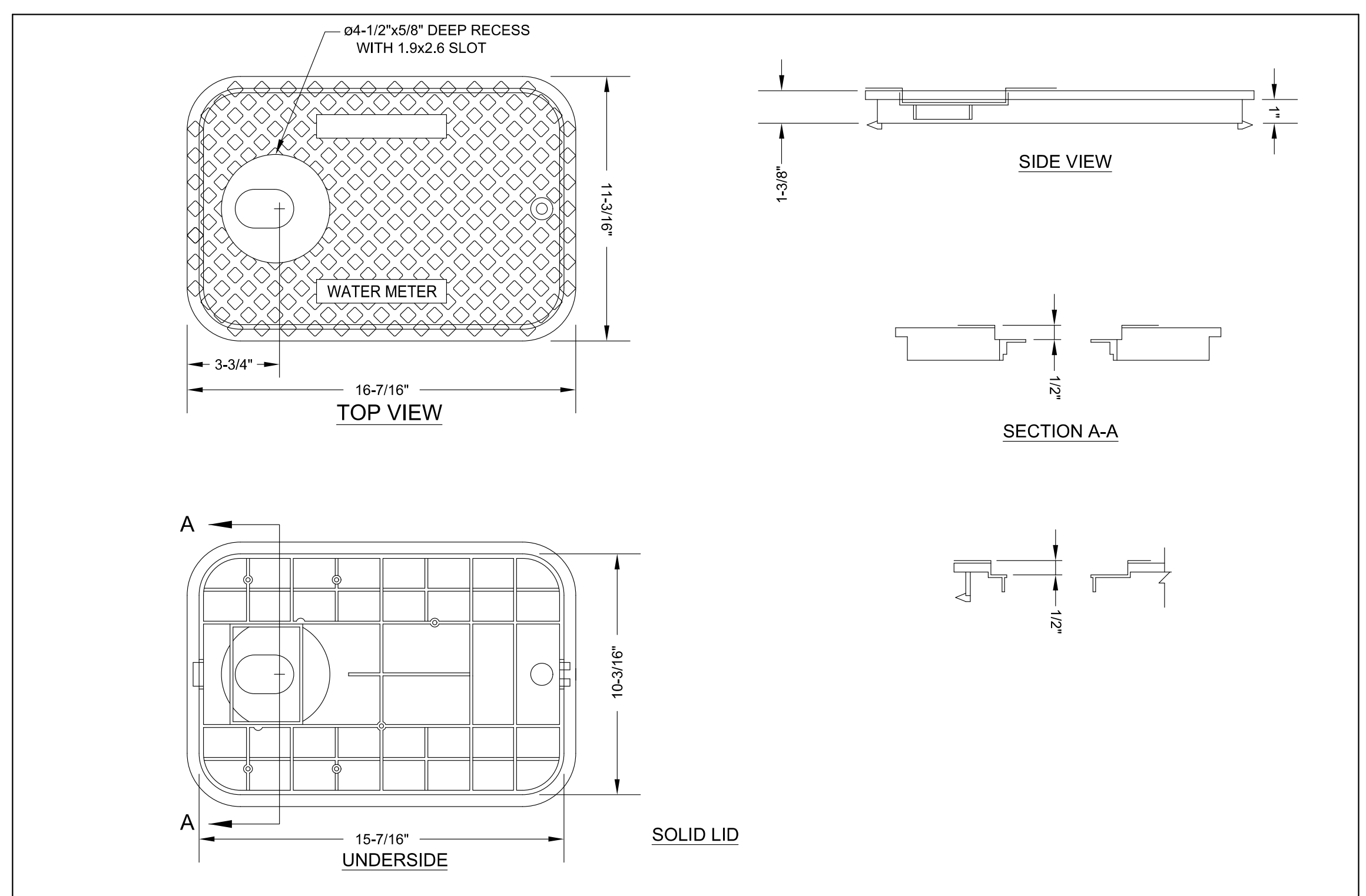
WATER UTILITY NOTES			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO. DATE REVISION		
SHEET NO. 2 OF 2	DWG. NO.	W.1	DWG. BY:	FAYPWC		1	01/05	REVISED NOTE 5A
	DATE:	JULY 01, 2017	APPROVED BY:	J.E.G.		2	07/11	REVISED NOTES & ADDED NOTE 6


W1-WATER-UTILITY-NOTES.dwg



1-INCH METER BOX DETAILS N.T.S.			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO. DATE REVISION		
SHEET NO. 1 OF 2	DWG. NO.	W.4	DWG. BY:	FAYPWC		1	03/10	CHANGED BOX DIMENSIONS
	DATE:	JULY 01, 2017	APPROVED BY:	J.E.G.				

W4-1IN-METERBOX.dwg



1-INCH METER BOX LID N.T.S.			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO. DATE REVISION		
SHEET NO. 2 OF 2	DWG. NO.	W.4	DWG. BY:	FAYPWC		1	07/07	REVISED LID
	DATE:	JULY 01, 2017	APPROVED BY:	J.E.G.		1	03/10	CHANGED BOX & LID DIMENSIONS
						2	01/15	REVISED LID

W4-1IN-METERBOX.dwg

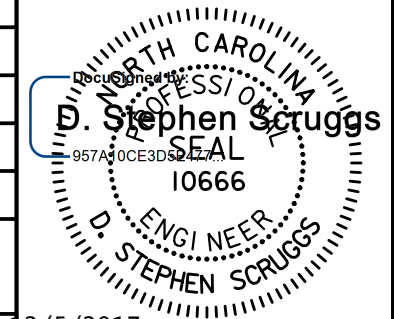
Prepared by:



AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
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DATE: 12/15/2017 TIME: 2:16:22 PM DGN: bh91.uc\_jst034507

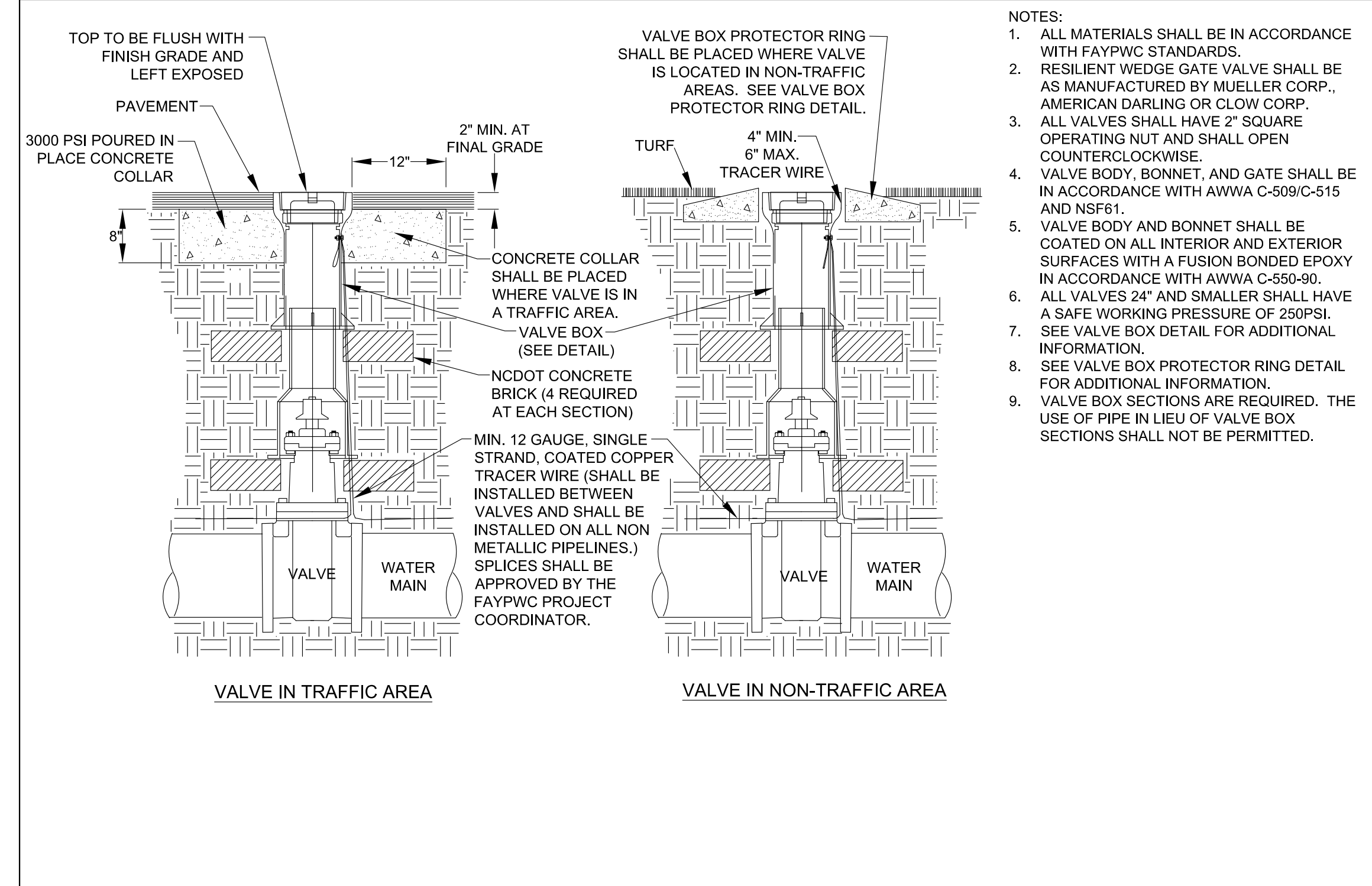
PROJECT REFERENCE NO.	SHEET NO.
B-4491	UC-3B
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	2/5/2017
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY



**UTILITY CONSTRUCTION**

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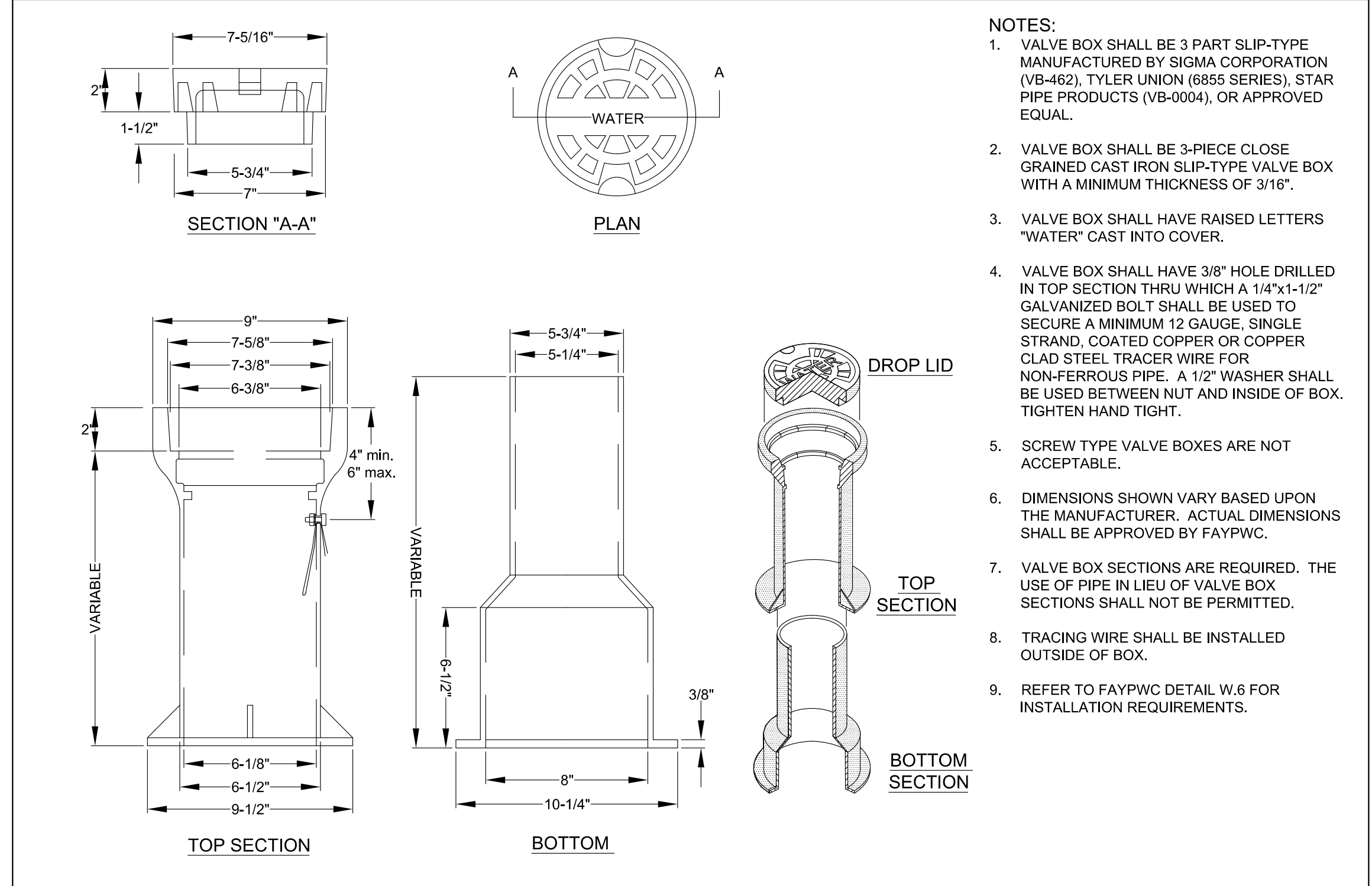
NOMINAL PIPE SIZE (inches)	MAXIMUM TRENCH WIDTH AT TOP OF PIPE		TRENCH WIDTH (inches)
	TRENCH WIDTH (inches)	NOMINAL PIPE SIZE (inches)	
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		



- NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS.
  2. RESILIENT WEDGE GATE VALVE SHALL BE AS MANUFACTURED BY MUELLER CORP., AMERICAN DARLING OR CLOW CORP.
  3. ALL VALVES SHALL HAVE 2" SQUARE OPERATING NUT AND SHALL OPEN COUNTERCLOCKWISE.
  4. VALVE BODY, BONNET, AND GATE SHALL BE IN ACCORDANCE WITH AWWA C-509/C-515 AND NSF61.
  5. VALVE BODY AND BONNET SHALL BE COATED ON ALL INTERIOR AND EXTERIOR SURFACES WITH A FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C-550-90.
  6. ALL VALVES 24" AND SMALLER SHALL HAVE A SAFE WORKING PRESSURE OF 250PSI.
  7. SEE VALVE BOX DETAIL FOR ADDITIONAL INFORMATION.
  8. SEE VALVE BOX PROTECTOR RING DETAIL FOR ADDITIONAL INFORMATION.
  9. VALVE BOX SECTIONS ARE REQUIRED. THE USE OF PIPE IN LIEU OF VALVE BOX SECTIONS SHALL NOT BE PERMITTED.

GATE VALVE N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		FAYPWC	NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.6 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		1	6/06	ADDED NOTE #9
					2	7/09	CLARIFIED NOTES

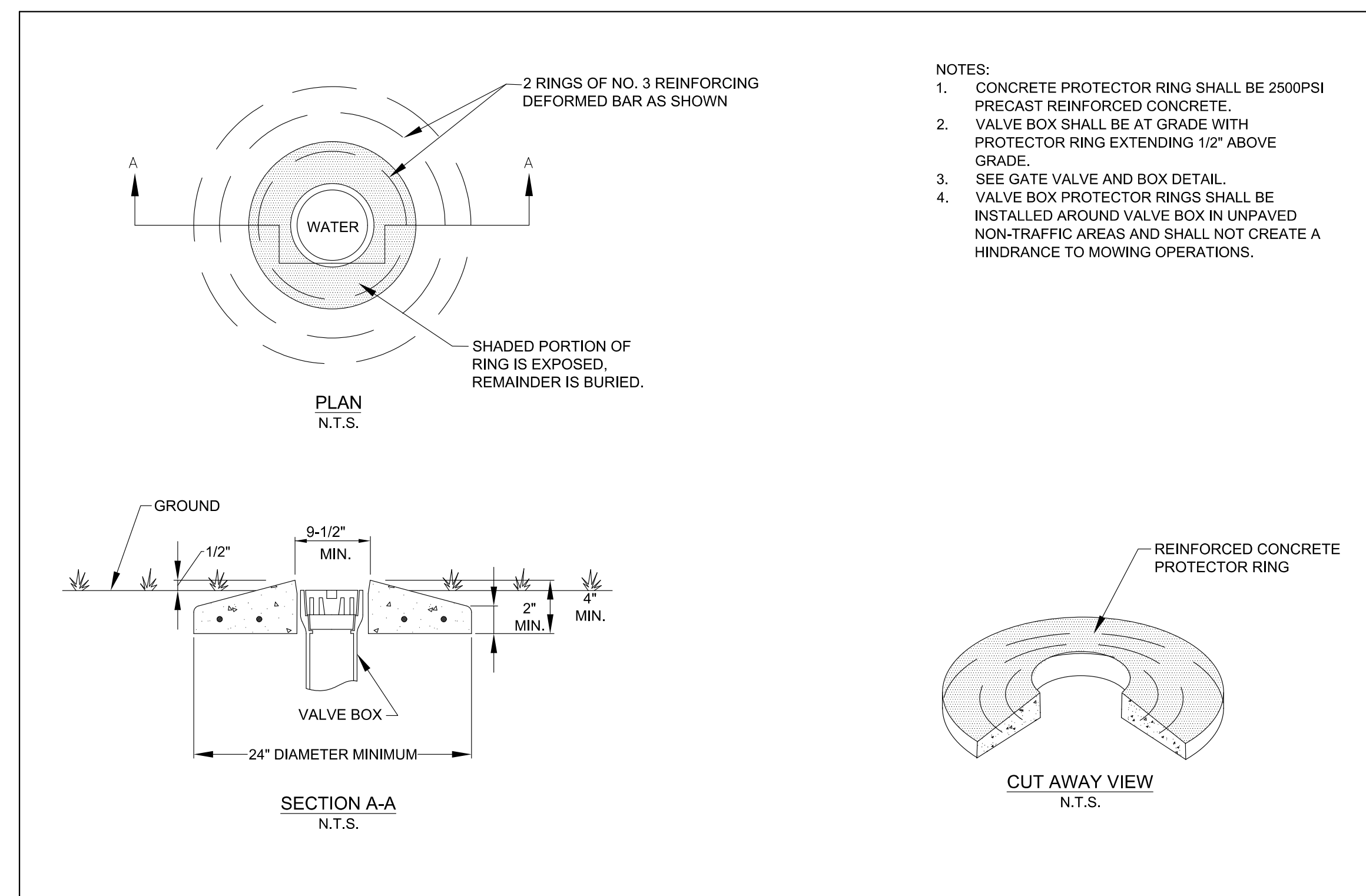
W6-GATEVALVE.dwg



- NOTES:
1. VALVE BOX SHALL BE 3 PART SLIP-TYPE MANUFACTURED BY SIGMA CORPORATION (VB-462), TYLER UNION (6855 SERIES), STAR PIPE PRODUCTS (VB-0004), OR APPROVED EQUAL.
  2. VALVE BOX SHALL BE 3-PIECE CLOSE GRAINED CAST IRON SLIP-TYPE VALVE BOX WITH A MINIMUM THICKNESS OF 3/16".
  3. VALVE BOX SHALL HAVE RAISED LETTERS "WATER" CAST INTO COVER.
  4. VALVE BOX SHALL HAVE 3/8" HOLE DRILLED IN TOP SECTION THRU WHICH A 1/4"x1-1/2" GALVANIZED BOLT SHALL BE USED TO SECURE A MINIMUM 12 GAUGE, SINGLE STRAND, COATED COPPER OR COPPER CLAD STEEL TRACER WIRE FOR NON-FERROUS PIPE. A 1/2" WASHER SHALL BE USED BETWEEN NUT AND INSIDE OF BOX. TIGHTEN HAND TIGHT.
  5. SCREW TYPE VALVE BOXES ARE NOT ACCEPTABLE.
  6. DIMENSIONS SHOWN VARY BASED UPON THE MANUFACTURER. ACTUAL DIMENSIONS SHALL BE APPROVED BY FAYPWC.
  7. VALVE BOX SECTIONS ARE REQUIRED. THE USE OF PIPE IN LIEU OF VALVE BOX SECTIONS SHALL NOT BE PERMITTED.
  8. TRACING WIRE SHALL BE INSTALLED OUTSIDE OF BOX.
  9. REFER TO FAYPWC DETAIL W.6 FOR INSTALLATION REQUIREMENTS.

VALVE BOX N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		FAYPWC	NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.7 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		1	07/09	ADDED NOTES 7, 8 & CLARIFIED NOTES
					2	01/14	REVISED NOTES 1, 4, 6

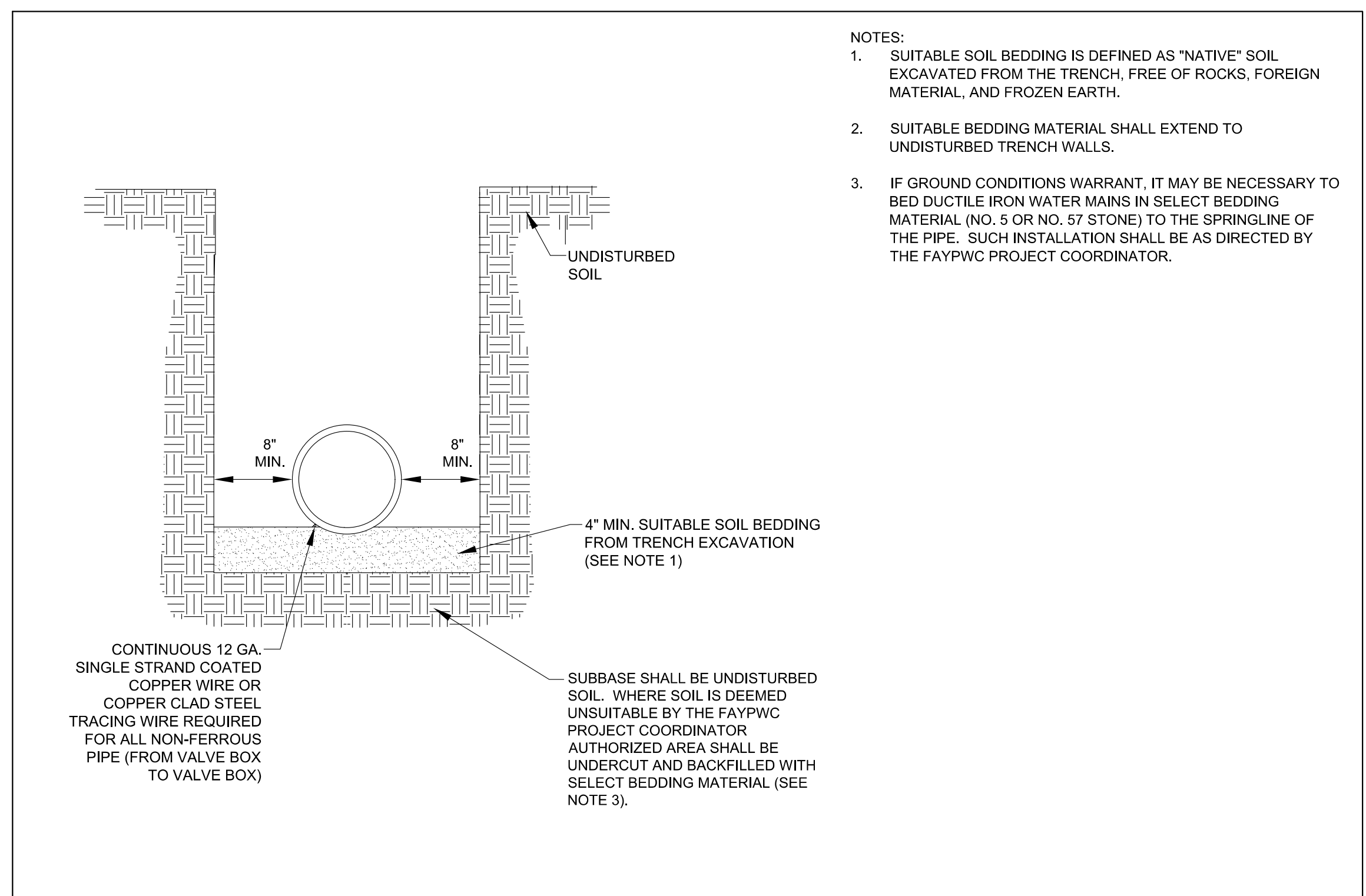
W7-VALVEBOX.dwg



- NOTES:
1. CONCRETE PROTECTOR RING SHALL BE 2500PSI PRECAST REINFORCED CONCRETE.
  2. VALVE BOX SHALL BE AT GRADE WITH PROTECTOR RING EXTENDING 1/2" ABOVE GRADE.
  3. SEE GATE VALVE AND BOX DETAIL.
  4. VALVE BOX PROTECTOR RINGS SHALL BE INSTALLED AROUND VALVE BOX IN UNPAVED NON-TRAFFIC AREAS AND SHALL NOT CREATE A HINDRANCE TO MOWING OPERATIONS.

VALVE BOX PROTECTOR RING N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		FAYPWC	NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.8 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT				

W8-CONC-PROTECTOR-RING.dwg



- NOTES:
1. SUITABLE SOIL BEDDING IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
  2. SUITABLE BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS.
  3. IF GROUND CONDITIONS WARRANT, IT MAY BE NECESSARY TO BED DUCTILE IRON WATER MAINS IN SELECT BEDDING MATERIAL (NO. 5 OR NO. 57 STONE) TO THE SPRINGLINE OF THE PIPE. SUCH INSTALLATION SHALL BE AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR.

WATER MAIN BEDDING DETAIL N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		FAYPWC	NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.19 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		1	01/01/17	REVISED NOTES
					2	07/01/13	REVISED NOTE RE: TRACER WIRE

W19-WATER-BEDDING.dwg

DATE: 12/15/2017  
TIME: 10:04 PM  
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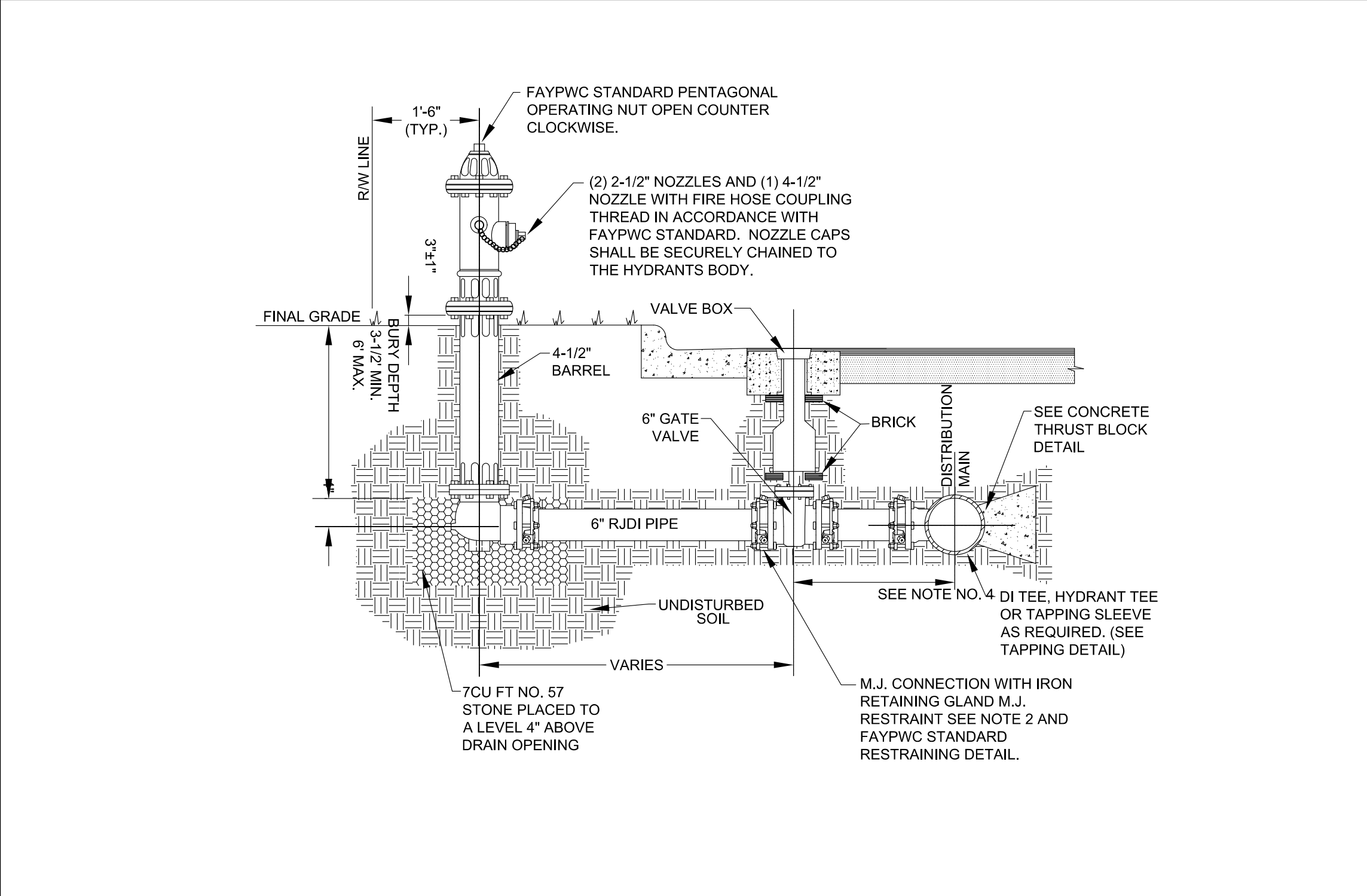
Prepared by:

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6250 (fax)  
F - 0342

PROJECT REFERENCE NO.	SHEET NO.
<b>B-4491</b>	<b>UC-3C</b>
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	2/5/2017
UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

**UTILITY CONSTRUCTION**

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UNLESS ALL SIGNATURES COMPLETED



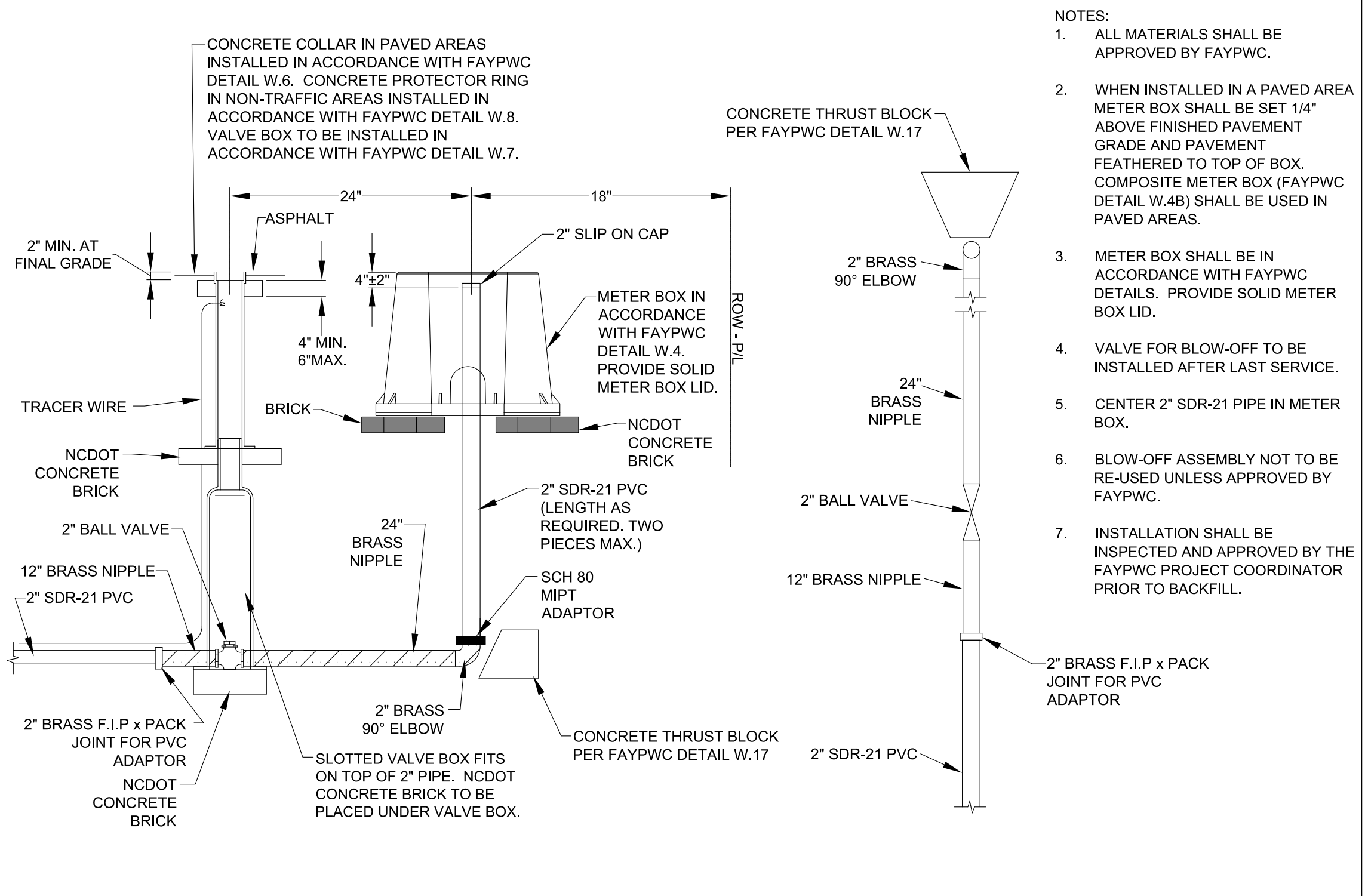
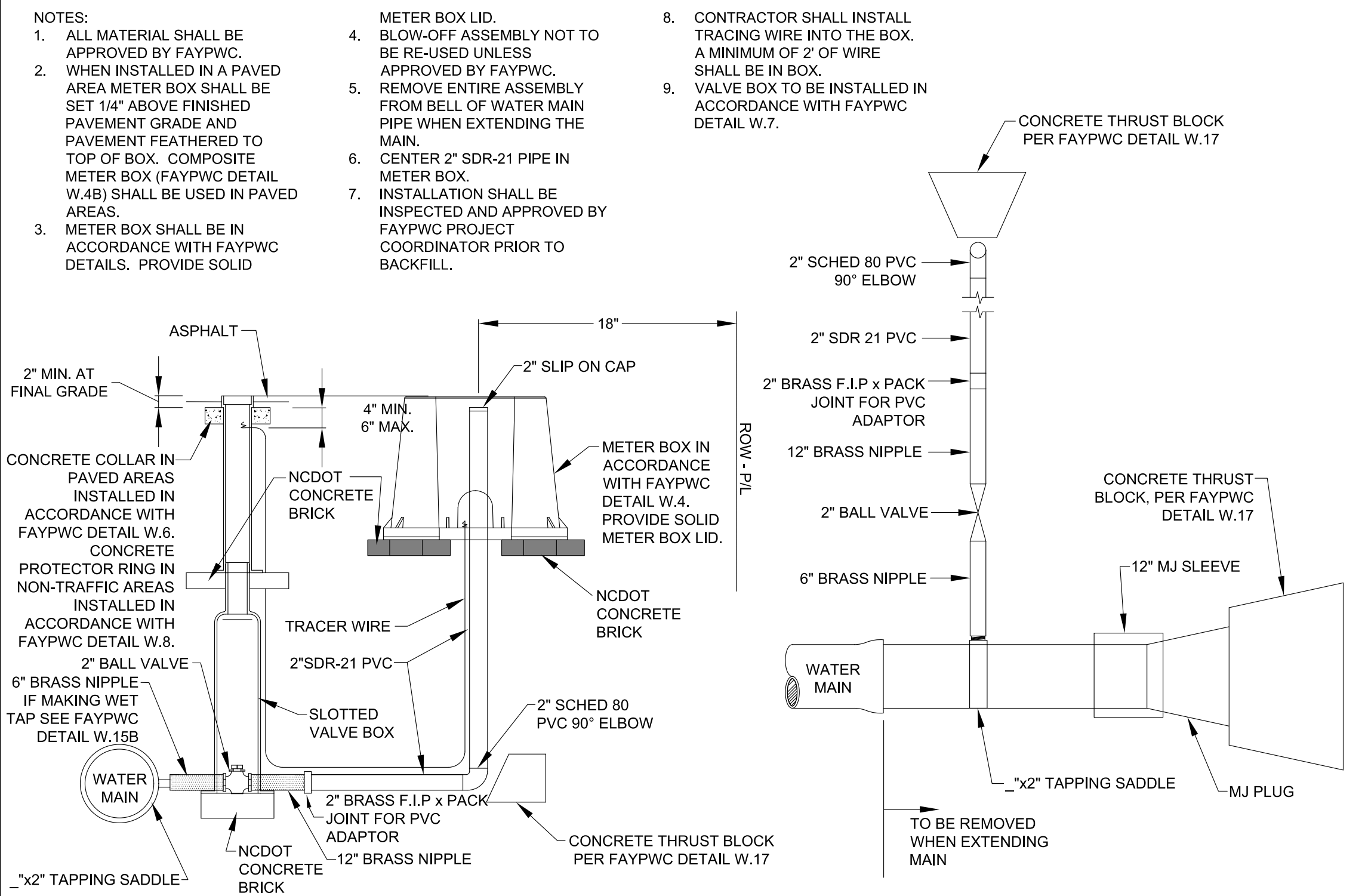
- NOTES:
- FIRE HYDRANT SHALL BE MODELS MANUFACTURED BY MUELLER CO. (CENTURIAN), AMERICAN VALVE AND HYDRANT CO. (MODEL MARK 73), CLOW MEDALLION OR APPROVED EQUAL.
  - ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
  - HYDRANT VALVE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE MAIN, BUT DO NOT PLACE VALVE IN PROPOSED OR EXISTING CURB AND GUTTER. IF THE STREET IS SOIL AND NO PAVING IS TO BE DONE AT THIS TIME, THE LOCATION OF THE VALVE IS TO BE DETERMINED BY THE FAYPWC PROJECT COORDINATOR.
  - HYDRANT BRANCH SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY FAYPWC PROJECT COORDINATOR.
  - GATE VALVE AND BOX SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAIL.
  - HYDRANT EXTENSIONS AND/OR OFFSETS SHALL BE APPROVED BY FAYPWC PROJECT COORDINATOR.
  - FIRE HYDRANT CONNECTIONS TO EXISTING WATER MAINS SHALL BE MADE USING A TAPPING SLEEVE AND VALVE BY WET TAP CONNECTION. THE TAPPING SLEEVE AND VALVE SHALL BE HYDROSTATICALLY TESTED PRIOR TO STARTING THE TAP IN THE PRESENCE OF THE FAYPWC PROJECT COORDINATOR.
  - THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING WATER MAIN MATERIAL, SIZE, AND DEPTH FOR EACH FIRE HYDRANT LOCATION PRIOR TO ORDERING MATERIALS. THE CONTRACTOR WILL BE REQUIRED TO SUPPLY VARIOUS LENGTHS OF BARRELS AND HYDRANT EXTENSIONS (NO MORE THAN ONE HYDRANT EXTENSION MAY BE USED PER HYDRANT). ADDITIONAL FITTINGS AND/OR HYDRANT EXTENSIONS OR OFFSET CONNECTORS MAY BE REQUIRED TO MAINTAIN PROPER COVER AS APPROVED BY THE FAYPWC PROJECT COORDINATOR.
  - CONTRACTOR SHALL NOTIFY THE APPROPRIATE FIRE DEPARTMENT OF OUT OF SERVICE FIRE HYDRANTS PRIOR TO CONSTRUCTION.
  - FIRE HYDRANT SHALL BE FIELD PAINTED IN ACCORDANCE WITH FAYPWC STANDARDS. BEFORE PROJECT IS ACCEPTED, HYDRANTS SHALL BE PAINTED WITH A GREEN BONNET AND YELLOW BODY. PAINT SHALL BE IN ACCORDANCE WITH FAYPWC REQUIREMENTS. THE CONTRACTOR SHALL PAINT ALL EXPOSED EXTERIOR FIRE HYDRANT SURFACES PRIOR TO FINAL ACCEPTANCE BY FAYPWC. ALL PAINTING SHALL BE DONE IN STRICT ACCORDANCE WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS AND SHALL BE SATISFACTORY TO THE FAYPWC.
  - PROTECTIVE COVERING SHALL BE UTILIZED, AS NECESSARY FOR PROTECTION OF ADJACENT AREAS, EQUIPMENT, SHRUBBERY, OR OTHER ITEMS. AFTER PAINTING IS COMPLETE, THE ENTIRE AREA SHALL BE THOROUGHLY CLEANED UP.
  - ALL PAINT MATERIALS SHALL BE IN THE ORIGINAL SEALED CONTAINERS BEARING THE MANUFACTURER'S NAME.
  - WHERE NECESSARY, THINNING SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND AS APPROVED BY FAYPWC.
  - ALL SURFACES TO BE PAINTED SHALL BE CLEAN AND DRY.
  - THE BONNET OF THE FIRE HYDRANT SHALL BE PAINTED A DARK GREEN, UTILIZING AN ALKYD OR POLYURETHANE ENAMEL, WITH A FINAL DRY MIL THICKNESS OF 4 TO 6 MILS. MULTIPLE COATS MAY BE NECESSARY TO ACHIEVE THE FINAL REQUIRED DRY MIL THICKNESS. THE PAINT SHALL BE FOREST GREEN, AS MANUFACTURED BY THE SHERWIN-WILLIAMS COMPANY, PART NUMBER 822918, OR APPROVED EQUAL. SAMPLES SHALL BE SUBMITTED IN ORDER FOR FAYPWC TO CONSIDER ALTERNATIVE PAINT MANUFACTURERS.
  - THE REMAINDER OF THE FIRE HYDRANT SHALL BE PAINTED SAFETY YELLOW, UTILIZING AN ALKYD OR POLYURETHANE ENAMEL, WITH A FINAL DRY MIL THICKNESS OF 4 TO 6 MILS. MULTIPLE COATS MAY BE NECESSARY TO ACHIEVE THE FINAL REQUIRED DRY MIL THICKNESS. THE PAINT SHALL BE YELLOW, AS MANUFACTURED BY THE SHERWIN-WILLIAMS COMPANY, PART NUMBER 3186, OR APPROVED EQUAL. SAMPLES SHALL BE SUBMITTED IN ORDER FOR FAYPWC TO CONSIDER ALTERNATE PAINT MANUFACTURERS.

<b>FIRE HYDRANT AND VALVE INSTALLATION</b> N.T.S.		<b>PUBLIC WORKS COMMISSION</b> <b>FAYETTEVILLE, N.C.</b>			NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. <b>W.13</b>	DWG. BY: FAYPWC			1	10/23/03	REVISED NOTE #4
DATE: JULY 01, 2017	APPROVED BY: J.E.G.	<b>WATER RESOURCES ENGINEERING DEPARTMENT</b>			2	07/01/09	REVISED NOTE #2, REMOVED NOTE #3 & ALTERED RESTRAINT DETAIL
				3	07/01/16	REVISED NOTES	

W13-FHCC.dwg

<b>FIRE HYDRANT AND VALVE INSTALLATION</b> N.T.S.		<b>PUBLIC WORKS COMMISSION</b> <b>FAYETTEVILLE, N.C.</b>			NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. <b>W.13</b>	DWG. BY: FAYPWC			1	10/23/03	REVISED NOTE #4
DATE: JULY 01, 2017	APPROVED BY: J.E.G.	<b>WATER RESOURCES ENGINEERING DEPARTMENT</b>			2	07/01/09	REVISED NOTE #2, REMOVED NOTE #3 & ALTERED RESTRAINT DETAIL
				3	07/01/16	REVISED NOTES	

W13-FHCC.dwg



<b>2\"/&gt; </b>		<b>PUBLIC WORKS COMMISSION</b> <b>FAYETTEVILLE, N.C.</b>			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. <b>W.15</b>	DWG. BY: FAYPWC			1	08/06	CHANGED FITTINGS TO SCHED 80
DATE: JULY 01, 2017	APPROVED BY: J.E.G.	<b>WATER RESOURCES ENGINEERING DEPARTMENT</b>			2	11/06	REVISED CONFIGURATION
				3	07/17	REVISED NOTES	

W15-2-BLOWOFF.dwg

<b>2\"/&gt; </b>		<b>PUBLIC WORKS COMMISSION</b> <b>FAYETTEVILLE, N.C.</b>			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. <b>W.15C</b>	DWG. BY: FAYPWC			1	07/17	REVISED NOTES
DATE: JULY 01, 2017	APPROVED BY: J.E.G.	<b>WATER RESOURCES ENGINEERING DEPARTMENT</b>					

W15C-2-BLOWOFF.dwg

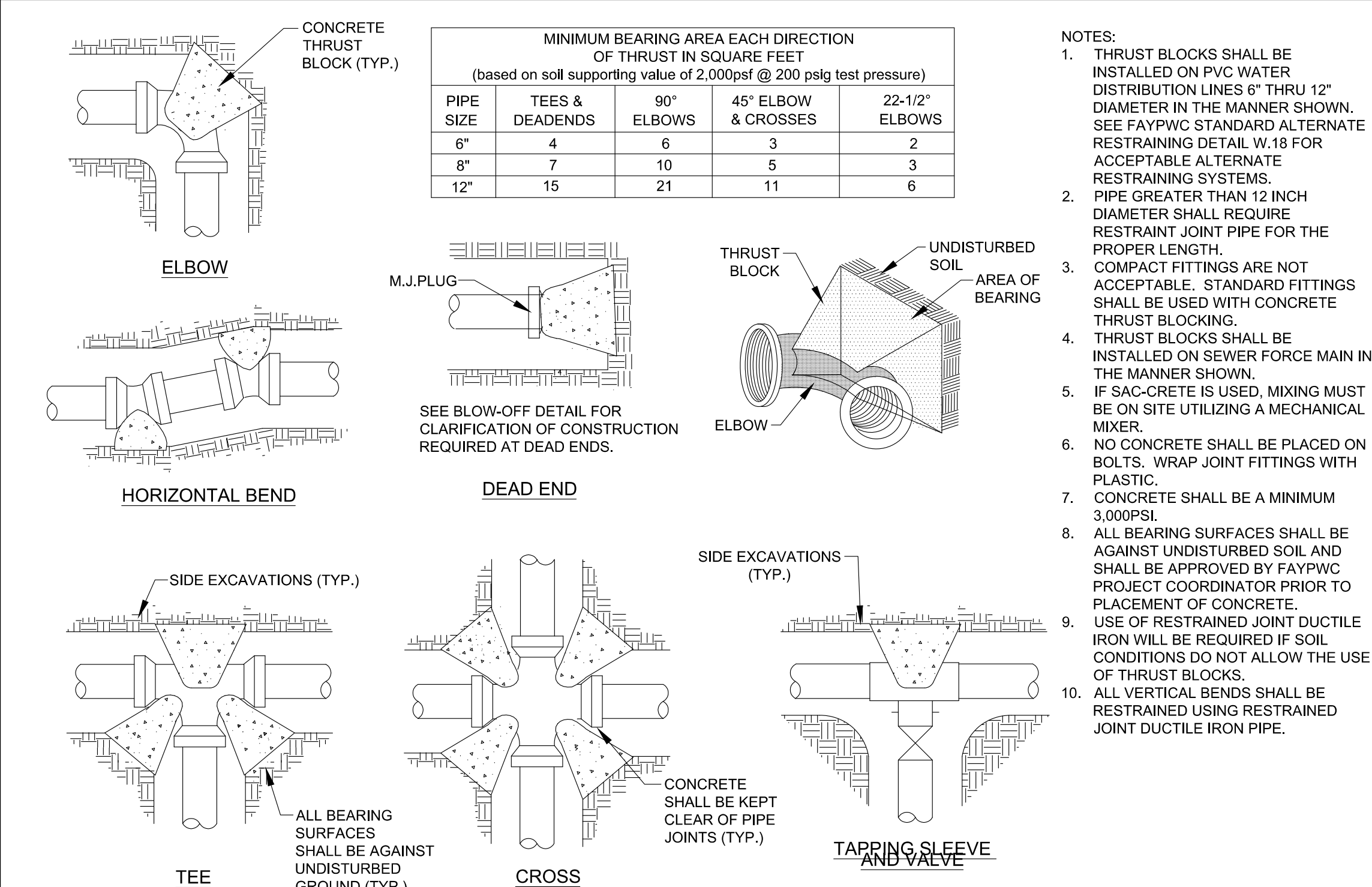
Prepared by:

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6256 (fax)  
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DATE: 12/15/2017  
TIME: 12:02:23 PM  
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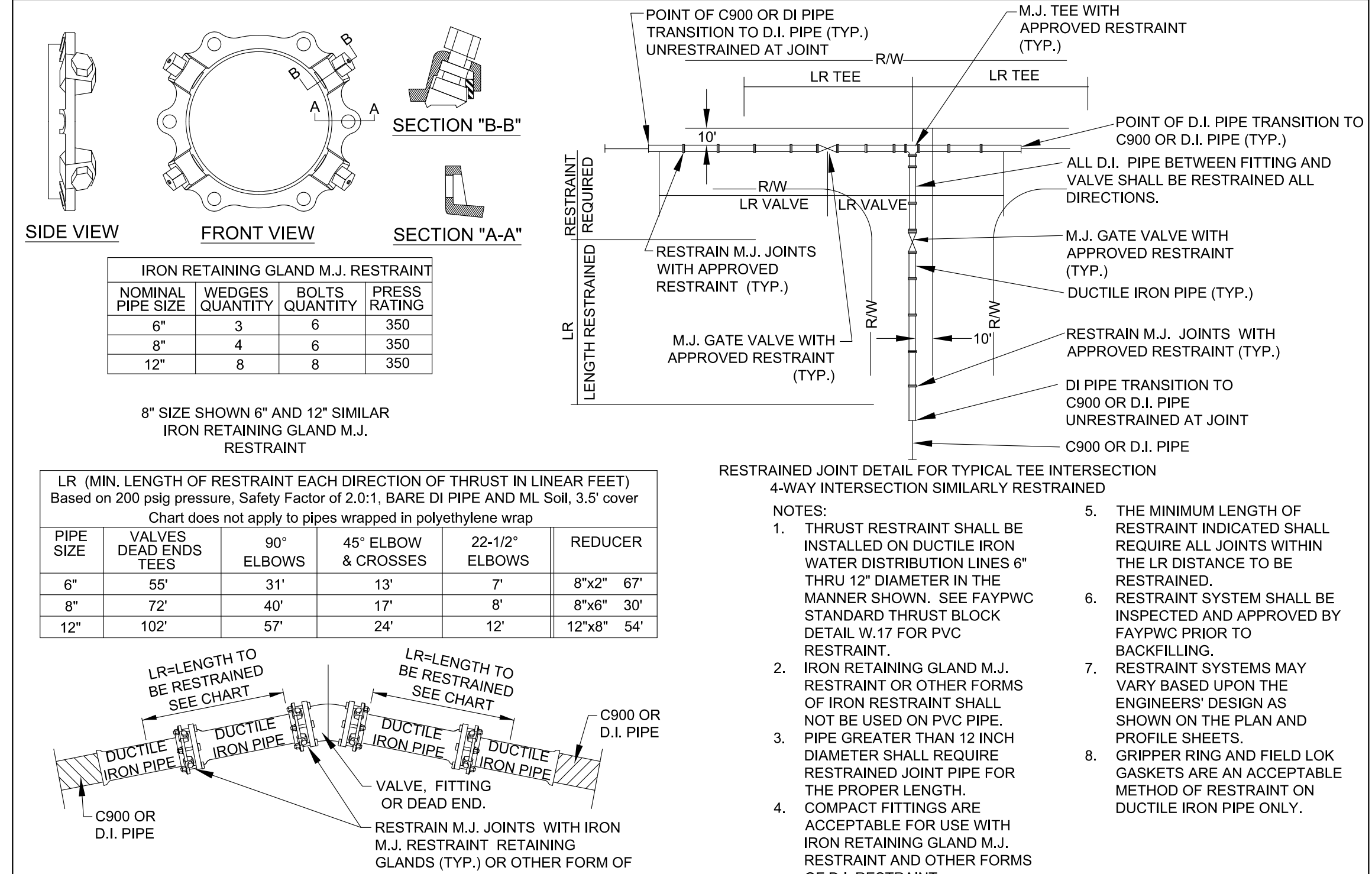
**UTILITY CONSTRUCTION**

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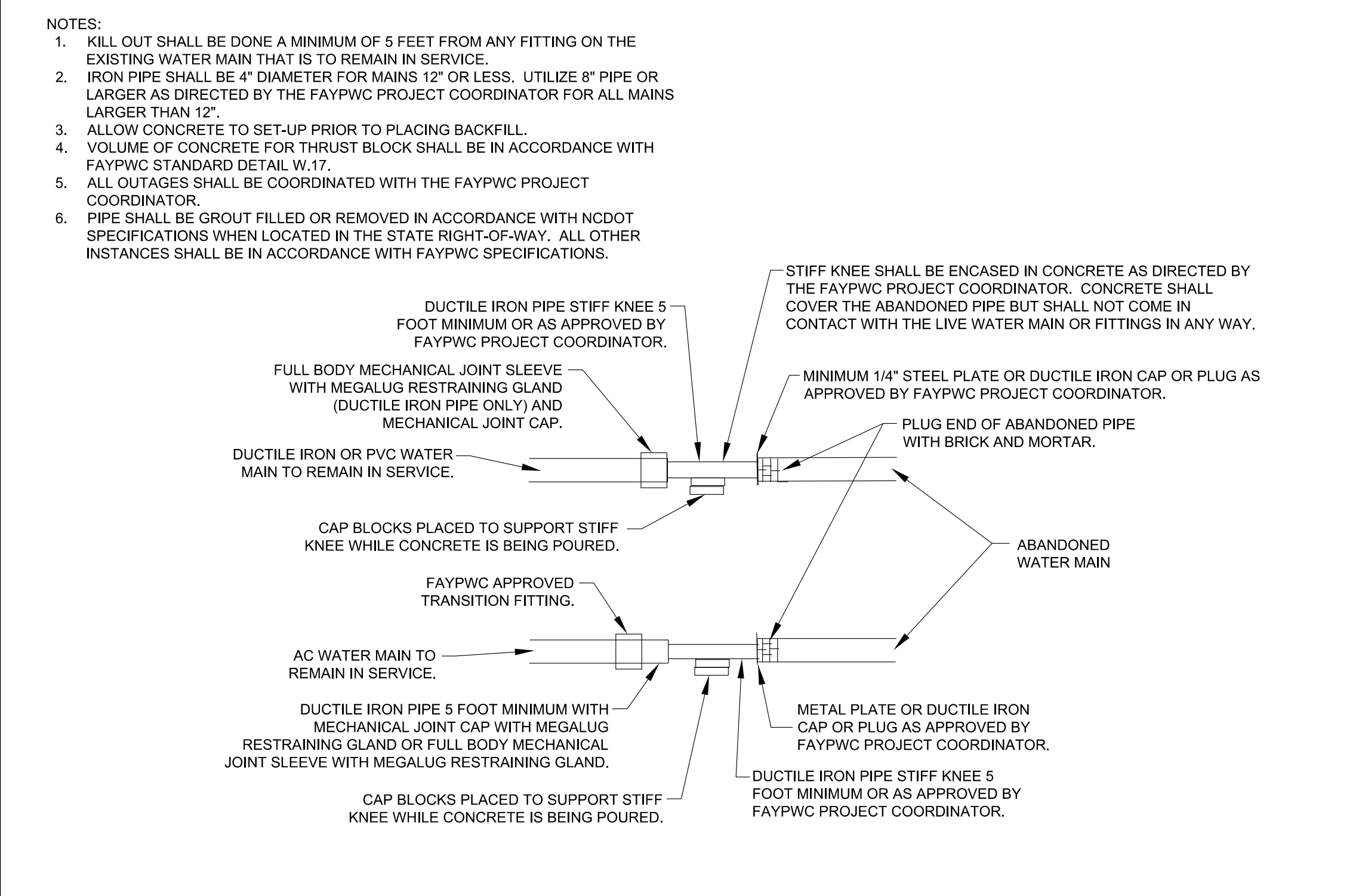
CONCRETE THRUST BLOCK DETAIL N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION	
SHEET NO. 1 OF 1	DWG. NO. W.17	DWG. BY: FAYPWC	DATE: JULY 01, 2017		APPROVED BY: J.E.G.	1	09/05	REVISED TABLE
WATER RESOURCES ENGINEERING DEPARTMENT					2	02/07	ADDED NOTES 9 & 10	
					3	07/13	ADDED TAPPING SLEEVE AND VALVE DETAIL	

W17-THRUSTBLOCK.dwg



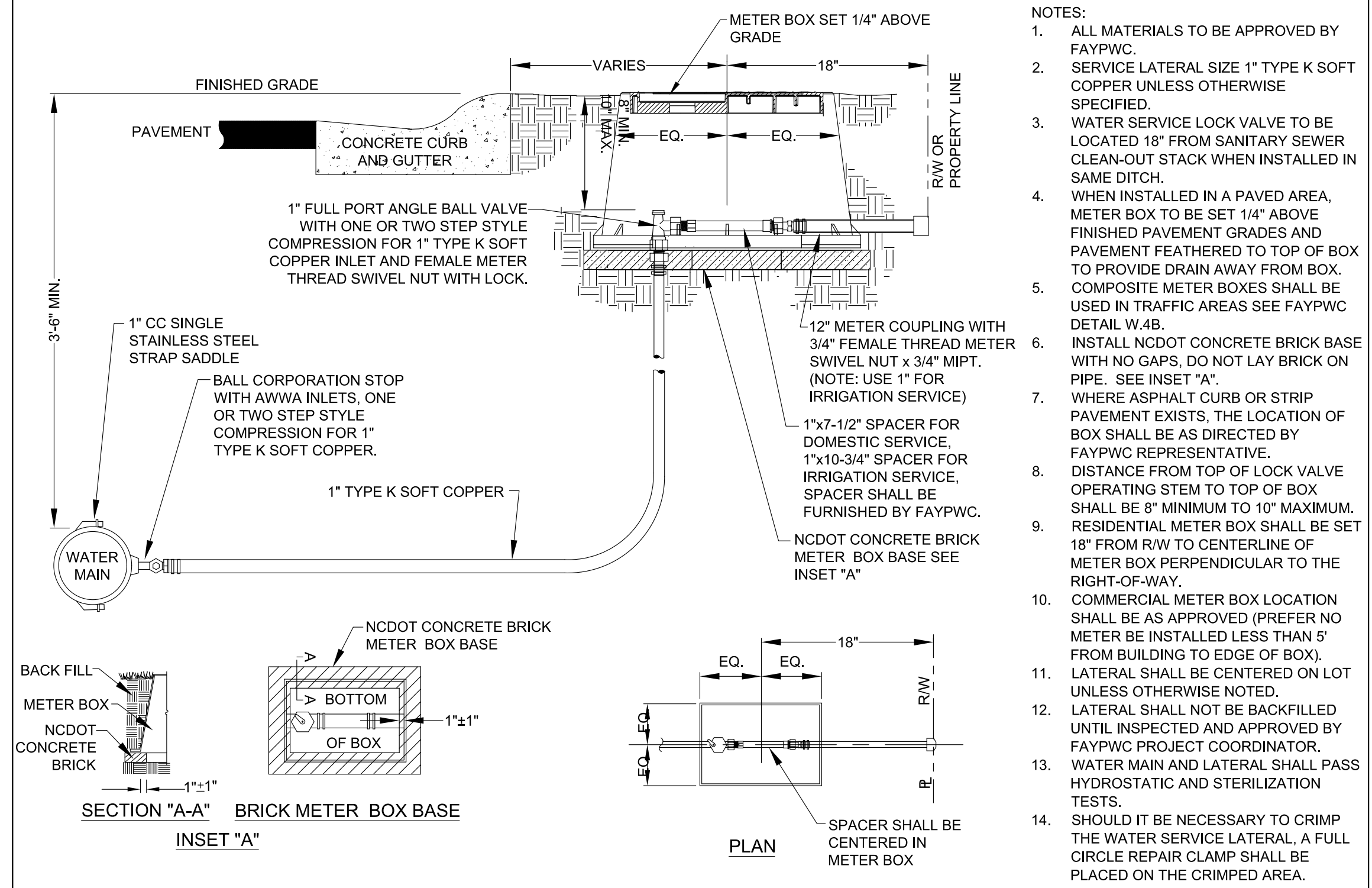
ALTERNATE RESTRAINT DETAIL (DUCTILE IRON PIPE ONLY) N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION	
SHEET NO. 1 OF 1	DWG. NO. W.18	DWG. BY: FAYPWC	DATE: JULY 01, 2017		APPROVED BY: J.E.G.	1	11/16/07	REVISED TABLE, ADDED NOTE 8
WATER RESOURCES ENGINEERING DEPARTMENT								

W18-RESTRAINT-DETAIL.dwg



WATER MAIN KILL-OUT N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION	
SHEET NO. 1 OF 1	DWG. NO. W.22	DWG. BY: FAYPWC	DATE: JULY 01, 2017		APPROVED BY: J.E.G.			
WATER RESOURCES ENGINEERING DEPARTMENT								

W22-WATERMAIN-KILLOUT.dwg



1" COPPER LATERAL SERVICE LATERAL N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION	
SHEET NO. 1 OF 1	DWG. NO. W.24	DWG. BY: FAYPWC	DATE: JULY 01, 2017		APPROVED BY: J.E.G.	2	09/05	VALVE CHANGE, ADD NOTE 16.
WATER RESOURCES ENGINEERING DEPARTMENT					3	07/06	RESIZED METER COUPLING	
					4	07/17	RESIZED NOTES	

W24-COPPER-SERVICE-LATERAL.dwg

Prepared by:

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
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919-854-6200 919-854-6256 (fax)  
F - 0342

DATE: 12/15/2017  
TIME: 12:37 PM  
DWG: b491 uc\_rst030.dgn

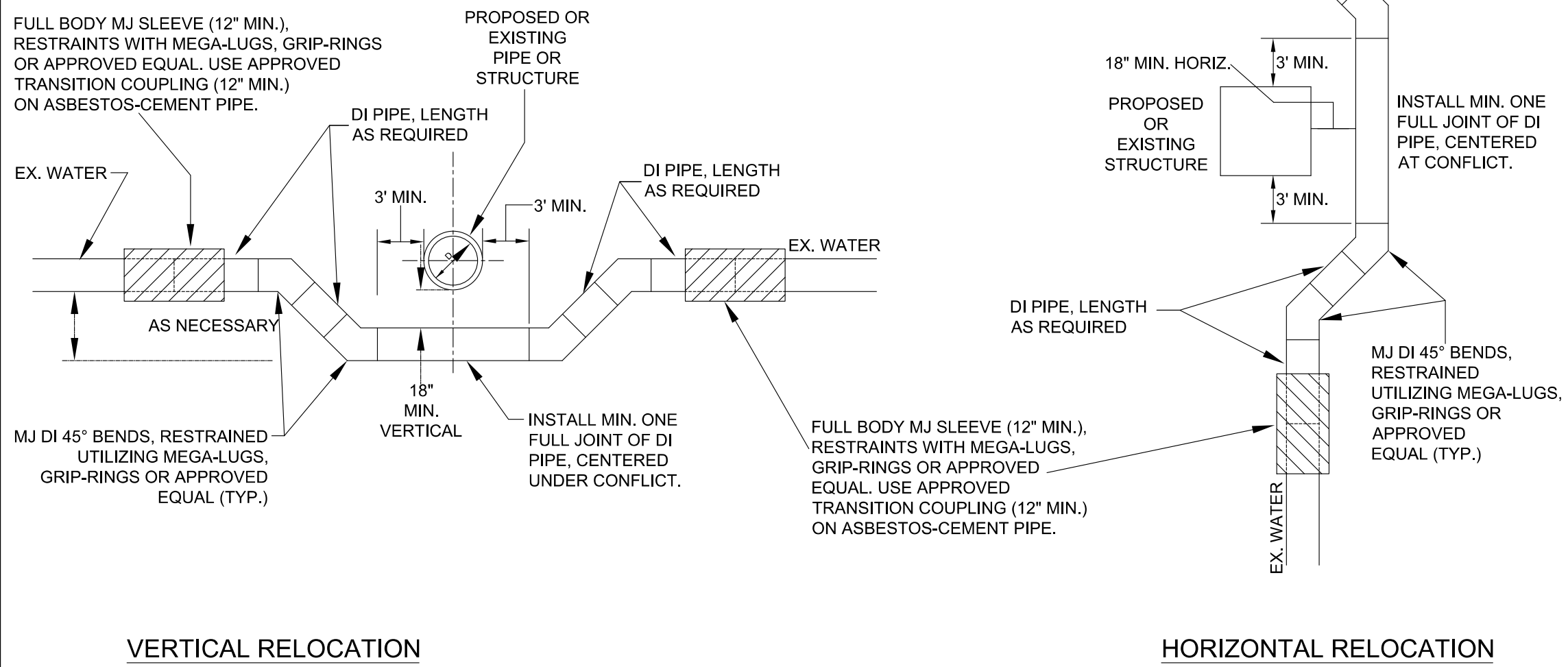


PROJECT REFERENCE NO.	SHEET NO.
<b>B-4491</b>	<b>UC-3E</b>
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	2/5/2017
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

**UTILITY CONSTRUCTION**

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

- NOTES:**
- ALL PIPE AND FITTINGS SHALL BE APPROVED BY FAYPWC.
  - CONTRACTOR TO COORDINATE NECESSARY OUTAGES WITH FAYPWC AND AFFECTED CUSTOMERS. MINIMUM 48 HOUR NOTICE REQUIRED.
  - NEW WATER MAIN TO BE SWABBED WITH A CHLORINE SOLUTION AND FLUSHED PRIOR TO PLACING INTO SERVICE.
  - ALL NEW FITTINGS AND PIPE TO BE RESTRAINED UTILIZING MEGA-LUGS, GRIP-RINGS OR APPROVED EQUAL.
  - ALL PIPE AND FITTINGS TO BE DUCTILE IRON.
  - FAYPWC PROJECT COORDINATOR TO BE PRESENT DURING WORK.
  - BACKFILL AND COMPACT TO CITY OF FAYETTEVILLE OR N.C.D.O.T. REQUIREMENTS.
  - PROVIDE STONE BEDDING (NO. 5 OR NO. 57 STONE) TO SUPPORT RELOCATED WATER MAIN AND/OR NEW STORM DRAIN, AS APPROVED BY FAYPWC PROJECT COORDINATOR.
  - MJ RESTRAINTS NOT ALLOWED ON PVC PIPE.
  - DIMENSIONS ARE GIVEN AS GENERAL GUIDANCE, EXACT DIMENSIONS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND AS DIRECTED BY FAYPWC.



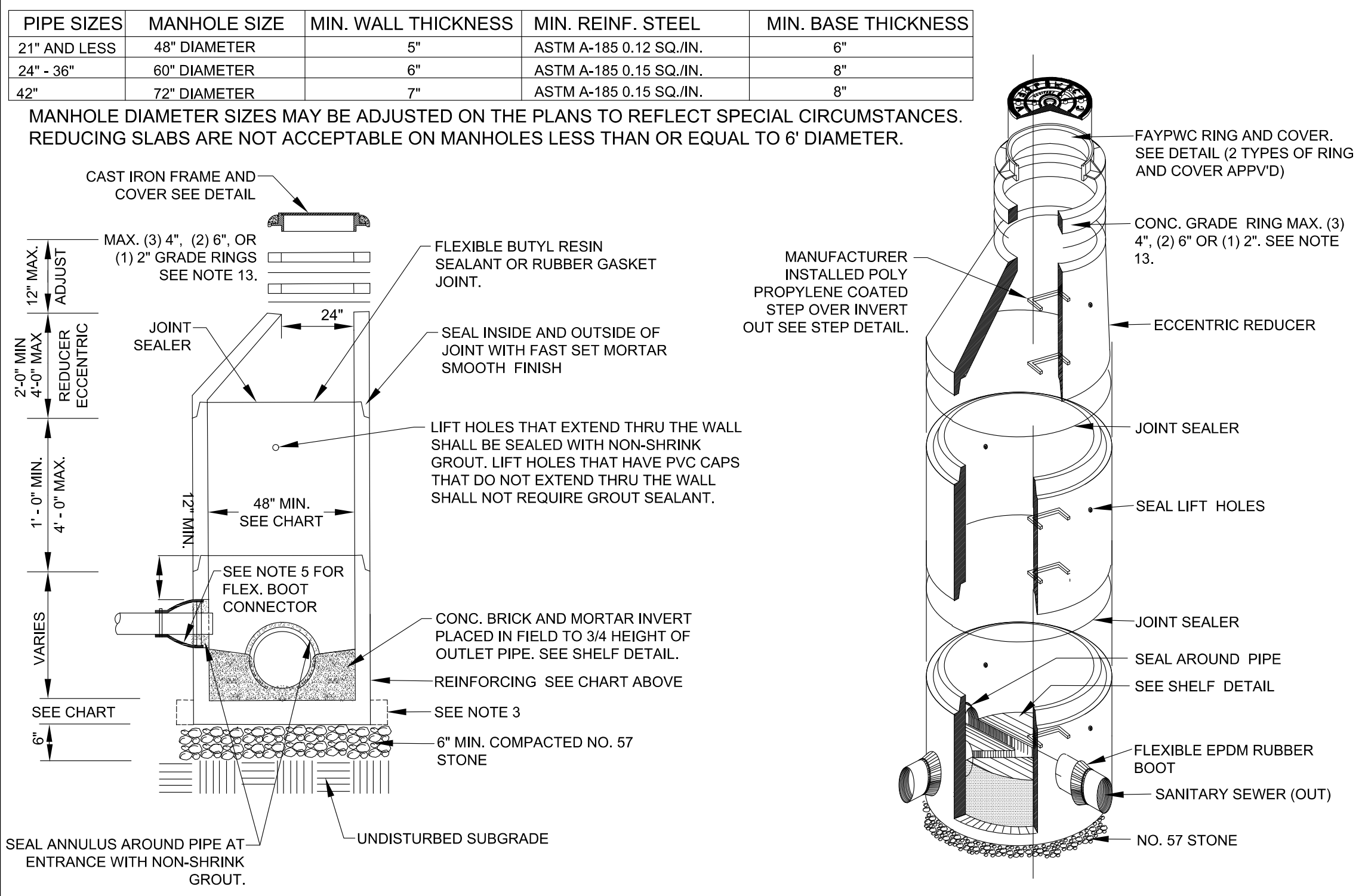
PIPE RELOCATION DETAIL N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
				1 01/12 REVISED NOTES, ADDED HORIZ. RELOCATION	
SHEET NO. 1 OF 1	DWG. NO. W.26 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		

W26-PIPE-RELOCATION-DETAIL.dwg

- CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE FAYPWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYPWC STANDARDS.
- SEWER MAINS, LATERALS, AND MANHOLES SHALL BE INSTALLED UTILIZING A FAYPWC APPROVED CUT-SHEET, INDICATING INSTALLATION DEPTH.
- TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
  - INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY FAYPWC.
  - CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY FAYPWC.
  - AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
- WHEN THE EXISTING MAIN IS NOT TO BE ABANDONED, THE CONTRACTOR SHALL UNCOVER THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE LATERAL TO ABANDON THE OLD SERVICE.
- SEWER PLUGS SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE ACTIVE SEWER SYSTEM. UPON ACCEPTANCE OF THE NEW SEWER SYSTEM, THE CONTRACTOR SHALL CLEAN THE NEW MAINS, REMOVE ALL DEBRIS, AND THEN REMOVE THE PLUG.
- ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
- SEPARATION REQUIREMENTS:
  - LATERAL SEPARATION OF SEWERS AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
    - THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
    - THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL
  - CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF FERROUS MATERIAL AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
  - CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
  - CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 24-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A SEWER MAIN/LATERAL CROSSING UNDER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF SIX(6) INCHES OF SEPARATION SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY FAYPWC.

GENERAL NOTES SANITARY SEWER UTILITY		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
				1 07/16 ADDED NOTE 6	
SHEET NO. 1 OF 1	DWG. NO. S.1 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		

S1-SEWER-NOTES.dwg



STANDARD MANHOLE N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
				1 02/07 CREATED S.2A ADDED NOTES 13-17	
				2 07/13 ADDED SHEET 2 OF 2	
SHEET NO. 1 OF 2	DWG. NO. S.2 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		

S2-STANDARD-MANHOLE.dwg

- NOTES:**
- PRECAST REINFORCED CONCRETE MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C-478.
  - MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000PSI.
  - MANHOLES GREATER THAN 12' DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
  - FLEXIBLE BUTYL RESIN JOINT SEALANT SHALL BE IN ACCORDANCE WITH ASTM C990. RUBBER GASKET JOINTS SHALL BE IN ACCORDANCE WITH ASTM C-443.
  - FLEXIBLE EPDM RUBBER BOOT CONNECTORS SHALL BE IN ACCORDANCE WITH ASTM C923. INSTALLED BY MANUFACTURER WITH STAINLESS STEEL COMPRESSION RING AND TAKE-UP CLAMP. CONNECTION TO MAIN SHALL BE BY CONTRACTOR WITH STAINLESS STEEL PIPE CLAMP.
  - CONNECTIONS TO EXISTING MANHOLES SHALL BE BY CORING MANHOLE AND FIELD INSTALLING A FLEX BOOT CONNECTOR. DO NOT ALLOW DEBRIS TO ENTER SYSTEM.
  - MORTAR SHALL BE QUICK SETTING, NON-SHRINK GROUT MIXED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - MANHOLE STEPS SHALL BE IN ACCORDANCE WITH ASTM C478 AND OSHA REGULATIONS. ALIGN STEPS WITH INVERT OUT.
  - PRECAST INVERTS ARE NOT ALLOWED. STANDING WATER IN INVERT OF MANHOLE IS NOT ACCEPTABLE.
  - VERTICAL DROPS BETWEEN THE INFLOW PIPES AND OUTFLOW PIPES SHALL REQUIRE THE FOLLOWING:
    - GREATER THAN 2.5' SEE DROP STRUCTURE DETAIL (MIN. 5" DIAMETER MH REQUIRED).
    - 1' TO 2.5' SEE PIPE SLIDE DETAIL.
    - LESS THAN 1' SEE MORTAR SLIDE DETAIL.
  - AN ECCENTRIC CONE SHALL BE UTILIZED ON ALL MANHOLES, UNLESS OTHERWISE APPROVED BY FAYPWC.
  - INVERT ON PLANS IS TO MANHOLE CENTERLINE.
  - CONCRETE GRADE RINGS SHALL NOT BE USED FOR ABOVE GRADE ADJUSTMENTS (IE: OUTFALL AREAS). USE OF GRADE RINGS ARE ALLOWABLE IN YARD AREAS AND PAVEMENT, WHERE THE RING AND COVER ARE AT GROUND LEVEL.
  - THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY FAYPWC.
  - THE EXTERIOR MANHOLE RISER JOINTS, INCLUDING THE JOINT AT THE CONE, SHALL BE SEALED ON THE OUTSIDE BY AN APPROVED JOINT WRAP. THE WRAP SHALL BE IN ACCORDANCE WITH FAYPWC SPECIFICATIONS.
  - MANHOLE BOOT FOR 4-INCH LATERALS. SHOULD IT BE NECESSARY TO INSTALL A 4-INCH LATERAL INTO A MANHOLE, THE RUBBER BOOT THAT THE LATERAL IS INSERTED INTO SHALL BE SECURELY FASTENED TO THE CORE HOLE BY UTILIZING A STAINLESS STEEL BAND THAT IS TIGHTENED USING A JACK OR A TORQUE WRENCH (DIRECT DRIVE). BOTH STANDARD SIZE AND STEP DOWN BOOTS ARE ALLOWED. THE TORQUE WRENCH SHALL BE SUPPLIED BY THE MANUFACTURER. NO OTHER TYPE BANDS OR METHOD OF SECURING THE BOOT TO THE MANHOLE SHALL BE ACCEPTED.
 

FOR FOUR (4) INCH SDR 26 LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE 3.5 INCHES TO 4.25 INCHES.

FOR FOUR (4) INCH DUCTILE IRON LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL EITHER BE AS FOR VC OR 4.25 INCHES TO 4.81 INCHES.

IN ALL CASES, THE BOOT SHALL BE TIGHTENED ON THE LATERAL BY MEANS OF A SINGLE STAINLESS STEEL STRAP.

THE LATERAL INVERT SHALL BE AT THE TOP OF THE SHELF.
  - NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
  - NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER
  - USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.
  - ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYPWC STANDARDS.

STANDARD MANHOLE		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
				1 01/08 CREATED DETAIL, ADDED NOTES 14-20	
				2 07/13 REVISED NOTES 9, 10, 11, 15. CONVERTED TO S.2 SHEET 2 OF 2	
SHEET NO. 2 OF 2	DWG. NO. S.2 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		

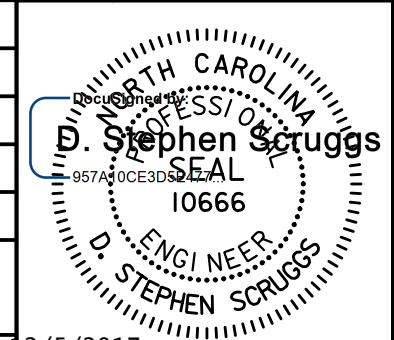
S2-STANDARD-MANHOLE.dwg

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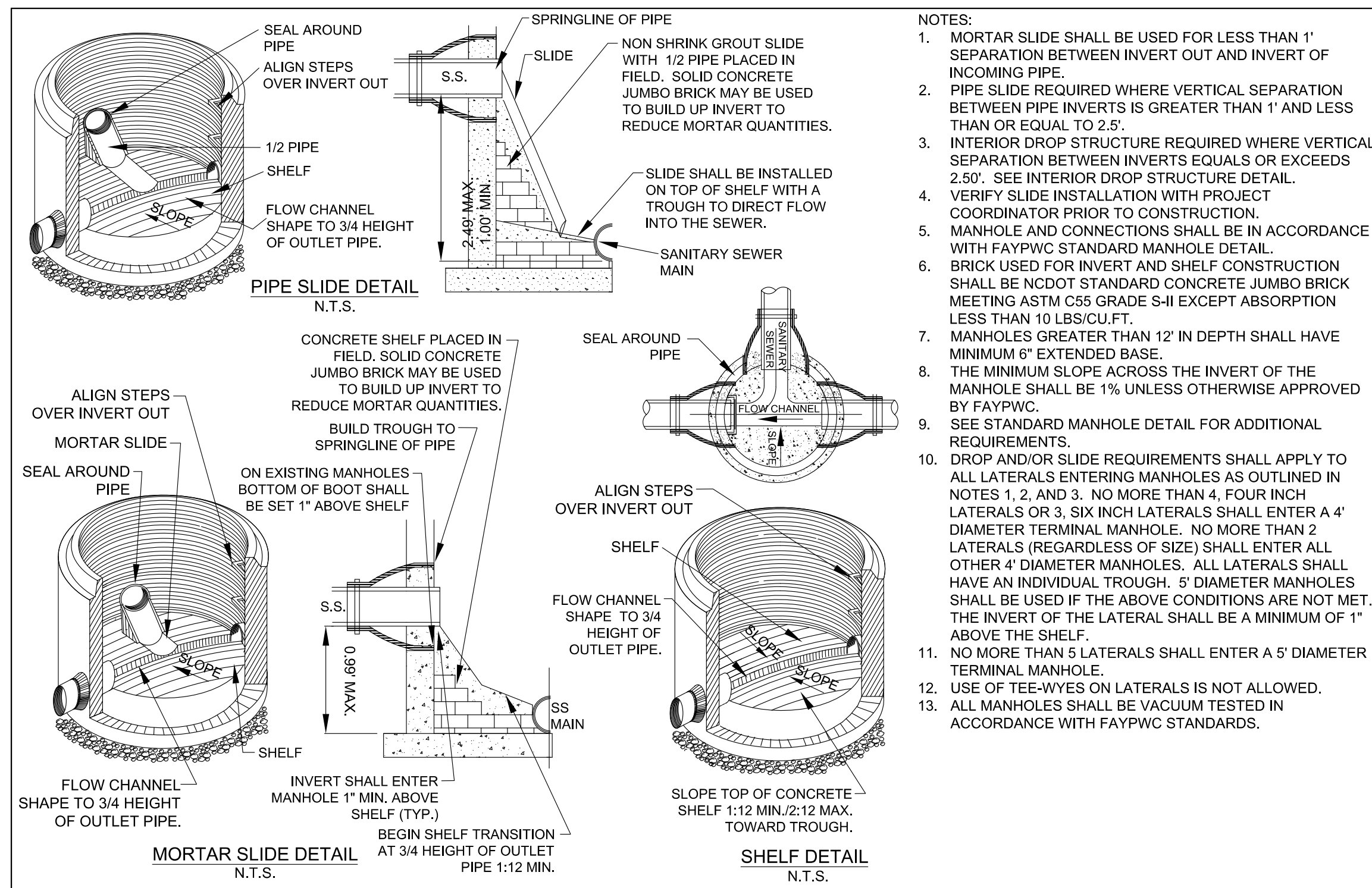
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PROJECT REFERENCE NO.	SHEET NO.
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**UTILITY CONSTRUCTION**

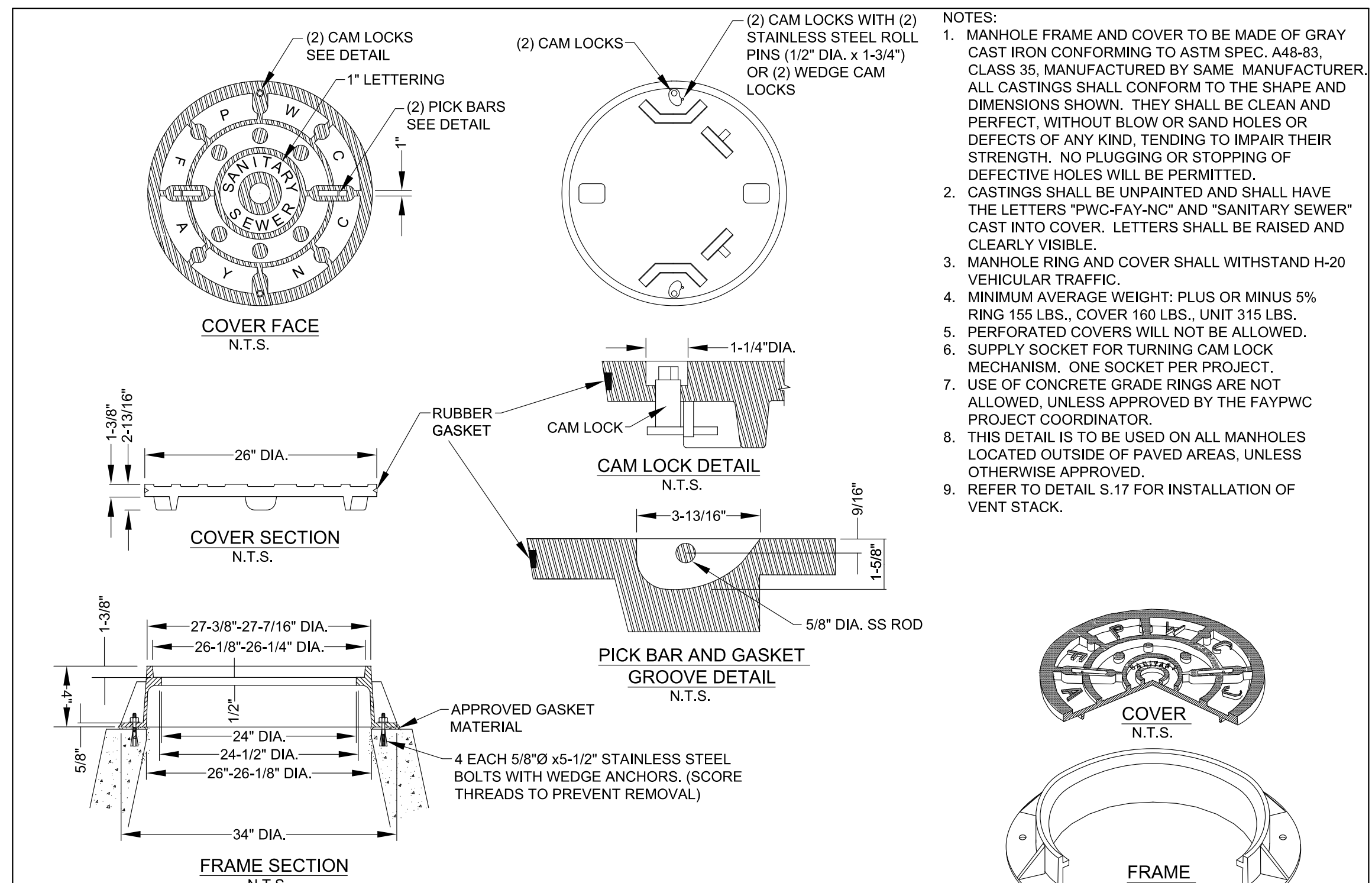
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- NOTES:**
1. MORTAR SLIDE SHALL BE USED FOR LESS THAN 1' SEPARATION BETWEEN INVERT OUT AND INVERT OF INCOMING PIPE.
  2. PIPE SLIDE REQUIRED WHERE VERTICAL SEPARATION BETWEEN PIPE INVERTS IS GREATER THAN 1' AND LESS THAN OR EQUAL TO 2.5'.
  3. INTERIOR DROP STRUCTURE REQUIRED WHERE VERTICAL SEPARATION BETWEEN INVERTS EQUALS OR EXCEEDS 2.50'. SEE INTERIOR DROP STRUCTURE DETAIL.
  4. VERIFY SLIDE INSTALLATION WITH PROJECT COORDINATOR PRIOR TO CONSTRUCTION.
  5. MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD MANHOLE DETAIL.
  6. BRICK USED FOR INVERT AND SHELF CONSTRUCTION SHALL BE NCDOT STANDARD CONCRETE JUMBO BRICK MEETING ASTM C55 GRADE S-II EXCEPT ABSORPTION LESS THAN 10 LBS/CU.FT.
  7. MANHOLES GREATER THAN 12' IN DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
  8. THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1% UNLESS OTHERWISE APPROVED BY FAYPWC.
  9. SEE STANDARD MANHOLE DETAIL FOR ADDITIONAL REQUIREMENTS.
  10. DROP AND/OR SLIDE REQUIREMENTS SHALL APPLY TO ALL LATERALS ENTERING MANHOLES AS OUTLINED IN NOTES 1, 2, AND 3. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET. THE INVERT OF THE LATERAL SHALL BE A MINIMUM OF 1" ABOVE THE SHELF.
  11. NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER TERMINAL MANHOLE.
  12. USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.
  13. ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYPWC STANDARDS.

PIPE SLIDE, MORTAR SLIDE AND SHELF DETAILS N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. S.4 DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT		1 01/05 ADDED NOTE 8.	
DATE: JULY 01, 2017 APPROVED BY: J.E.G.		FAYPWC		2 02/07 REVISED NOTE 8, SLIDE DETAIL. ADDED NOTES 10,11,12	

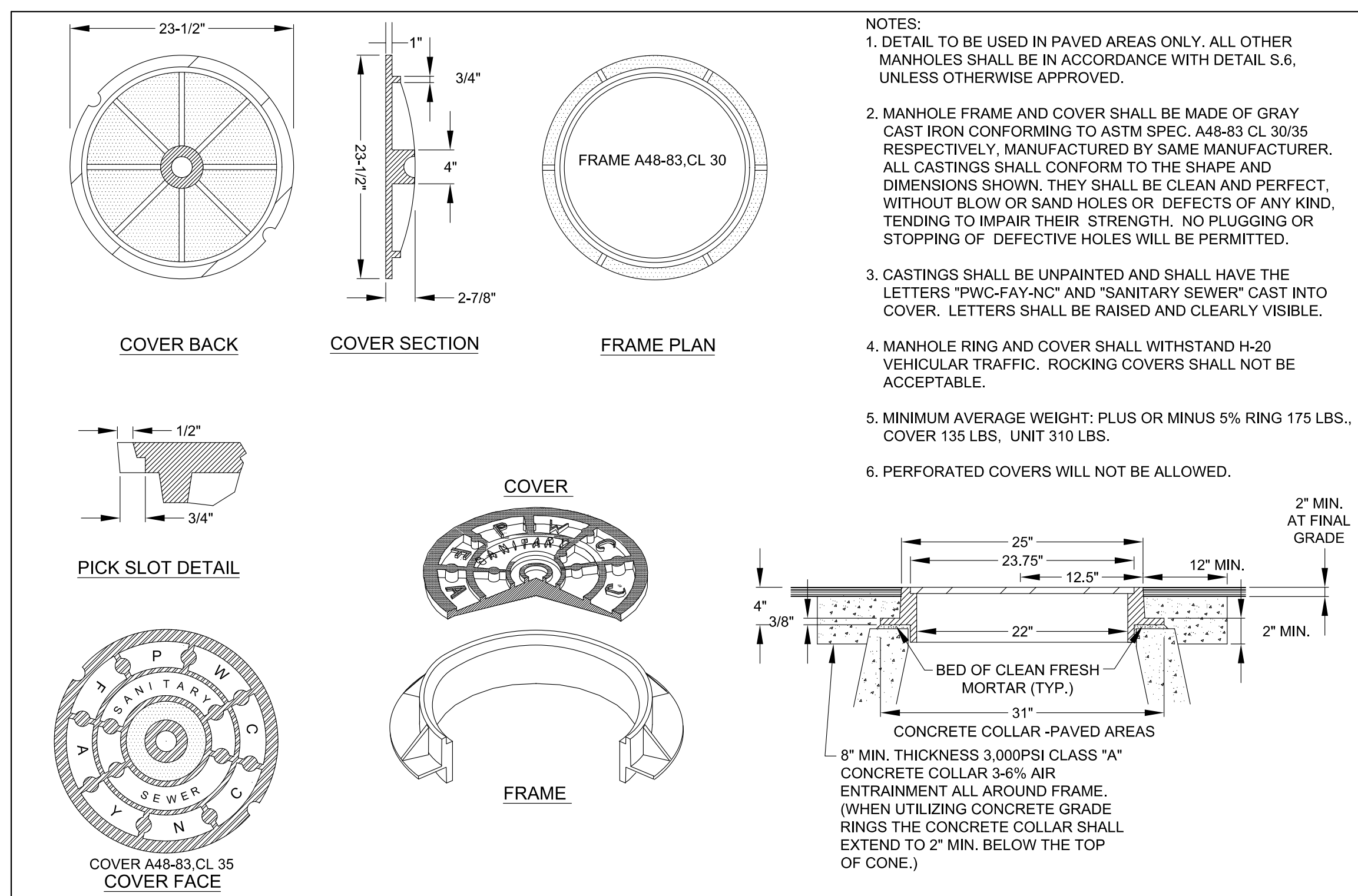
S4-PSLIDE.dwg



- NOTES:**
1. MANHOLE FRAME AND COVER TO BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A48-83, CLASS 35, MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. THEY SHALL BE CLEAN AND PERFECT, WITHOUT BLOW OR SAND HOLES OR DEFECTS OF ANY KIND, TENDING TO IMPAIR THEIR STRENGTH. NO PLUGGING OR STOPPING OF DEFECTIVE HOLES WILL BE PERMITTED.
  2. CASTINGS SHALL BE UNPAINTED AND SHALL HAVE THE LETTERS "PWC-FAY-NC" AND "SANITARY SEWER" CAST INTO COVER. LETTERS SHALL BE RAISED AND CLEARLY VISIBLE.
  3. MANHOLE RING AND COVER SHALL WITHSTAND H-20 VEHICULAR TRAFFIC.
  4. MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 155 LBS., COVER 160 LBS., UNIT 315 LBS.
  5. PERFORATED COVERS WILL NOT BE ALLOWED.
  6. SUPPLY SOCKET FOR TURNING CAM LOCK MECHANISM, ONE SOCKET PER PROJECT.
  7. USE OF CONCRETE GRADE RINGS ARE NOT ALLOWED, UNLESS APPROVED BY THE FAYPWC PROJECT COORDINATOR.
  8. THIS DETAIL IS TO BE USED ON ALL MANHOLES LOCATED OUTSIDE OF PAVED AREAS, UNLESS OTHERWISE APPROVED.
  9. REFER TO DETAIL S.17 FOR INSTALLATION OF VENT STACK.

STANDARD NON-TRAFFIC AREA MANHOLE RING AND COVER WITH WIPER GASKET & CAM LOCK N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. S.6 DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT		1 12/08 REVISED DIMENSIONS ON FRAME SECTION	
DATE: JULY 01, 2017 APPROVED BY: J.E.G.		FAYPWC		2 07/09 REVISED NOTES ON FRAME SECTION/REVISED NOTE 3	
				3 07/17 ADDED NOTE ON WEDGE CAM LOCKS	

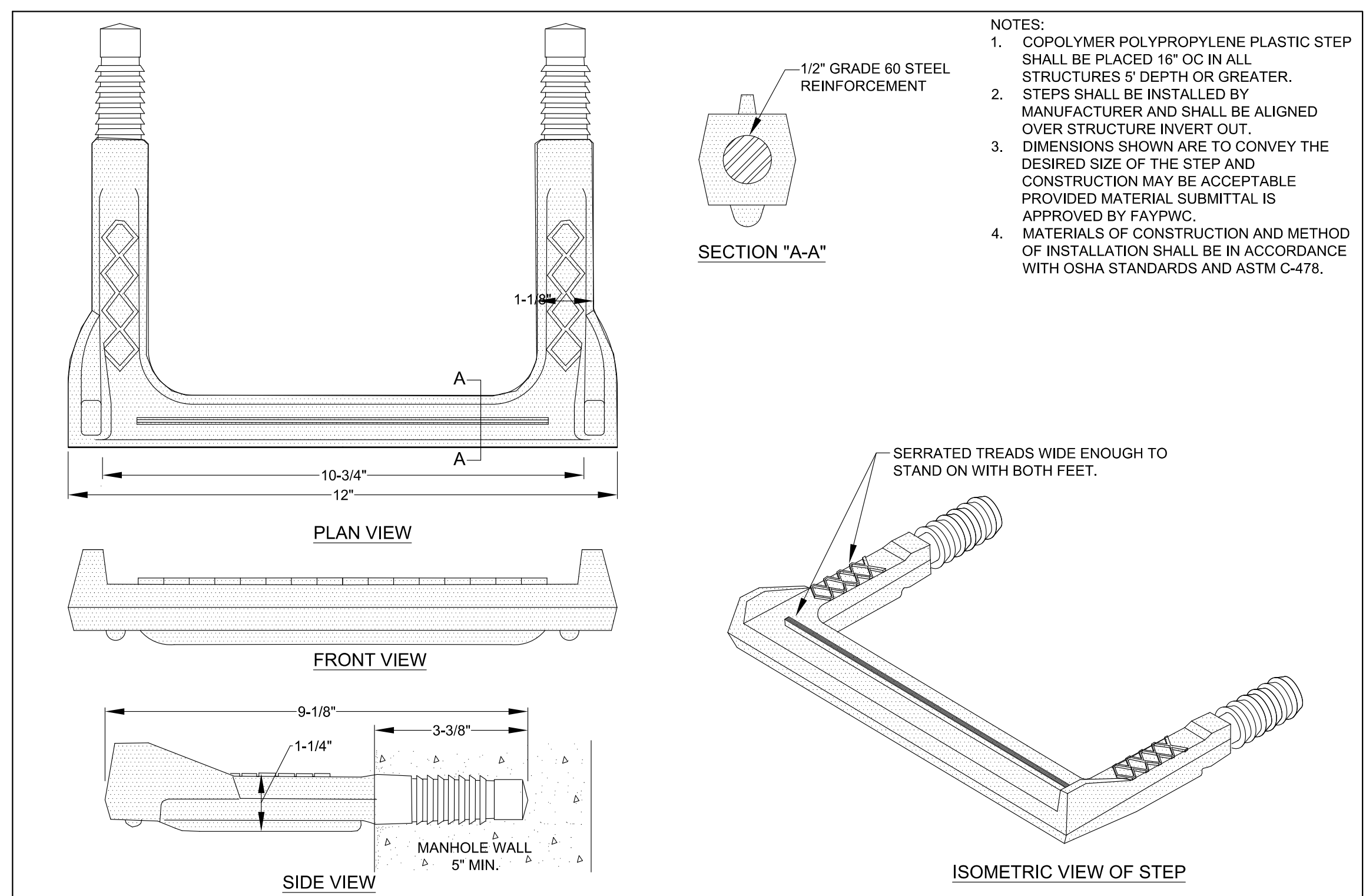
S6-RING-COVER.dwg



- NOTES:**
1. DETAIL TO BE USED IN PAVED AREAS ONLY. ALL OTHER MANHOLES SHALL BE IN ACCORDANCE WITH DETAIL S.6, UNLESS OTHERWISE APPROVED.
  2. MANHOLE FRAME AND COVER SHALL BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A48-83 CL 30/35 RESPECTIVELY, MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. THEY SHALL BE CLEAN AND PERFECT, WITHOUT BLOW OR SAND HOLES OR DEFECTS OF ANY KIND, TENDING TO IMPAIR THEIR STRENGTH. NO PLUGGING OR STOPPING OF DEFECTIVE HOLES WILL BE PERMITTED.
  3. CASTINGS SHALL BE UNPAINTED AND SHALL HAVE THE LETTERS "PWC-FAY-NC" AND "SANITARY SEWER" CAST INTO COVER. LETTERS SHALL BE RAISED AND CLEARLY VISIBLE.
  4. MANHOLE RING AND COVER SHALL WITHSTAND H-20 VEHICULAR TRAFFIC. ROCKING COVERS SHALL NOT BE ACCEPTABLE.
  5. MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 175 LBS., COVER 135 LBS., UNIT 310 LBS.
  6. PERFORATED COVERS WILL NOT BE ALLOWED.

STANDARD TRAFFIC AREA MANHOLE RING AND COVER N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. S.7 DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT		1 01/05 CHANGED NON TRAFFIC DETAIL	
DATE: JULY 01, 2017 APPROVED BY: JEG		FAYPWC		2 07/06 ADDED NOTE ON CONC. COLLAR	
				3 02/07 REMOVED NON TRAFFIC AREA REVISED NOTES	
				4 07/08 REVISED ASPHALT THICKNESS	

S7-RING-COVER.dwg



- NOTES:**
1. COPOLYMER POLYPROPYLENE PLASTIC STEP SHALL BE PLACED 18" OC IN ALL STRUCTURES 5' DEPTH OR GREATER.
  2. STEPS SHALL BE INSTALLED BY MANUFACTURER AND SHALL BE ALIGNED OVER STRUCTURE INVERT OUT.
  3. DIMENSIONS SHOWN ARE TO CONVEY THE DESIRED SIZE OF THE STEP AND CONSTRUCTION MAY BE ACCEPTABLE PROVIDED MATERIAL SUBMITTAL IS APPROVED BY FAYPWC.
  4. MATERIALS OF CONSTRUCTION AND METHOD OF INSTALLATION SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND ASTM C-478.

STRUCTURE STEP N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. S.8 DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT			
DATE: JULY 01, 2017 APPROVED BY: J.E.G.		FAYPWC			

S8-STEP.dwg

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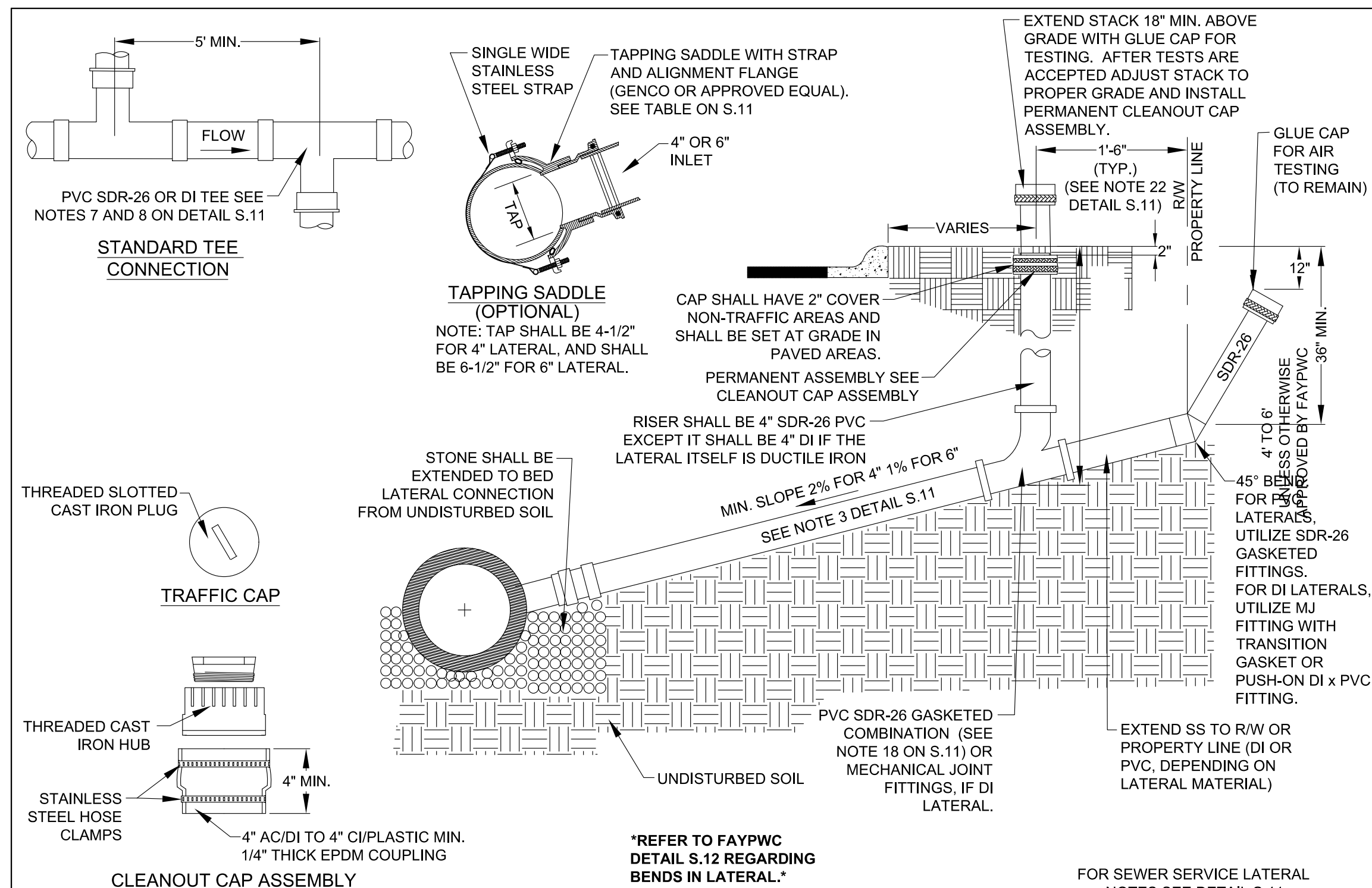
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	2/5/2017
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**UTILITY CONSTRUCTION**

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SEWER SERVICE LATERAL (4-INCH AND 6-INCH) N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.10	DWG. BY: FAYPWC	DATE: JULY 01, 2017		APPROVED BY: JEG	1	01/13
WATER RESOURCES ENGINEERING DEPARTMENT		WATER RESOURCES ENGINEERING DEPARTMENT			2	01/14	ADDED TAILPIECE, NOTES
					3	01/15	REVISED NOTES RE: TAILPIECE

S10-RESSLAT.dwg

- SEWER SERVICE LATERAL NOTES**
- HOLE IN SANITARY SEWER MAIN MUST BE CUT WITH SHELL CUTTER NO HAMMER TAPS ALLOWED.
  - LATERAL SHALL CONFORM TO ASTM SPECS. D-3034 SDR-26 UNLESS OTHERWISE INDICATED AS DI.
  - ALL PIPE AND FITTINGS SHALL BE 4" OR 6" UNLESS OTHERWISE SPECIFIED.
  - ALL DI PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC EPOXY (PROTECTO 401). THE ENTIRE DI LATERAL SHALL BE COMPRISED OF DI PIPE AND MECHANICAL JOINT FITTINGS.
  - ALL CONNECTIONS SHALL HAVE RUBBER GASKET SEALS INSTALLED.
  - SANITARY SEWER SERVICE CLEANOUT STACK SHALL BE LOCATED 18" FROM WATER SERVICE LOCK VALVE WHEN IN THE SAME DITCH.
  - INSTALLATION OTHER THAN AS SHOWN MUST BE APPROVED BY THE FAYPWC.
  - CONNECTIONS TO THE TOP OF MAIN SHALL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE FAYPWC PROJECT COORDINATOR.
  - SLOPE AND DEPTH OF THE SERVICE LATERAL SHALL BE DETERMINED BY THE TOPOGRAPHY OF THE LOT AS APPROVED BY THE FAYPWC ENGINEER OR AS INDICATED ON THE DRAWINGS.
  - LATERAL SHALL CONFORM TO THE 2% MINIMUM SLOPE FOR THE 4" OR THE 1% MINIMUM SLOPE FOR THE 6". MAXIMUM CLEANOUT SPACING FOR 4" PIPE 75', 6" PIPE 100'.
  - SEE INTERIOR DROP STRUCTURE OR SLIDE, MORTAR SLIDE AND SHELF DETAIL FOR VERTICAL DROPS OF MAINS AND LATERALS.
  - LATERALS LESS THAN 3' IN DEPTH OR GREATER THAN 20' DEPTH SHALL UTILIZE DUCTILE IRON PIPE AND FITTINGS WITH CERAMIC EPOXY (PROTECTO 401), OR WHEN SEPARATION REQUIREMENTS CANNOT BE MET. CONCURRENTLY WITH SEWER MAIN.
  - ENTIRE SEWER LATERAL ASSEMBLY SHALL BE AIR TESTED.
  - INDIVIDUAL LATERALS SHALL BE CLEANED AND FLUSHED PRIOR TO FLUSHING SANITARY SEWER MAINS.
  - LATERAL SHALL NOT BE BACK-FILLED UNTIL INSPECTED BY THE FAYPWC PROJECT COORDINATOR.
  - WYE CONNECTIONS SHALL NOT BE USED TO TIE LATERALS INTO A MANHOLE.
  - IF BENDS ARE APPROVED BY THE PROJECT COORDINATOR, STONE BEDDING IS REQUIRED TO BE INSTALLED FROM UNDISTURBED (SEE DETAIL S.12) SOIL TO BOTTOM OF BEND.
  - PVC COMBINATION SHALL BE A MOLDED WYE AND BEND, GASKETED, SDR-26, AS MANUFACTURED BY HARCO, GPK OR APPROVED EQUAL.
  - NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH, 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
  - ALL LATERALS (4" AND 6") SHALL UTILIZE A 4" RISER (STACK).
  - REFER TO DETAIL S.12 FOR SEPARATION REQUIREMENTS.
  - FOR SINGLE FAMILY RESIDENTIAL LOTS, CLEANOUT SHALL BE LOCATED 18" FROM RIGHT-OF-WAY OR EASEMENT. FOR ALL NON-SINGLE FAMILY LOTS, CLEANOUT SHALL BE NO CLOSER THAN 10' TO FRONT OF BUILDING, UNLESS OTHERWISE APPROVED BY FAYPWC.

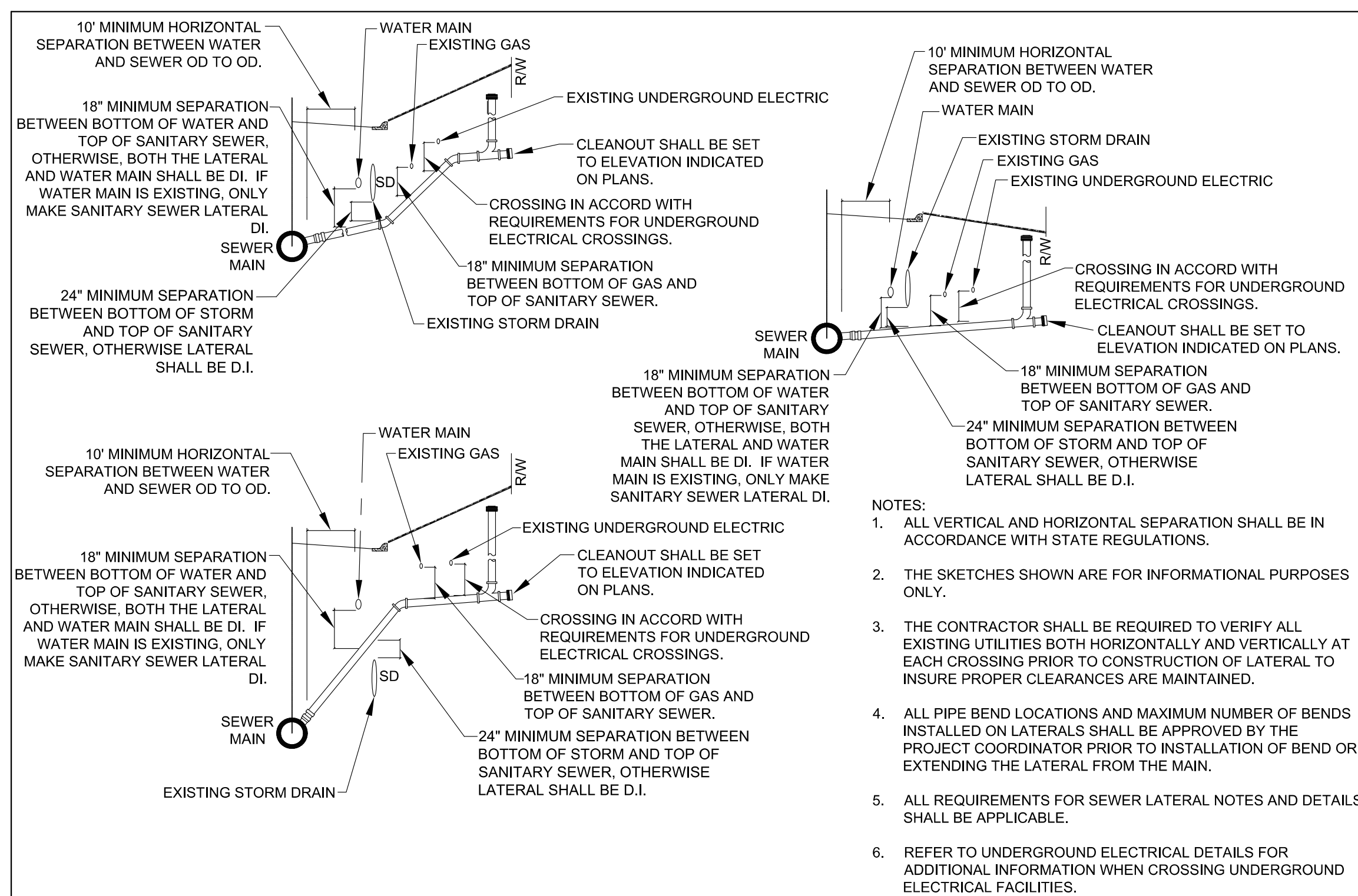
THE FOLLOWING TABLE SUMMARIZES THE MATERIALS TO BE UTILIZED FOR SEWER MAIN TO LATERAL CONNECTIONS:

DI Lateral	PVC Main	DI Main
PVC Lateral	DI fitting or approved saddle	MJ fitting or approved saddle
	PVC fitting or approved saddle	MJ fitting with transition gasket or approved saddle

NOTE: REFER TO FAYPWC TECHNICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.

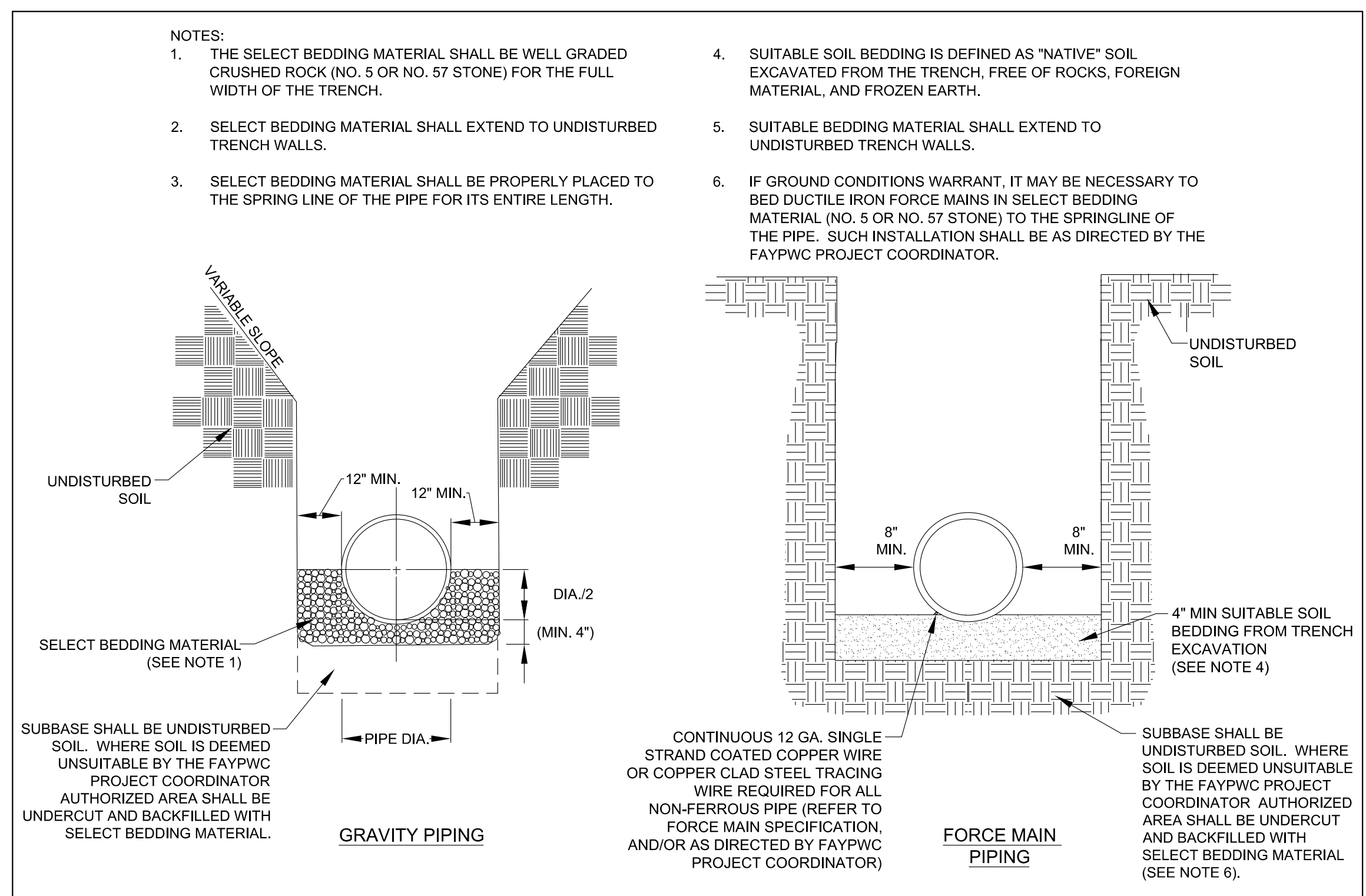
SEWER SERVICE LATERAL NOTES (4-INCH AND 6-INCH)		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.11	DWG. BY: FAYPWC	DATE: JULY 01, 2017		APPROVED BY: JEG	2	10/11
WATER RESOURCES ENGINEERING DEPARTMENT		WATER RESOURCES ENGINEERING DEPARTMENT			3	01/13	REVISED NOTES AND ADDED TABLE
					4	01/15	REVISED NOTE 22, TABLE

S11-RESSLAT-NOTES.dwg



SEWER SERVICE LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.12	DWG. BY: FAYPWC	DATE: JULY 01, 2017		APPROVED BY:	1	01/05
WATER RESOURCES ENGINEERING DEPARTMENT		WATER RESOURCES ENGINEERING DEPARTMENT			2	11/06	ADDED NOTE ON DI LATERALS
					3	03/10	ADDED LATERAL & WM SEPARATION

S12-UTIL-CONFLICT.dwg



SEWER BEDDING N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.13	DWG. BY: FAYPWC	DATE: JULY 01, 2017		APPROVED BY: J.E.G.	1	01/01/16
WATER RESOURCES ENGINEERING DEPARTMENT		WATER RESOURCES ENGINEERING DEPARTMENT			2	01/01/05	REVISED NOTES

S13-SEWER-BEDDING.dwg

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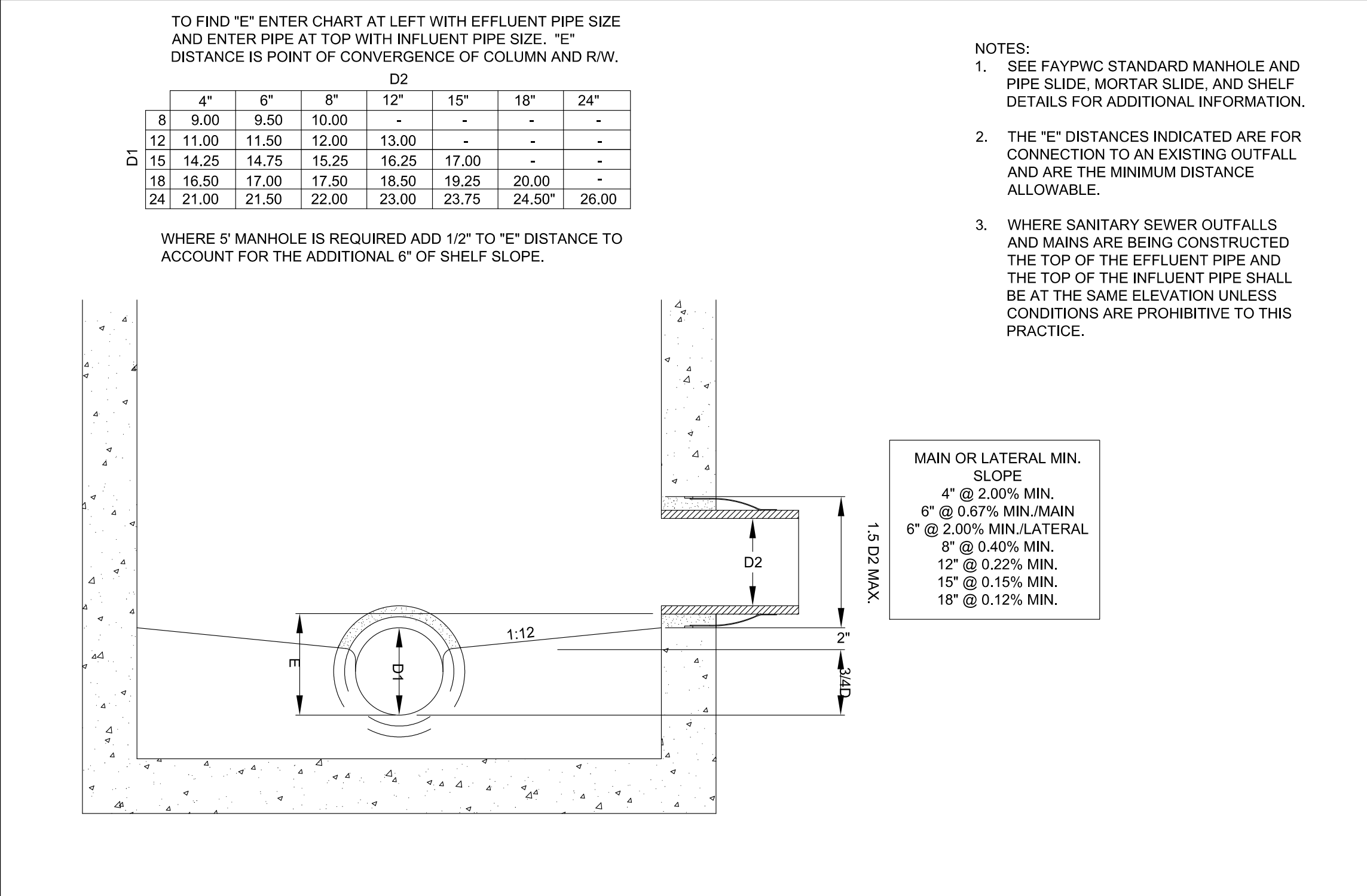
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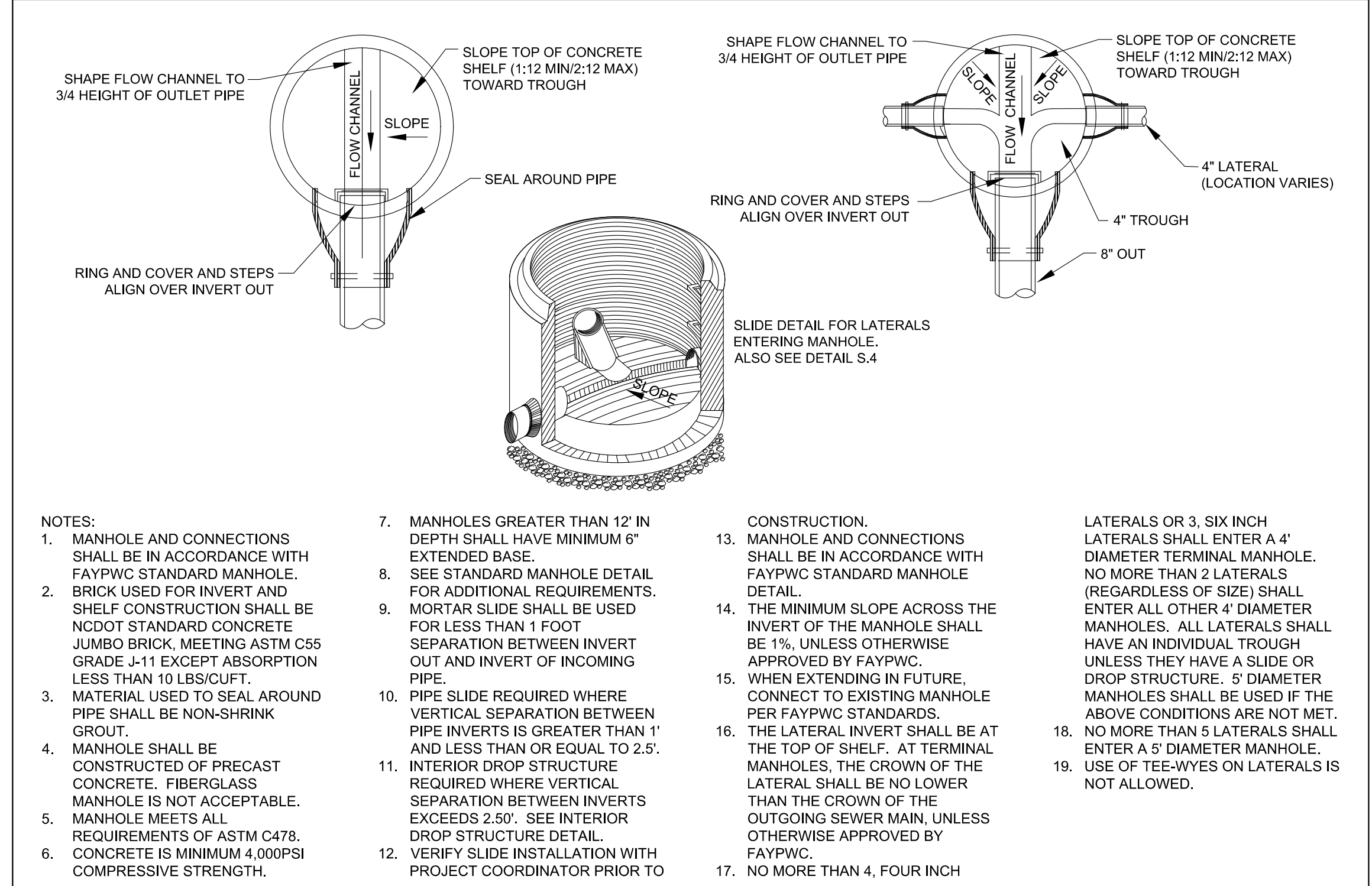
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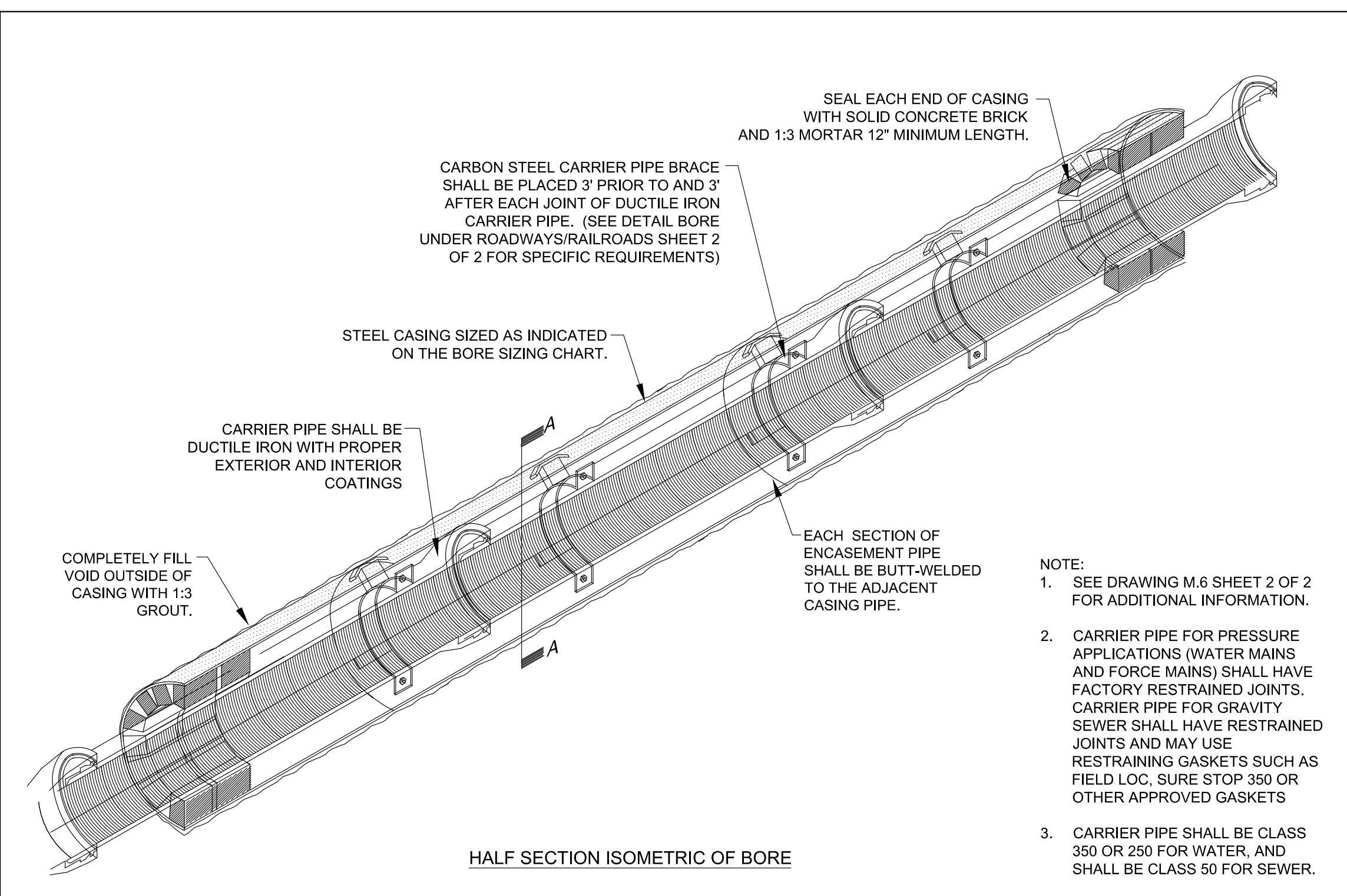
MH CONNECTION DESIGN GUIDE N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.18 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT				

S18-PENETRATION-DETAIL.dwg



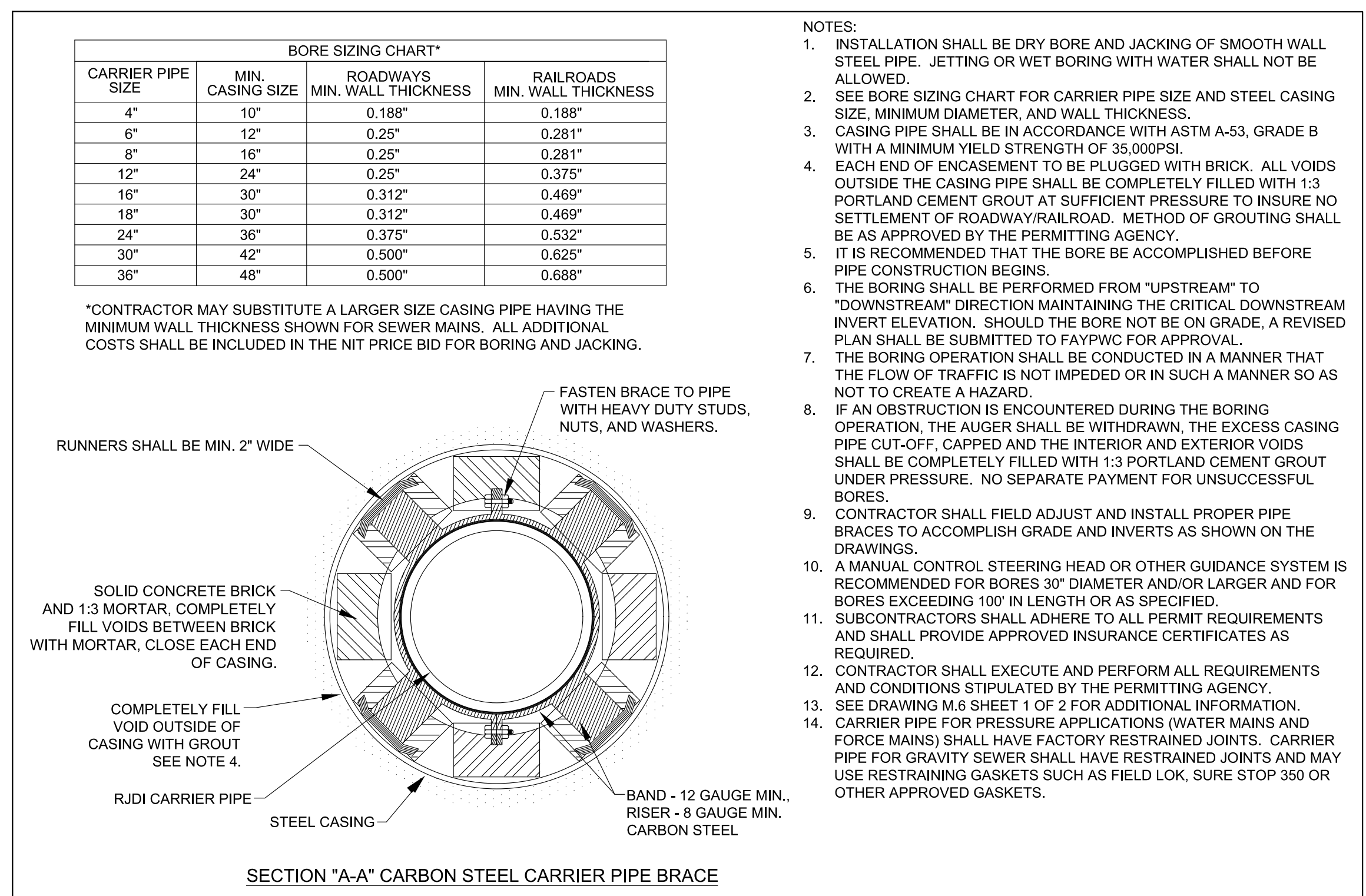
TERMINAL MANHOLE N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.20 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT				

S20-TERMINAL-MANHOLE.dwg



BORE UNDER ROADWAYS/RAILROADS N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. M.6 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		1	01/05	ADDED NOTES 2 & 3
				2	10/09	CLARIFIED RESTRAINT REQUIREMENTS	

M6-BORE-ROAD-RAIL.dwg



BORE UNDER ROADWAYS/RAILROADS N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. M.6 DATE: JULY 01, 2017	DWG. BY: FAYPWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		1	02/11/04	ADDED 6" CARRIER PIPE TO BORE SIZING CHART
				2	07/10	REVISED NOTES, SIZING CHART	

M6-BORE-ROAD-RAIL.dwg

Prepared by:

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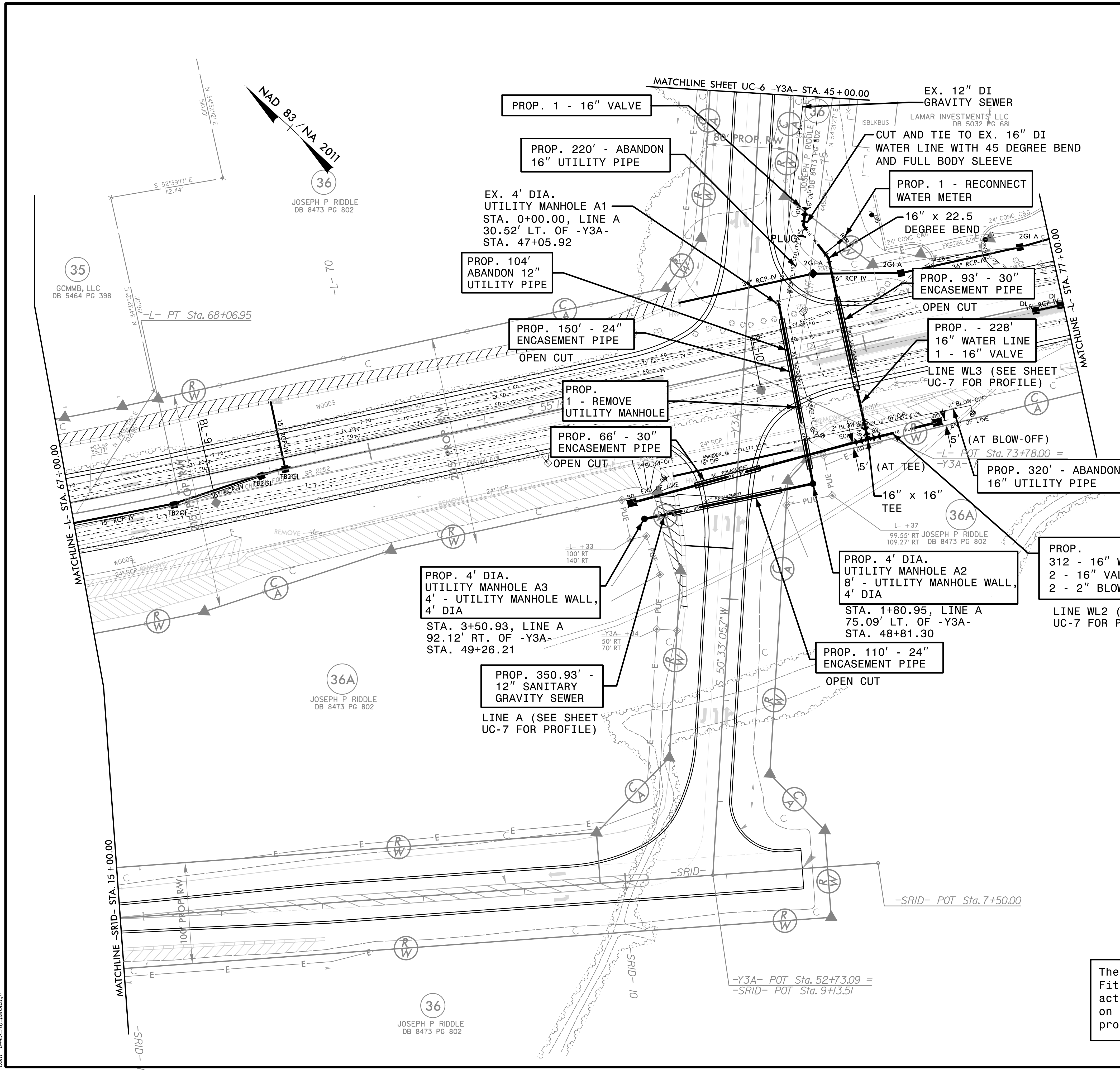
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	2/13/2018
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**UTILITY CONSTRUCTION**



The estimated quantity of Ductile Iron Water Pipe Fittings on this plan sheet is 1715 pounds. The actual quantity and type of fittings will vary based on field conditions. (See sheet UC-7 for vertical profile fittings not included on this plan sheet.)

DATE: 2/13/2018  
TIME: 2:59:41 PM  
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35  
GCMMB, LLC  
DB 5464 PG 398

36  
JOSEPH P RIDDLE  
DB 8473 PG 802

36A  
JOSEPH P RIDDLE  
DB 8473 PG 802

36  
JOSEPH P RIDDLE  
DB 8473 PG 802

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F - 0342

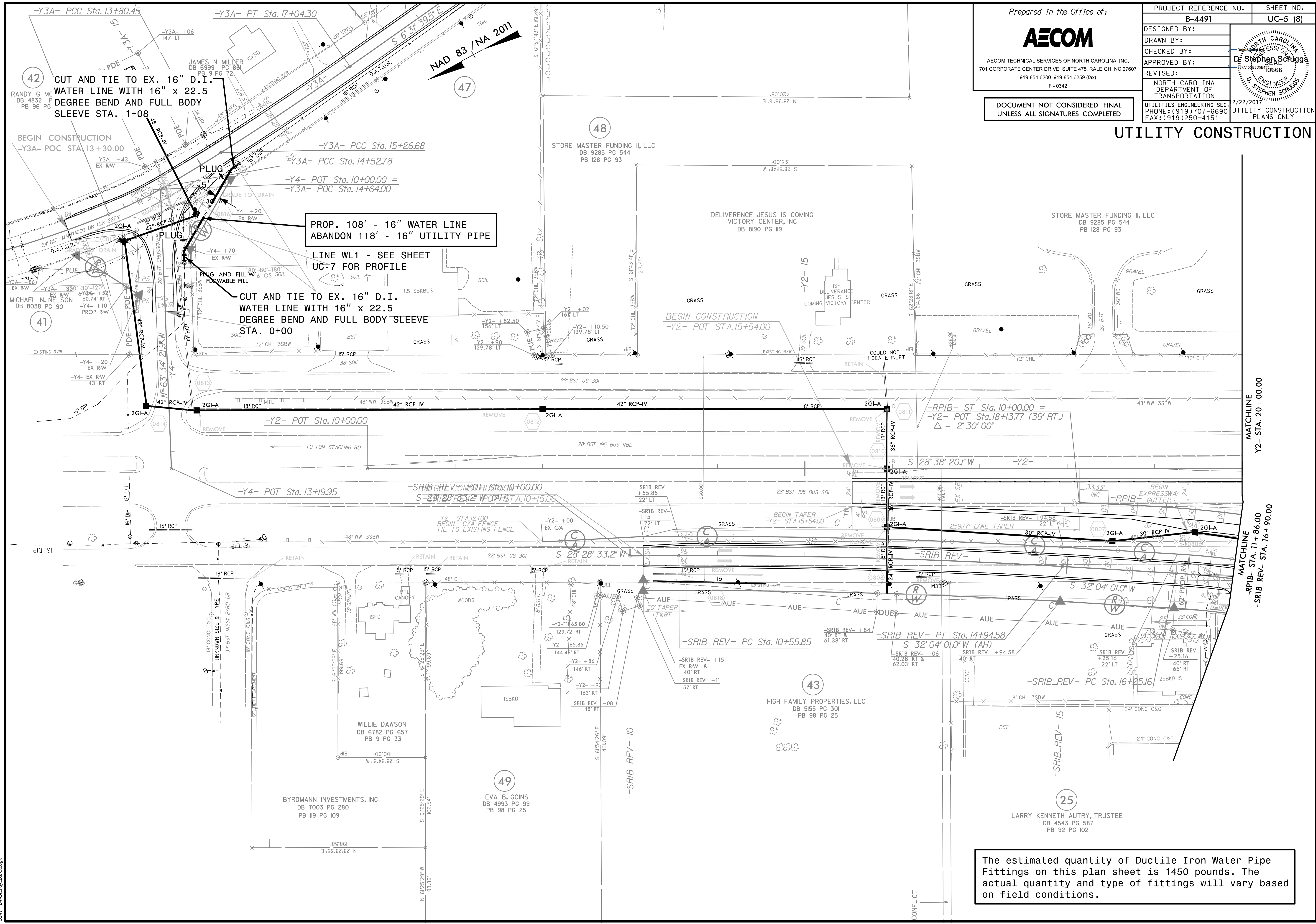
PROJECT REFERENCE NO. **B-4491** SHEET NO. **UC-5 (8)**

DESIGNED BY:  
DRAWN BY:  
CHECKED BY:  
APPROVED BY: **Stephen Scruggs**  
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
2/22/2017  
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151  
UTILITY CONSTRUCTION PLANS ONLY

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## UTILITY CONSTRUCTION



42 CUT AND TIE TO EX. 16" D.I. WATER LINE WITH 16" x 22.5 DEGREE BEND AND FULL BODY SLEEVE STA. 1+08

PROP. 108' - 16" WATER LINE ABANDON 118' - 16" UTILITY PIPE

CUT AND TIE TO EX. 16" D.I. WATER LINE WITH 16" x 22.5 DEGREE BEND AND FULL BODY SLEEVE STA. 0+00

The estimated quantity of Ductile Iron Water Pipe Fittings on this plan sheet is 1450 pounds. The actual quantity and type of fittings will vary based on field conditions.


DATE: 12/21/2017  
TIME: 3:25:33 PM  
DWG: b491\_rdy\_r00085gm

Prepared In the Office of:

# AECOM

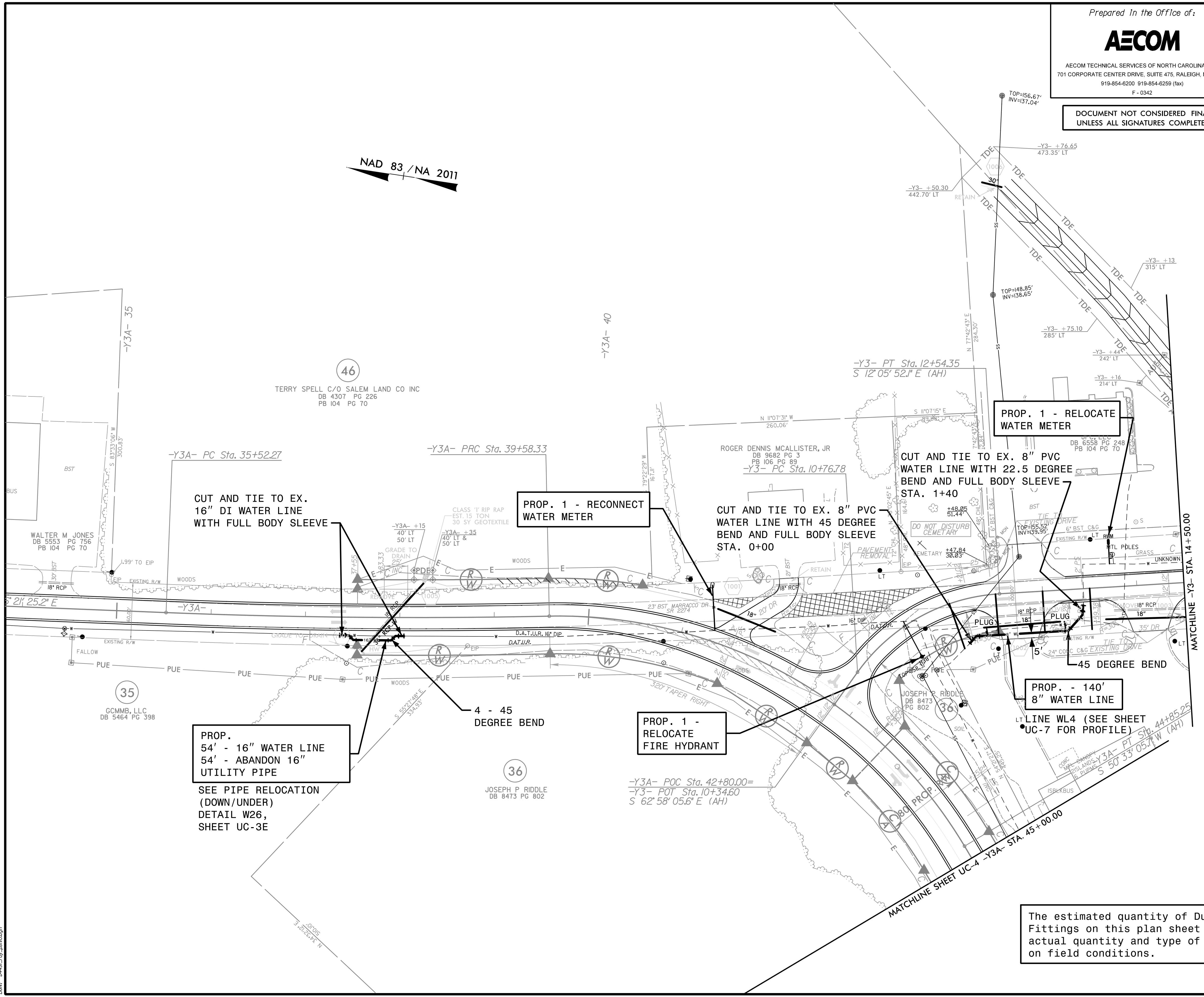
AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6259 (fax)  
F-0342

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PROJECT REFERENCE NO.	SHEET NO.
B-4491	UC-6 (10)
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	2/22/2017
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

## UTILITY CONSTRUCTION

NAD 83 / NA 2011



CUT AND TIE TO EX. 16" DI WATER LINE WITH FULL BODY SLEEVE

PROP. 1 - RECONNECT WATER METER

CUT AND TIE TO EX. 8" PVC WATER LINE WITH 45 DEGREE BEND AND FULL BODY SLEEVE STA. 0+00

PROP. 1 - RELOCATE WATER METER

CUT AND TIE TO EX. 8" PVC WATER LINE WITH 22.5 DEGREE BEND AND FULL BODY SLEEVE STA. 1+40

PROP. 54' - 16" WATER LINE  
54' - ABANDON 16" UTILITY PIPE  
SEE PIPE RELOCATION (DOWN/UNDER) DETAIL W26, SHEET UC-3E

PROP. 1 - RELOCATE FIRE HYDRANT

PROP. - 140' 8" WATER LINE

LINE WL4 (SEE SHEET UC-7 FOR PROFILE)

The estimated quantity of Ductile Iron Water Pipe Fittings on this plan sheet is 2420 pounds. The actual quantity and type of fittings will vary based on field conditions.

DATE: 12/21/2017  
TIME: 3:23:52 PM  
DWG: b491.ray\_rsm046r

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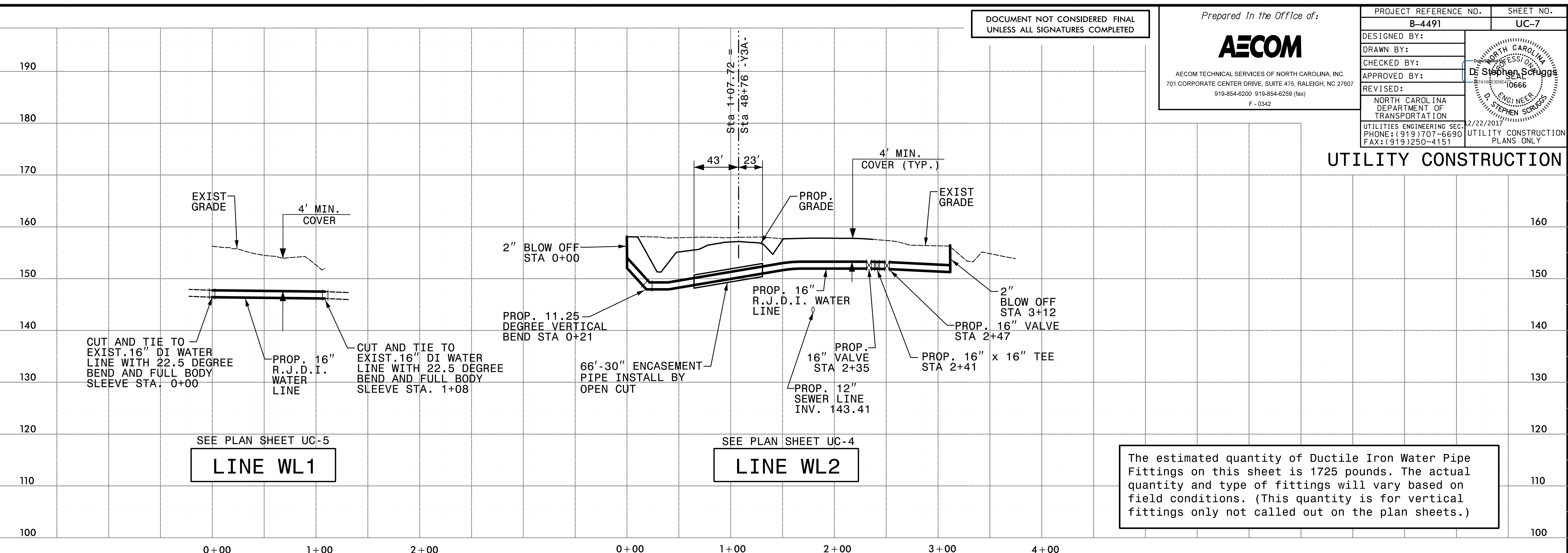
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PROJECT REFERENCE NO. <b>B-4491</b>	SHEET NO. <b>UC-7</b>
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	2/22/2017
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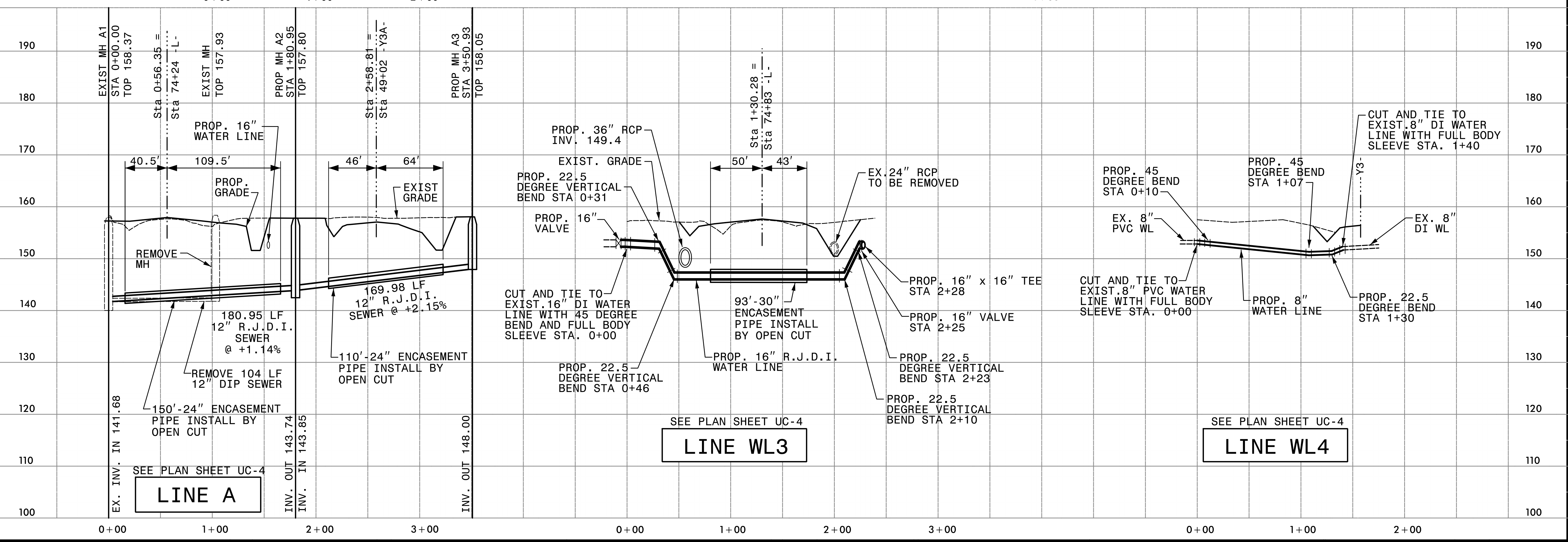
### UTILITY CONSTRUCTION



SEE PLAN SHEET UC-5  
**LINE WL1**

SEE PLAN SHEET UC-4  
**LINE WL2**

The estimated quantity of Ductile Iron Water Pipe Fittings on this sheet is 1725 pounds. The actual quantity and type of fittings will vary based on field conditions. (This quantity is for vertical fittings only not called out on the plan sheets.)



SEE PLAN SHEET UC-4  
**LINE A**

SEE PLAN SHEET UC-4  
**LINE WL3**

SEE PLAN SHEET UC-4  
**LINE WL4**

DATE: 12/21/2017  
TIME: 3:24:09 PM  
DGN: b49b1c01.dwg