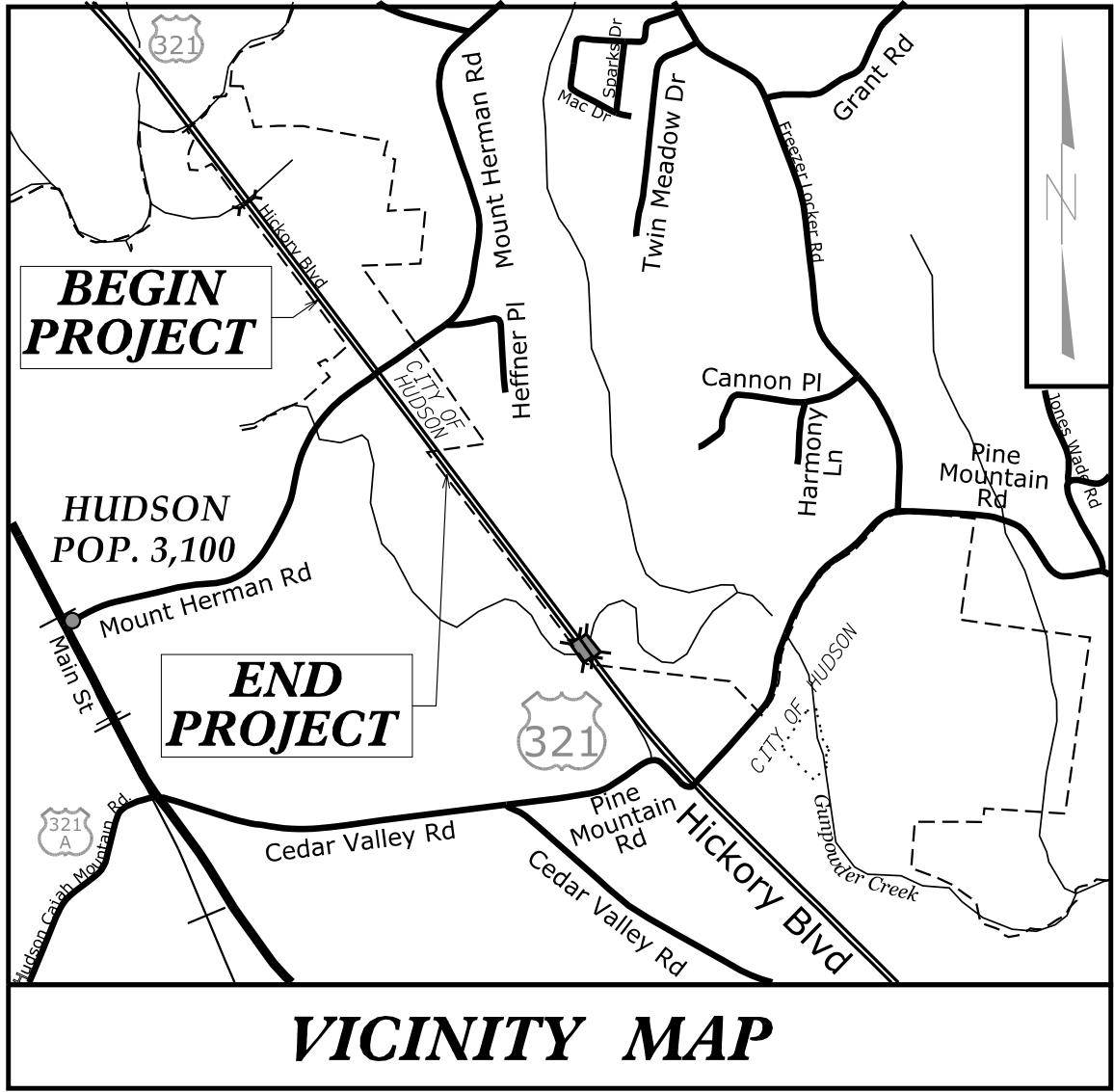


TIP PROJECT: U-4700CA



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

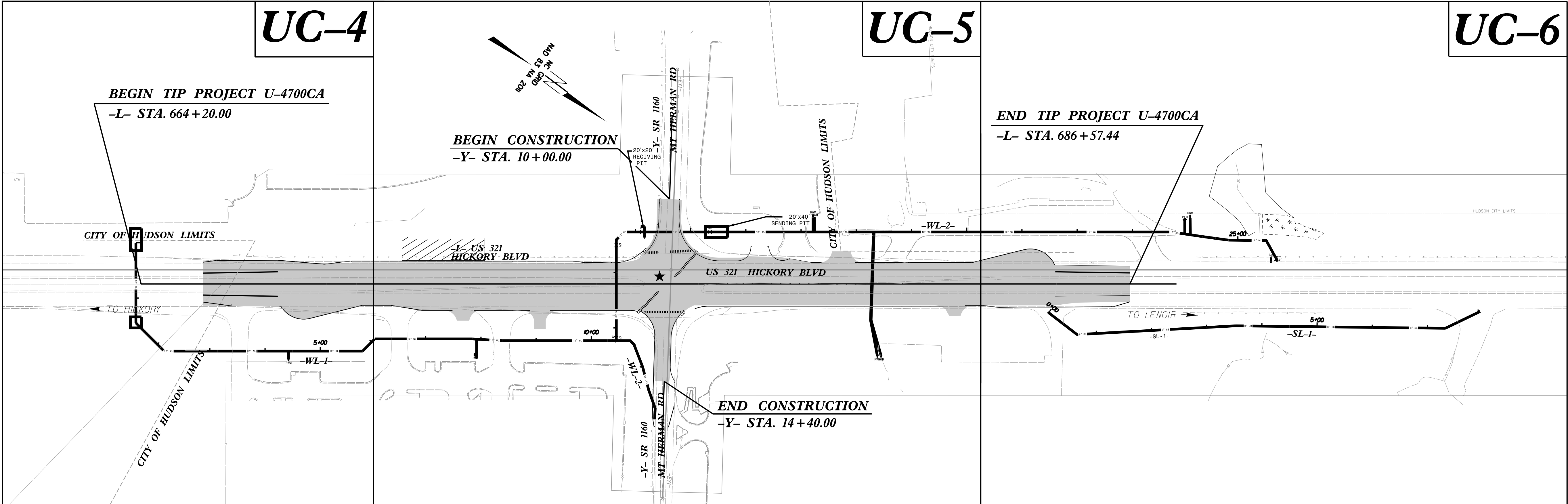
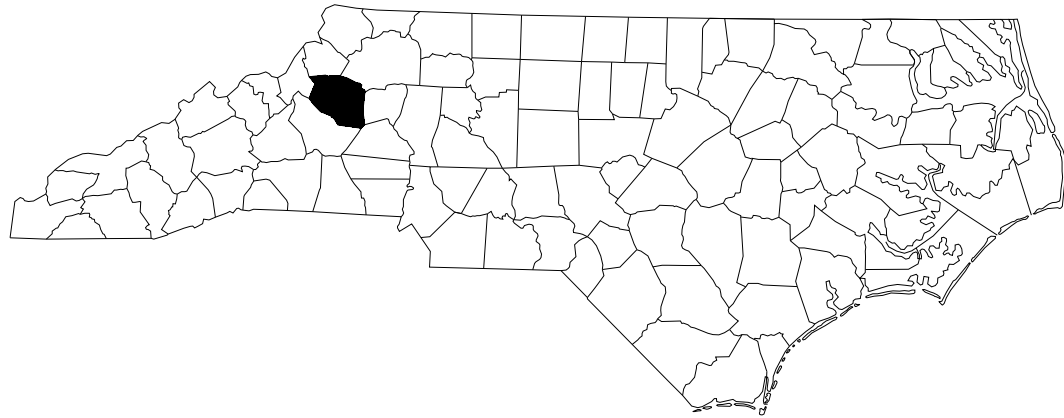
UTILITY CONSTRUCTION PLANS
CALDWELL COUNTY

LOCATION: US-321 (HICKORY BLVD.) AT
SR 1160 (MOUNT HERMAN ROAD)

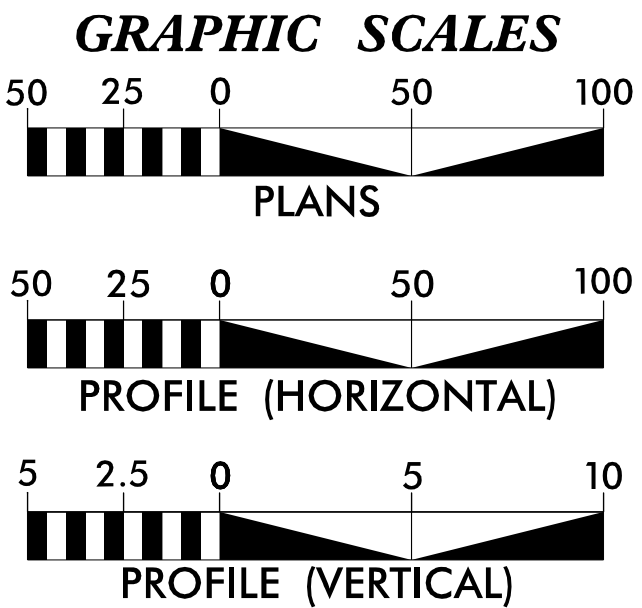
TYPE OF WORK: WATER & SEWER LINE CONSTRUCTION

T.I.P. NO.	SHEET NO.
U-4700CA	UC-1

UTILITY CONST. PLANS



DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED

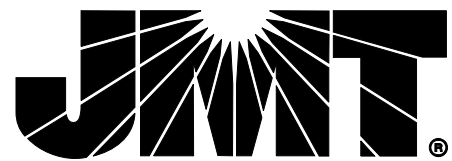


SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A - UC-3C	DETAILS
UC-4	UTILITY PLAN & PROFILE -WL-1-
UC-5	UTILITY PLAN & PROFILE -WL-1- & -WL-2-
UC-6	UTILITY PLAN & PROFILE -WL-2-
UC-6A	UTILITY PLAN & PROFILE -SL-1-

PUBLIC UTILITY OWNERS
ON PROJECT

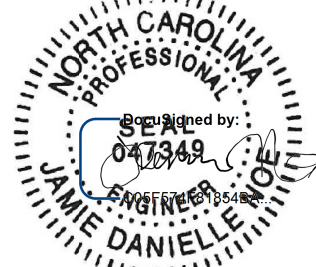
(1) WATER & SEWER - CITY OF LENOIR

PREPARED IN THE OFFICE OF:



Consulting Engineers
1318-F Patton Avenue
Asheville, NC, 28806
(828) 253-2796

SEAL:



6/3/2026

Jamie Noe, P.E.

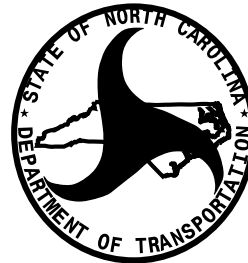
PROJECT UTILITY MANAGER

Joe Montgomery

PROJECT UTILITY COORDINATOR

David Dawson

PROJECT UTILITY DESIGNER



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

Ramie Shaw

PROJECT MANAGER

Brandon Greer

DIVISION UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

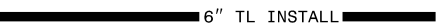
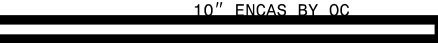
PROPOSED WATER SYMBOLS

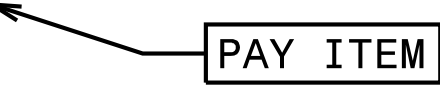
Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	REM FH
Water Meter	
Relocate Water Meter	
Remove Water Meter	REM WM
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

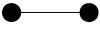
Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

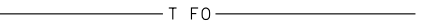
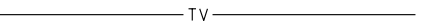
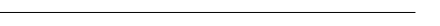
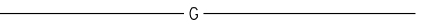
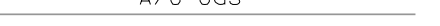
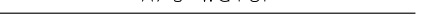
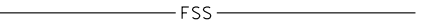
PROPOSED MISCELLANOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

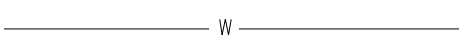
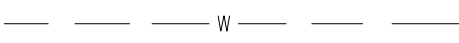
Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

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.O.I.

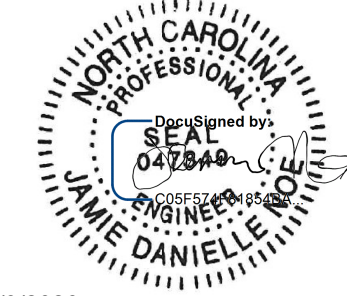
*Underground Power Line	
*Underground Telephone Cable	
*Underground Telephone Conduit	
*Underground Fiber Optics Telephone Cable	
*Underground TV Cable	
*Underground Fiber Optics TV Cable	
*Underground Gas Pipeline	
Aboveground Gas Pipeline	
*Underground Water Line	
Aboveground Water Line	
*Underground Gravity Sanitary Sewer Line	
Aboveground Gravity Sanitary Sewer Line	
*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

CALDWELL COUNTY

PROJECT REFERENCE NO.		SHEET NO.	
U-4700CA		UC-3	
DESIGNED BY: DRD			
DRAWN BY: DRF			
CHECKED BY: MRD			
APPROVED BY: JDN			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		6/3/2026	
UTILITIES ENGINEERING SEC.		UTILITY CONSTRUCTION PLANS ONLY	
PHONE: (919) 707-6690			
FAX: (919) 250-4151			
DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED			

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 2024.

2. THE EXISTING WATER AND SEWER UTILITIES INCLUDED IN CONTRACT BELONG TO CITY OF LENOIR. PLEASE CONTACT MR. JEFF CHURCH, 510B GREER CIRCLE SW, LENOIR, NC 28645, (828) 757-4459, jeff.church@ci.lenoir.nc.us

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 ENVIRONMENTAL 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. 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.

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. 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.

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.

PROJECT SPECIFIC NOTES:

1. ALL FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT USING GRIP RINGS. NO GLUE OR PUSH-ON FITTINGS ARE ALLOWED. THRUST BLOCKING IS REQUIRED.

2. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107 AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE SHALL BE 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 FITTING FOR ONE WEEK FROM THE TIME OF INSTALLATION.

4. NEW WATER LINES MUST BE PRESSURE TESTED AT 200 PSI OR 1.5 TIMES AVERAGE STATIC PRESSURE IN PROJECT AREA, WHICHEVER IS MORE FOR 2 HOURS. TEST TO BE OBSERVED BY CITY OF LENOIR WATER AND SEWER REPRESENTATIVE.

5. SERVICE INTERRUPTIONS SHALL BE SCHEDULED WITH CITY OF LENOIR AND SHALL BE COMPLETED DURING OFF-PEAK HOURS. AFTER 9 PM AND BE COMPLETED BY 4 AM, UNLESS AUTHORIZED BY CITY OF LENOIR. INTERRUPTION SHALL NOT EXCEED 8 HOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY POTABLE WATER SUPPLIES TO ANY CUSTOMER UPON REQUEST BY THE CITY AND/OR WHEN DURATION OF THE WATER SERVICE LOSS OR DISRUPTION EXCEEDS 4 HOURS.

6. ALL NCDEQ-DWR-PWS AND LOCAL TESTING MUST BE COMPLETED AND APPROVED PRIOR TO CONNECTING THE NEW CONSTRUCTION TO THE EXISTING WATER LINES.

7. THE PROFESSIONAL ENGINEER (PE) SHALL OBTAIN AND PROVIDE THE NCDEQ "AUTHORIZATION TO CONSTRUCT" PERMIT TO THE UTILITY CONTRACTOR BEFORE THE CONSTRUCTION OF THE WATER LINE SHALL BEGIN. THE UTILITY CONTRACTOR MUST POST A COPY OF THE NCDEQ "AUTHORIZATION TO CONSTRUCT" PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY ON SITE PRIOR TO THE START OF CONSTRUCTION. THE PERMIT MUST BE MAINTAINED ON SITE THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS OF THE PROPOSED WATER LINES THAT WILL SERVE THIS PROJECT.

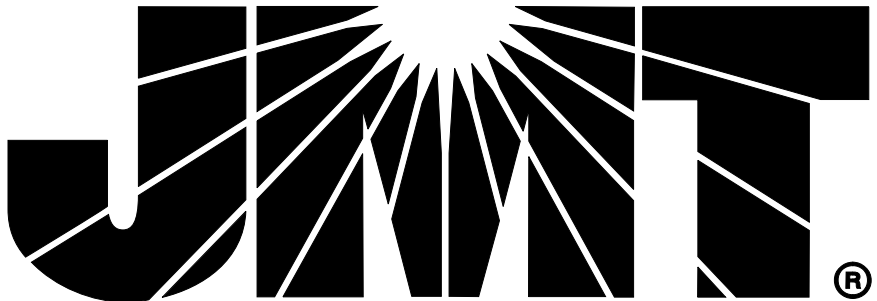
8. HDPE PRESSURE PIPE FOR POTABLE WATER SHALL MEET THE REQUIREMENTS OF NSF 61.

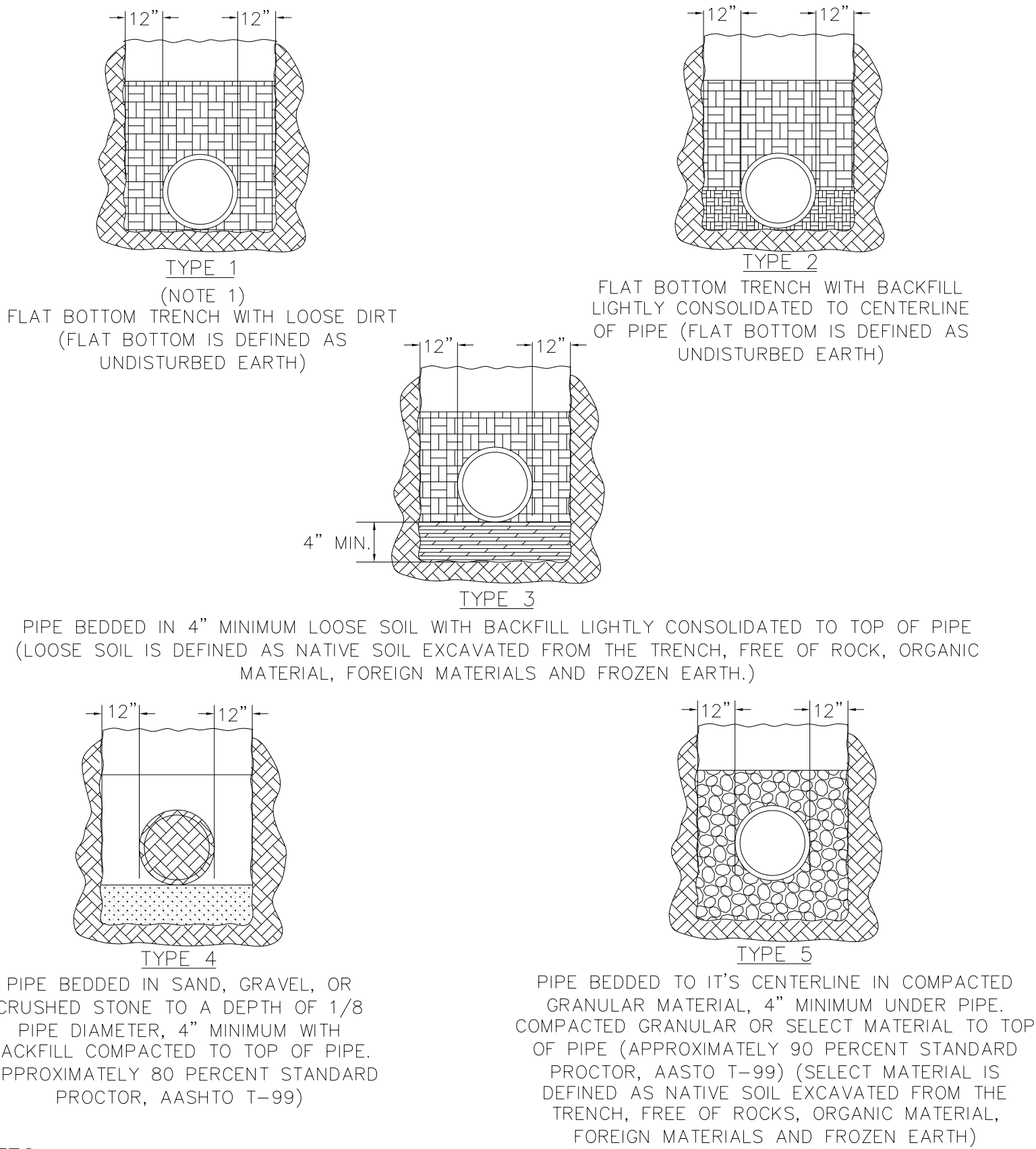
9. ANY NECESSARY CONNECTIONS FOR TESTING AND FILLING THE INSTALLED WATER MAIN WILL BE REQUIRED AND CONSIDERED INCIDENTAL TO THE WATER MAIN.

10. ALL MANHOLES SHOWN TO BE ADJUSTED ON THE PLANS ARE TO BE INSPECTED AND ENSURED THAT THE MANHOLE IS STRUCTURALLY SOUND. IN ANY CASE WHERE THEY ARE DEEMED UNSOUND, THE CONTRACTOR SHALL REACH OUT TO THE OWNER AND ENGINEER FOR GUIDANCE ON NEXT STEPS FORWARD.

11. THE CONTRACTOR IS RESPONSIBLE FOR WORKING WITH UTILITY OWNERS TO CONFIRM WHO OWNS THE EXISTING FACILITIES AND ENSURE THE CORRECT OWNER IS INSPECTING THE WORK.

12. ASBESTOS CEMENT PIPE SHALL BE REMOVED BY AN APPROVED CONTRACTOR. ASBESTOS CEMENT PIPE REMOVAL SHALL BE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL RULES, REGULATIONS AND PROCEDURES. THE CONTRACTOR SHALL CONTACT HEALTH HAZARDS CONTROL UNIT ADMINISTERING THE NORTH CAROLINA ASBESTOS HAZARD MANAGEMENT PROGRAM FOR REFERENCE. ANY PERMITS NECESSARY FOR REMOVAL AND/ OR DISPOSAL OF ASBESTOS CEMENT PIPE ARE TO BE ACQUIRED BY THE CONTRACTOR WITH NO ADDITIONAL EXPENSE TO THE UTILITY OWNER OR THE DEPARTMENT.

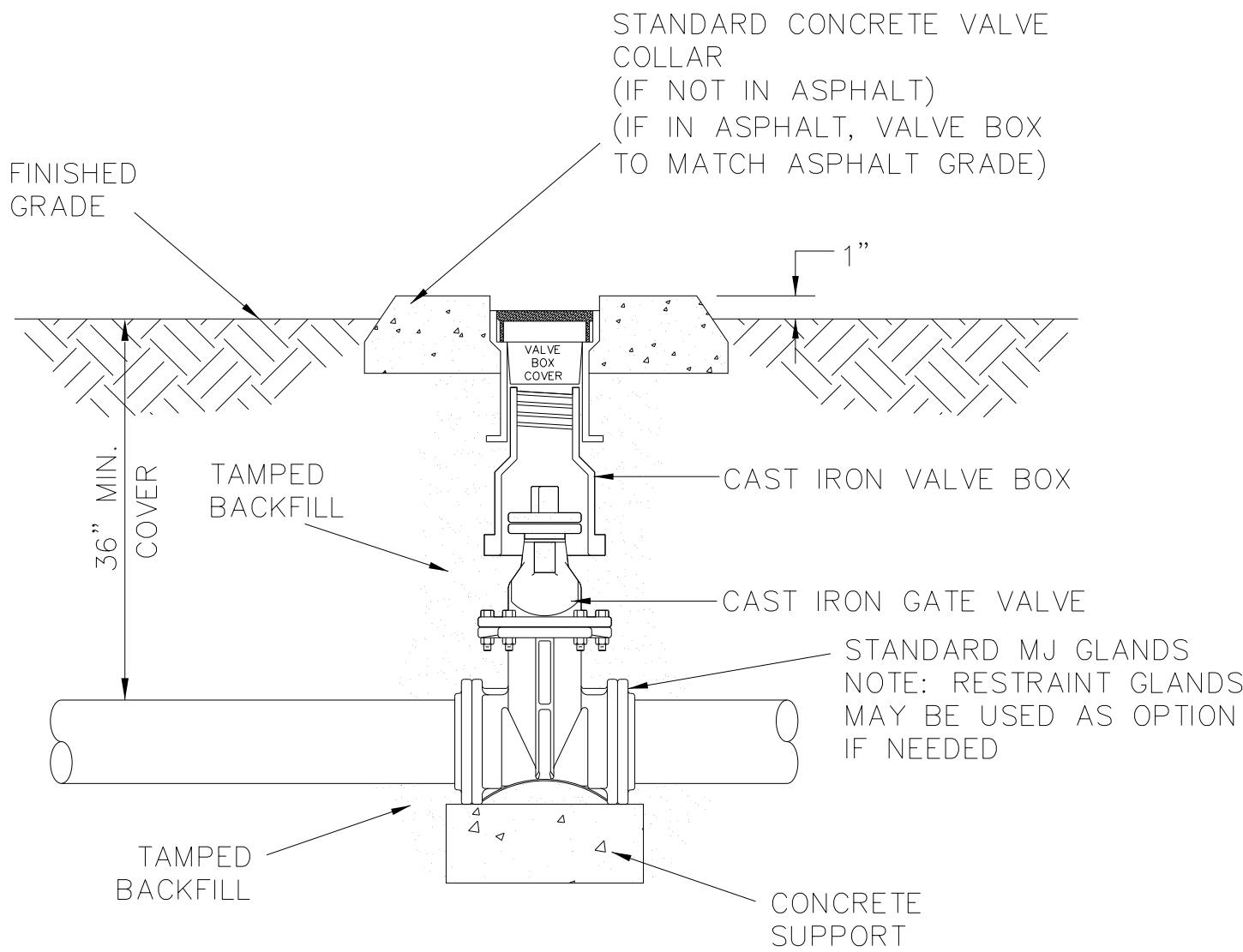




- NOTES:
- FOR NORMAL PIPE SIZES 14 INCH AND LARGER, CONSIDERATION SHOULD BE GIVEN TO THE USE OF LAYING CONDITIONS OTHER THAN TYPE 1.
 - CONSIDERATION OF THE PIPE-ZONE EMBEDMENT CONDITIONS INCLUDED IN THIS FIGURE MAY BE INFLUENCED BY FACTORS OTHER THAN PIPE STRENGTH. FOR ADDITIONAL INFORMATION ON PIPE BEDDING AND BACKFILL, SEE ANSI/AWWA C600.

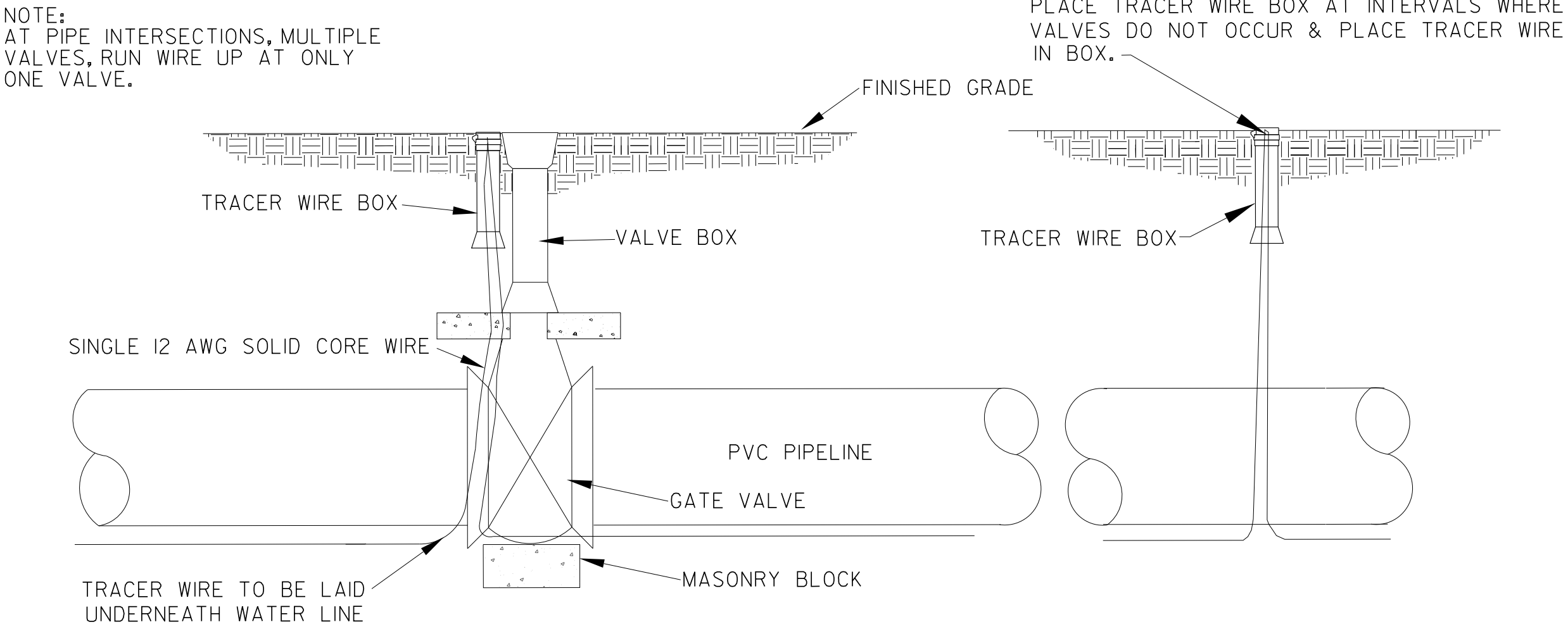
WATER MAIN EMBEDMENT DETAILS

NOT TO SCALE



INLINE VALVE DETAIL

NOT TO SCALE

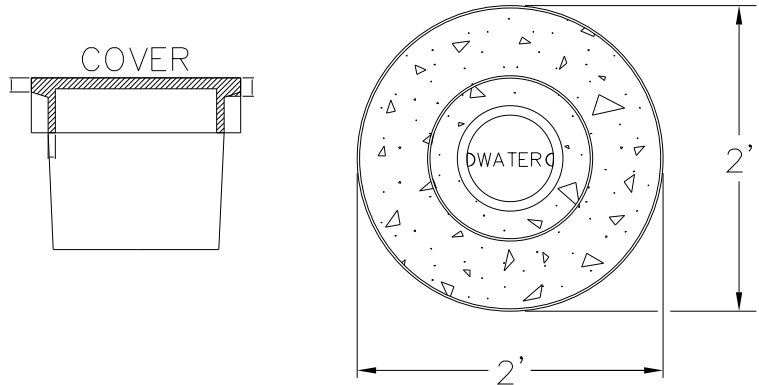
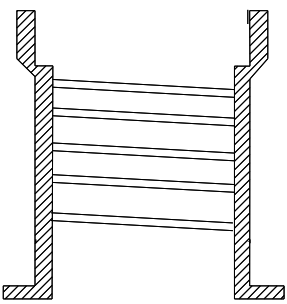


- NOTES:
- PLACE TRACER WIRE IN TRACER WIRE BOX AS SHOWN.
 - NO UNDERGROUND SPLICING WILL BE ALLOWED. DO NOT SPLICE WIRE WHEN BEGINNING A NEW SPOOL. INSTEAD INSTALL A TRACER WIRE BOX AND ATTACH EACH WIRE TO THE BOX.

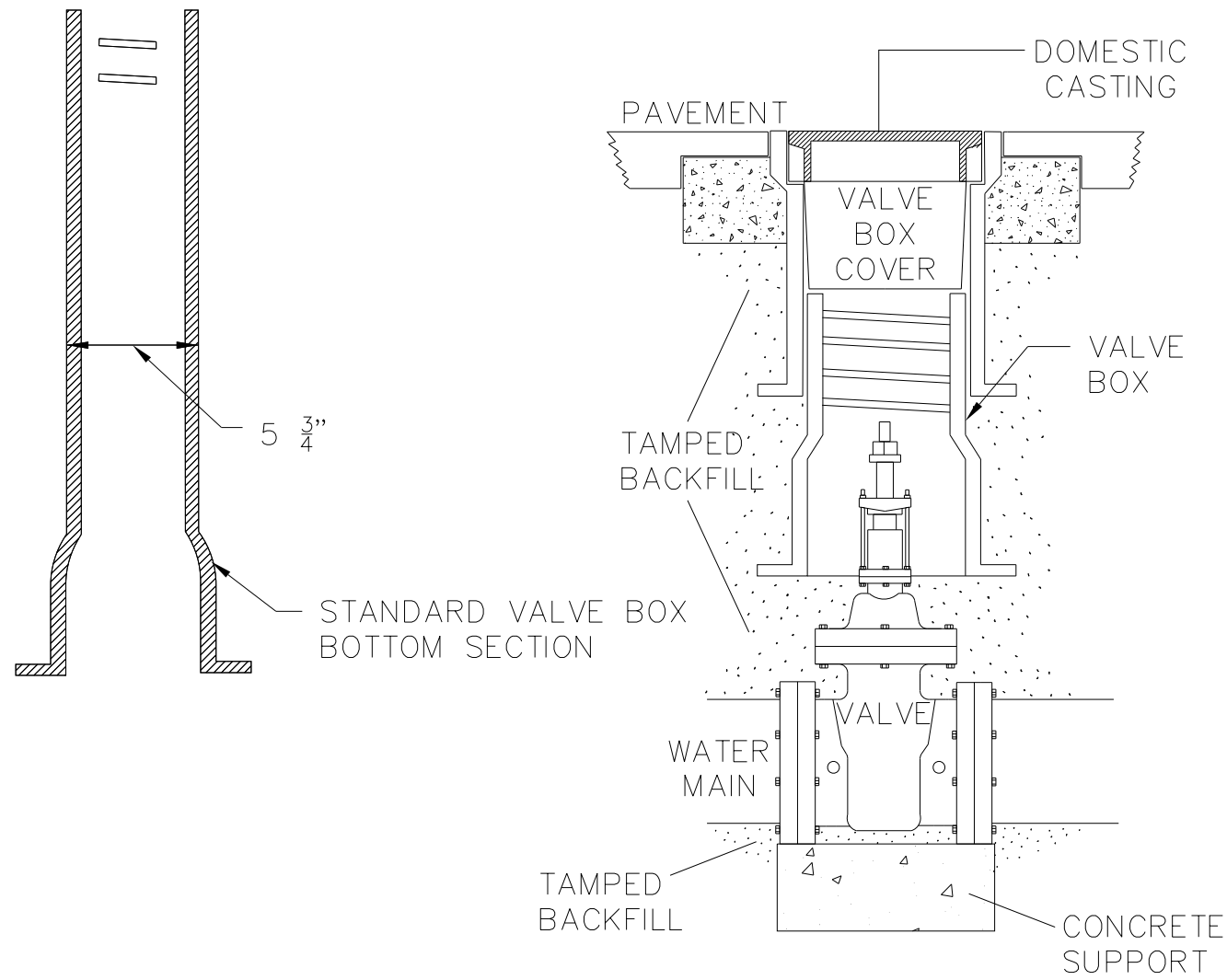
TYPICAL TRACER WIRE INSTALLATION DETAIL

NOT TO SCALE

APPROVED METHOD FOR
EXTENSION OF VALVE BOX



NOTE: CONCRETE VALVE COLLAR
REQUIRED ON ALL VALVES.

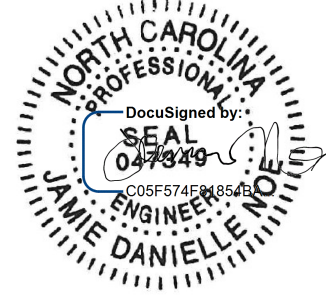


NOTE:
VALVE BOX SHALL BE PER OWNER'S SPECIFICATIONS.

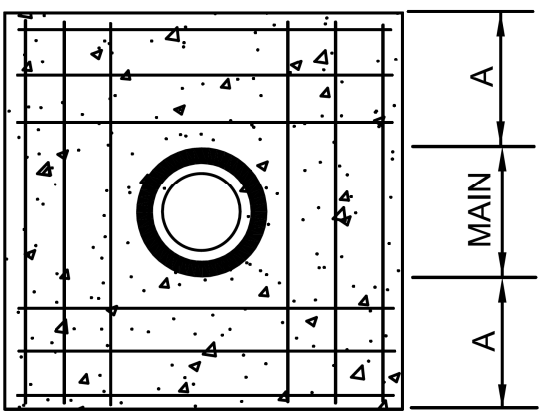
VALVE BOX INSTALLATION

NOT TO SCALE

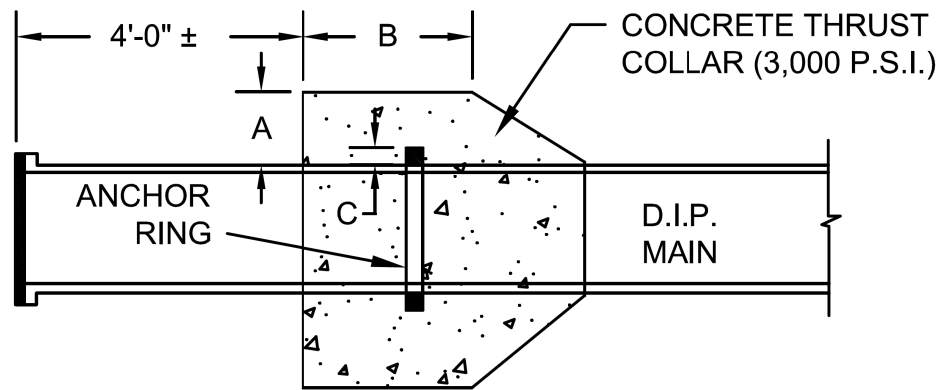
CALDWELL COUNTY

PROJECT REFERENCE NO.		SHEET NO.	
U-4700CA		UC-3A	
DESIGNED BY: DRD			
DRAWN BY: DRF			
CHECKED BY: MRD			
APPROVED BY: JDN			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		6/3/2026	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		UTILITY CONSTRUCTION PLANS ONLY	
DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED			

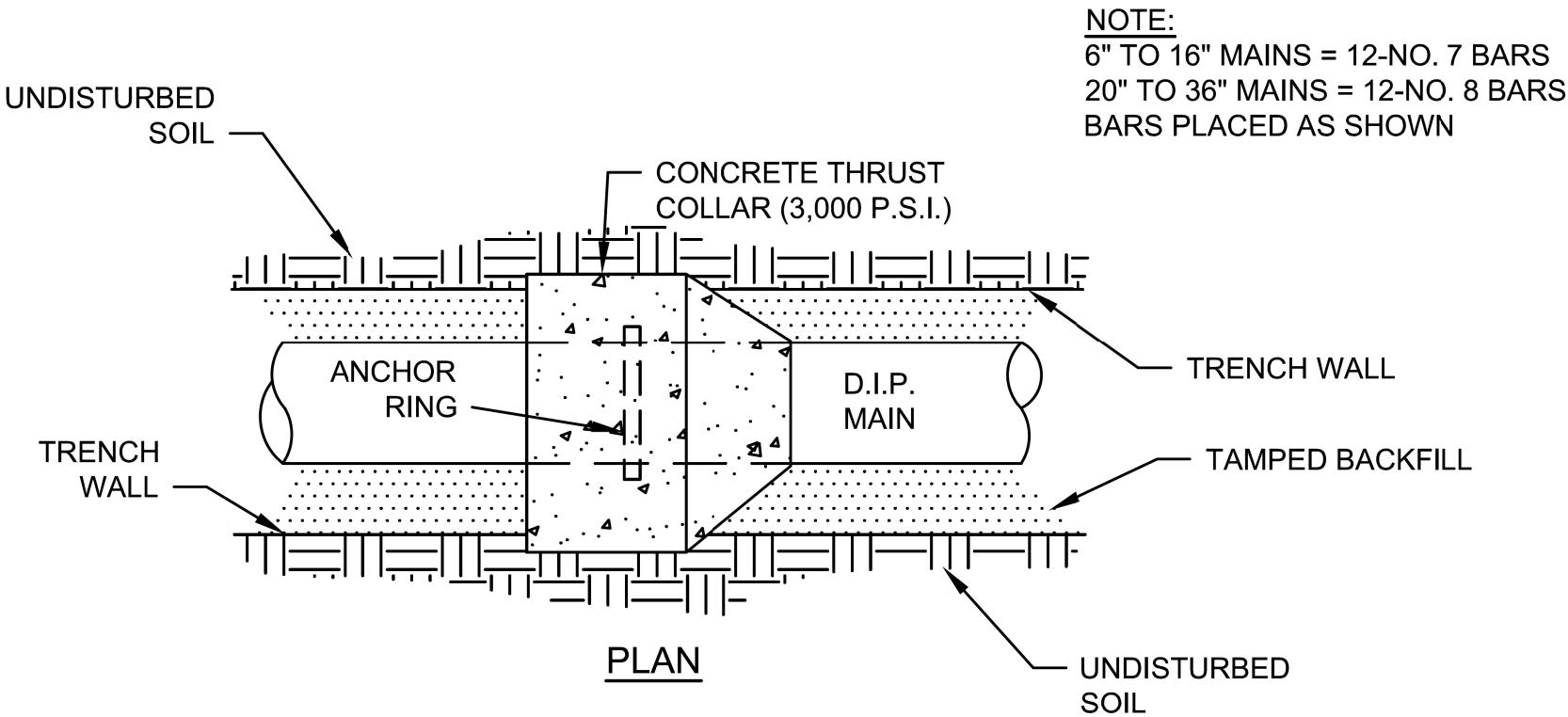
UTILITY CONSTRUCTION



REINFORCING



SECTION

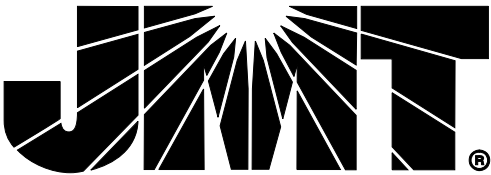


NOTE:
6" TO 16" MAINS = 12-NO. 7 BARS
20" TO 36" MAINS = 12-NO. 8 BARS
BARS PLACED AS SHOWN

SCHEDULE				
PIPE DIAMETER	CONCRETE THRUST COLLAR		ANCHOR COLLAR	RINGS REQUIRED
	A	B	C	
6", 8", 12"	1'-0"	1'-0"	2"	ONE
16"	1'-4"	1'-0"	2"	ONE
20"	1'-4"	1'-0"	3"	ONE
24"	1'-4"	1'-0"	3"	TWO
30"	1'-4"	1'-2"	4"	TWO
36"	1'-4"	1'-4"	4"	TWO

THRUST COLLAR INSTALLATION

NOT TO SCALE



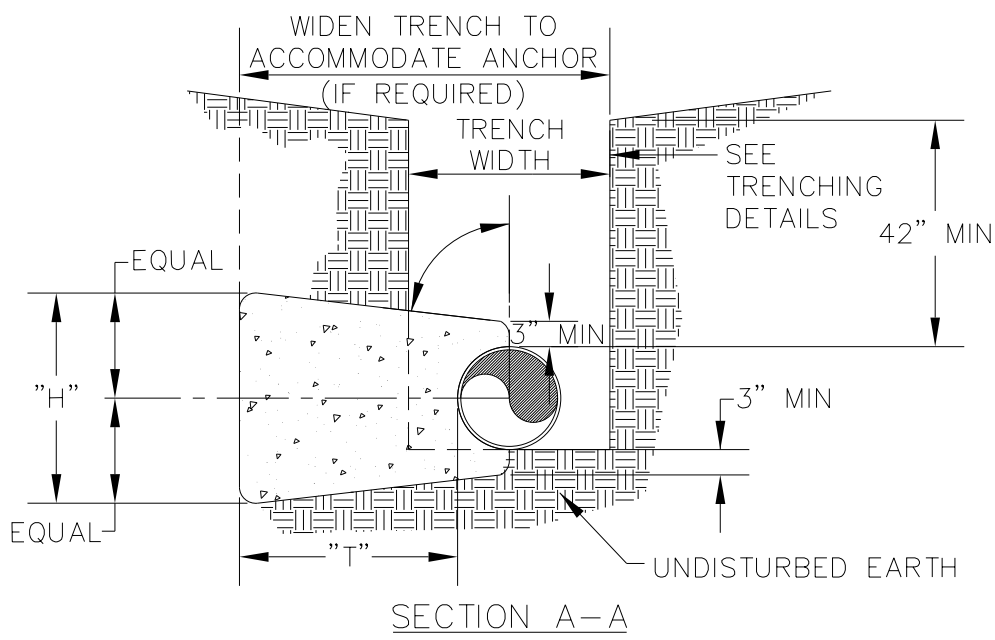
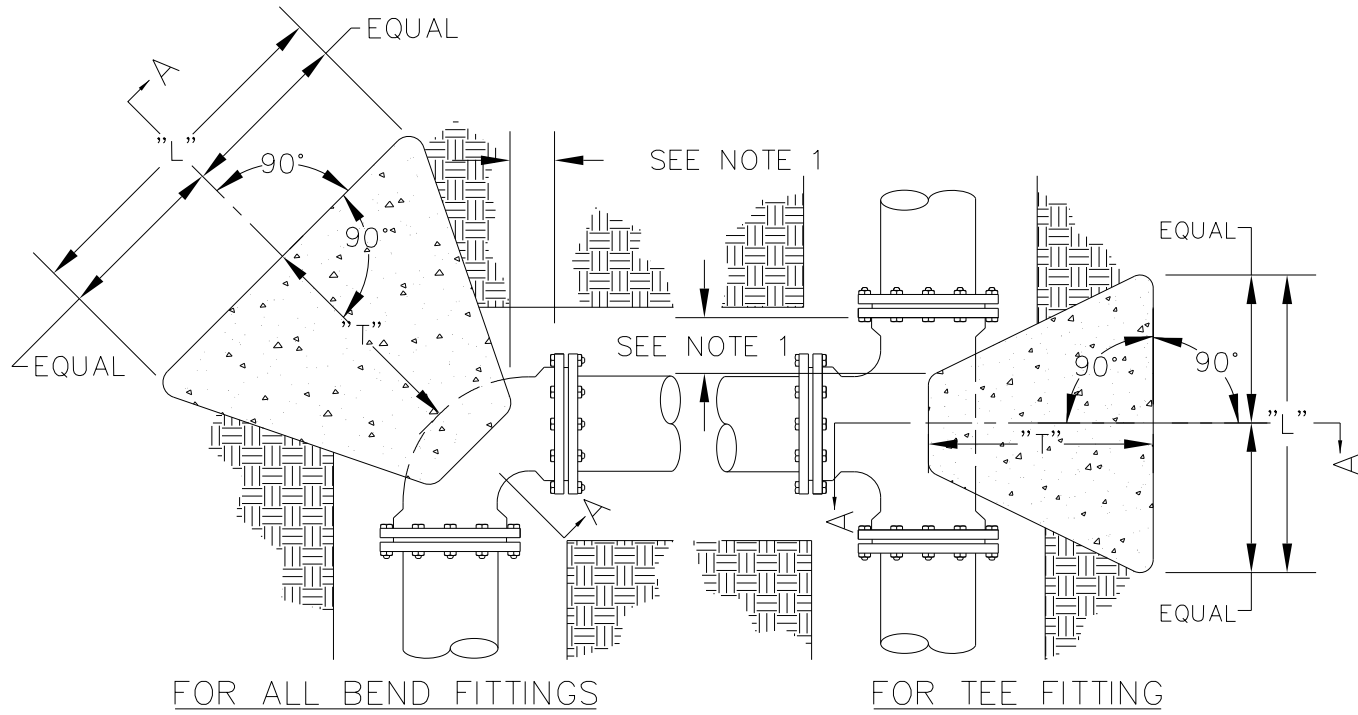
TEST PRESSURE = 150 PSI					
PIPE SIZE	TYPE FITTING	DIMENSIONS (FT)			VOLUME CONCRETE CU. YD.
		"L"	"H"	"T"	
<4 INCHES	11 1/4"	-----	-----	-----	-----
	22 1/2"	1.00	1.00	1.50	0.06
	45"	1.00	1.00	1.50	0.06
	90"	1.00	1.00	2.50	0.09
4 INCHES	TEE	1.00	1.00	2.00	0.07
	11 1/4"	1.00	1.00	2.50	0.09
	22 1/2"	1.00	1.00	2.50	0.09
	45"	1.00	1.00	2.50	0.09
6 INCHES	90"	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
	11 1/4"	1.50	1.50	2.50	0.15
	22 1/2"	1.50	1.50	2.50	0.15
8 INCHES	45"	1.50	1.50	2.50	0.15
	90"	2.00	2.00	3.00	0.28
	TEE	2.00	2.00	2.50	0.23
	11 1/4"	2.00	2.00	2.50	0.23
12 INCHES	22 1/2"	2.00	2.00	2.50	0.23
	45"	2.00	2.00	2.75	0.25
	90"	3.00	2.00	3.00	0.39
	TEE	3.00	2.00	2.50	0.32
16 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	2.00	2.00	3.00	0.28
	45"	3.00	2.50	3.00	0.47
	90"	4.50	3.00	3.50	0.94
24 INCHES	TEE	4.50	3.00	3.00	0.81
	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	3.00	2.00	3.00	0.39
	45"	4.00	3.00	3.50	0.84
36 INCHES	90"	6.50	3.50	3.50	1.54
	TEE	6.50	3.50	3.00	1.32

TEST PRESSURE = 200 PSI					
PIPE SIZE	TYPE FITTING	DIMENSIONS (FT)			VOLUME CONCRETE CU. YD.
		"L"	"H"	"T"	
<4 INCHES	11 1/4"	1.00	1.00	1.00	0.04
	22 1/2"	1.00	1.00	1.50	0.06
	45"	1.00	1.00	1.50	0.06
	90"	1.50	1.50	2.50	0.15
4 INCHES	TEE	1.50	1.50	2.00	0.12
	11 1/4"	1.00	1.00	2.50	0.09
	22 1/2"	1.00	1.00	2.50	0.09
	45"	1.50	1.50	2.50	0.15
6 INCHES	90"	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
	11 1/4"	1.50	1.50	2.50	0.15
	22 1/2"	1.50	1.50	2.50	0.15
8 INCHES	45"	1.50	1.50	2.50	0.15
	90"	2.50	2.00	3.00	0.33
	TEE	2.50	2.00	2.50	0.28
	11 1/4"	2.00	2.00	2.50	0.23
12 INCHES	22 1/2"	2.00	2.00	2.50	0.23
	45"	2.00	2.00	2.75	0.23
	90"	4.00	2.00	3.00	0.50
	TEE	4.00	2.00	2.50	0.42
16 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	3.00	2.00	3.00	0.39
	45"	4.00	2.50	3.00	0.61
	90"	5.50	3.00	3.50	1.13
24 INCHES	TEE	5.50	3.00	3.00	0.97
	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	4.00	2.00	3.00	0.50
	45"	5.50	3.00	3.50	1.13
36 INCHES	90"	7.50	4.00	3.50	2.01
	TEE	7.50	4.00	3.00	1.72

CHART NOTES:

- IF BLOCKING EXCAVATION IS IN LIGHTLY COMPACTED FILL AREAS, OR IN AREAS WHERE BOULDERS OR STUMPS HAVE BEEN REMOVED, BLOCKING SIZE MUST BE RE-SIZED FOR THE SPECIFIC LOCATION/CIRCUMSTANCE BY A NC LICENSED PROFESSIONAL ENGINEER.
- BLOCKING SIZES SHOWN IN THESE TABLES ASSUME THE FOLLOWING:
 - BLOCKING IS CONSTRUCTED IN RESIDUAL SOILS AS SHOWN IN DETAIL
 - SOIL BEARING PRESSURE = 2000 PSF
 - VELOCITY OF FLOW = 15 FPS
- THIS DETAIL NOT APPLICABLE TO REDUCING BENDS.
- NEITHER THE WEIGHT OF THE CONCRETE BLOCKING NOR FRICTION BETWEEN CONCRETE BLOCKING AND SOIL WAS ADDED INTO BLOCKING SIZES COMPUTATION. THEREFORE, BLOCKING SIZE IS CONSERVATIVE.

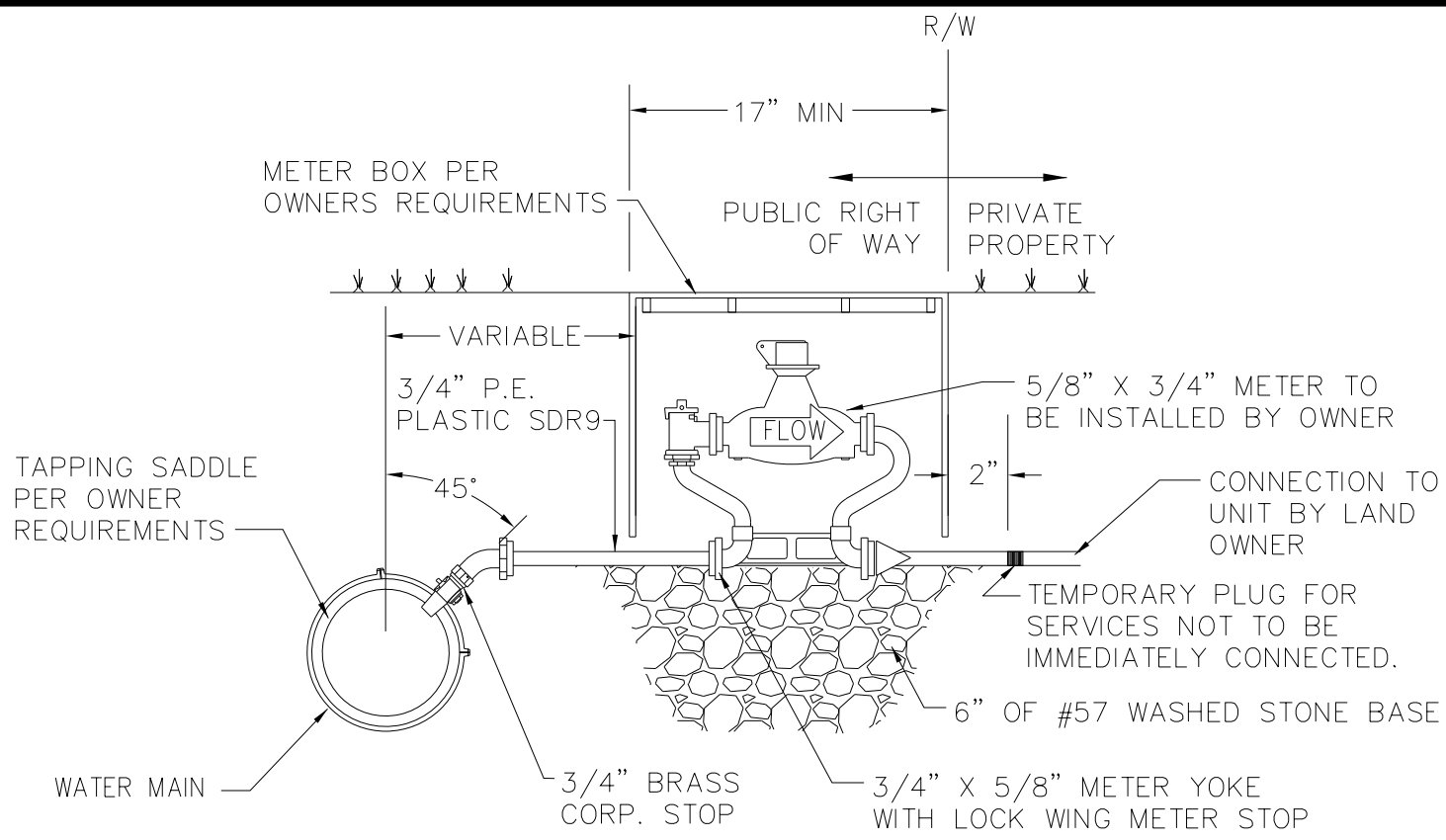
THRUST BLOCKING TABLE
NOT TO SCALE



NOTES:

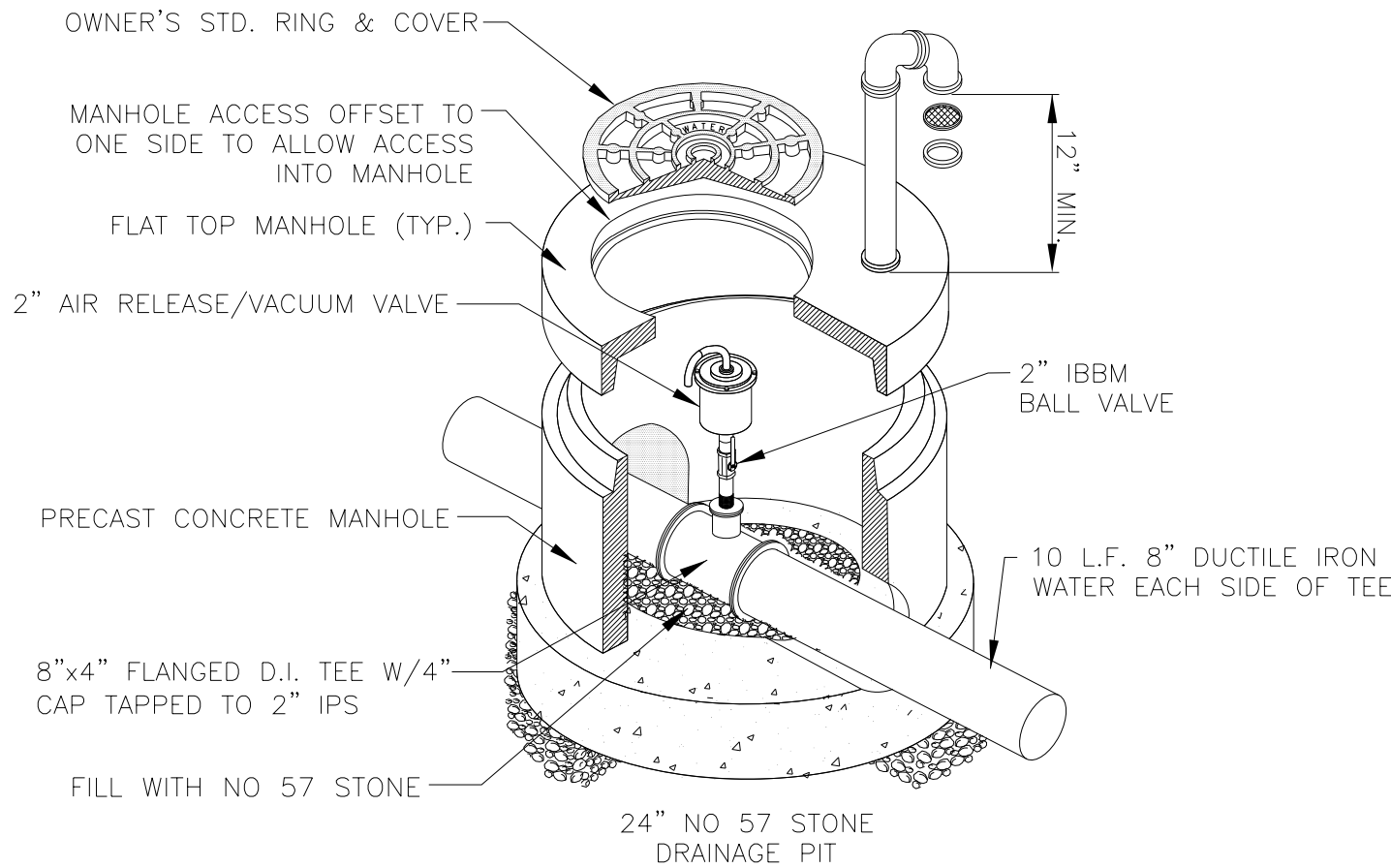
- CONCRETE BLOCKING IS TO BE FORMED TO ENSURE ACCESSIBILITY TO FITTINGS AND POURED AGAINST UNDISTURBED EARTH.
- ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE TO PREVENT CONCRETE FROM CONTACTING FITTINGS, BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
- CONCRETE TO BE MINIMUM 3,000 PSI @ 28 DAYS.
- WHEN SACKRETE IS TO BE USED, IT SHALL BE PROPERLY MIXED PER MANUFACTURER SPECIFICATIONS.
- FOR REQUIRED DIMENSIONS, SEE THRUST BLOCKING TABLE.

THRUST BLOCKING
NOT TO SCALE



NOTE: METER BOX TO BE SUPPORTED ON BRICK OR BLOCK

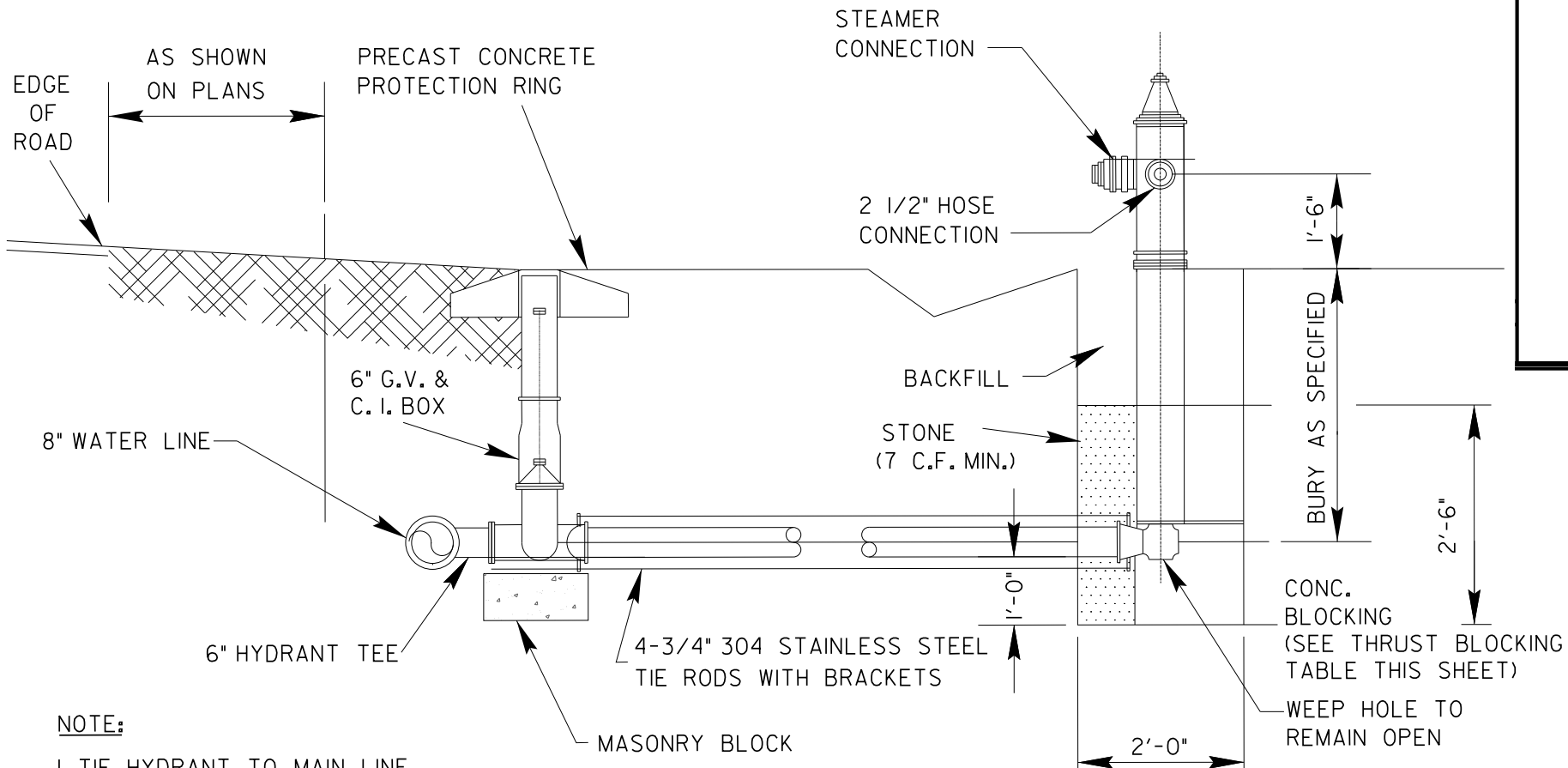
3/4" TO 1" SERVICE
CONNECTION AND METER
NOT TO SCALE



NOTES:

- UNLESS OTHERWISE INDICATED ON THE PLANS, MANHOLE SHALL BE FLAT-TOP.
- COMBINATION AIR RELEASE & VACUUM VALVES SHALL BE CLA-VAL SERIES 36, COMBINATION AIR RELEASE & VACUUM VALVE, PRATT SERIES AIR PRO MAX COMBINATION AIR VALVE OR APPROVED EQUAL.
- COMBINATION AIR RELEASE & VACUUM VALVE MANHOLES SHALL BE 5' MINIMUM INSIDE DIAMETER.
- BOTTOM OF VENT PIPE SHALL BE A MINIMUM OF 12" OR 3' ABOVE FLOOD ELEVATION, WHICHEVER IS APPLICABLE.
- MANHOLE STEPS ARE REQUIRED.
- PIPE SHALL BE 1-FOOT ABOVE BOTTOM OF MANHOLE & SUPPORTED WITH 2 STAINLESS STEEL PIPE SUPPORTS.

COMBINATION AIR RELEASE
& VACUUM VALVE MANHOLE
NOT TO SCALE

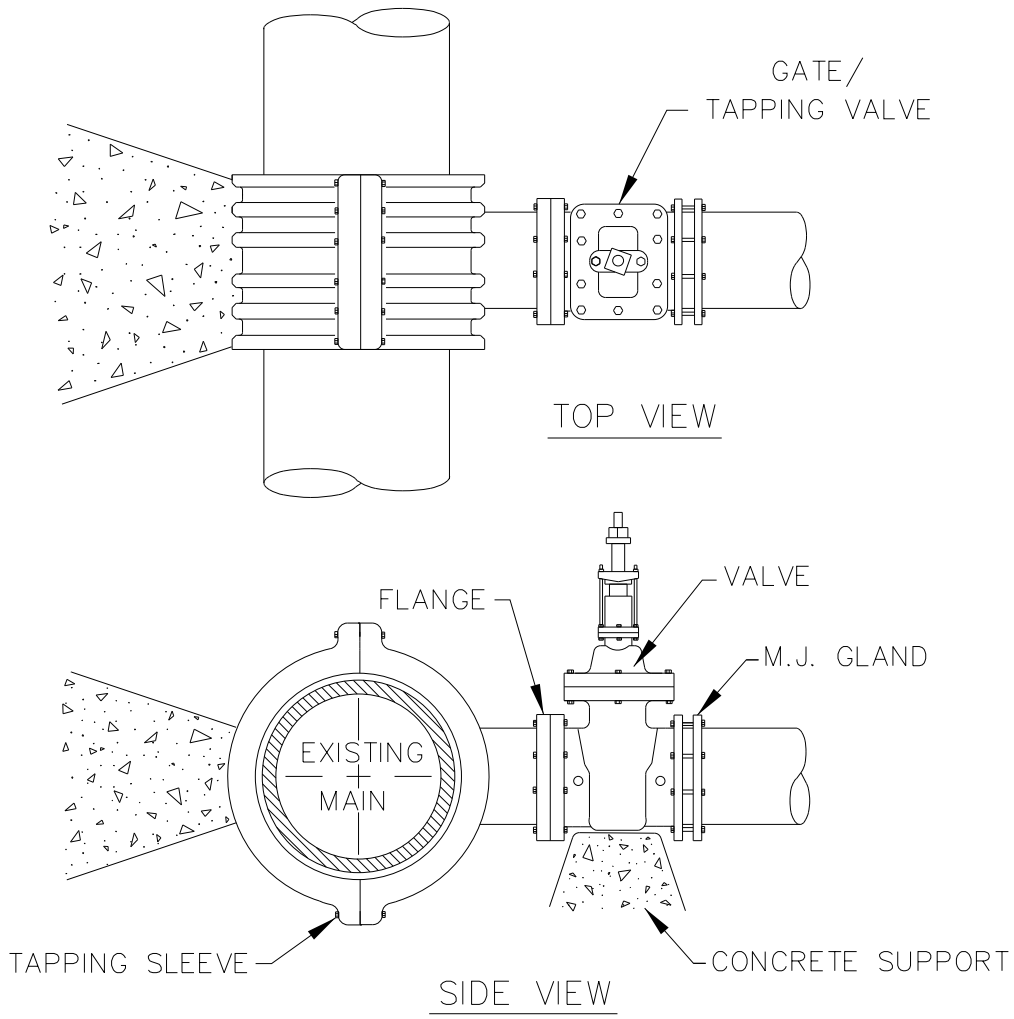


NOTE:

- TIE HYDRANT TO MAIN LINE W/TIE RODS AND BLOCKING.
- MECHANICAL JOINTS WITH GRIP RINGS

TYPICAL FIRE HYDRANT INSTALLATION DETAIL
NOT TO SCALE

CALDWELL COUNTY

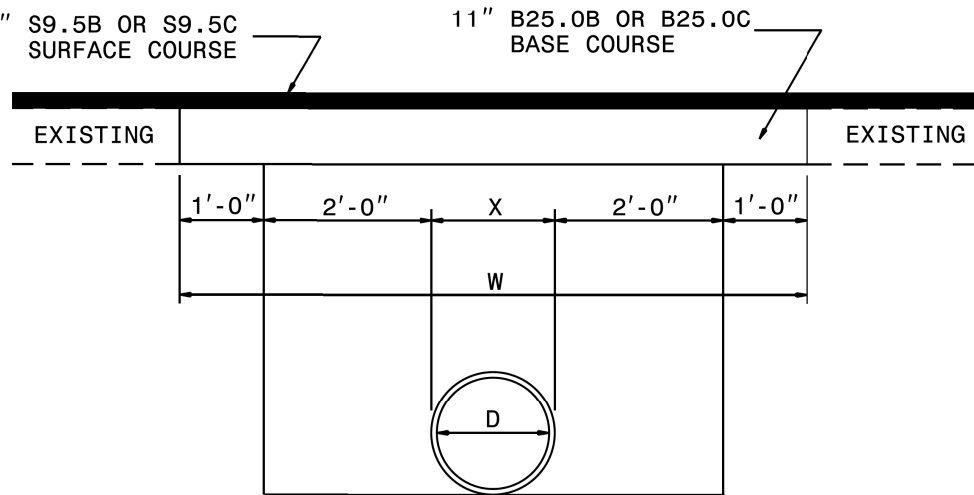


NOTES:

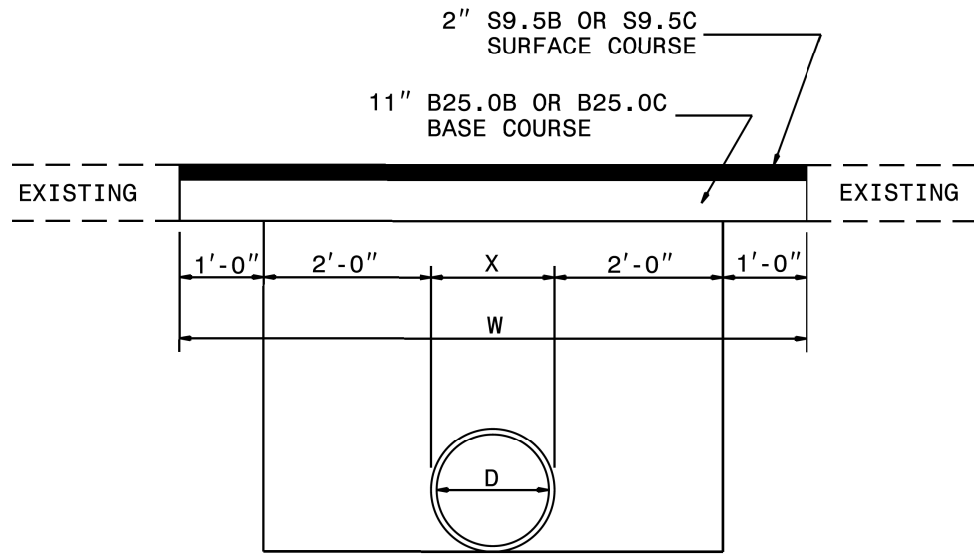
- CONCRETE SHALL NOT CONTACT GLANDS, BOLTS OR ENDS OF MECHANICAL BOLTS, OR ENDS OF MECHANICAL JOINT FITTINGS. TAPPING SLEEVE AND BOTTOM OF VALVE SHALL BE WRAPPED IN POLYETHYLENE.
- SEE STANDARD THRUST BLOCK TABLE FOR AREA OF CONCRETE REQUIRED.
- TAPPING SLEEVE SHALL BE TESTED IN ACCORDANCE WITH OWNER REQUIREMENTS.
- TAPS ON SDR26 PIPE SHALL REQUIRE LONG SS TAPPING SLEEVES.

4" AND LARGER TAPPING SLEEVE
AND VALVE ASSEMBLY
NOT TO SCALE

D	X	W
12"	1'-4"	7'-4"
15"	1'-7"	7'-7"
18"	1'-10"	7'-10"
24"	2'-6"	8'-6"
30"	3'-1"	9'-1"
36"	3'-8"	9'-8"
42"	4'-5"	10'-5"
48"	5'-0"	11'-0"



PAVEMENT REPAIRS ON ROADS TO BE RESURFACED
(PIPE IS PLACED UNDER EXISTING PAVEMENT)

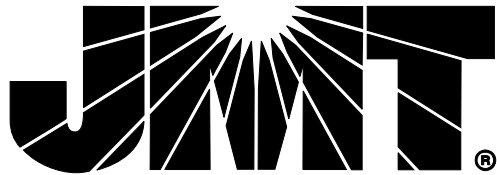


PAVEMENT REPAIRS ON ROADS NOT TO BE RESURFACED
(PIPE IS TO BE PLACED UNDER EXISTING PAVEMENT)

NOTES:

- THE PAVEMENT SHALL BE DEFINED BY A STRAIGHT EDGE, PREFERABLY A MACHINED SAW CUT.
- THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH DRY SOIL OR ABC STONE TO THE BOTTOM OF THE PROPOSED SUBGRADE. THE BACKFILL SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- WITHIN ROADS MAINTAINED BY NCDOT, THE TRENCH SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH NCDOT STANDARDS.
- THE ENTIRE THICKNESS/VERTICAL EDGE OF THE CUT SHALL BE TACKED.
- THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 2" THICK.
- THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY TO ACHIEVE A SMOOTH LEVEL PATCH.

STANDARD PAVEMENT
CUT AND PATCH DETAILS
NOT TO SCALE



PROJECT REFERENCE NO.
U-4700CA

SHEET NO.
UC-3B

DESIGNED BY: **DRD**

DRAWN BY: **DRF**

CHECKED BY: **MRD**

APPROVED BY: **JDN**

REVISED:

NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION

6/3/2026

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

UTILITY CONSTRUCTION
PLANS ONLY

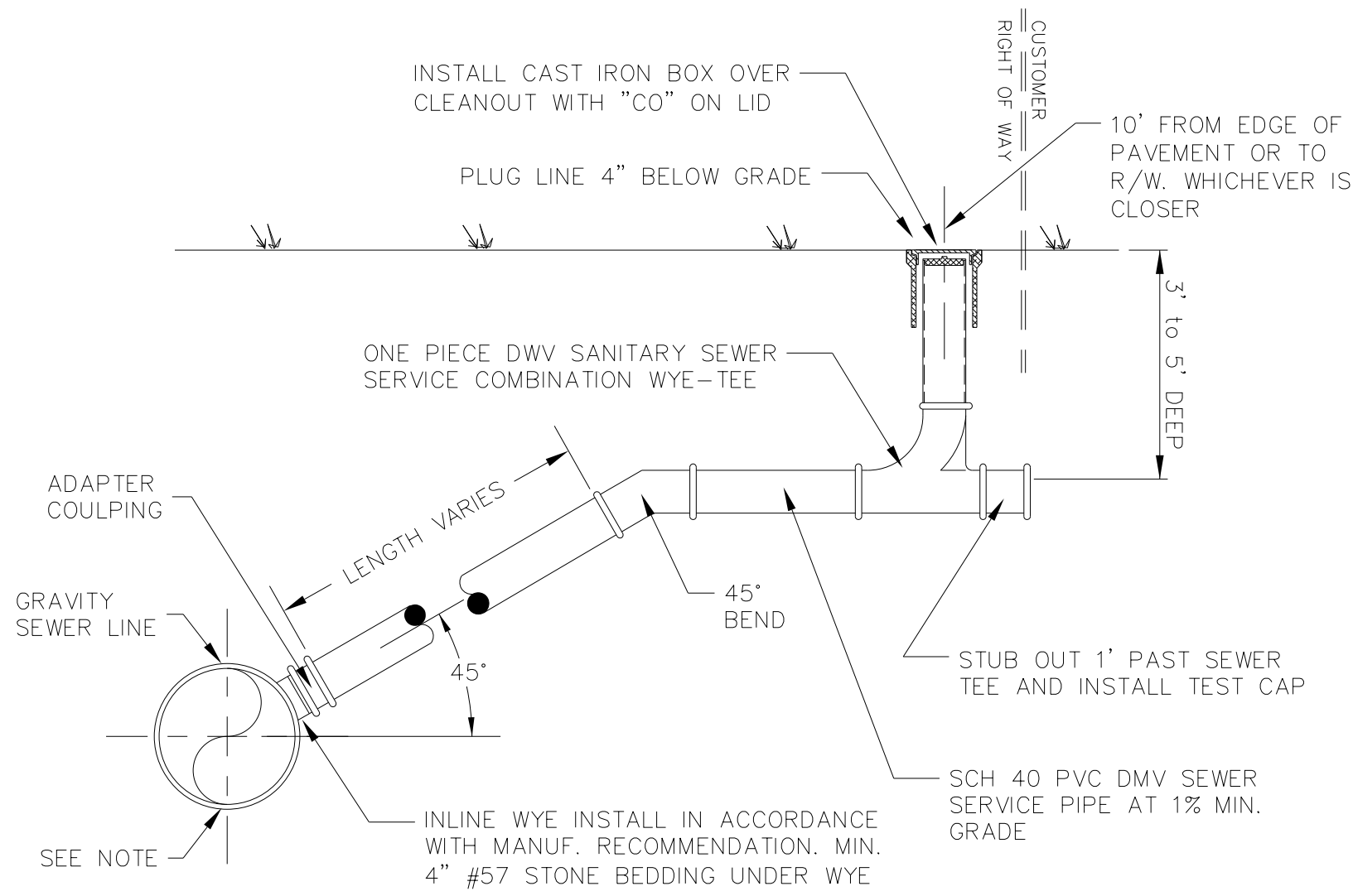
DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
PAVEMENT REPAIRS
FOR SUPERPAVE MIX TYPES

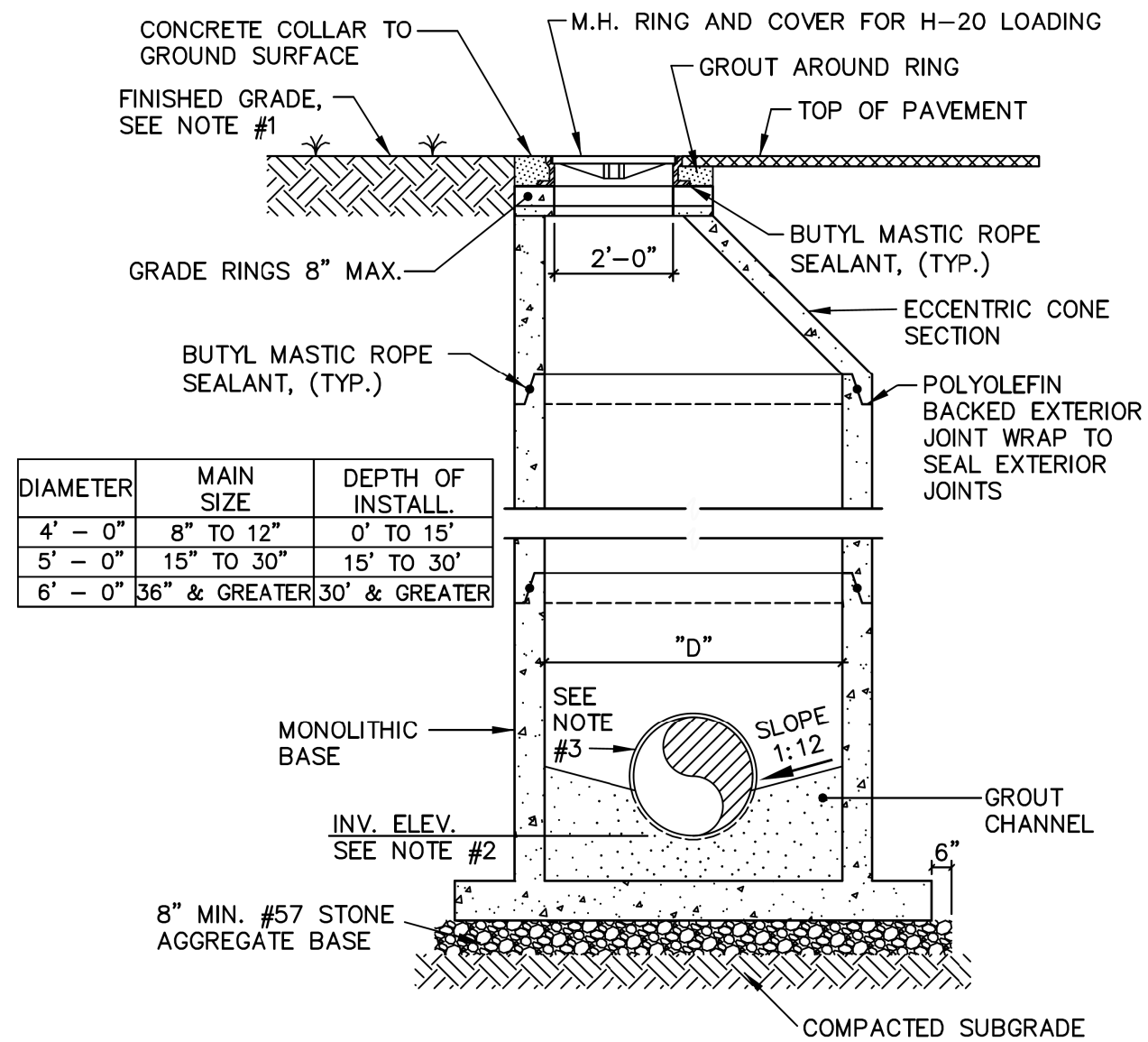
SHEET 1 OF 1
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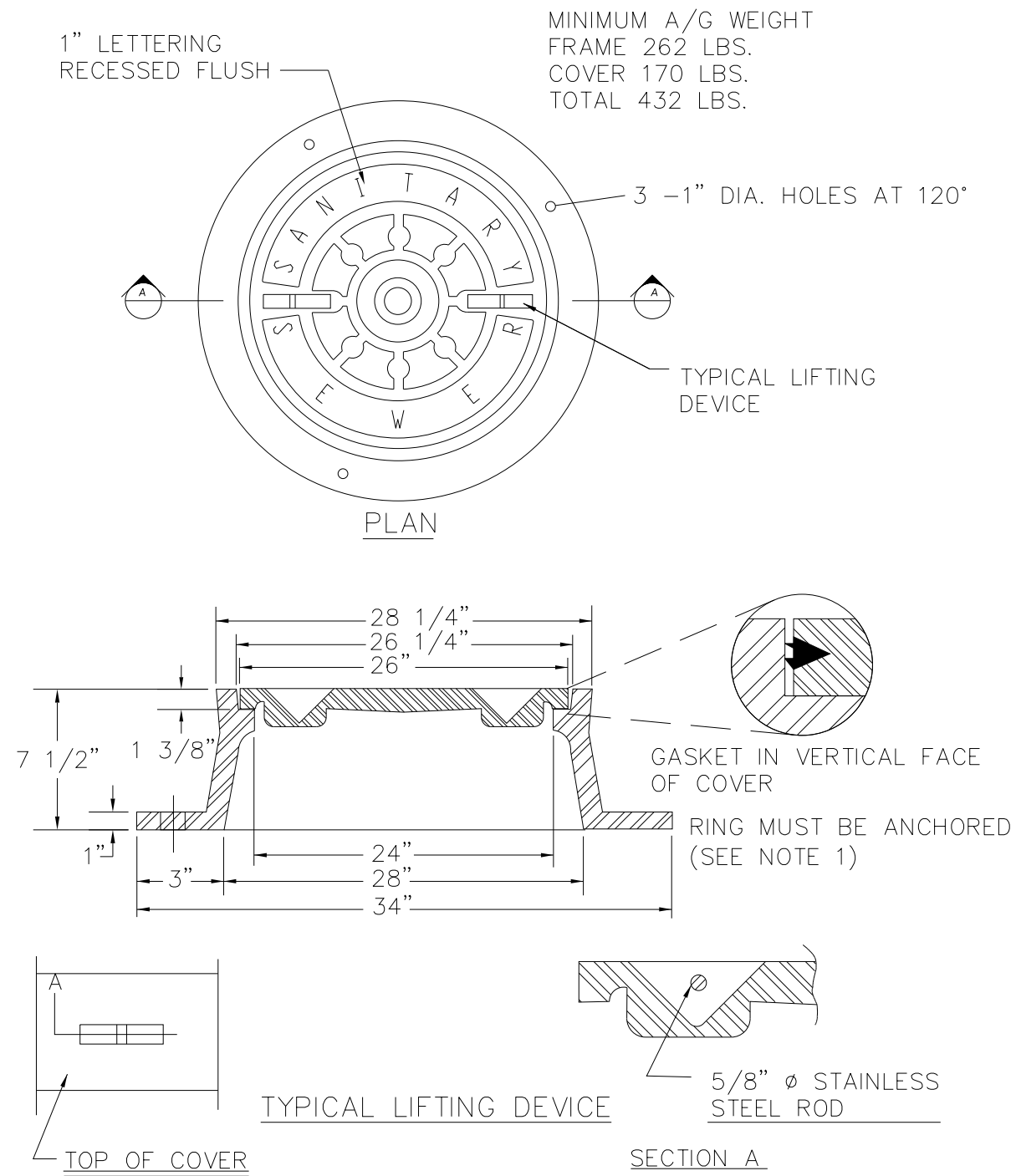
1. REFER TO SPECIFICATIONS FOR BEDDING, BACKFILLING AND COMPACTION REQUIREMENTS.

NOT TO SCALE



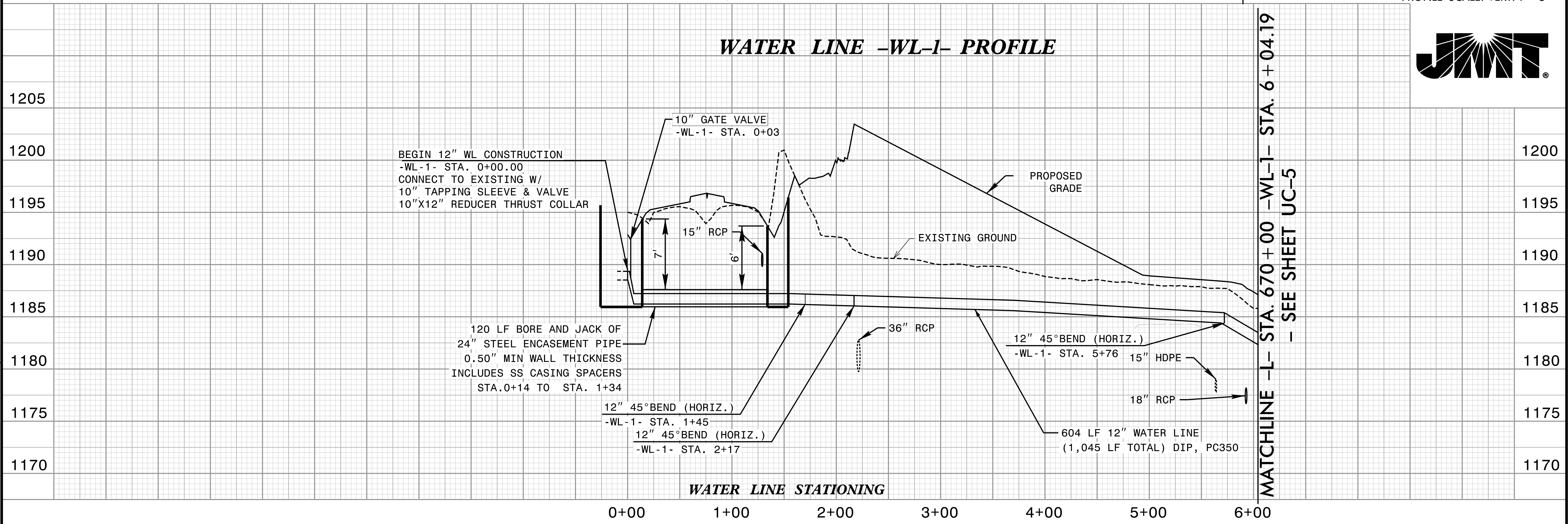
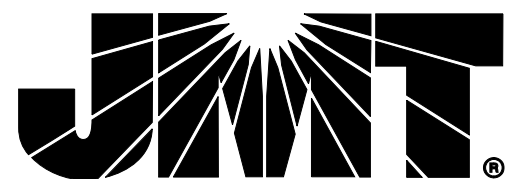
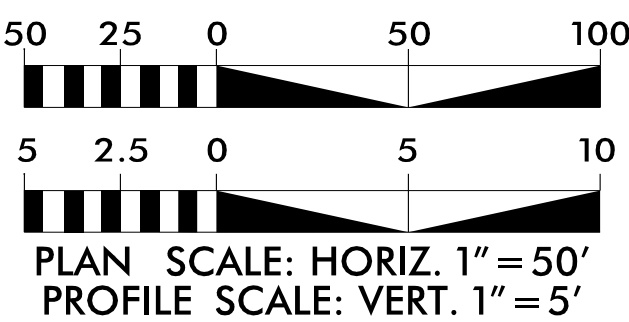
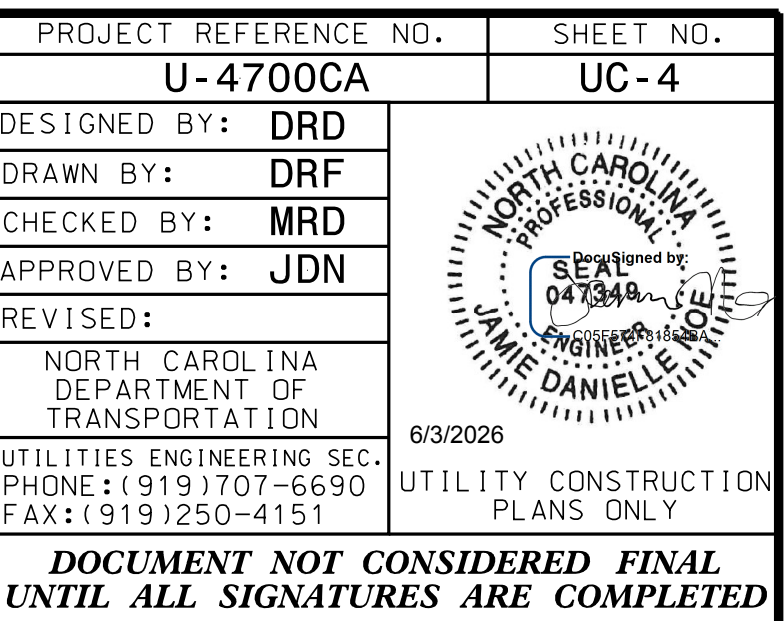
- NOTES:
1. THE DISTANCE FROM THE TOP OF M.H. RING AND COVER MAY VARY WIDELY. SEE GRADING PLAN, AND/OR MANHOLE SCHEDULE.
 2. INVERT ELEV. SHOWN ON THE PLANS OR MANHOLE SCHEDULE ARE AT THE INLET AND OUTLET OF MANHOLE UNLESS OTHERWISE NOTED.
 3. CARRIER PIPE TO MANHOLE CONNECTIONS SHALL BE RUBBER SLEEVE WITH DUAL S.S. BANDS.
 4. ALL MANHOLES ARE TO BE EXTENDED BASE.
 5. ALL INTERIOR JOINTS AND LIFTING POINTS SHALL BE SEALED WITH GROUT.
 6. MANHOLES SHALL NOT HAVE STEPS.

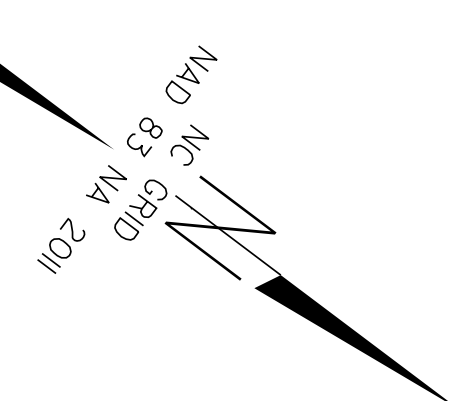
NOT TO SCALE



- NOTES:
1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
 2. FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS.
 3. COVER SHALL WEIGH A MIN. OF 120 LBS.
 4. MANHOLES WITHIN PAVED SURFACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAIL.
 5. CONEAL SHALL BE USED BETWEEN RING AND CONE.

NOT TO SCALE





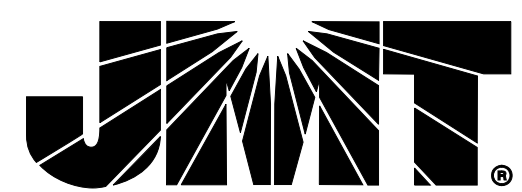
UTILITY CONSTRUCTION
CALDWELL COUNTY

50 25 0 50 100

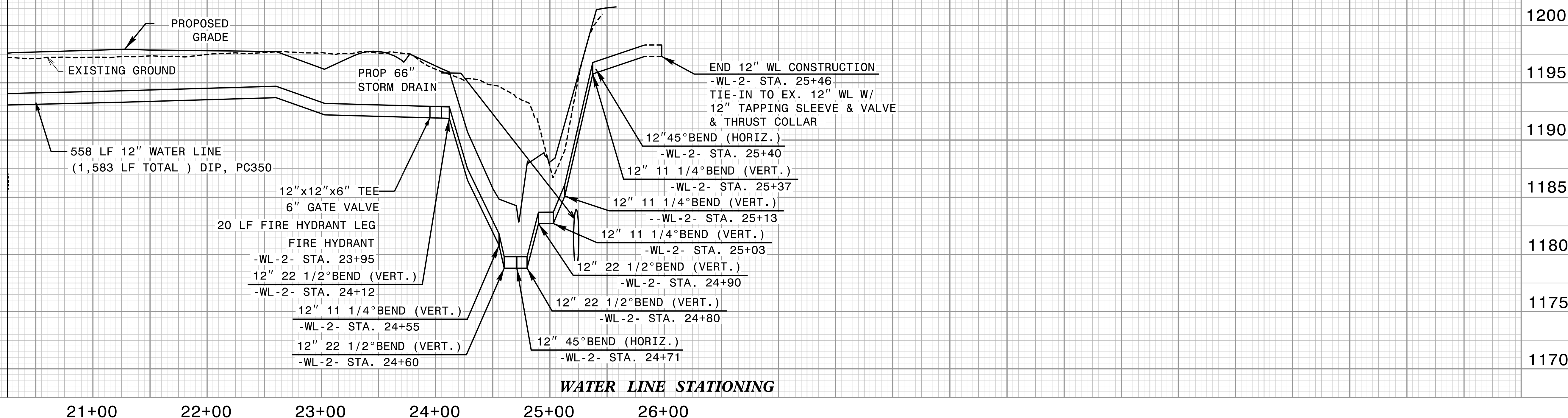
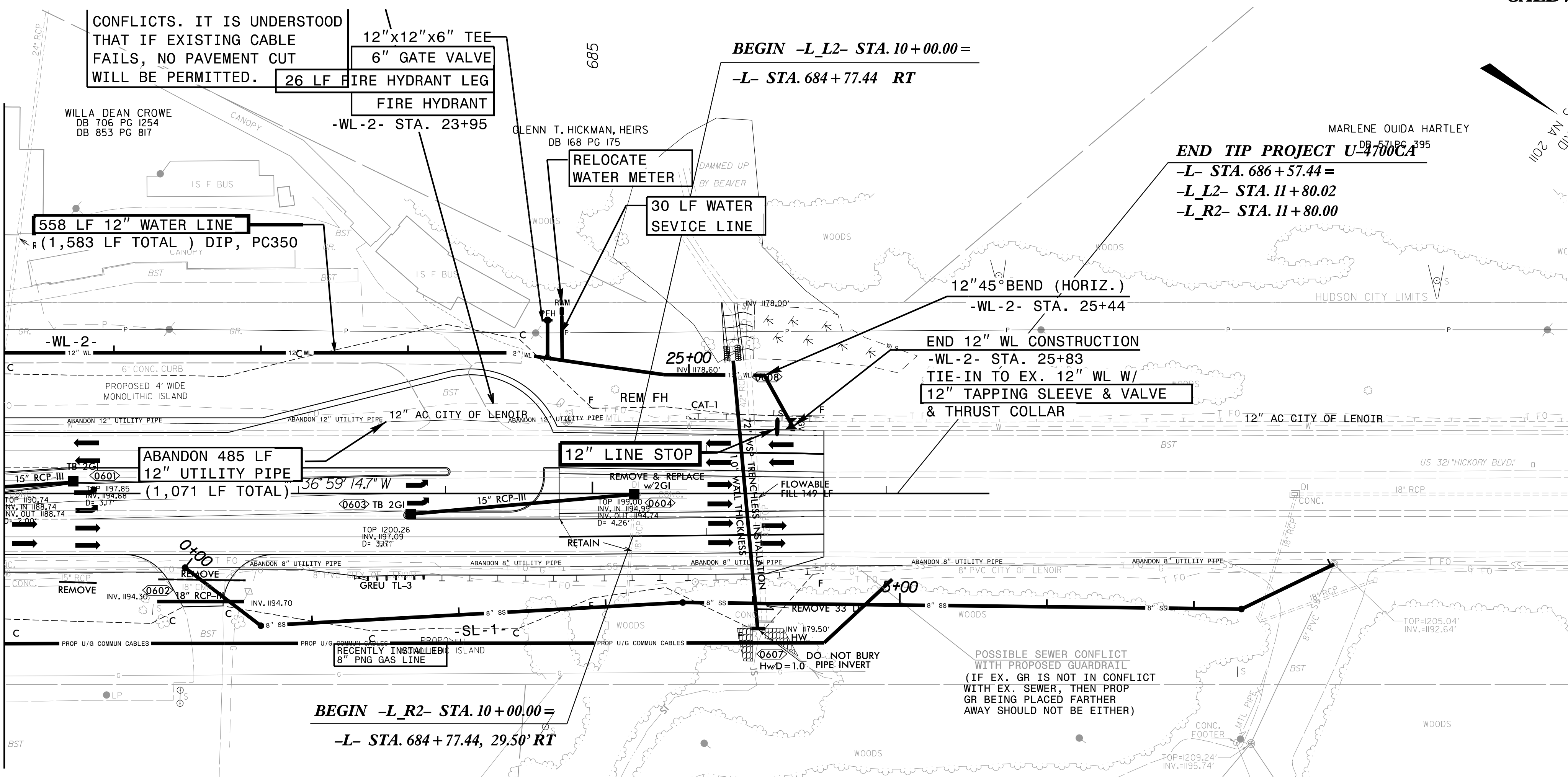
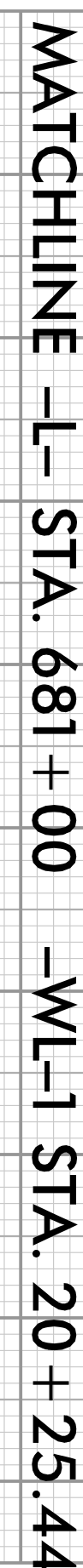
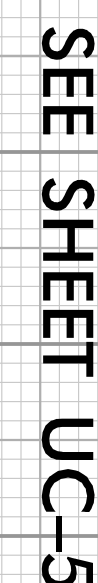
5 2.5 0 5 10

PLAN SCALE: HORIZ. 1" = 50'

PROFILE SCALE: VERT. 1" = 5'



SEE SHEET UC-6



PROJECT REFERENCE NO.		SHEET NO.
U-4700CA		UC-6
DESIGNED BY:	DRD	A circular professional engineer seal for the state of North Carolina. The outer ring contains the text "NORTH CAROLINA PROFESSIONAL ENGINEER". Inside the circle, it says "Seal No. 047849" and "JANNIE DANIELLE NO.". There is also a small graphic of the state of North Carolina.
DRAWN BY:	DRF	
CHECKED BY:	MRD	
APPROVED BY:	JDN	
REVISED:		
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		6/3/2026 UTILITY CONSTRUCTION PLANS ONLY
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UTILITY CONSTRUCTION

THE ESTIMATED QUANTITY OF DUCTILE IRON
WATER PIPE FITTINGS ON THIS PLAN SHEET
IS 2,515 POUNDS. THE ACTUAL QUANTITY
AND TYPE OF FITTINGS WILL VARY BASED
ON FIELD CONDITIONS.

