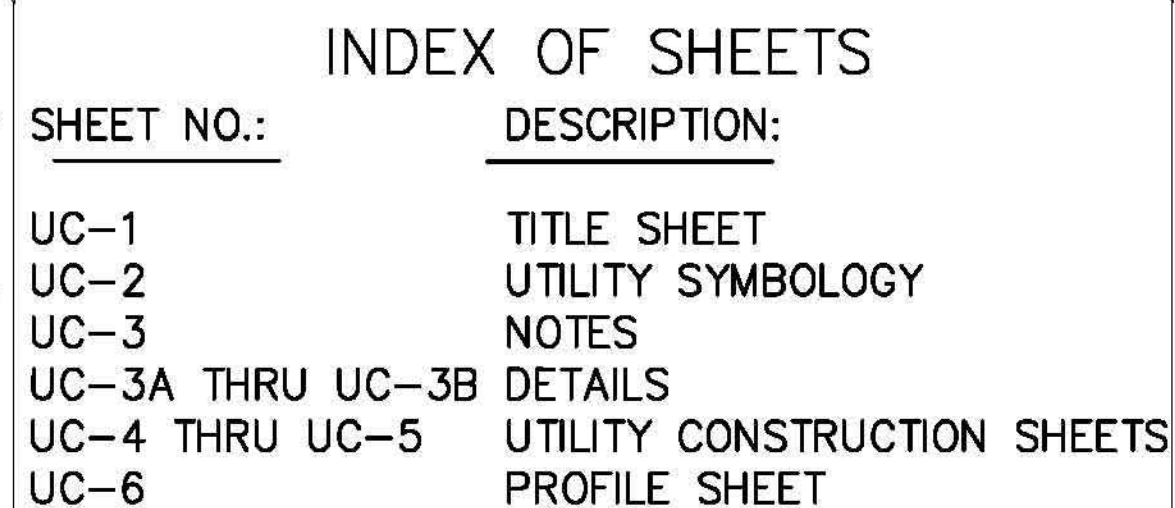
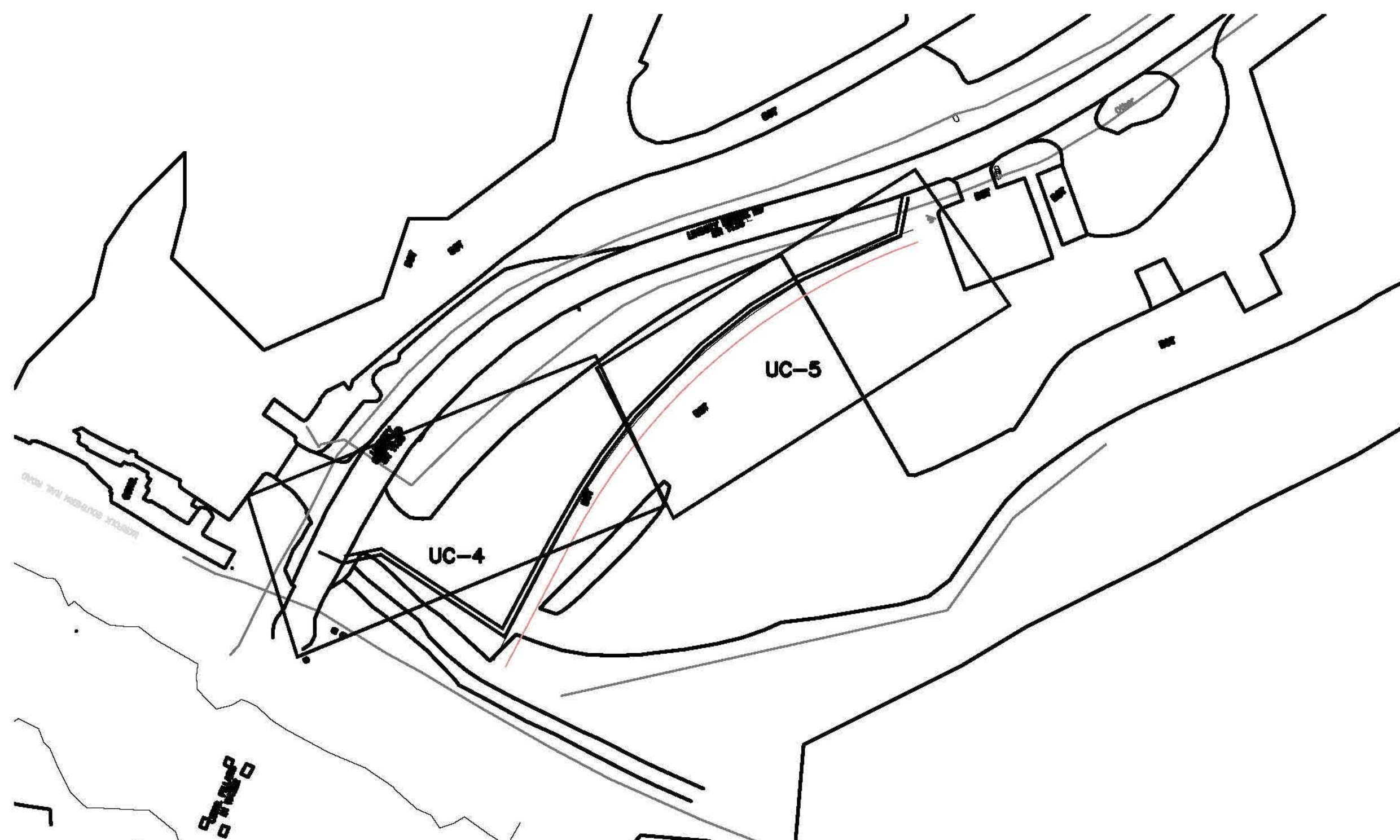


TIP PROJECT: B-5716



**LOCATION: LINDSEY BRIDGE (SR-1138)
OVER THE DAN RIVER IN MADISON
TYPE OF WORK: UTILITY RELOCATION**

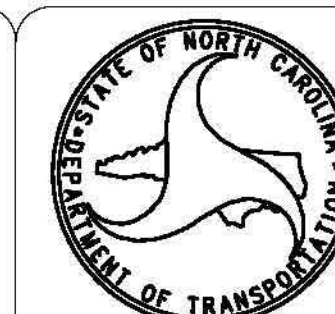


(A) RAW WATER MAIN: TOWN OF MADISON
(B) FORCE MAIN: TOWN OF MADISON
(C) PUBLIC WORKS: (601)-856-8958
(D) WATER DEPT.: (336)-427-2271
(E) EMERGENCY: (336)-427-2271



PREPARED IN THE OFFICE OF
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Bojan Cvijetic, P.E.	DIV. CONSTRUCTION ENGINEER
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STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

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PROJECT REFERENCE NO.

B-5716

DESIGNED BY: BGL

DRAWN BY: RMG

CHECKED BY: BGL

APPROVED BY: -

REVISED: -

NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
17651
BIL LESTER, JR.

DocuSigned By
Bill Lester
05/20/2023 6/10/2025

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11¼ Degree Bend	++
22½ Degree Bend	+X
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	PFH
Remove Fire Hydrant	REM FH
Water Meter	WM
Relocate Water Meter	WM
Remove Water Meter	REM WM
Water Pump Station	PS(W)
RPZ Backflow Preventer	PRPZ
DCV Backflow Preventer	PBFP
Relocate RPZ Backflow Preventer	PRPZ
Relocate DCV Backflow Preventer	PBFP

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
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)	
Trenchless Installation	
Encasement by Open Cut	
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	○
Telephone Pole	○
Joint Use Pole	○
Utility Pole	○
Utility Pole with Base	□
H-Frame Pole	○—○
Power Transmission Line Tower	⊠
Water Manhole	⊗
Power Manhole	⊗
Telephone Manhole	⊗
Sanitary Sewer Manhole	⊗
Hand Hole for Cable	⊠
Power Transformer	⊠
Telephone Pedestal	⊠
CATV Pedestal	⊠
Gas Valve	◇
Gas Meter	◇
Located Miscellaneous Utility Object	○
Abandoned According to Utility Records	AATUR
End of Information	E.●.I.

*Underground Power Line	
*Underground Telephone Cable	
*Underground Telephone Conduit	
*Underground Fiber Optics Telephone Cable	
*Underground TV Cable	
*Underground Fiber Optics TV Cable	
*Underground Gas Pipeline	
Aboveground Gas Pipeline	A/G Gas
*Underground Water Line	
Aboveground Water Line	A/G Water
*Underground Gravity Sanitary Sewer Line	
Aboveground Gravity Sanitary Sewer Line	A/G Sanitary Sewer
*Underground SS Forced Main Line	
Underground Unknown Utility Line	
SUE Test Hole	⊗
Water Meter	⊗
Water Valve	⊗
Fire Hydrant	⊗
Sanitary Sewer Cleanout	⊗

*For Existing Utilities

Utility Line Drawn from Record (Type as Shown)

Designated Utility Line (Type as Shown)

UTILITY CONSTRUCTION TOWN OF MADISON

LKC

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Surveying

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PROJECT REFERENCE NO.	SHEET NO.
B-5716	UC-3
DESIGNED BY: BGL	NORTH CAROLINA PROFESSIONAL ENGINEER BIL LESTER, JR. SEAL 17651 DocuSigned by <i>Bil Lester, Jr.</i> 6/10/2025
DRAWN BY: RMG	
CHECKED BY: BGL	
APPROVED BY: -	
REVISED: -	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

CONSTRUCTION NOTES:

- THE CONTRACTOR SHALL CONTACT THE POWER CO., GAS CO., AND TELEPHONE CO. FOR THE EXACT LOCATION OF ALL UNDERGROUND MAINS, CABLES, OR LINES BEFORE CONSTRUCTION BEGINS.
- PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED: 18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS, 18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SEWER (INCLUDING FORCE MAINS) AND WATER MAINS, OR 10 FEET HORIZONTAL SEPARATION BETWEEN SANITARY SEWER (INCLUDING FORCE MAINS) AND WATER MAINS. IF THESE SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE WILL BE USED 10 FEET EITHER SIDE OF CROSSING AND ALONG ENTIRE LENGTH OF LINE LESS THAN 10 HORIZONTAL FEET FROM WATER MAINS. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER IN THE FIELD BEFORE PAYMENT WILL BE MADE AT DUCTILE IRON PRICES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING WATER SERVICE CONNECTIONS DURING CONSTRUCTION. ANY DAMAGE WHICH OCCURS AS A RESULT OF THE CONSTRUCTION SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER. IN THE EVENT OF A TEMPORARY SERVICE INTERRUPTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND BEGIN REPAIRS.
- ALL PIPING FOR PRESSURE MAINS SHALL BE PRESSURE TESTED, GRAVITY LINES SHALL BE AIR TESTED, AND MANHOLES SHALL BE VACUUM TESTED, ALL IN ACCORDANCE WITH THE DETAILED SPECIFICATIONS AND SPECIAL PROVISIONS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 24 HOURS IN ADVANCE OF ALL SCHEDULED TESTING.
- ALL WORK PERFORMED WITHIN NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RIGHTS-OF-WAY SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE NCDOT CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL OR UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING THE WORK AND ADHERING TO THE RIGHT-OF-WAY ENCROACHMENT CONTRACT SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE OWNER TO ACCURATELY DETERMINE THE LOCATION OF EXISTING WATER MAINS AND SEWER LINES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL TAKE ADDITIONAL CAUTION IN EXCAVATING AROUND THE SERVICE LINES AND MAINS WHILE WORKING WITHIN THIS PROJECT. ANY DAMAGE TO THE MAINS OR SERVICE LINES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE AND REPLACE EXISTING CULVERTS AND DRAINAGE STRUCTURES AS NECESSARY DURING THE CONSTRUCTION OF THE UTILITY LINES. ANY DAMAGE TO THE CULVERTS SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. SPECIAL CIRCUMSTANCES (I.E. UNREINFORCED CONCRETE PIPE) SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY IN ORDER TO RECEIVE ANY NECESSARY GUIDANCE.
- THE CONTRACTOR IS INSTRUCTED TO CONTROL SEDIMENTATION RUNOFF BY METHODS APPROVED BY THE ENGINEERS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR IS REMINDED THAT ALL WORK SHALL MEET ALL APPLICABLE REQUIREMENTS OF THE RULES AND REGULATIONS OF EROSION AND SEDIMENT CONTROL AS PUBLISHED BY THE DEPARTMENT OF NC ENVIRONMENTAL QUALITY.
- THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING THE ACTUAL AS-BUILT CONDITION OF THE PROJECT AT COMPLETION. AS-BUILTS WILL BE FURNISHED AT OR PRIOR TO FINAL INSPECTION BY THE ENGINEER. AS-BUILTS WILL BE REVIEWED BY THE ENGINEERS REPRESENTATIVE PRIOR TO APPROVAL OF MONTHLY PROGRESS PAYMENTS. MARK-UP COPIES OF THE DRAWINGS INDICATING ALL DIMENSIONS AND ELEVATIONS ARE ACCEPTABLE AS AS-BUILT DRAWINGS.

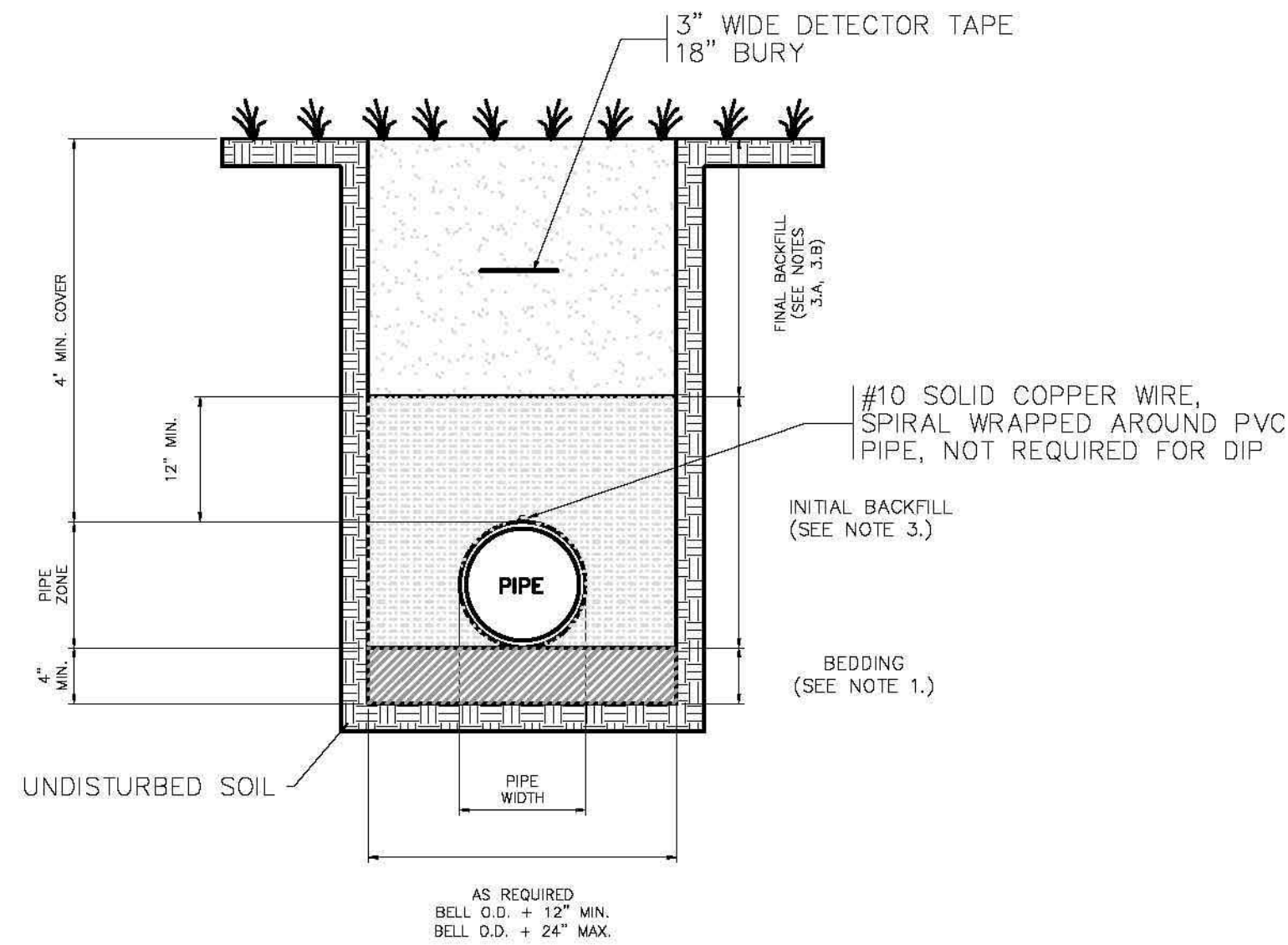
GENERAL NOTES:

- THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JANUARY 2024.
- THE EXISTING UTILITIES BELONG TO TOWN OF MADISON.
- 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.
- THE UTILITY OWNER OWNS 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 BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
- 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 OWNER'S REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.
- 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.
- 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.
- 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.
- ALL UTILITY MATERIAL SUBMITTALS AND RECORDS IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

- ALL PROPOSED FORCE MAIN AND WATER LINE TO BE PVC C-900 DR18 UNLESS NOTED OTHERWISE ON PLANS. ALL DUCTILE IRON PIPE SHALL BE PC350. AND DUCTILE IRON FORCE MAIN SHALL HAVE AN EPOXY INTERIOR LINING.
- WELL IN ADVANCE OF BEGINNING UTILITY WORK, SOFT DIGS SHALL BE PERFORMED BY CONTRACTOR TO VERIFY ACTUAL WATER LINE DEPTH AND MATERIAL AT PROPOSED TIE-IN LOCATIONS.
- LAY PIPE STRAIGHT IN ALIGNMENT AND GRADIENT OR FOLLOW TRUE CURVES AS NEARLY AS POSSIBLE. DO NOT DEFLECT ANY JOINT MORE THAN THE MAXIMUM DEFLECTION RECOMMENDED BY THE MANUFACTURER.
- LKC, TOWN OF MADISON, AND NCDOT TO REVIEW/ APPROVE RELEVANT SUBMITTALS.
- ANY SERVICE INTERRUPTIONS SHALL BE SCHEDULED FOR MINIMAL IMPACT TO CUSTOMERS AND APPROVED BY LKC, AND TOWN OF MADISON.
- THE CONTRACTOR SHALL NOTIFY LKC AND TOWN OF MADISON IN ADVANCE OF THE FOLLOWING ACTIVITIES:
 - START OF UTILITY CONSTRUCTION- 48 HOURS
 - MAIN LINE SERVICE INTERRUPTIONS- 96 HOURS
 - PRESSURE TESTING- 24 HOURS
 - DISINFECTION- 24 HOURS
- LKC, TOWN OF MADISON, AND NCDOT HAVE RIGHT-OF-ENTRY TO THE PROJECT SITE.
- THE PROPOSED PIPELINE SHALL BE INSTALLED AT THE DEPTHS SHOWN IN THE PROFILE TO AVOID HIGH POINTS THAT CAN TRAP AIR. ALL COST FOR INSTALLATION IN DEEPER CUTS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND SHOULD BE INCLUDED IN THE PRICE FOR FORCE MAIN AND WATER MAIN INSTALLATION.

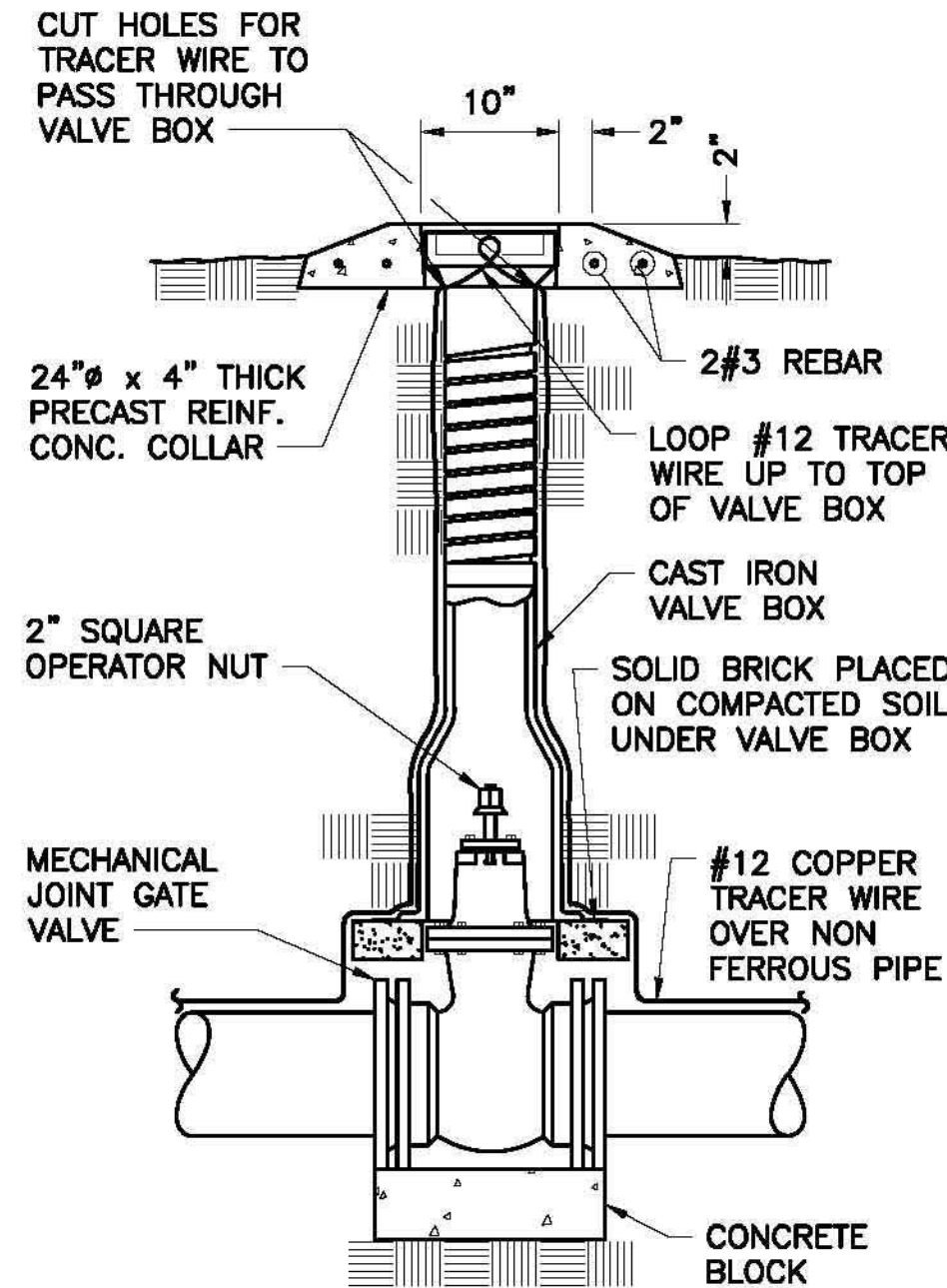
REVISIONS



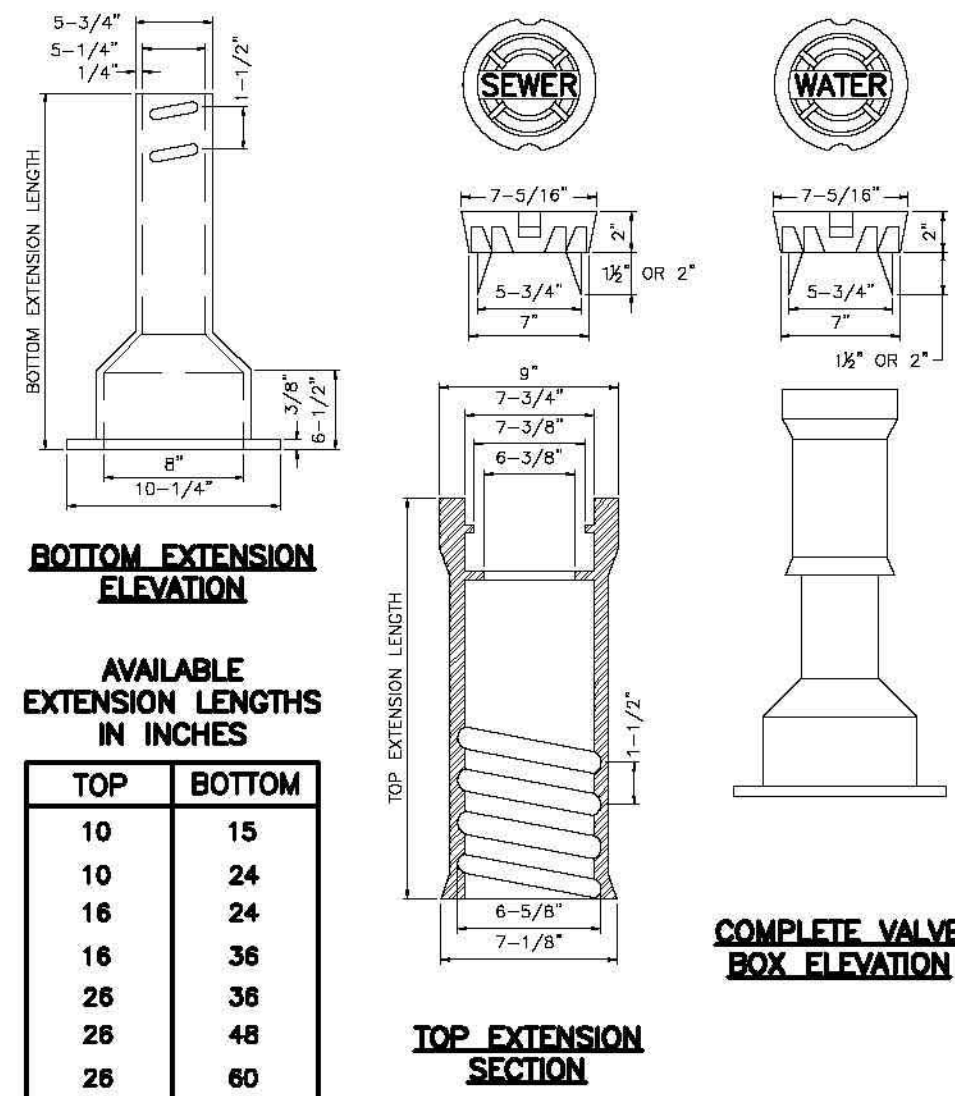
FORCE MAIN TRENCH DETAILS
TYPE 3 LAYING CONDITIONS
N.T.S.

NOTES:

1. LAYING CONDITIONS AS PER AWWA C600 AND C605 STANDARDS.
2. BEDDING MATERIAL SHALL BE 4" MINIMUM THICKNESS, LOOSE SOIL (DEFINED AS NATIVE SOIL EXCAVATED FROM THE TRENCH), FREE FROM ROCKS AND SHALL PROVIDE UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE. COMPACT TO 95% MAXIMUM DENSITY.
3. INITIAL BACKFILL SHALL BE LIGHTLY CONSOLIDATED IN MAXIMUM 6" LOOSE LIFTS, COMPACTED TO 95% OF MAXIMUM DENSITY.
3. UNDER AREAS TO BE SEEDDED OR SODDED, COMPACT SUCCEEDING LAYERS OF FINAL BACKFILL IN 12" LOOSE LIFTS TO 85% MAXIMUM DENSITY.
3. UNDER STRUCTURES, PAVEMENTS AND ROAD SHOULDERS, COMPACT SUCCEEDING LAYERS OF FINAL BACKFILL IN 6" LOOSE LIFTS TO 95% MAXIMUM DENSITY EXCEPT COMPACT TOP 12" OF SUBGRADE TO 98% MAXIMUM DENSITY.
4. PROVIDE #10 SOLID COPPER WIRE IN SUFFICIENT LENGTH TO BE CONTINUOUS OVER EACH SEPARATE RUN OF ALL BURIED PVC PIPING. AT VALVE BOXES, BRING WIRE TO WITHIN 6 IN. OF TOP OF BOX AND INSERT INTO BOX THROUGH DRILLED HOLE. NOT REQUIRED FOR DUCTILE IRON PIPE.
5. INSTALL 3' WIDE DETECTOR TAPE AT 18" DEPTH. TAPE SHALL HAVE MIDDLE FOLY LAYER.



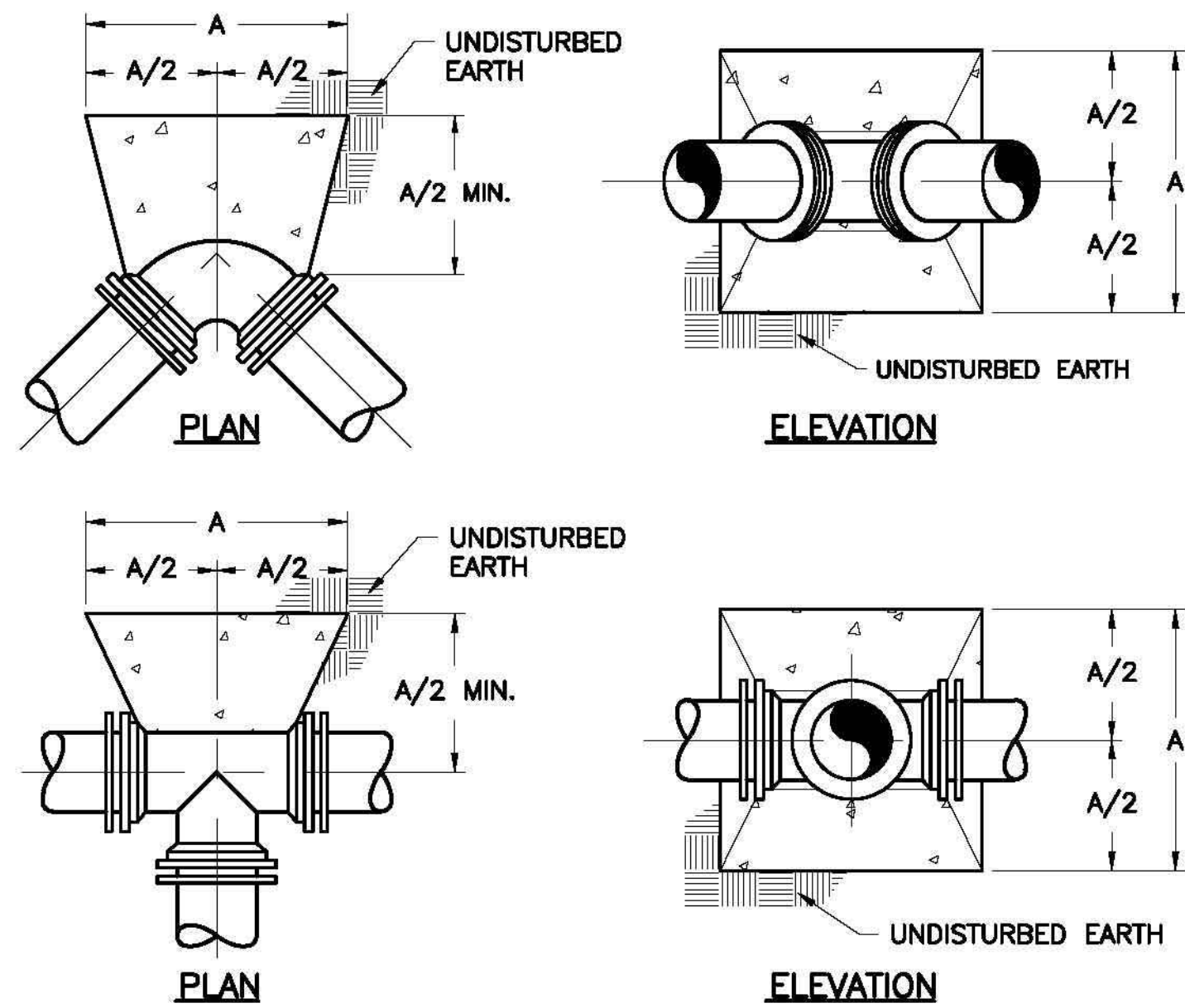
GATE VALVE ASSEMBLY
N.T.S.



NOTES:

1. VALVE BOX SHALL HAVE THE RAISED LETTERS "SEWER" OR "WATER" CAST INTO COVER MATCHING THE SYSTEM TYPE.
2. VALVE BOX ACCOMMODATES 4" THRU 12" VALVES.
3. SCREW TYPE VALVE BOXES ARE REQUIRED. SLIP TYPE IS NOT ALLOWED.
4. DIMENSIONS SHOWN MAY VARY DEPENDING UPON THE MANUFACTURER.

SCREW TYPE VALVE BOX DETAIL
N.T.S.

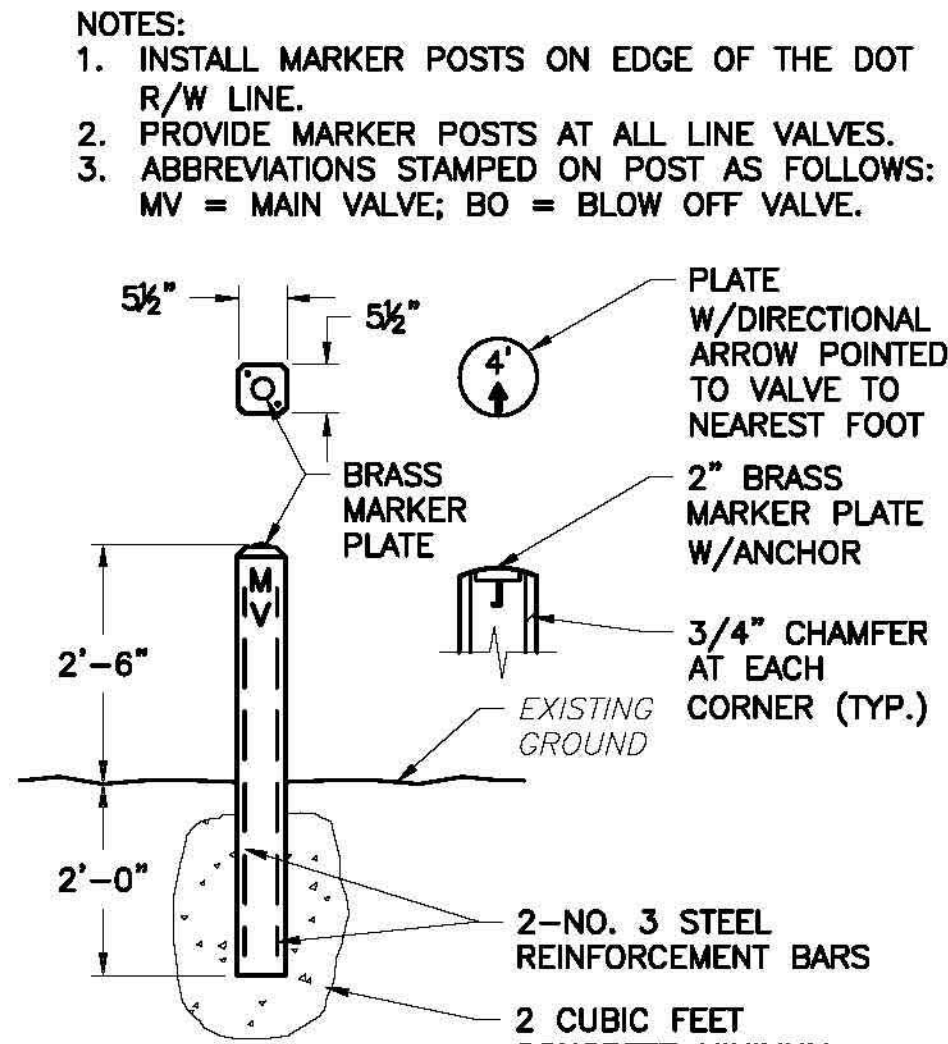


NOTES:

1. THRUST BLOCKS SHALL BE CONSTRUCTED OF 2500 P.S.I. CONCRETE.
2. INSTALL TAR PAPER AROUND BEND OR FITTING TO PREVENT CONCRETE BONDING.

DIMENSION A (FEET)									
BEND / FITING	PIPE SIZE (NOM. DIA. IN INCHES)								
	4	6	8	10	12	16	18	20	24
90° BEND	1.4	2.0	2.7	3.4	4.0	5.4	6.0	6.7	8.0
45° BEND	1.0	1.5	2.0	2.5	3.0	4.0	4.5	5.0	5.9
22.5° BEND	0.8	1.1	1.5	1.8	2.2	2.9	3.2	3.6	4.3
11.25° BEND	0.5	0.8	1.0	1.3	1.5	2.0	2.3	2.5	3.0
TEE BRANCH/DEAD END	1.2	1.7	2.3	2.9	3.4	4.5	5.1	5.7	6.8

**CONCRETE THRUST BLOCK DETAIL
FOR WATER MAIN HORIZONTAL BENDS AND TEES
N.T.S.**



VALVE MARKER POST DETAIL
N.T.S.

REVISIONS

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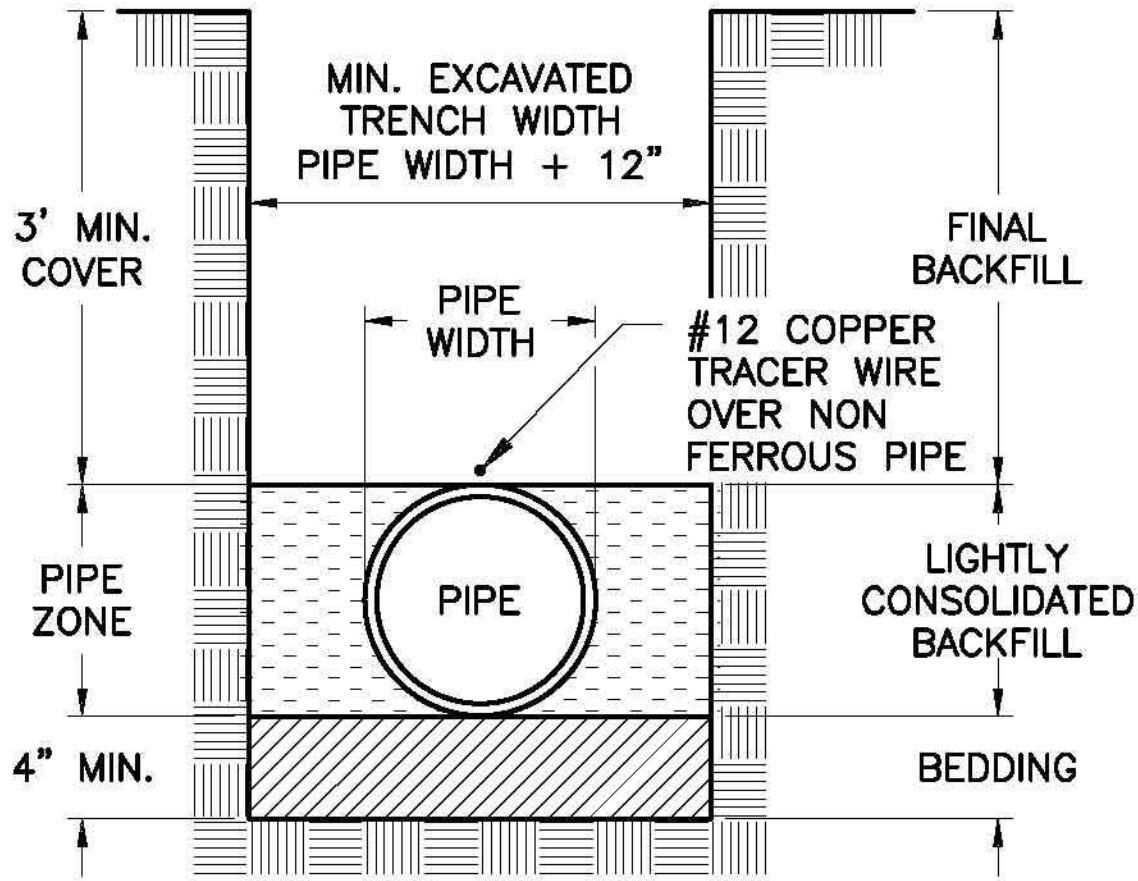
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UTILITY CONSTRUCTION

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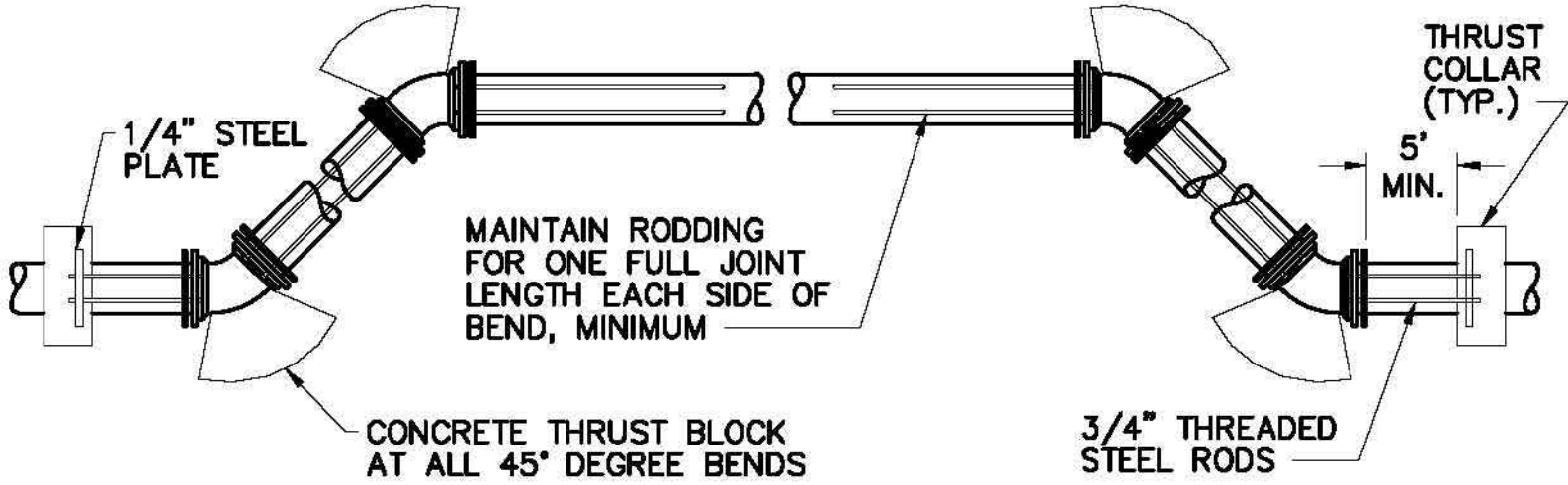
SEAL
17651
ENGINEER
BIL LESTER, JR.

DocuSigned by
Bill Lester, Jr.
6/10/2025



- NOTES:
- BEDDING SHALL BE 4" MINIMUM LOOSE SOIL, FREE FROM ROCKS, AND SHALL PROVIDE UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE.
 - BACKFILL PER NCDOT STANDARDS.

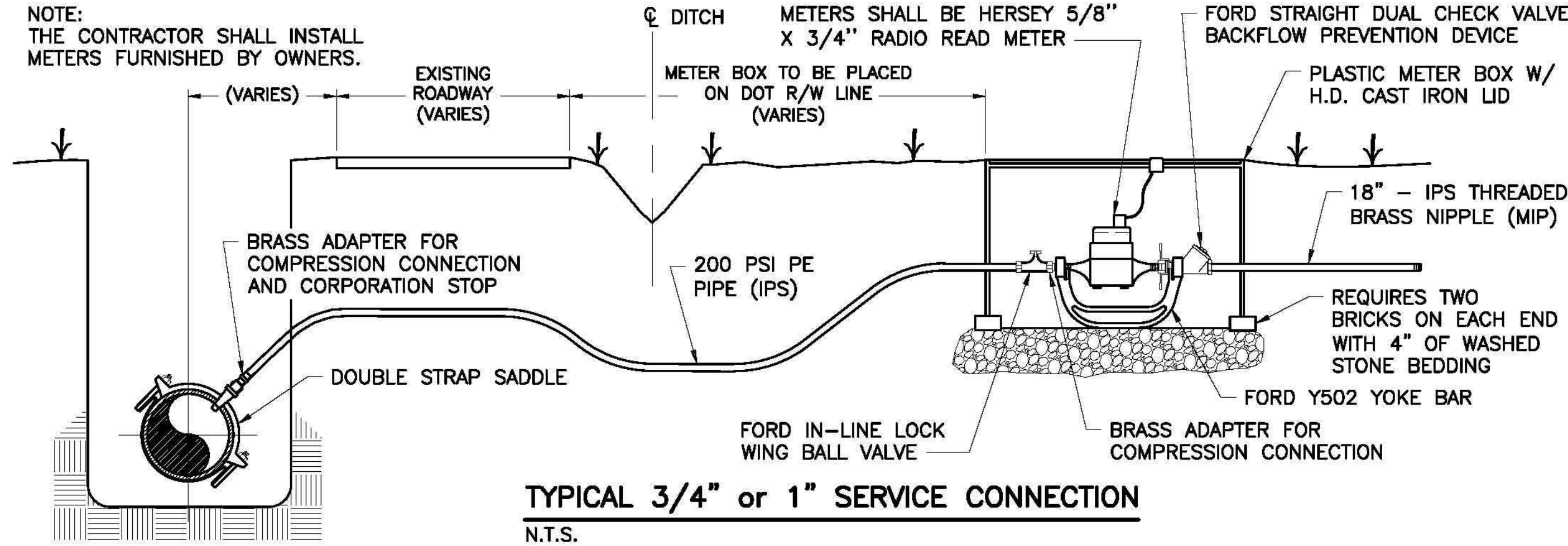
TRENCH DETAIL
TYPE 3 LAYING CONDITIONS



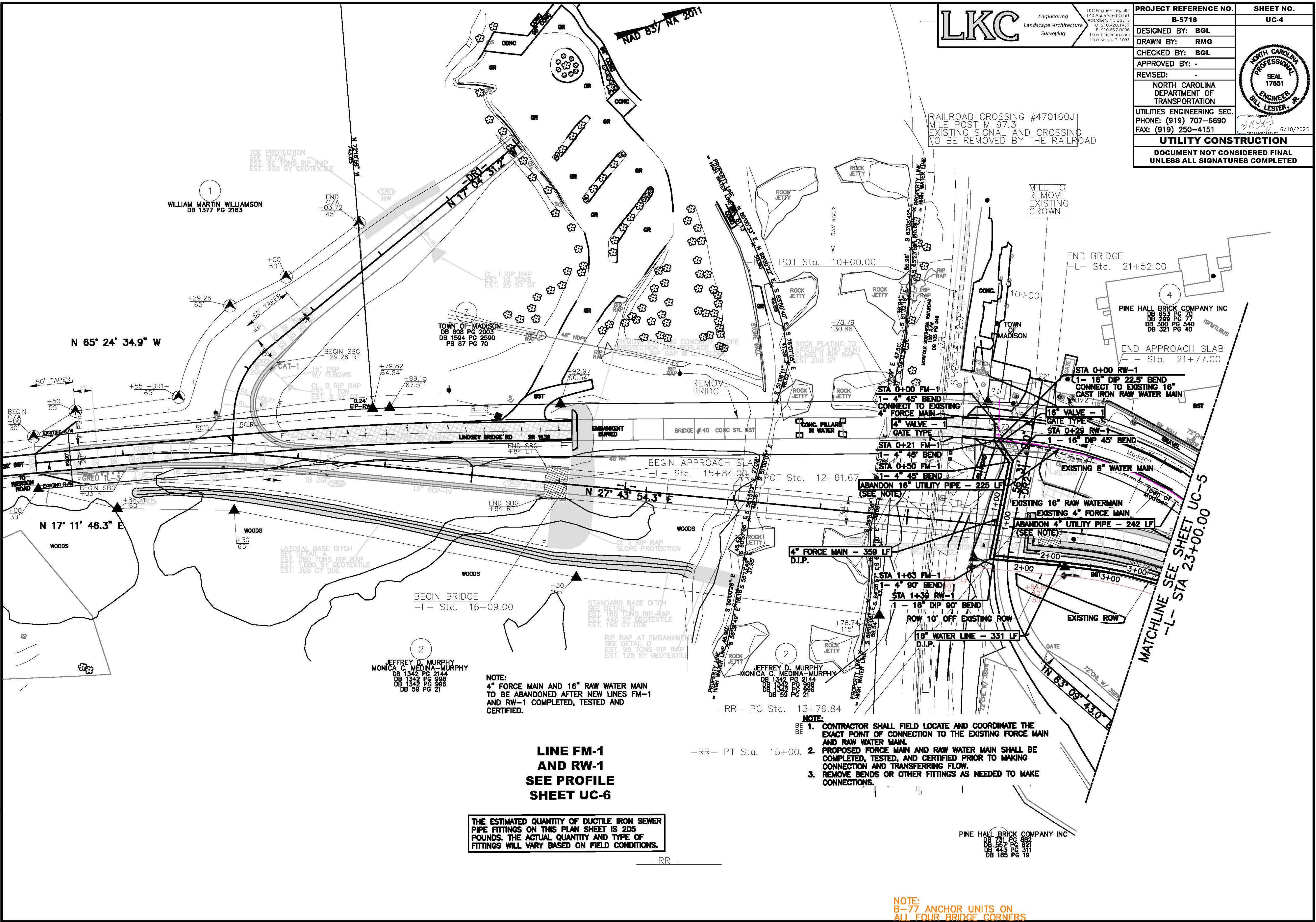
STATIC THRUST SIZE OF 45° BEND	NUMBER OF IN POUNDS	NUMBER OF RODS REQUIRED
6"	4,328	2
8"	7,694	2
12"	17,312	4
16"	30,779	4
20"	48,091	6
24"	69,252	8

- NOTES:
- ONCE INSTALLED AND TIGHT, THE STEEL RODS AND BOLTS SHALL RECEIVE 2 COATS OF BITUMINOUS MATERIAL OR SHALL BE GALVANIZED.
 - CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.

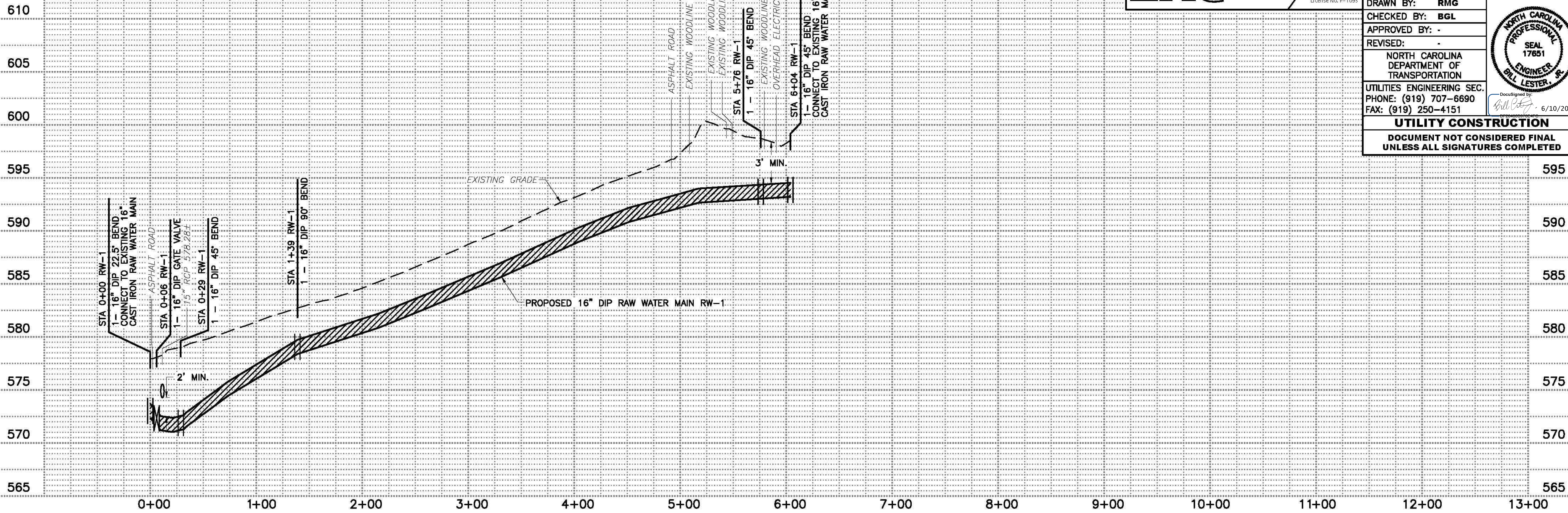
VERTICAL BENDS
N.T.S.



TYPICAL 3/4" or 1" SERVICE CONNECTION
N.T.S.



RW-1

**FM-1**