

TIP PROJECT: U-5824

CONTRACT:

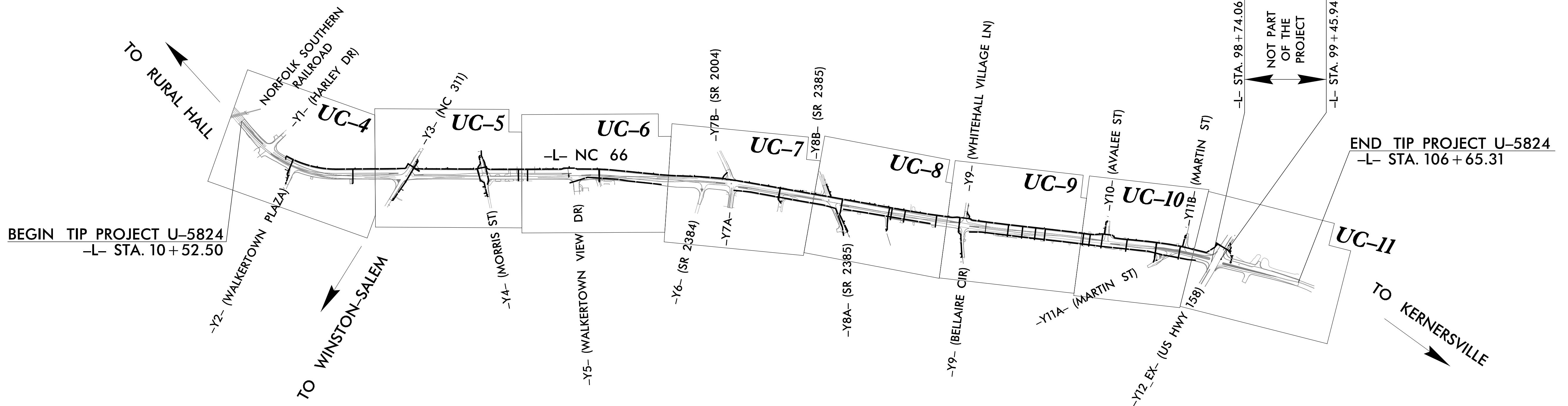
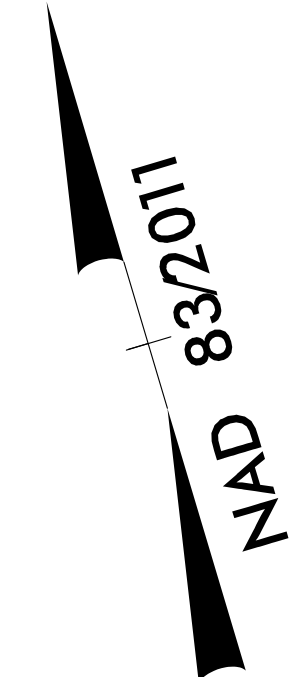
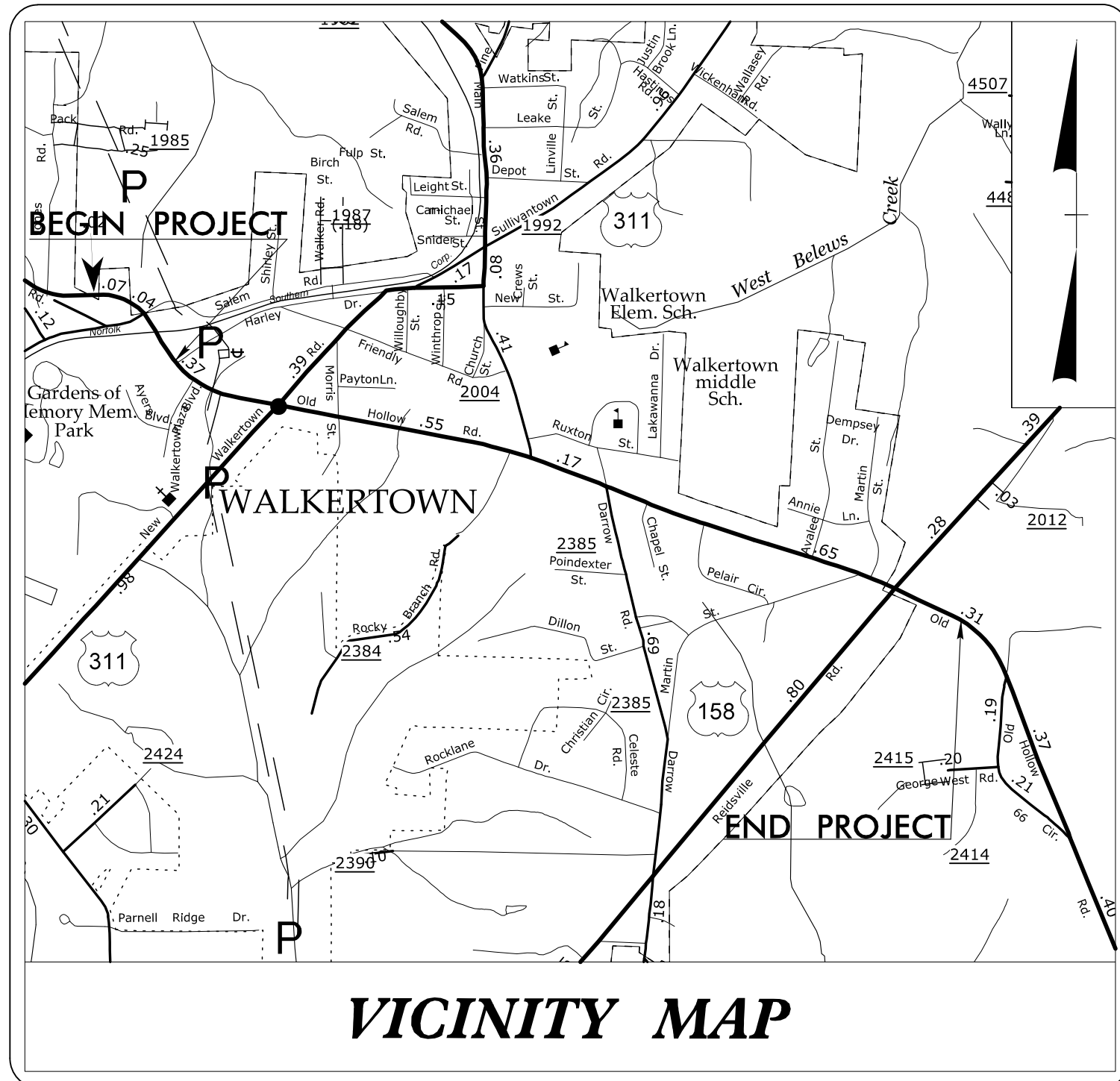
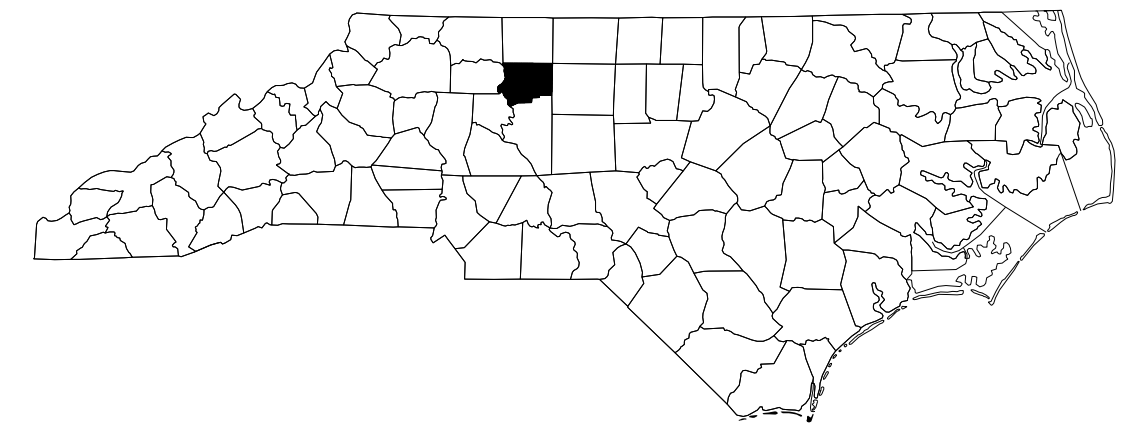
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
U-5824	UC-1

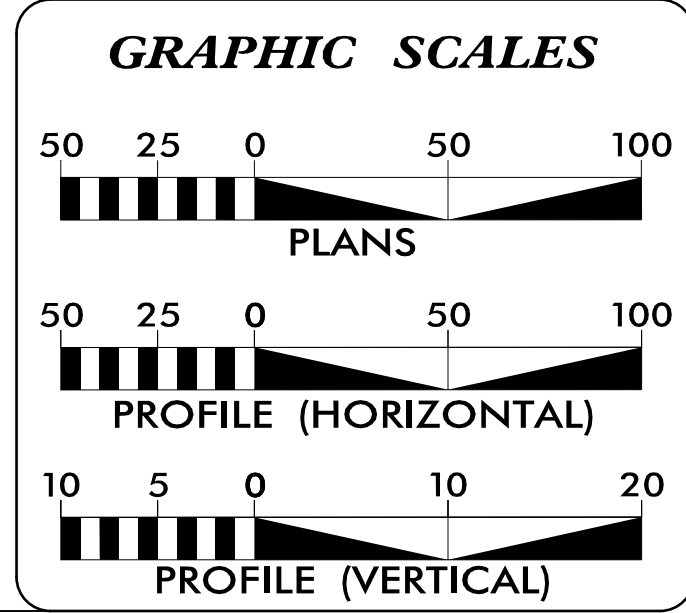
UTILITY CONSTRUCTION PLANS FORSYTH COUNTY

**LOCATION: NC 66 (OLD HOLLOW ROAD) WIDENING
FROM HARLEY DRIVE TO US 158**

TYPE OF WORK: WATER AND SEWER RELOCATIONS



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INDEX OF SHEETS

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UC-3	GENERAL NOTES
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UC-4 THRU UC-11	UTILITY CONST. PLAN SHEETS
UC-12 THRU UC-20	UTILITY CONST. PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

(A) WATER: CITY OF WINSTON SALEM
(B) SANITARY SEWER: CITY OF WINSTON SALEM

PREPARED IN THE OFFICE OF:

AECOM

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
5438 WADE PARK BOULEVARD, SUITE 200, RALEIGH, NC 27607
+1 (919) 460-6200
F - 0342

Joseph Turner, PE UTILITIES PROJECT ENGINEER

SEAL

10/4/2023 | 12:06 PM EDT

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

Ali Kouchehi, PE UTILITIES REGIONAL ENGINEER
R. David Trantham UTILITIES ENGINEER
Dayton Martin UTILITIES AREA COORDINATOR
T. Lynn Basinger UTILITIES COORDINATOR

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

Prepared in the Office of:

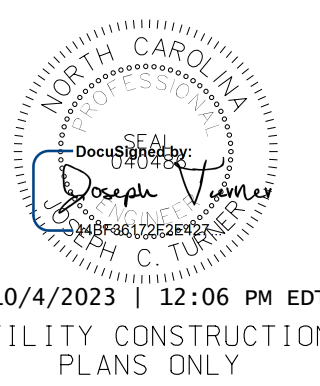


5438 WADE PARK BOULEVARD, SUITE 200, RALEIGH, NC 27607
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PROJECT REFERENCE NO. **U-5824** SHEET NO. **UC-2**

DESIGNED BY: FR
DRAWN BY: FR/RR
CHECKED BY: SS
APPROVED BY: JT
REVISED:
NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151



10/4/2023 12:06 PM EDT
UTILITY CONSTRUCTION
PLANS ONLY

UTILITY CONSTRUCTION

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	12" WL
11¼ Degree Bend	+
22½ 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	24" 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	TV FO
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

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Prepared in the Office of:



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PROJECT REFERENCE NO. U-5824	SHEET NO. UC-3
DESIGNED BY: FR	
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CHECKED BY: SS	
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REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION NOTES

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 AND THE CITY OF WINSTON-SALEM WATER AND SANITARY SEWER TECHNICAL SPECIFICATIONS DATED JULY 2020.
2. THE EXISTING WATER AND SEWER UTILITIES BELONG TO THE CITY OF WINSTON SALEM.
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. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.
6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING

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

PROJECT SPECIFIC NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.
2. ALL EROSION CONTROL DEVICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MOST CURRENT STANDARDS OF THE LAND QUALITY SECTION OF NCDEQ.
3. STABILIZATION STONE UNDER PIPING TO BE PLACED AS REQUIRED BY CITY INSPECTOR WHEN CONDITIONS WARRANT.
4. AS A MINIMUM REQUIREMENT, ALL GRADED AREAS NOT UNDER PAVEMENT AND WITHIN THE RIGHT-OF-WAY AND/OR EASEMENTS SHALL BE PREPARED, FERTILIZED AND LIMED, SEEDED, AND MULCHED IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
5. PRIOR TO REQUESTING A FINAL INSPECTION, THE CONTRACTOR MUST SUBMIT RECORD DRAWINGS AND ENGINEER'S CERTIFICATION TO THE CITY ENGINEERING DEVISION'S RECORD CENTER. THE CONTRACTOR MUST ALSO SUBMIT THE CONSTRUCTION CHECKLIST TO THE CITY INSPECTOR.
6. ALL WORK MUST CARRY A ONE-YEAR WARRANTY TO COVER ALL DEFECTS IN MATERIALS AND WORKMANSHIP.
7. PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR MUST NOTIFY THE CITY ENGINEERING FIELD OFFICE (336-727-2362) TO ARRANGE FOR CONSTRUCTION INSPECTION.

UTILITY CONSTRUCTION

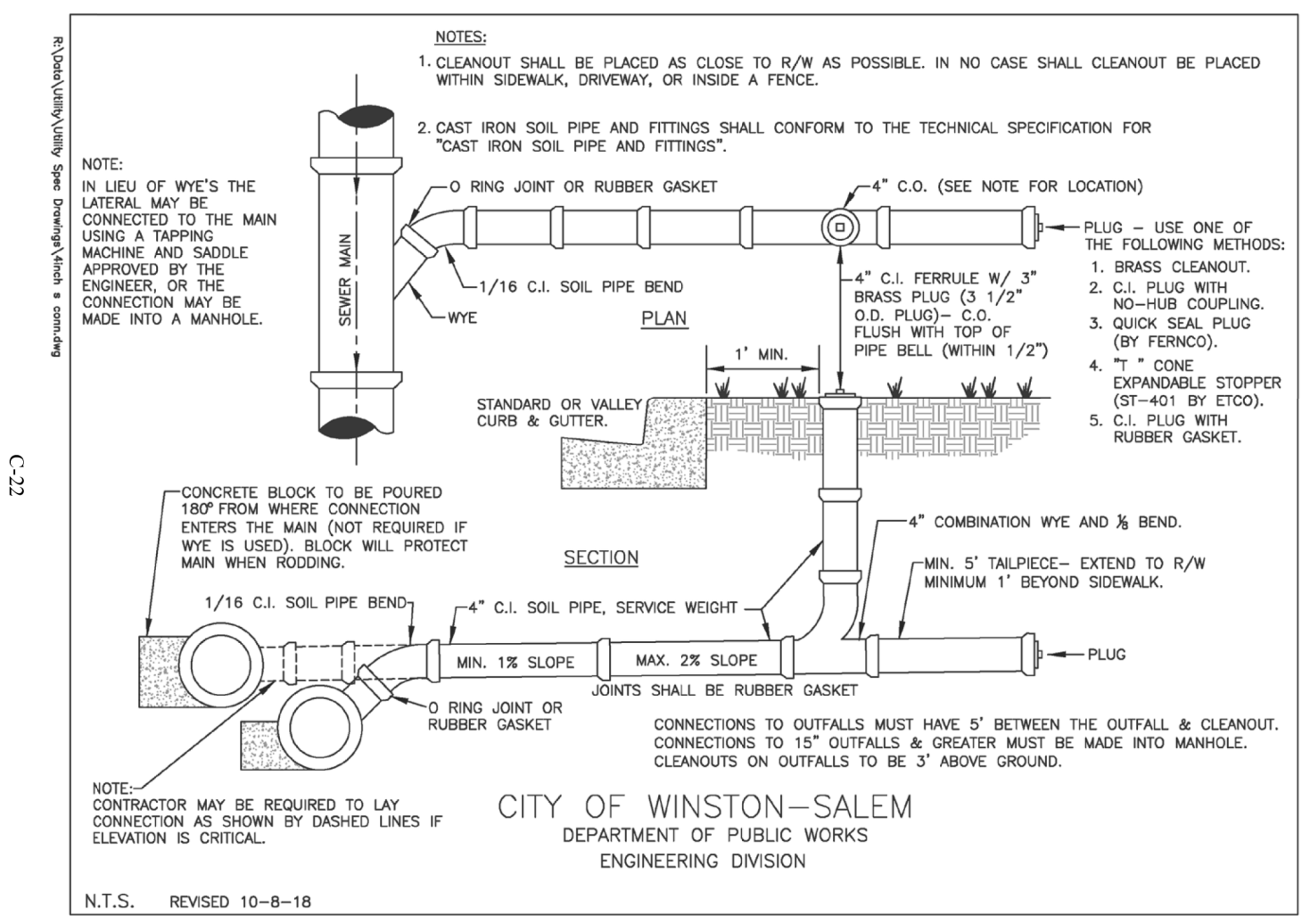
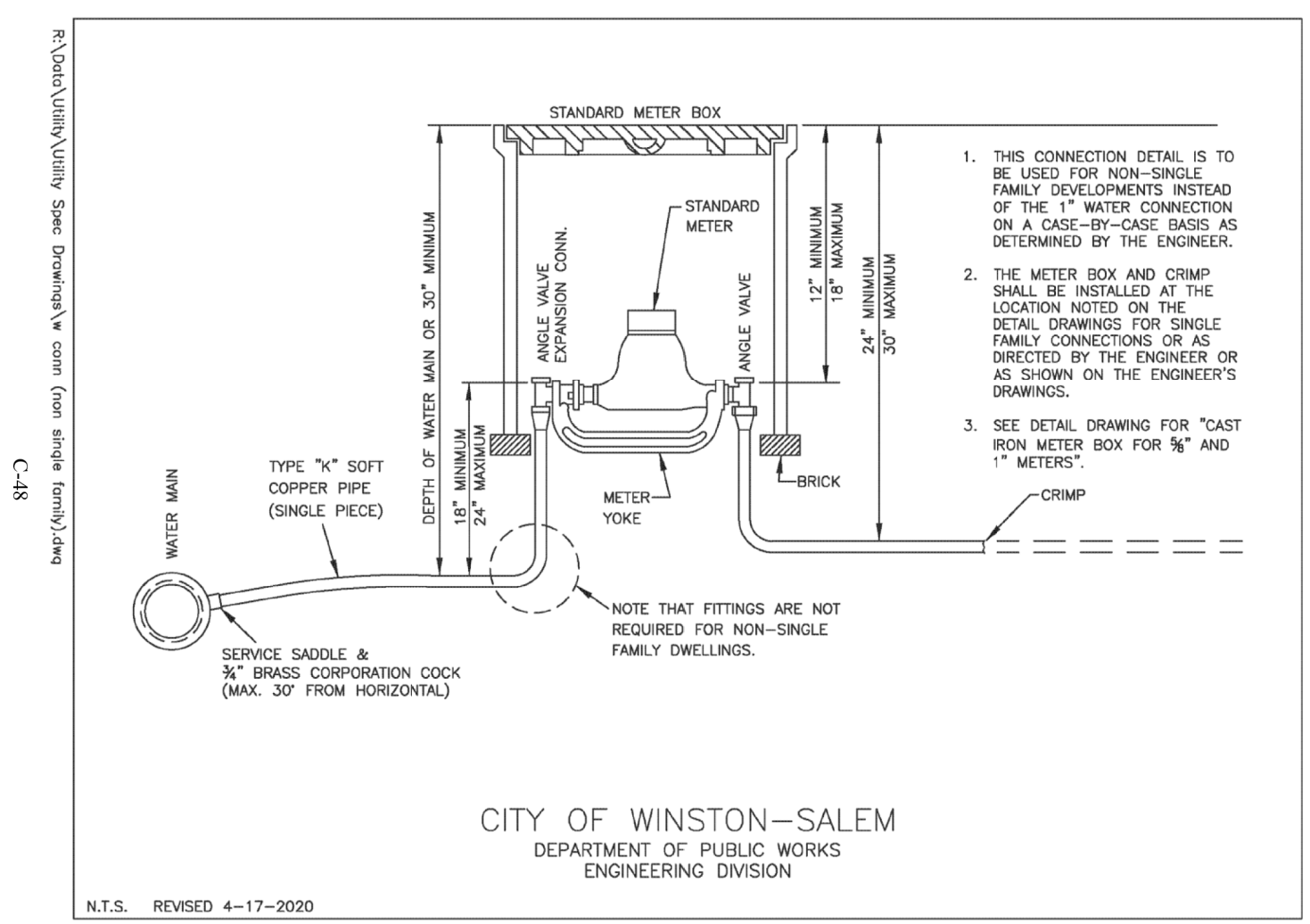
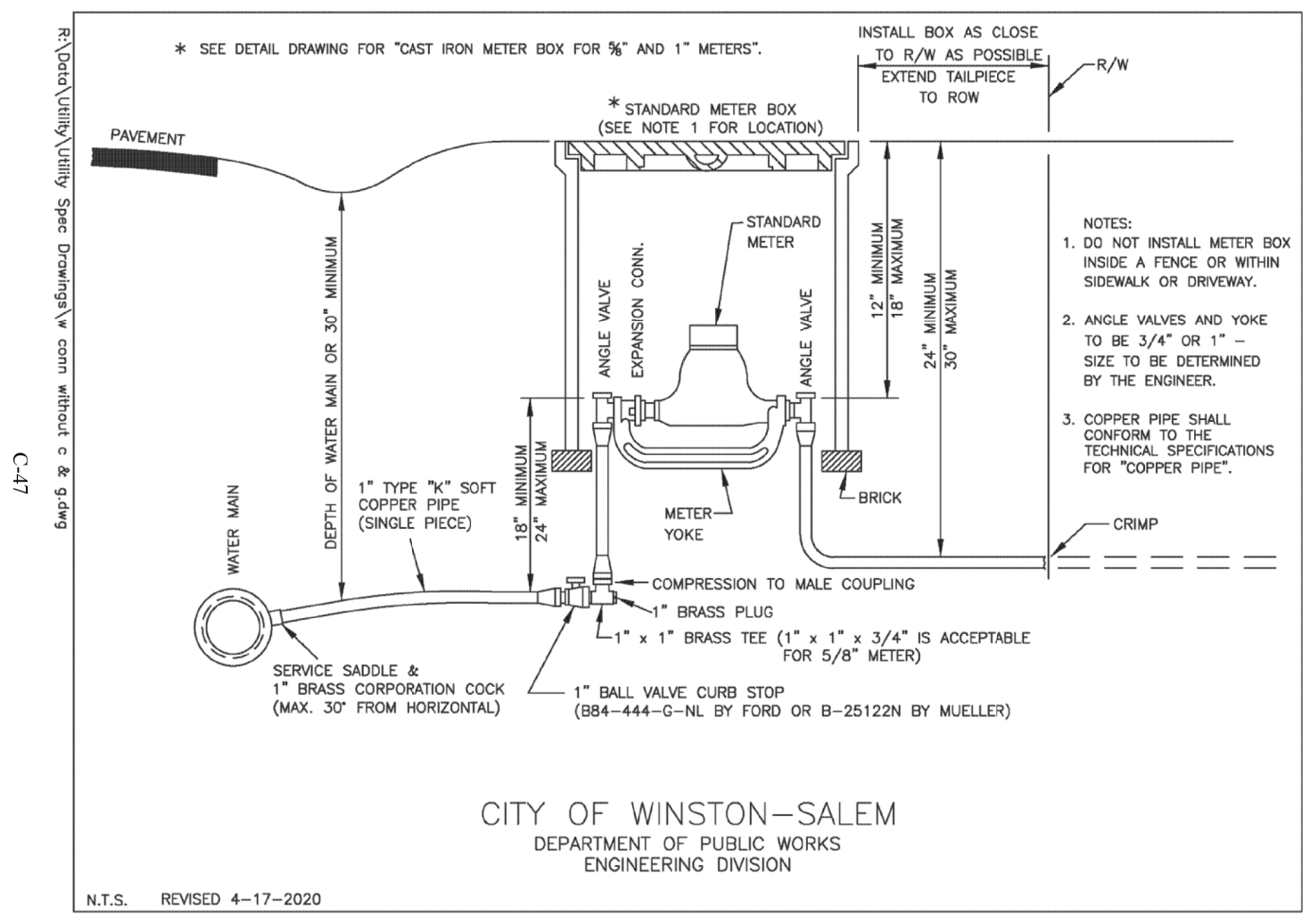
WATER AND/OR SANITARY SEWER

1. THE MOST CURRENT EDITION OF THE CITY OF WINSTON-SALEM TECHNICAL SPECIFICATIONS AND DETAIL DRAWINGS FOR WATER LINE AND SANITARY SEWER LINE CONSTRUCTION WILL GOVERN ALL WATER AND SANITARY SEWER CONSTRUCTION.
2. WATER AND SEWER CONNECTIONS SHALL BE BESIDE EACH OTHER AT THE CENTER OF EACH LOT. CONNECTIONS ARE TO BE SPACED NOT MORE THAN 30" CENTER TO CENTER AND HAVE WOODEN STAKES PLACED ON EACH SIDE. STAKES SHOULD BE FLAGGED OR PAINTED FOR VISIBILITY.
3. DENSITY TESTS BY AN INDEPENDENT TESTING LAB ARE TO BE MADE AS DIRECTED BY THE CITY INSPECTOR AT THE CONTRACTOR'S EXPENSE.

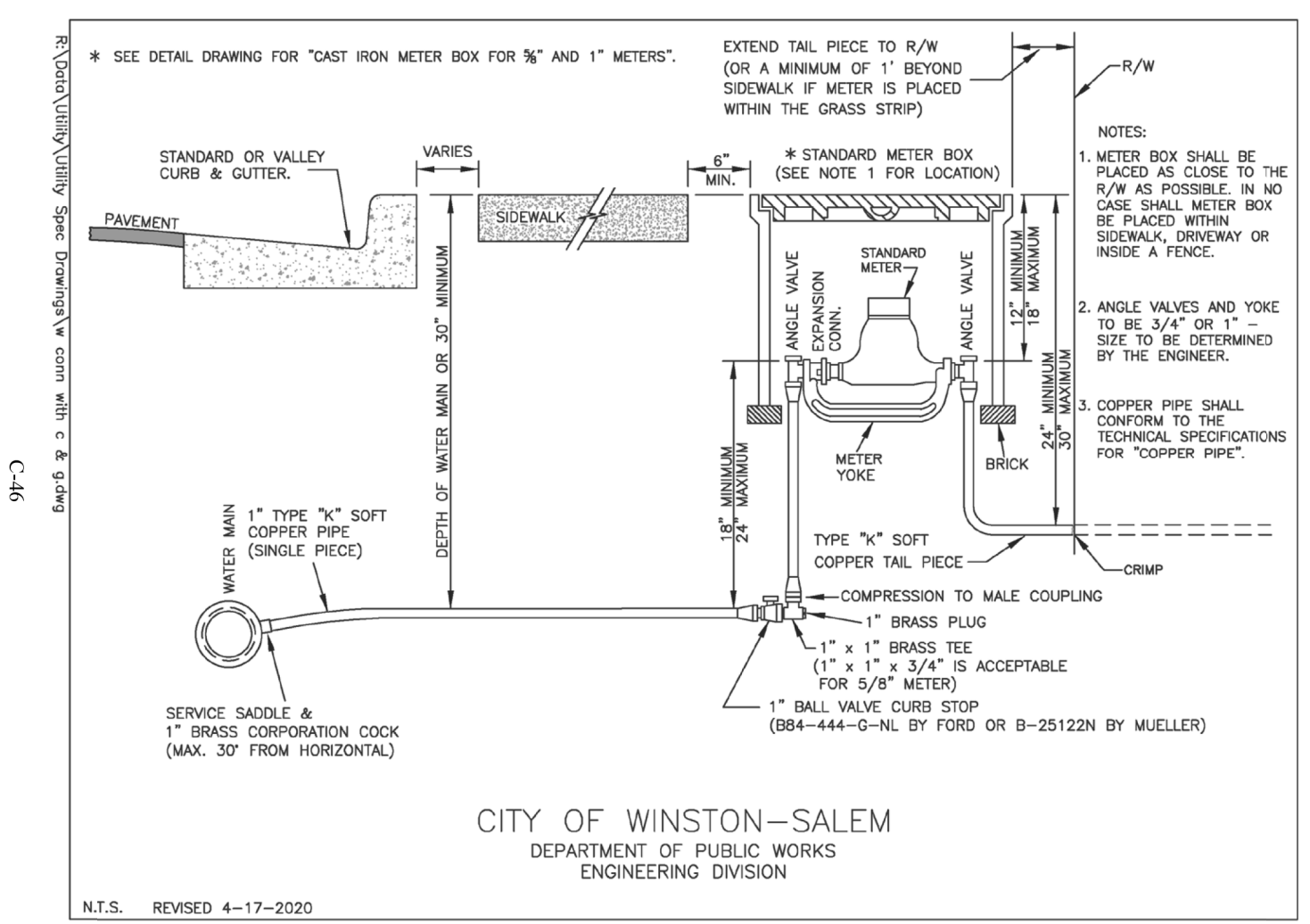
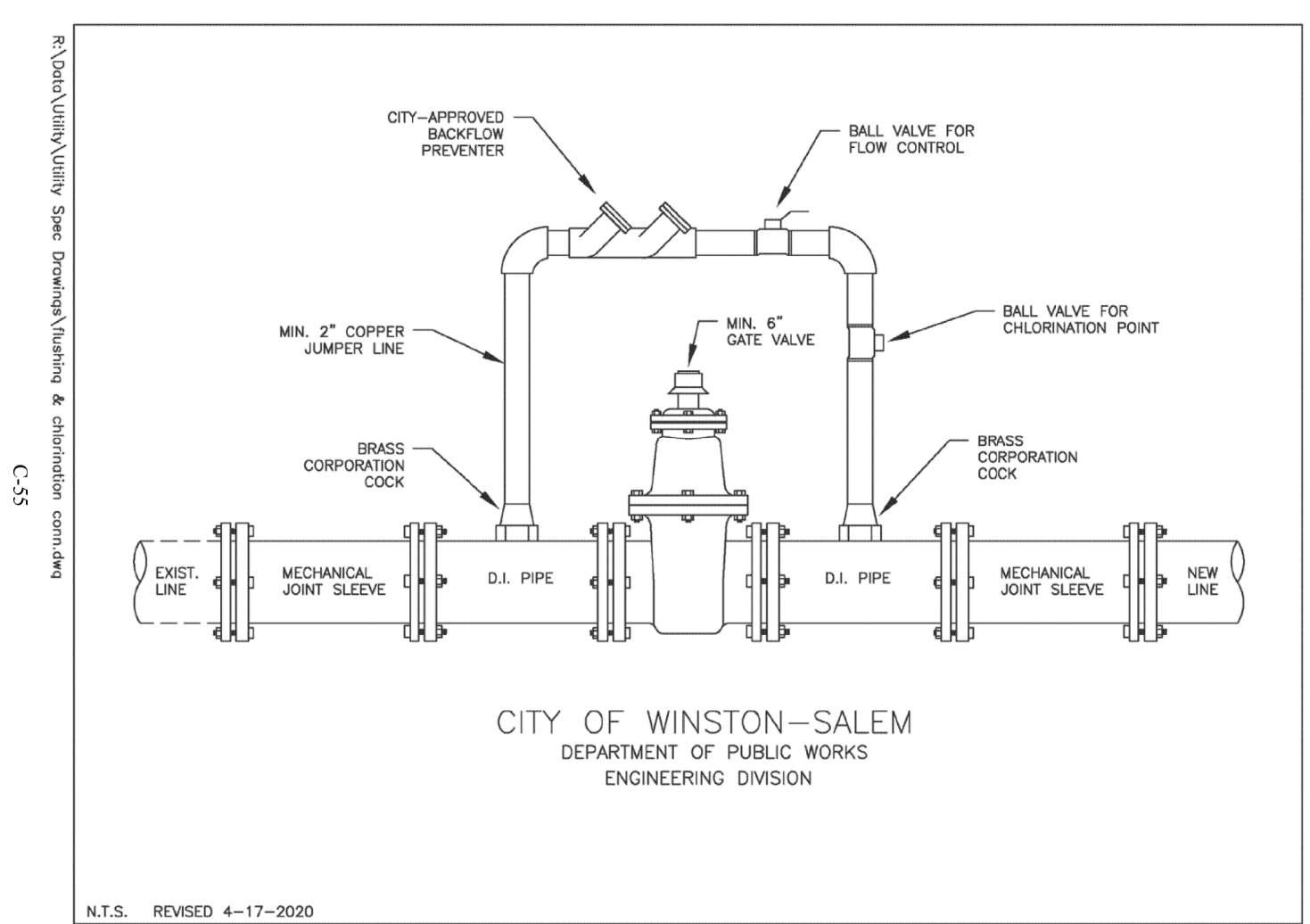
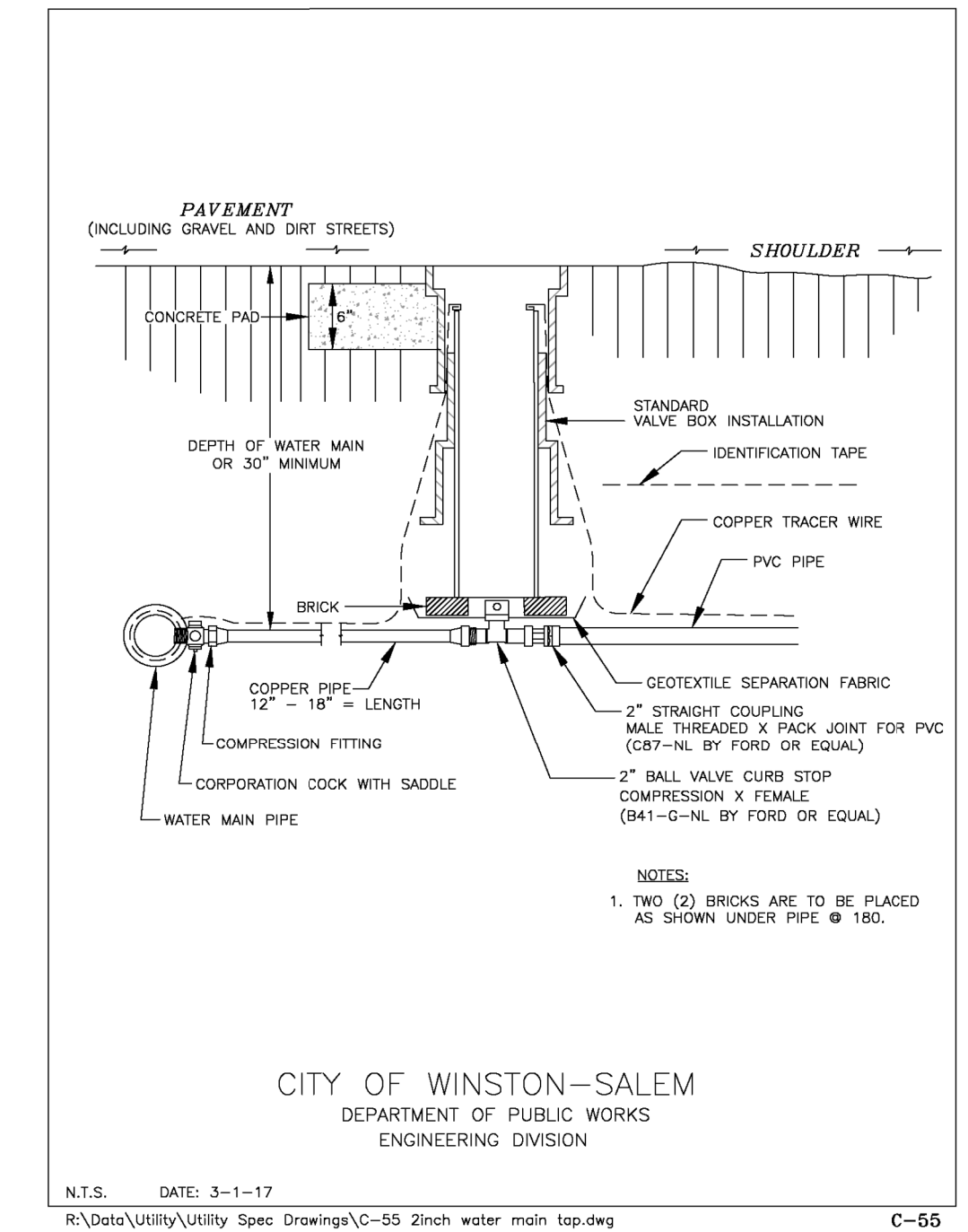
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DESIGNED BY:	FR		
DRAWN BY:	FR/RR		
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APPROVED BY:	JT		
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
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UTILITY CONSTRUCTION

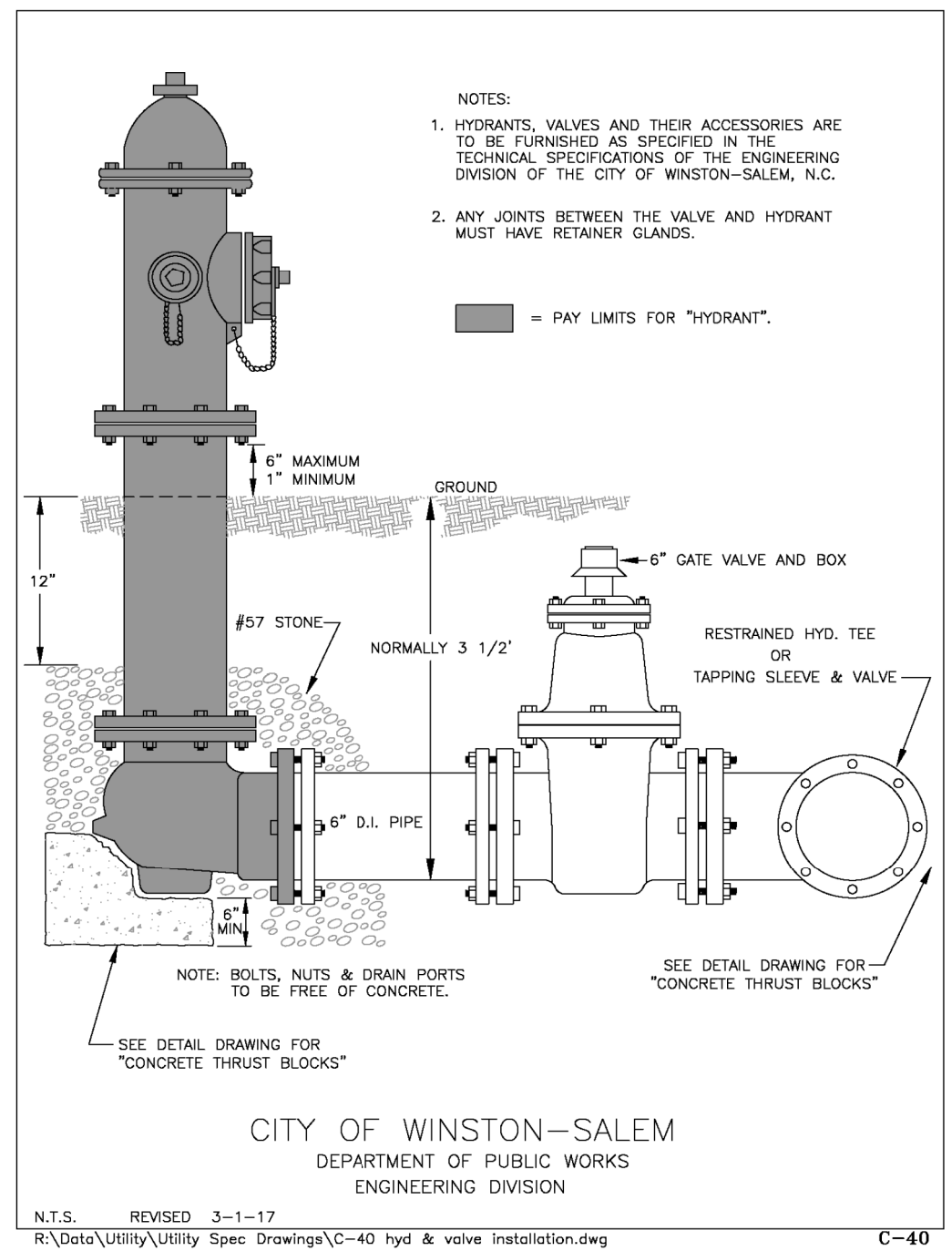


2" Water Main Tap to 6" or Larger Water Main

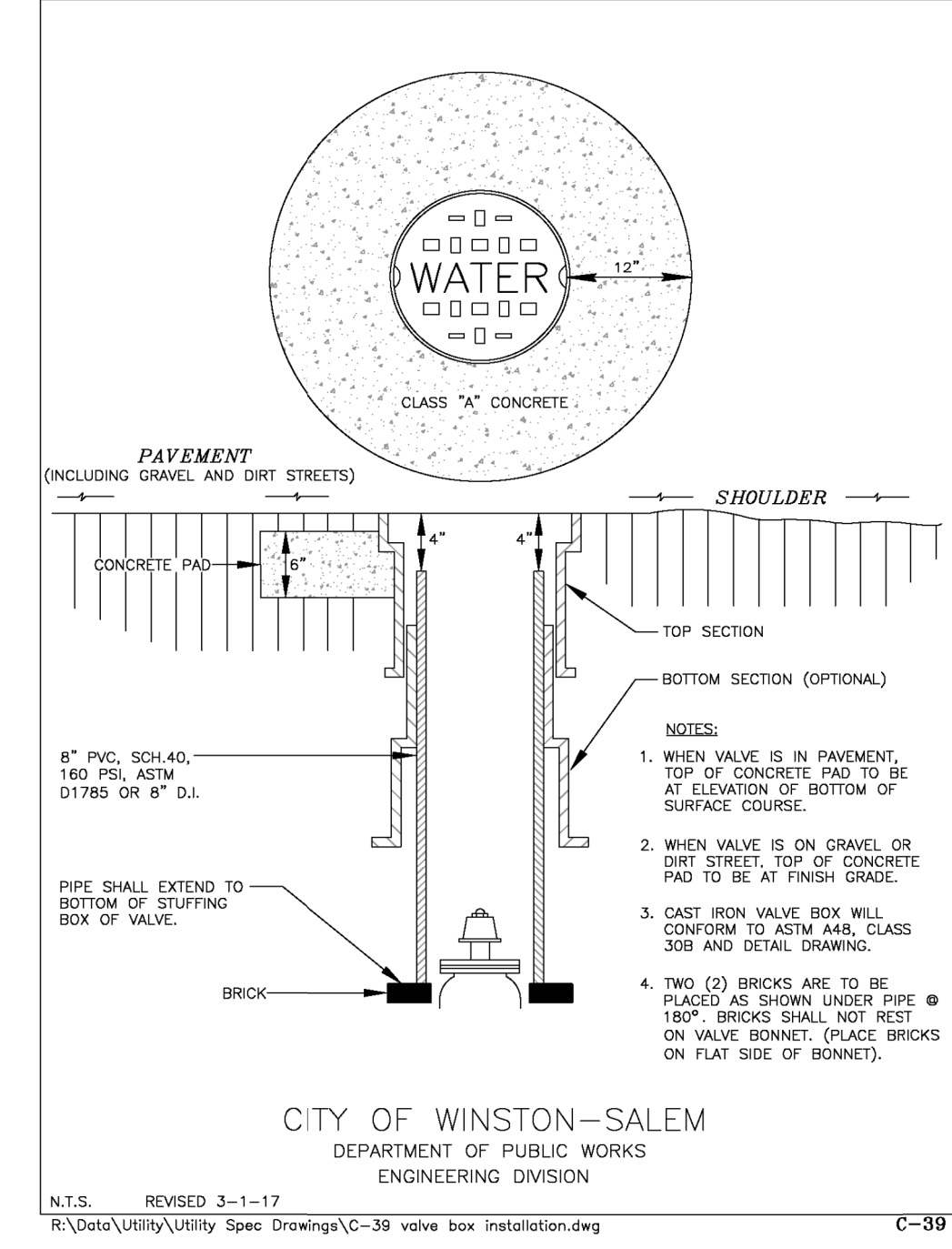


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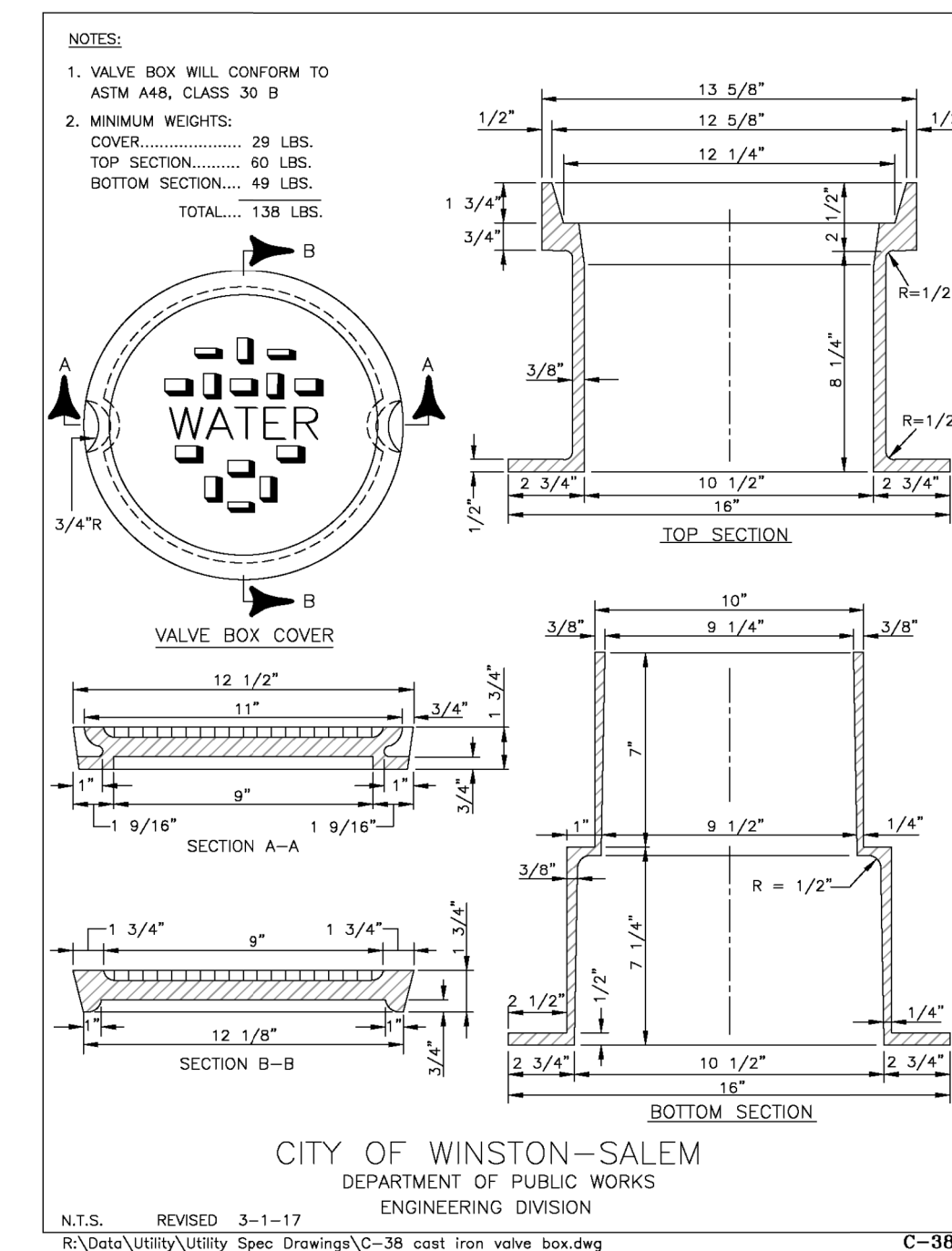
Hydrant and Valve Installation



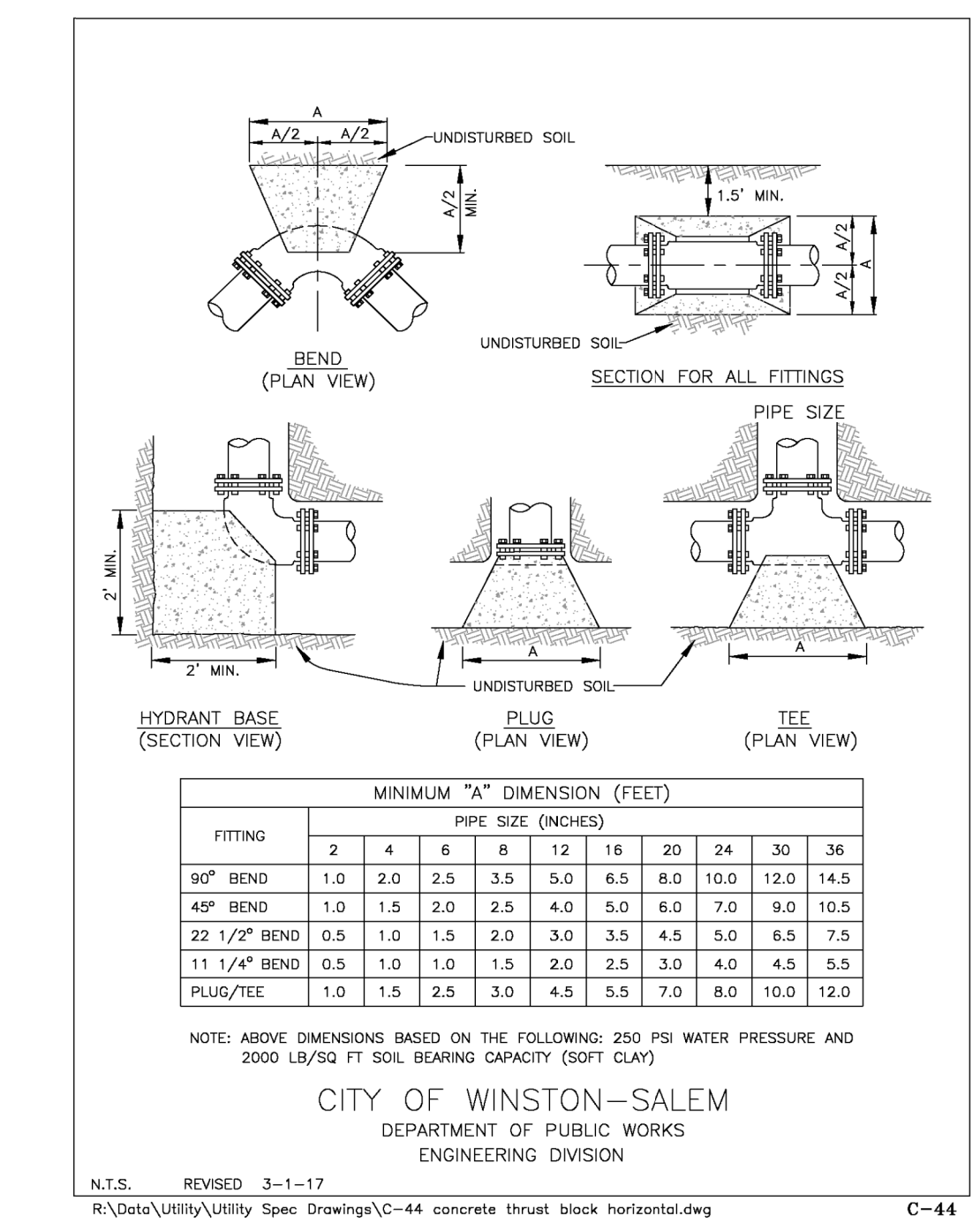
Valve Box Installation



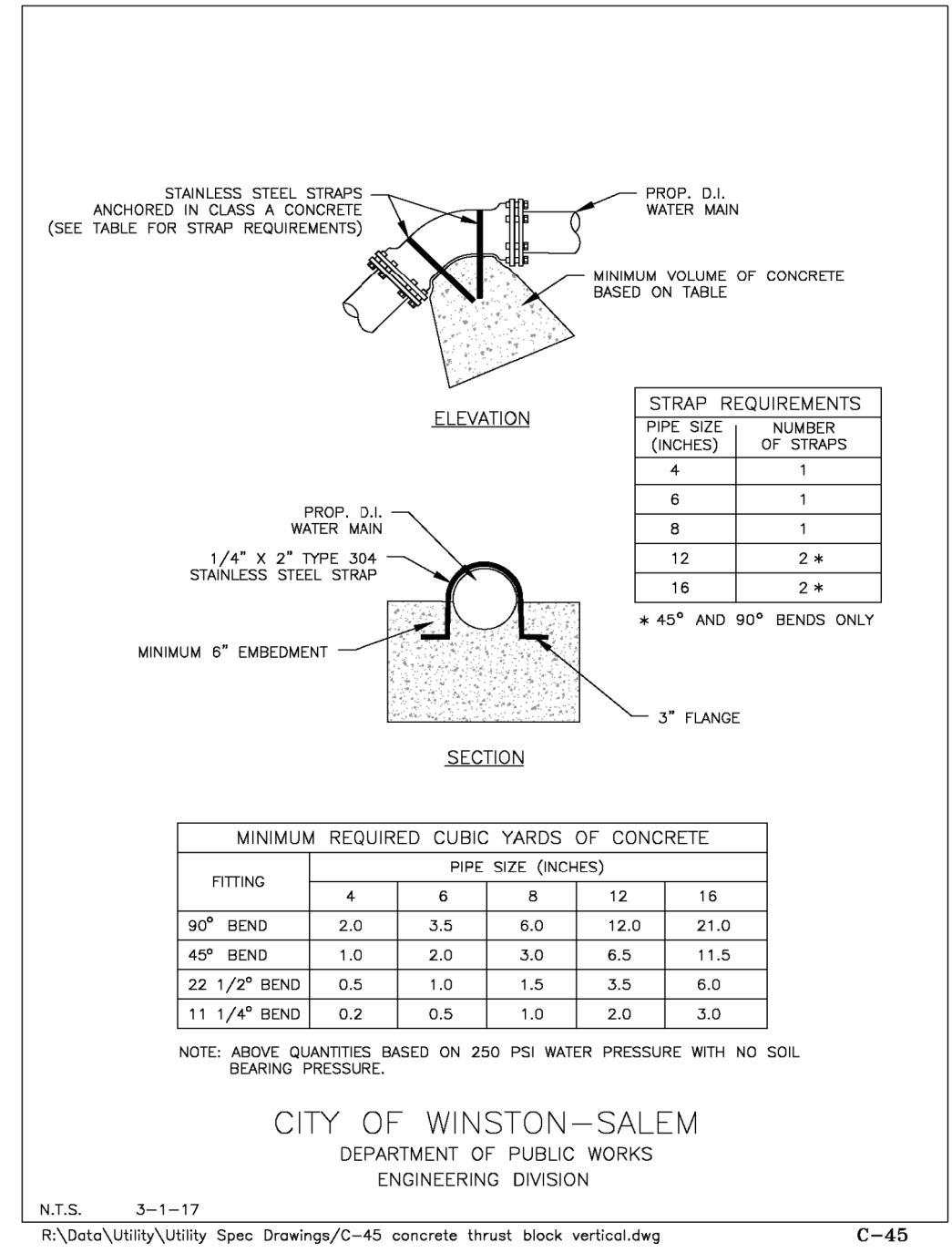
Cast Iron Valve Box



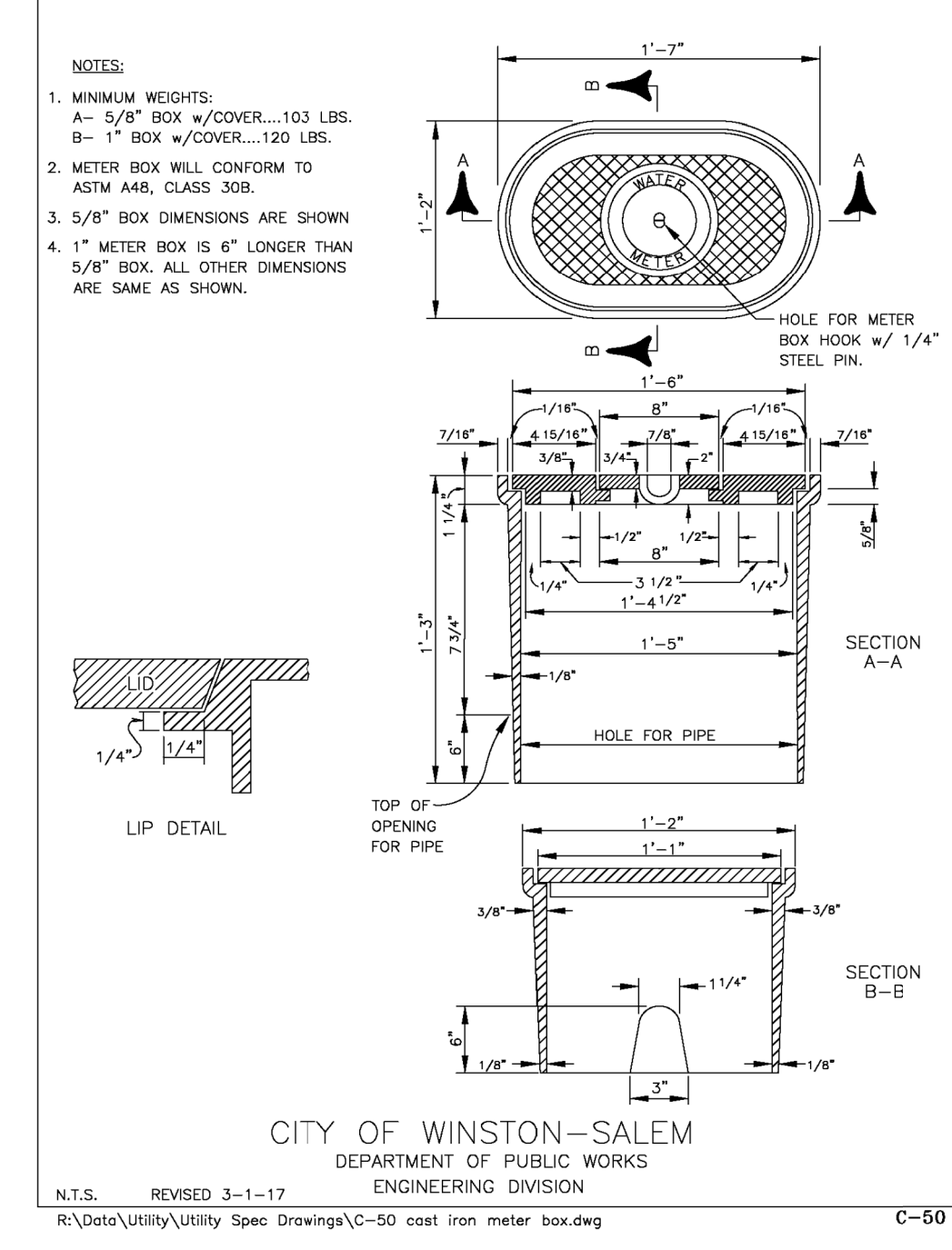
Concrete Thrust Blocks for Horizontal Bends



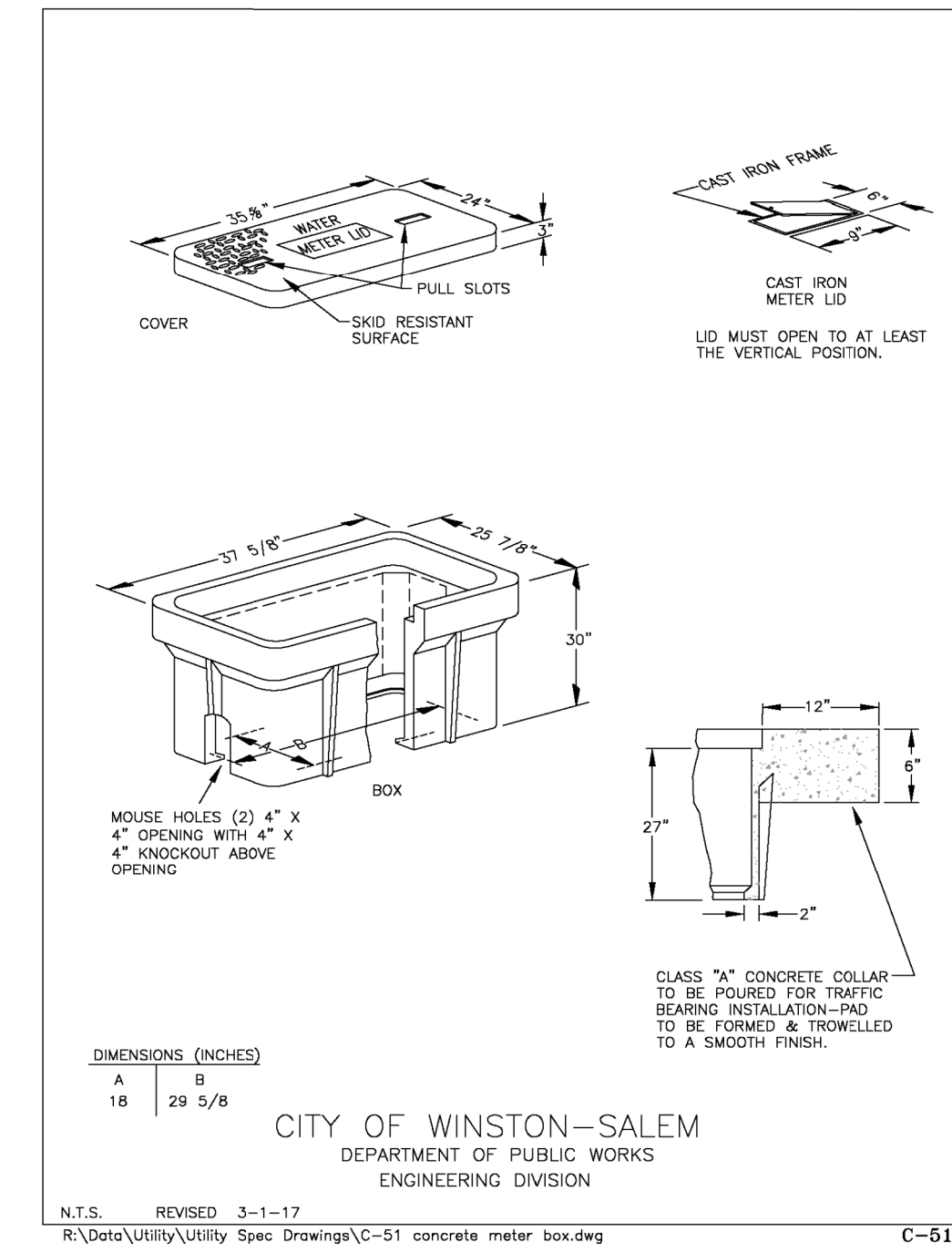
Concrete Thrust Blocks w/ Anchors for Top Vertical Bends



Cast Iron Meter Box for 5/8" and 1" Meters



Polymer Concrete Meter Box for 1 1/2" and 2" Meters

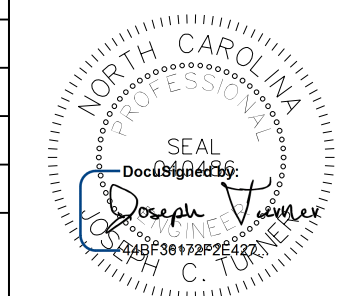


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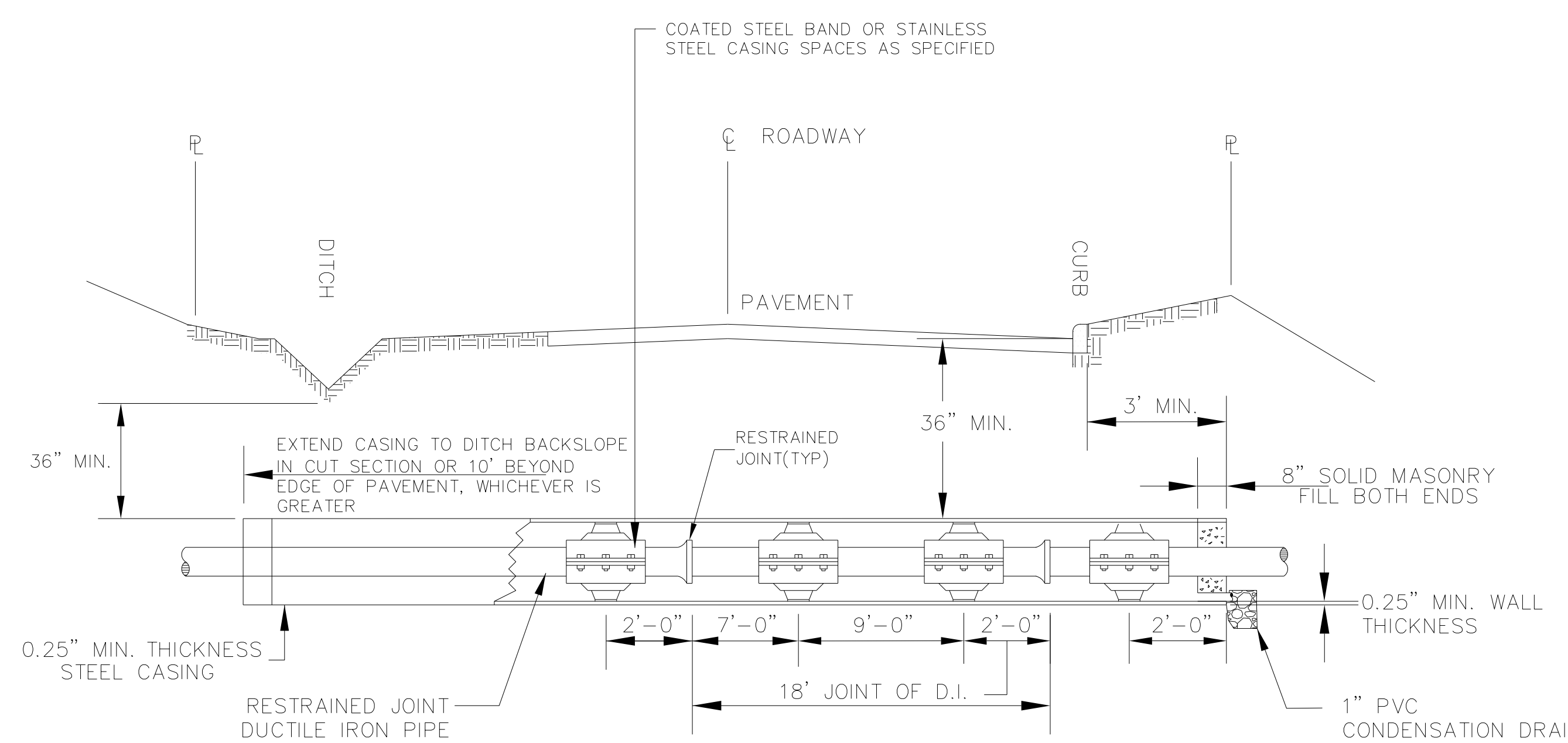
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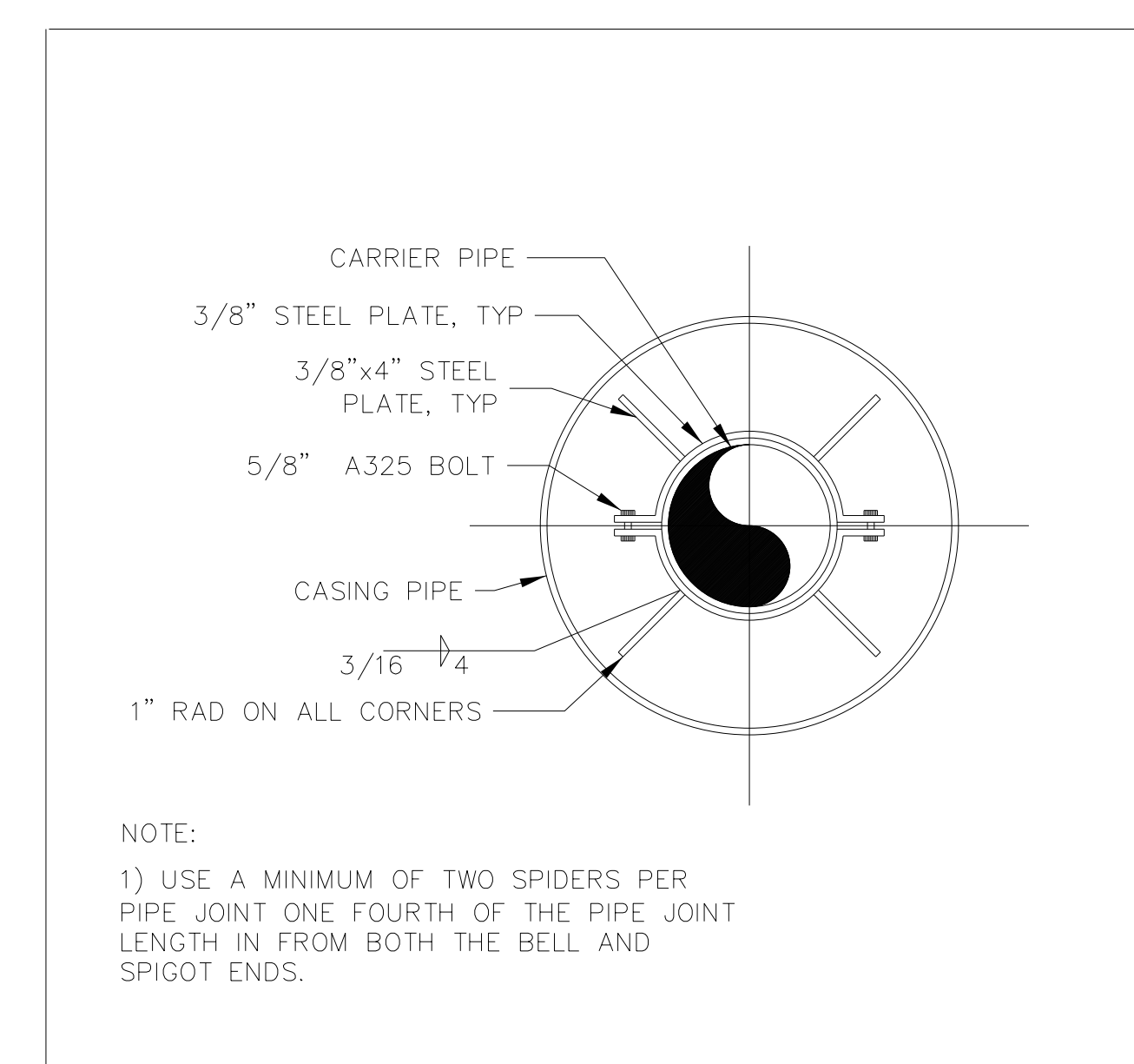
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DESIGNED BY: FR	
DRAWN BY: FR/RR	
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APPROVED BY: JT	
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

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UTILITY CONSTRUCTION
PLANS ONLY

UTILITY CONSTRUCTION



- NOTE:
1. ALL PIPELINES LARGER THAN 6" NOMINAL INSIDE DIAMETER INSTALLED BY BORING AND JACKING SHALL BE INSTALLED WITH STEEL ENCASEMENT (0.250" MIN. THICKNESS.)
 2. ENDS OF CASING SHALL BE SEALED USING A MODEL AC PULL-ON END SEAL GASKET IN LIEU OF MASONRY FILL.
 3. STEEL CASING SHALL EXTEND A MINIMUM OF 3' BEYOND BACK OF CURB, SIDEWALK, OR PAVEMENT EDGE. FOR STREETS WITH A SHOULDER AND DITCH CROSS SECTION, CASING SHALL EXTEND TO BACK SLOPE OF DITCH IN CUT SECTIONS OR TO 10' BEYOND EDGE OF PAVEMENT, WHICHEVER IS GREATER.
 4. WHEN CARRIER PIPE IS USED FOR CONVEYING LIQUID FLAMMABLE SUBSTANCES, VENT PIPES SHALL BE PROVIDED FROM ENDS OF CASING TO PROPERTY LINE.
 5. CASING PIPE SECTION JOINTS SHALL BE WELDED COMPLETELY AROUND THE CIRCUMFERENCE OF EACH JOINT, NO GAPS IN WELDED BEAD ALLOWED.



PIPE ALIGNMENT GUIDE

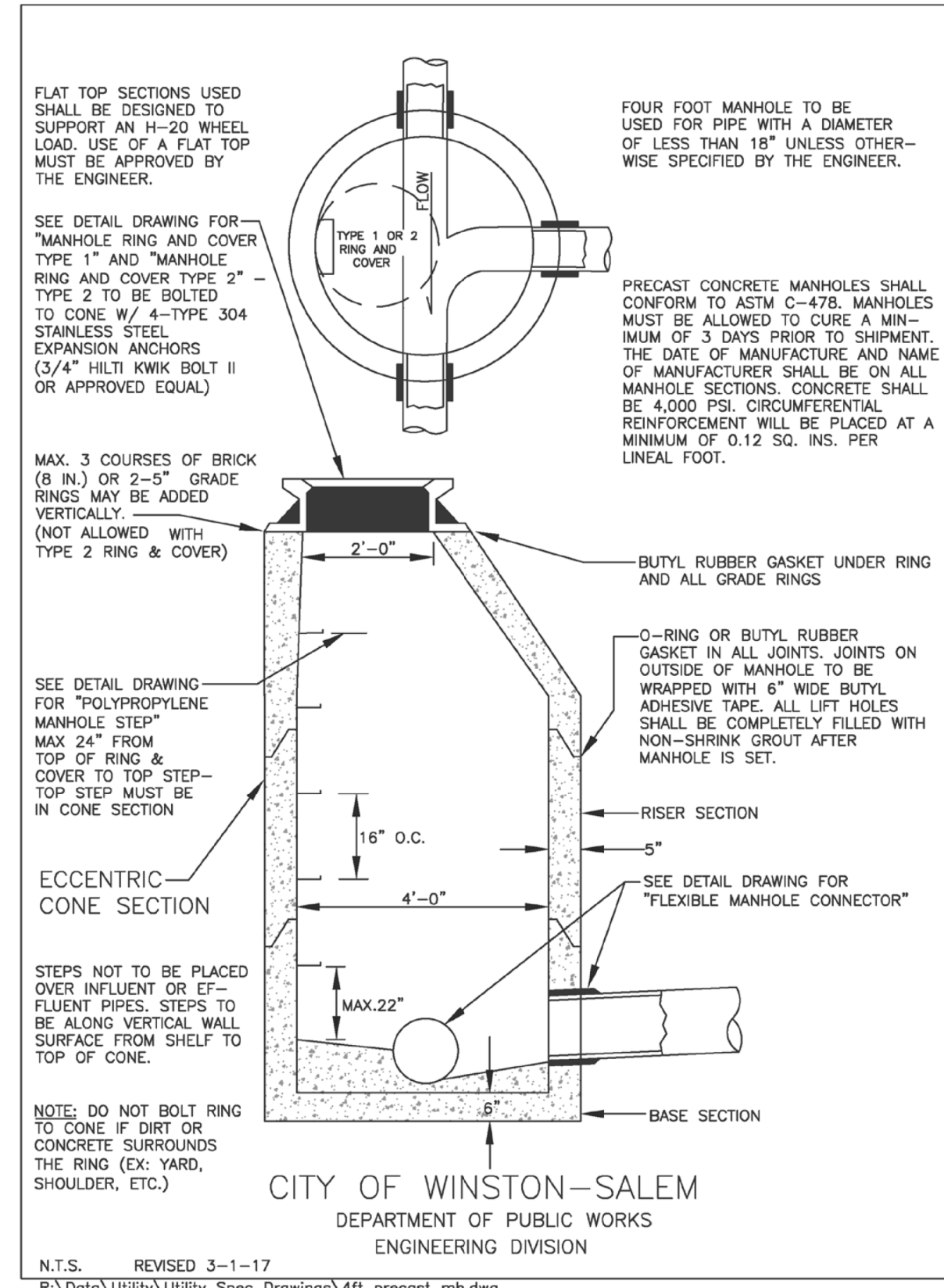
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UTILITY CONSTRUCTION

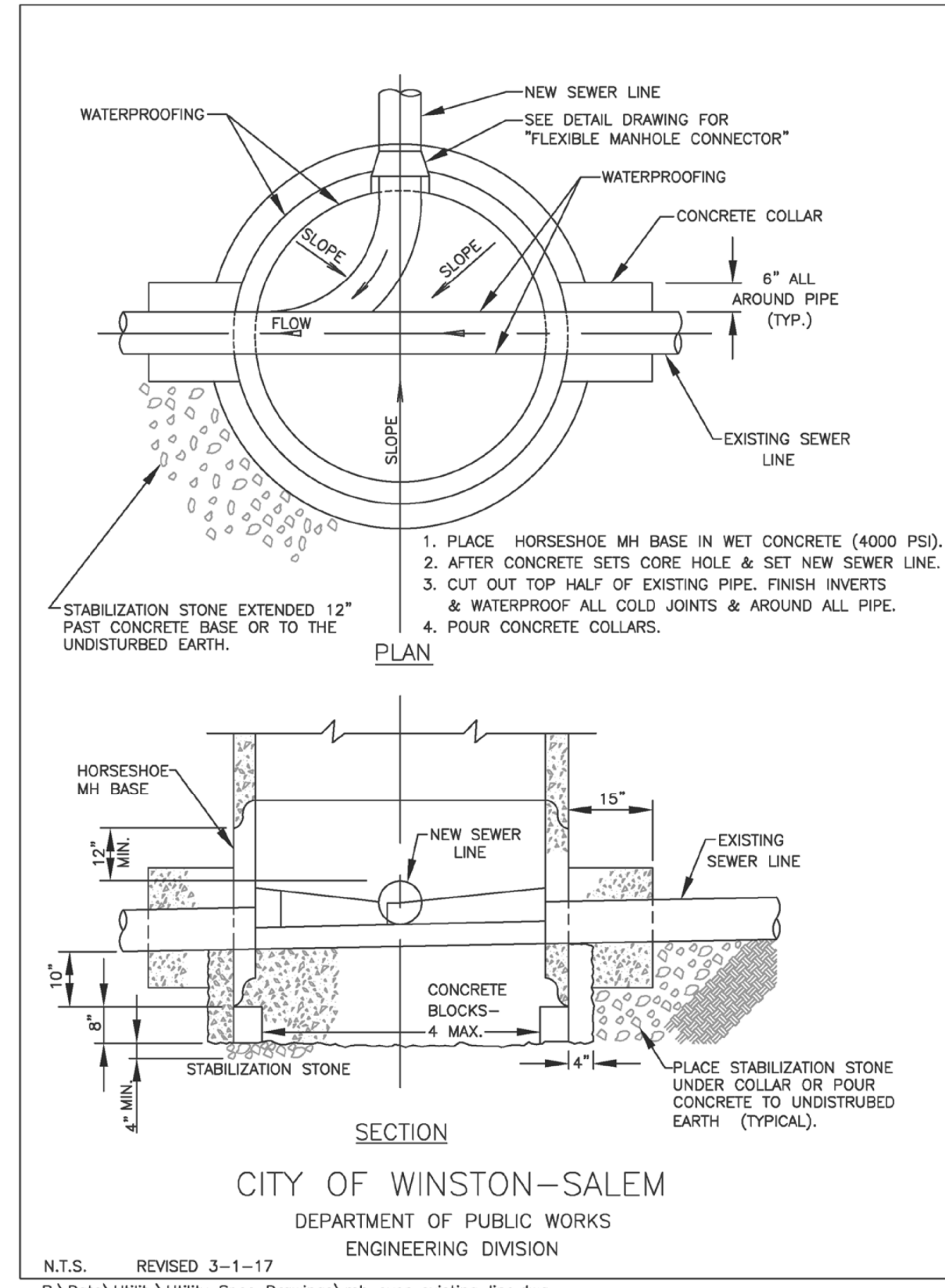
4' Precast Reinforced Concrete Manhole



CITY OF WINSTON-SALEM
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ENGINEERING DIVISION
N.T.S. REVISED 3-1-17
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C-10

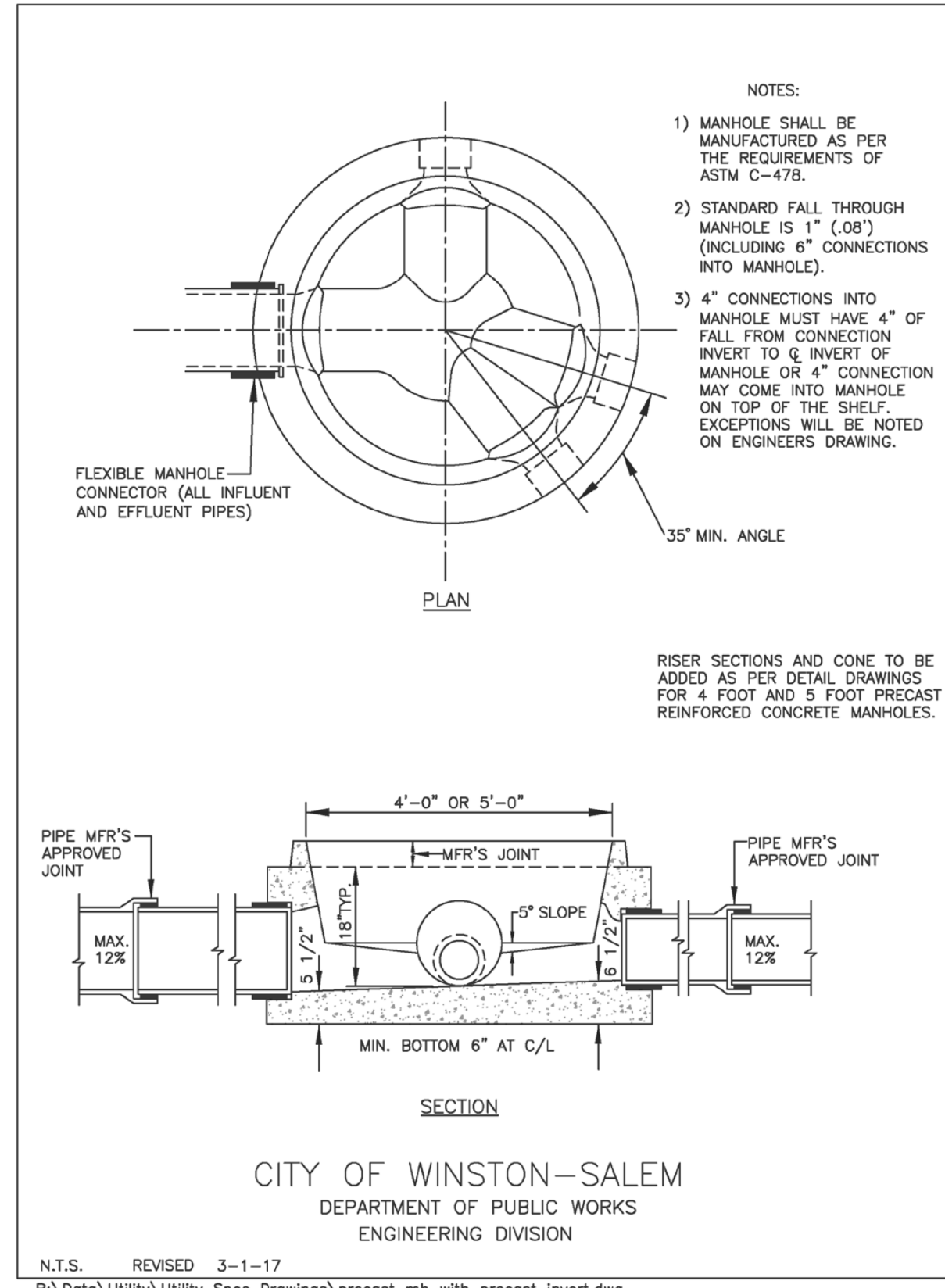
Manhole Built Over Existing Line



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C-13

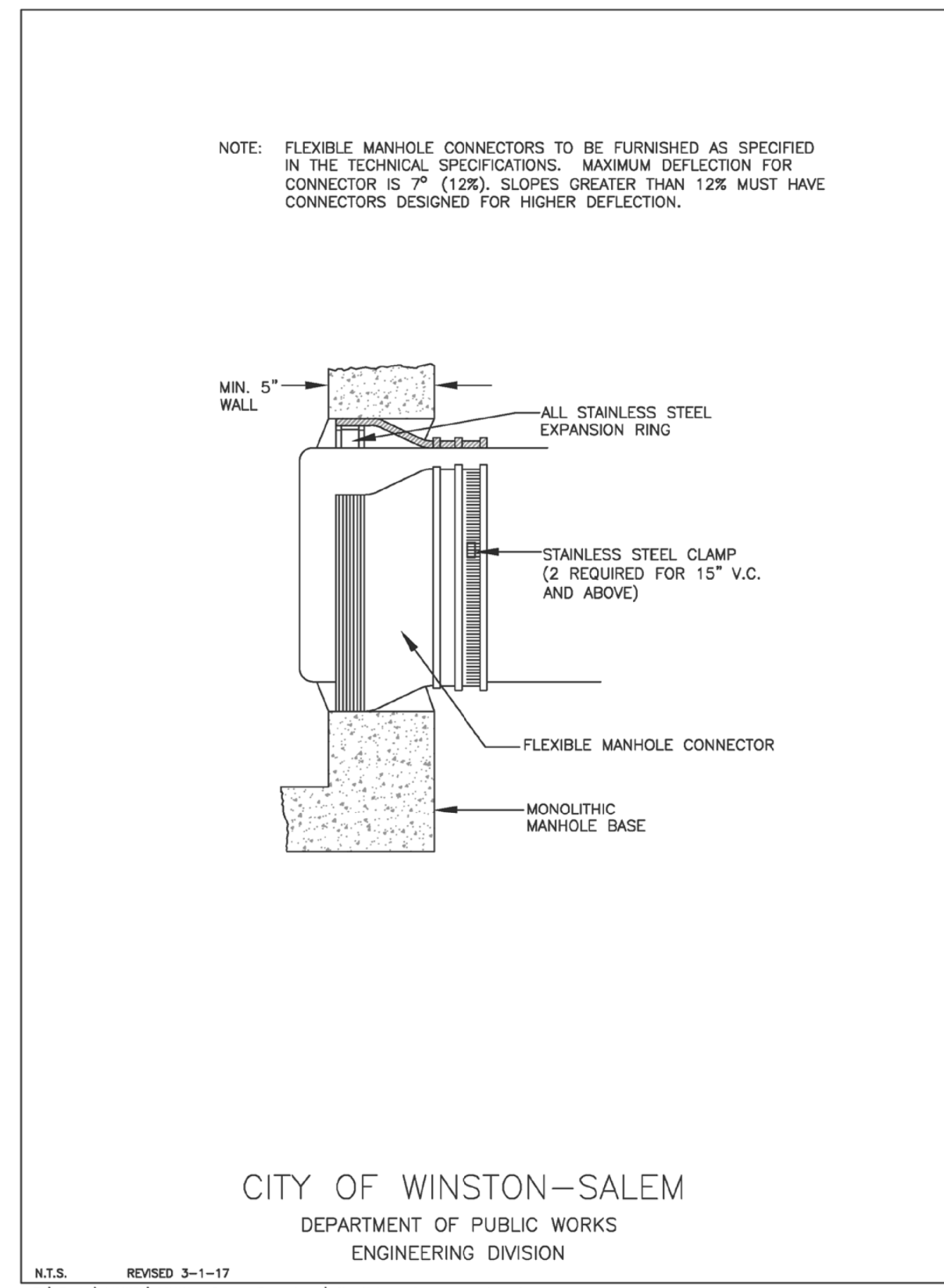
Precast Reinforced Concrete Manhole with Precast Invert



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C-16

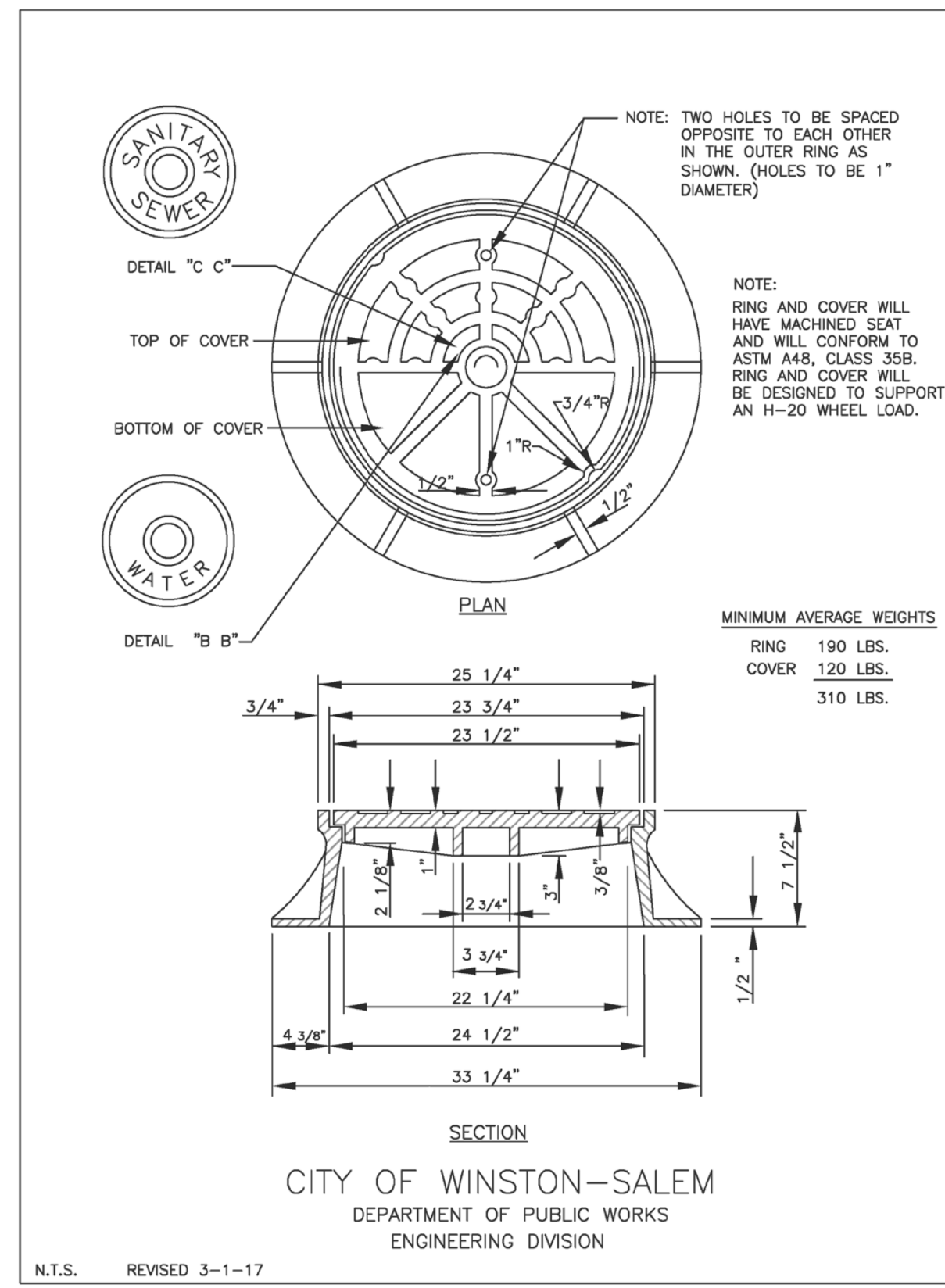
Flexible Manhole Connector



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C-17

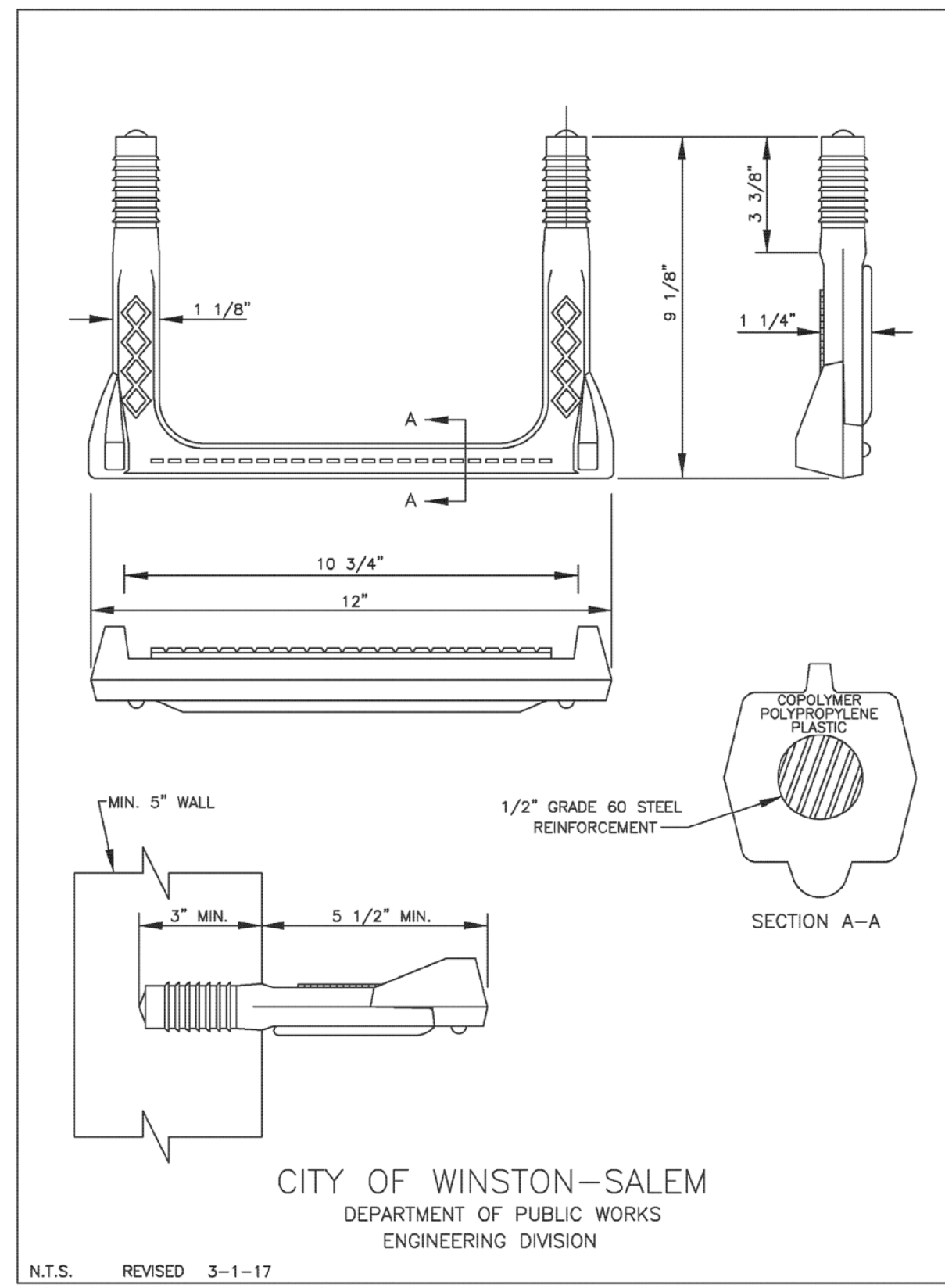
Manhole Ring and Cover (Type 1)



CITY OF WINSTON-SALEM
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C-18

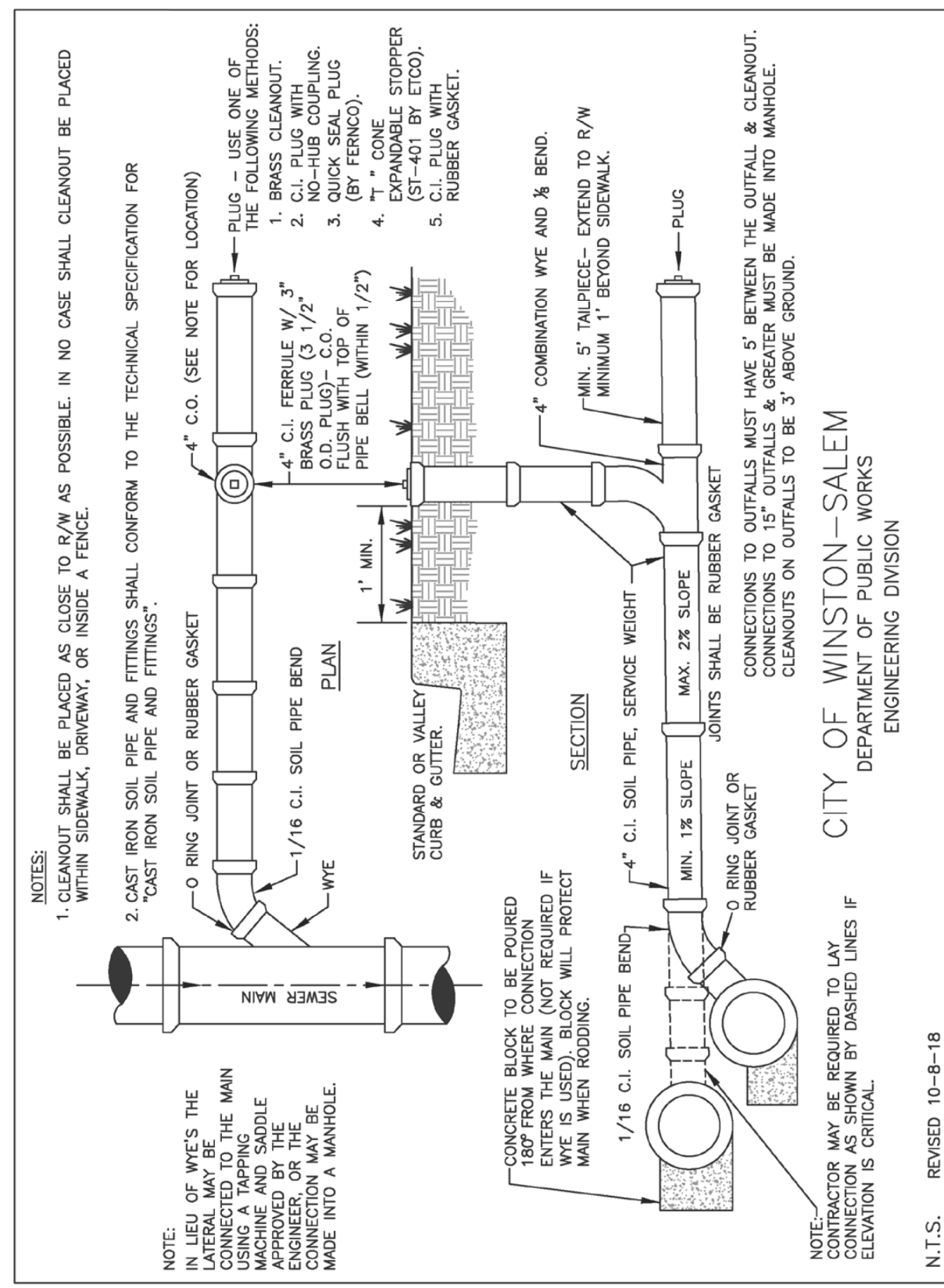
Polypropylene Manhole Step



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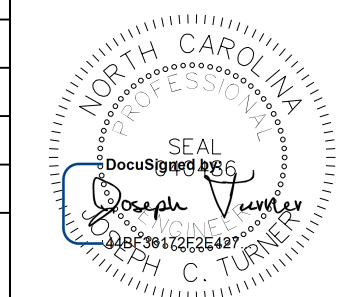
4" Sewer Connection



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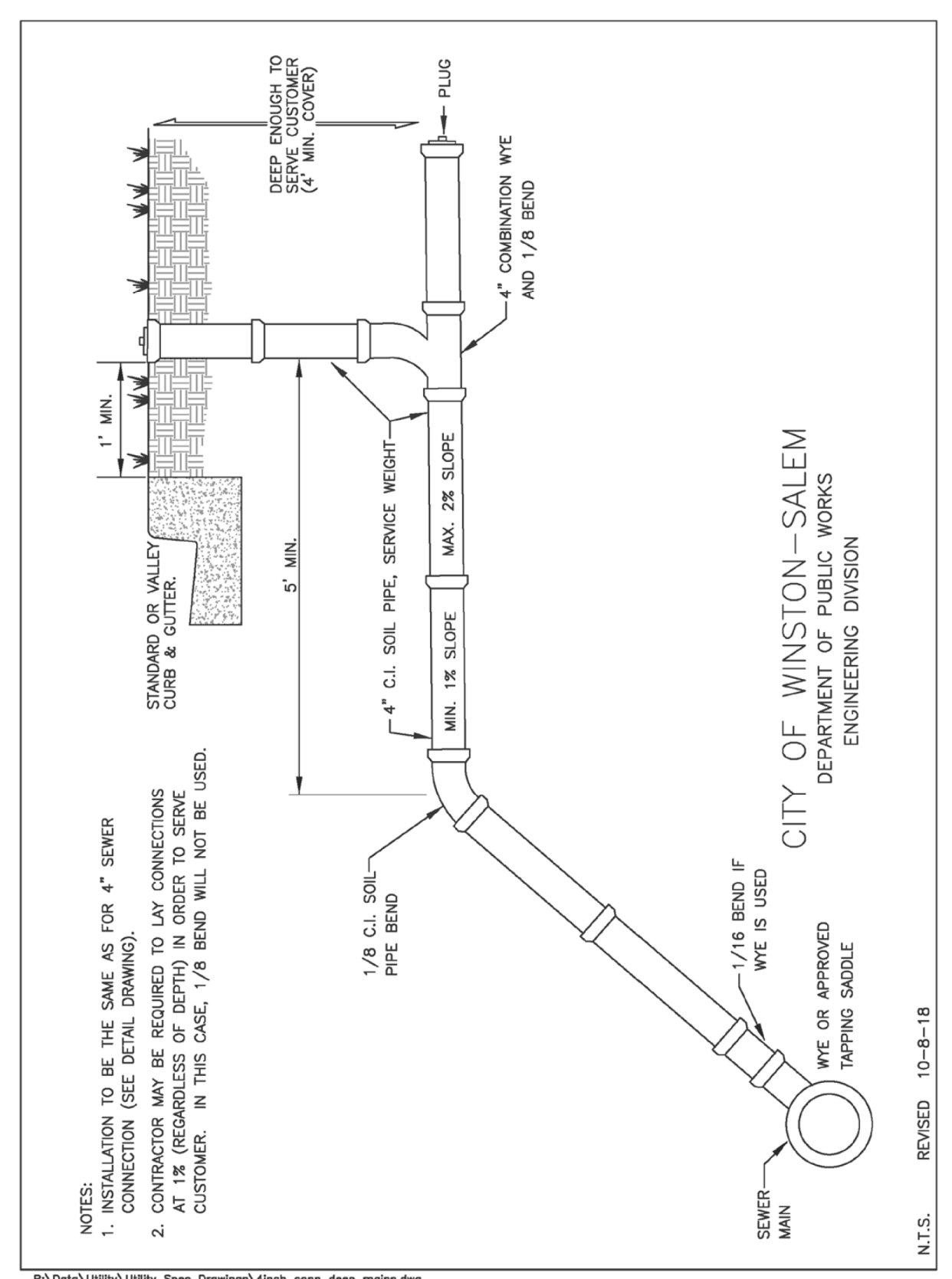
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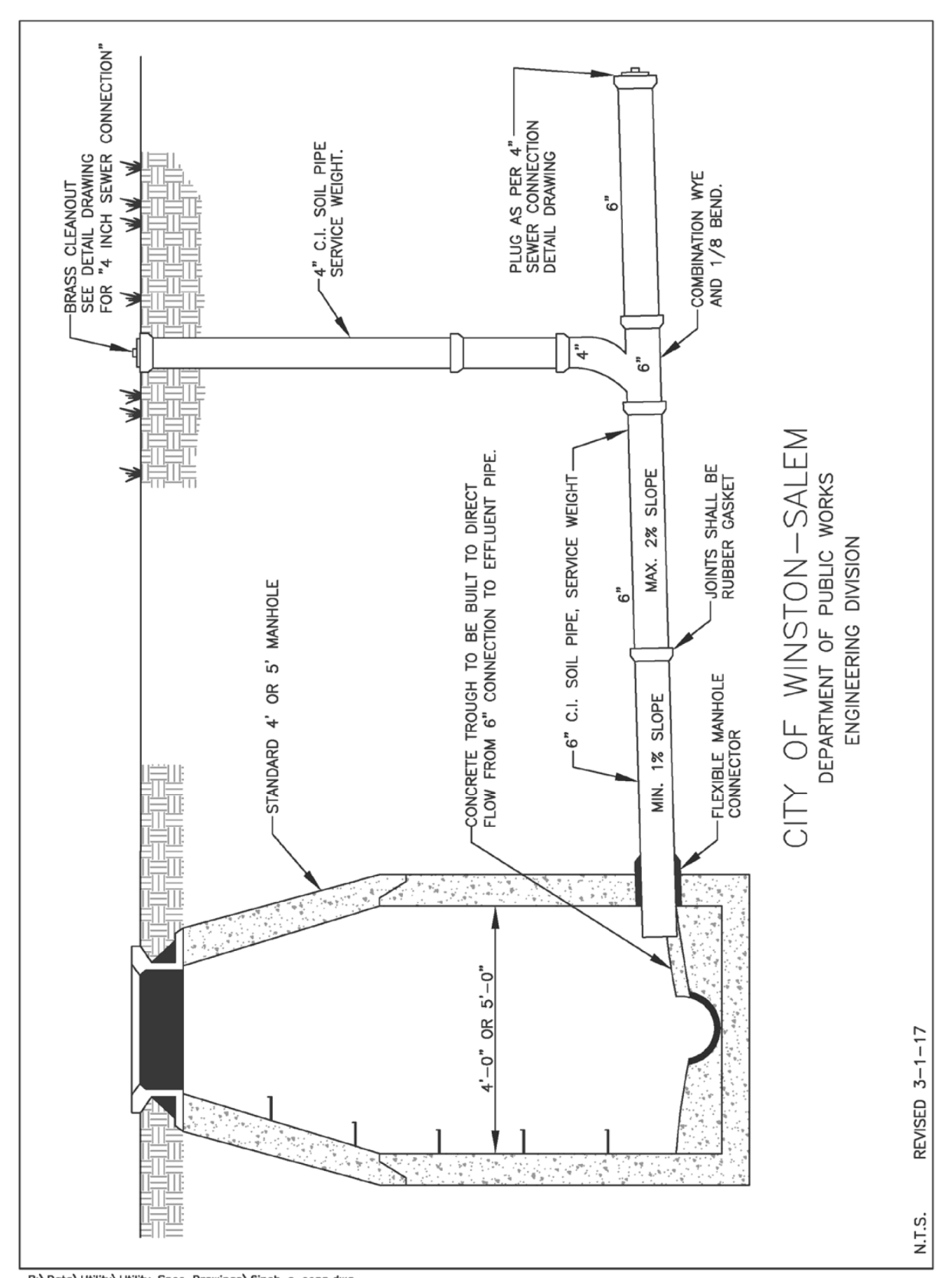
UTILITY CONSTRUCTION

4" Sewer Connection for Deep Mains



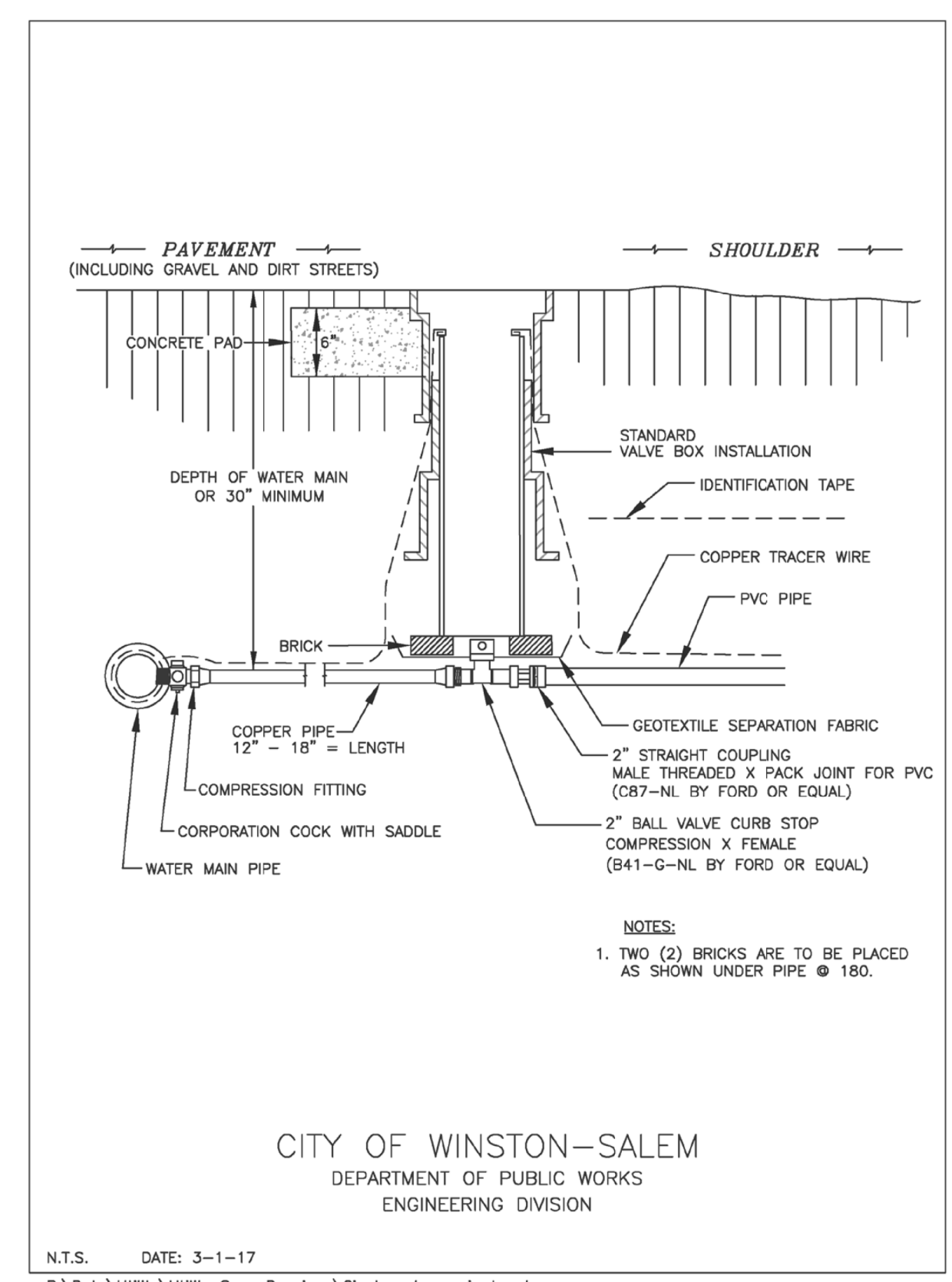
R:\Data\Utility\Utility Spec Drawings\4inch conn deep mains.dwg
C-23

6" Sewer Connection



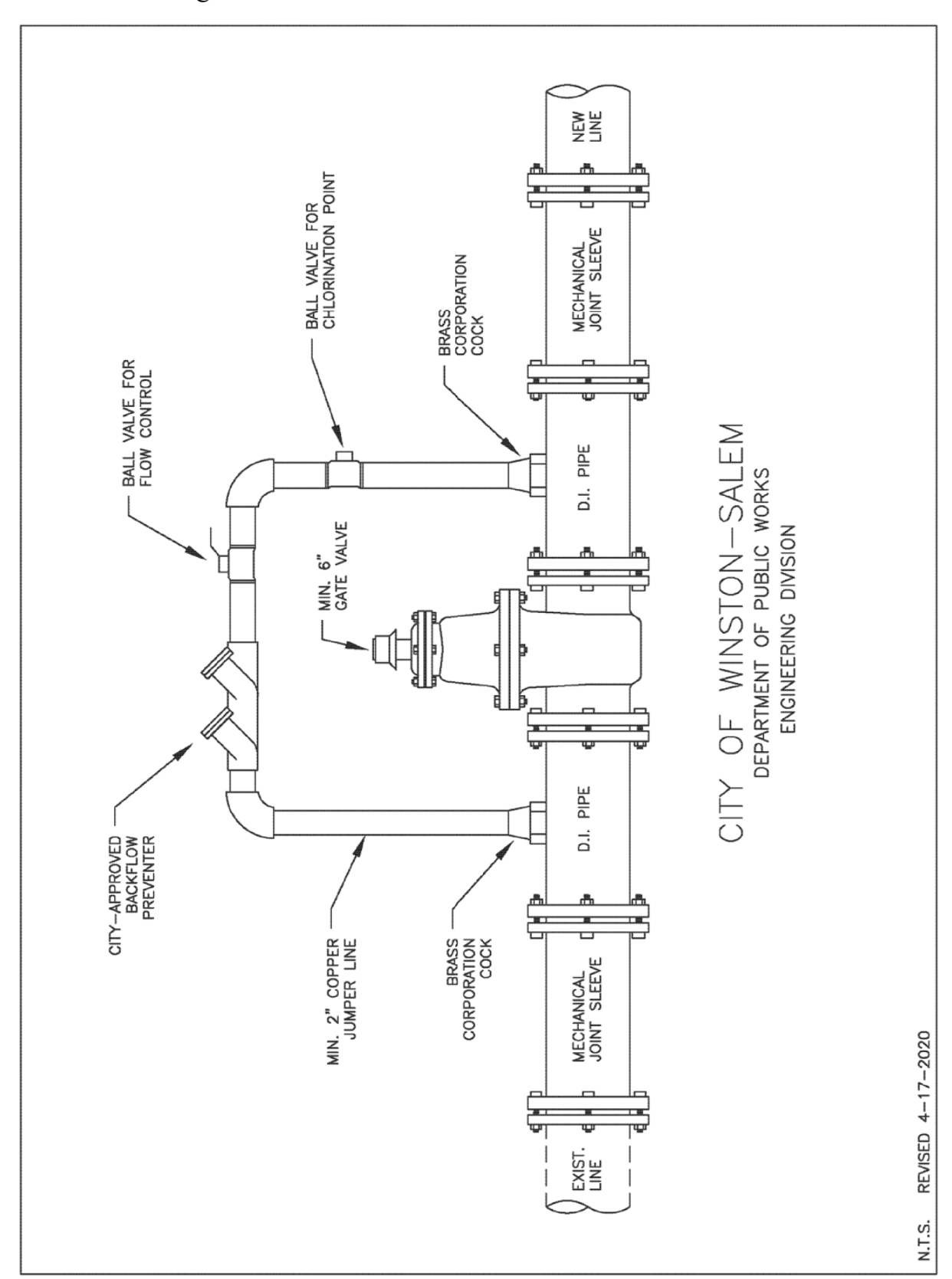
R:\Data\Utility\Utility Spec Drawings\6inch s conn.dwg
C-24

2" Water Main Tap to 6" or Larger Water Main



R:\Data\Utility\Utility Spec Drawings\2inch water main tap.dwg
C-54

Flushing and Chlorination Connection for Water Main Extensions

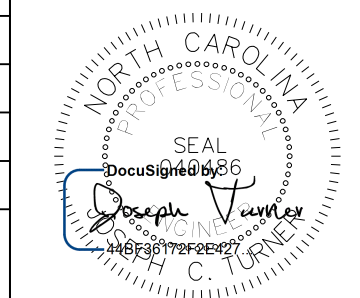


R:\Data\Utility\Utility Spec Drawings\flushing & chlorination conn.dwg
C-55

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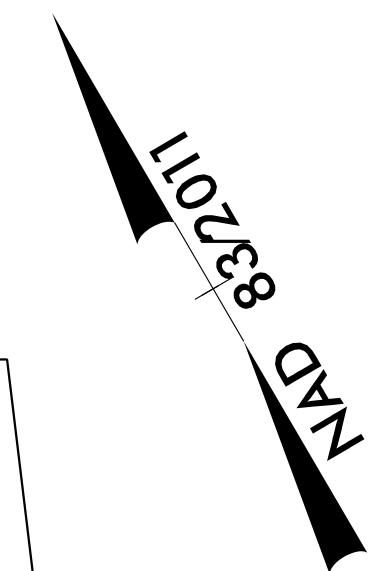
AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
1600 Perimeter Park Drive, Morrisville, NC 27560
919-461-1100 919-461-1415 (fax)
F - 0342

PROJECT REFERENCE NO.	U-5824	SHEET NO.	UC-4
DESIGNED BY:	FR		
DRAWN BY:	FR/RR		
CHECKED BY:	SS		
APPROVED BY:	JT		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		10/4/2023 11:20:06 PM EDT	
UTILITIES ENGINEERING SEC.		UTILITY CONSTRUCTION PLANS ONLY	
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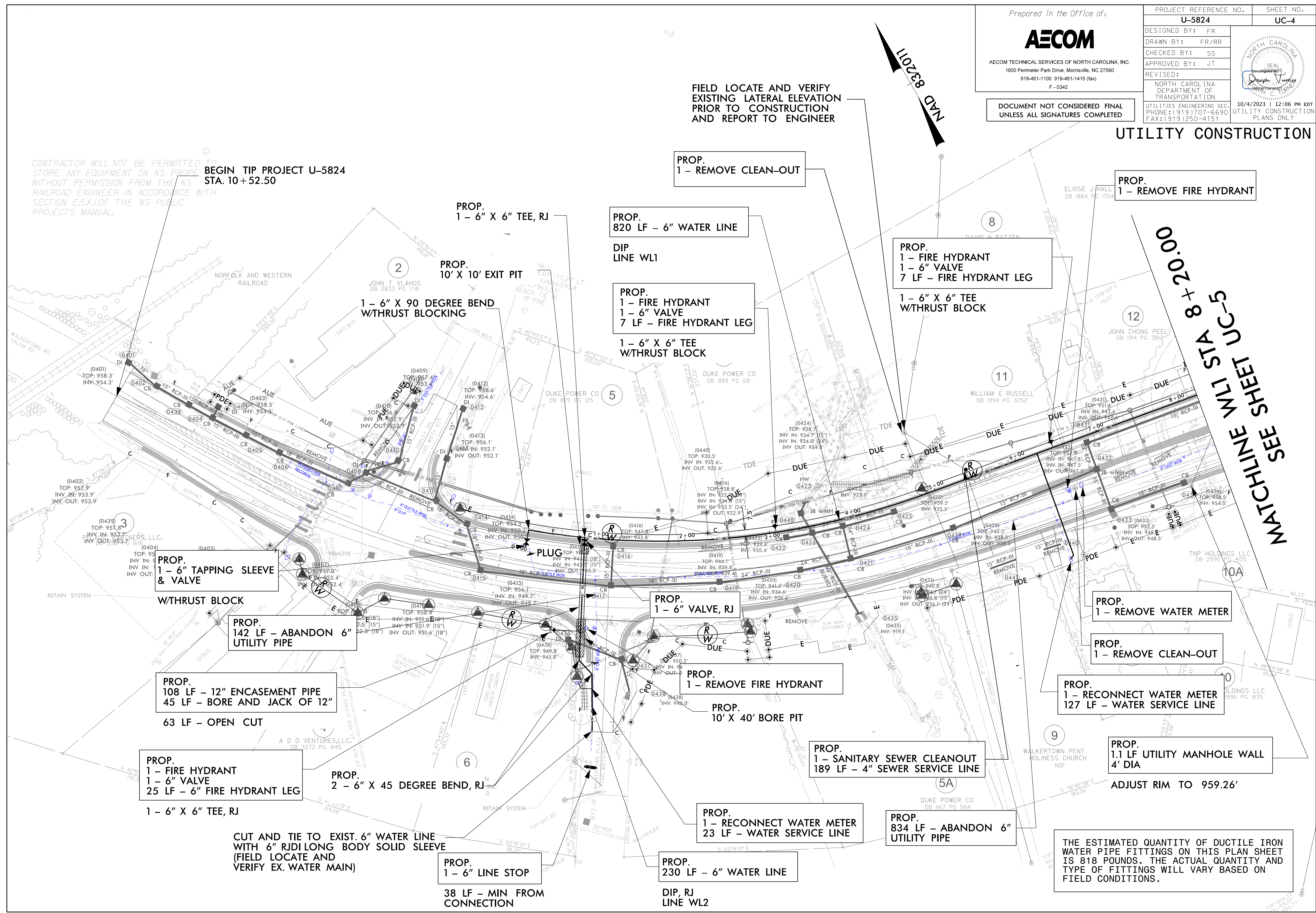
UTILITY CONSTRUCTION

FIELD LOCATE AND VERIFY
EXISTING LATERAL ELEVATION
AND REPORT TO ENGINEER



CONTRACTOR WILL NOT BE PERMITTED TO STORE ANY EQUIPMENT ON NS PROPE WITHOUT PERMISSION FROM THE NS RAILROAD ENGINEER IN ACCORDANCE WITH SECTION E.5.K.1 OF THE NS PUBLIC PROJECTS MANUAL.

BEGIN TIP PROJECT U-5824
STA. 10 + 52.50



PROP. 1 - 6" TAPPING SLEEVE & VALVE
W/THRUST BLOCK

PROP. 142 LF - ABANDON 6" UTILITY PIPE

PROP. 108 LF - 12" ENCASEMENT PIPE
45 LF - BORE AND JACK OF 12"
63 LF - OPEN CUT

PROP. 1 - FIRE HYDRANT
1 - 6" VALVE
25 LF - 6" FIRE HYDRANT LEG
1 - 6" X 6" TEE, RJ

CUT AND TIE TO EXIST. 6" WATER LINE WITH 6" RJDI LONG BODY SOLID SLEEVE (FIELD LOCATE AND VERIFY EX. WATER MAIN)

PROP. 1 - 6" LINE STOP
38 LF - MIN FROM CONNECTION

PROP. 230 LF - 6" WATER LINE
DIP, RJ LINE WL

PROP. 1 - RECONNECT WATER METER
23 LF - WATER SERVICE LINE

PROP. 1 - SANITARY SEWER CLEANOUT
189 LF - 4" SEWER SERVICE LINE

PROP. 1 - REMOVE FIRE HYDRANT
PROP. 10' X 40' BORE PIT

PROP. 1 - 6" VALVE, RJ

PROP. 1 - 6" X 6" TEE, RJ

PROP. 10' X 10' EXIT PIT
1 - 6" X 90 DEGREE BEND W/THRUST BLOCKING

PROP. 820 LF - 6" WATER LINE
DIP LINE WL

PROP. 1 - FIRE HYDRANT
1 - 6" VALVE
7 LF - FIRE HYDRANT LEG
1 - 6" X 6" TEE W/THRUST BLOCK

PROP. 1 - REMOVE CLEAN-OUT

PROP. 1 - FIRE HYDRANT
1 - 6" VALVE
7 LF - FIRE HYDRANT LEG
1 - 6" X 6" TEE W/THRUST BLOCK

PROP. 1 - REMOVE FIRE HYDRANT

PROP. 1 - REMOVE WATER METER

PROP. 1 - REMOVE CLEAN-OUT

PROP. 1 - RECONNECT WATER METER
127 LF - WATER SERVICE LINE

PROP. 1.1 LF UTILITY MANHOLE WALL
4' DIA
ADJUST RIM TO 959.26'

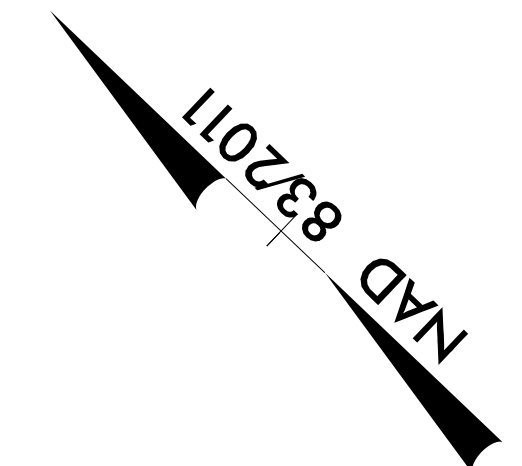
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 818 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

MATCHLINE SEE SHEET UC-5
W/1 STA 8 + 20.00

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AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
1600 Perimeter Park Drive, Morrisville, NC 27560
919-461-1100 919-461-1415 (fax)
F - 0342

PROJECT REFERENCE NO.	U-5824	SHEET NO.	UC-7
DESIGNED BY:	FR		
DRAWN BY:	FR/RR		
CHECKED BY:	SS		
APPROVED BY:	JT		
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
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UTILITY CONSTRUCTION



A
PROP.
2 - SANITARY SEWER CLEANOUT
2 - 90 LF - 4" SEWER SERVICE LINE

B
PROP.
3 EA - ABANDON UTILITY MANHOLE

PROP.
1 - FIRE HYDRANT
1 - 6" VALVE
7 LF - FIRE HYDRANT LEG

1 - 8" X 6" TEE W/TRHUST BLOCK

PROP.
1 - 8" VALVE

PROP.
1 - 6" X 22.5 DEGREE BEND, RJ

PROP.
1 - 6" X 11.25 DEGREE BEND, RJ

PROP.
1 - 6" X 22.5 DEGREE BEND, RJ

PROP.
1305 LF - 8" WATER LINE

DIP LINE WL

PROP.
1300 LF - ABANDON 6" UTILITY PIPE

PROP.
2 - RELOCATE WATER METER
10 LF - WATER SERVICE LINE

PROP.
1 - 8" X 6" TEE, RJ

PROP.
10' X 10' EXIT PIT

PROP.
1 - 6" VALVE, RJ

PROP.
1 - FIRE HYDRANT
1 - 6" VALVE
7 LF - FIRE HYDRANT LEG

1 - 8" X 6" TEE W/TRHUST BLOCK

PROP.
1 - RELOCATE WATER METER
14 LF - WATER SERVICE LINE

PROP.
1 - FIRE HYDRANT
1 - 6" VALVE
7 LF - FIRE HYDRANT LEG

1 - 8" X 6" TEE W/TRHUST BLOCK

PROP.
1 - RELOCATE WATER METER
7 LF - WATER SERVICE LINE

PROP.
2 - RELOCATE WATER METER
10 LF - WATER SERVICE LINE

PROP.
120 LF - ABANDON 6" UTILITY PIPE

PROP.
1 - 8" VALVE, RJ

PROP.
1 - REMOVE FIRE HYDRANT

PROP.
1 - 8" X 6" TEE W/TRHUST BLOCK

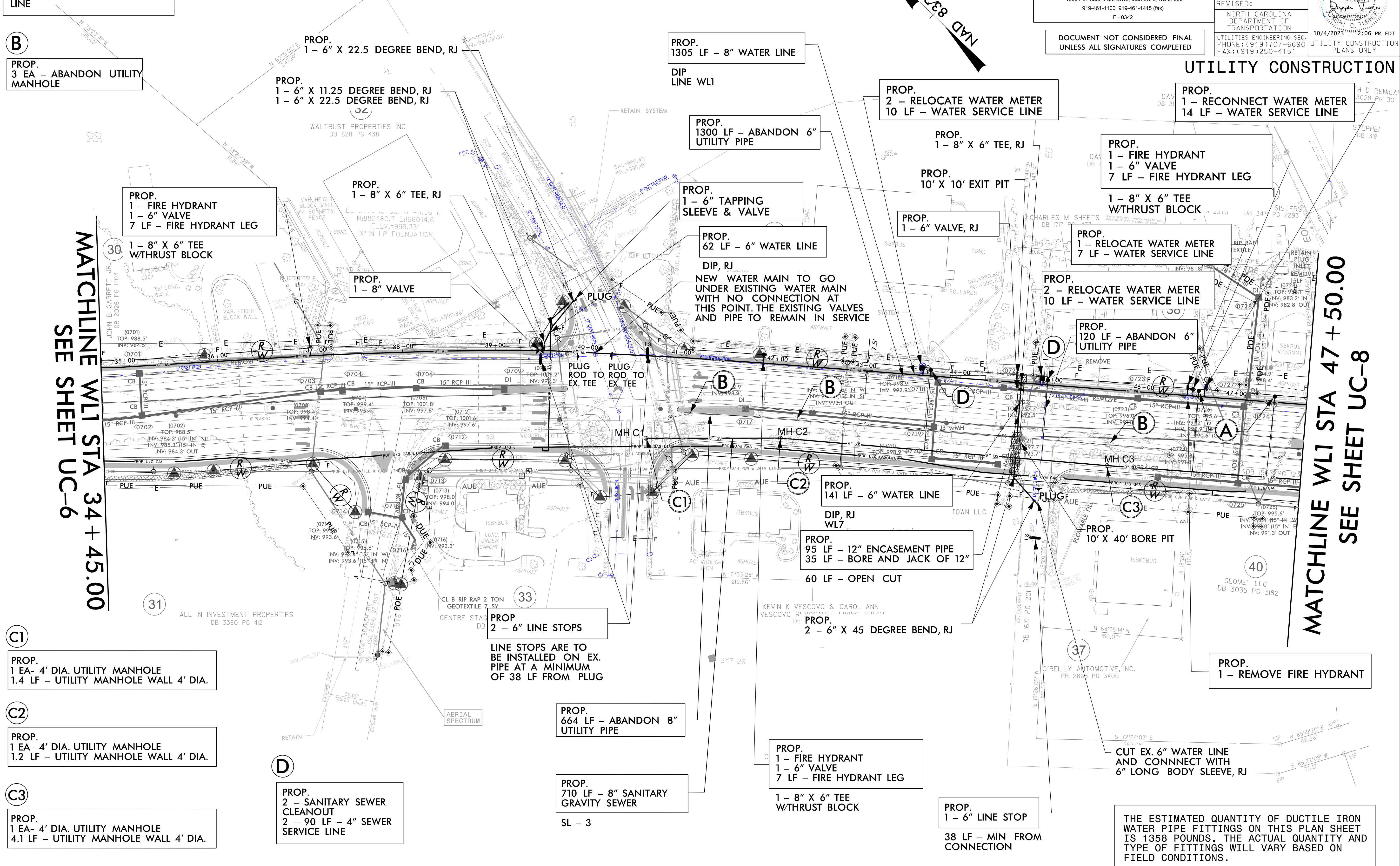
PROP.
1 - 6" LINE STOP

38 LF - MIN FROM CONNECTION

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1358 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

MATCHLINE WLI STA 34 + 45.00
SEE SHEET UC-6

MATCHLINE WLI STA 47 + 50.00
SEE SHEET UC-8



C1
PROP.
1 EA- 4' DIA. UTILITY MANHOLE
1.4 LF - UTILITY MANHOLE WALL 4' DIA.

C2
PROP.
1 EA- 4' DIA. UTILITY MANHOLE
1.2 LF - UTILITY MANHOLE WALL 4' DIA.

C3
PROP.
1 EA- 4' DIA. UTILITY MANHOLE
4.1 LF - UTILITY MANHOLE WALL 4' DIA.

D
PROP.
2 - SANITARY SEWER CLEANOUT
2 - 90 LF - 4" SEWER SERVICE LINE

PROP.
664 LF - ABANDON 8" UTILITY PIPE

PROP.
710 LF - 8" SANITARY GRAVITY SEWER
SL - 3

PROP.
141 LF - 6" WATER LINE
DIP, RJ WL7

PROP.
95 LF - 12" ENCASEMENT PIPE
35 LF - BORE AND JACK OF 12"
60 LF - OPEN CUT

PROP.
1 - FIRE HYDRANT
1 - 6" VALVE
7 LF - FIRE HYDRANT LEG
1 - 8" X 6" TEE W/TRHUST BLOCK

PROP.
2 - 6" LINE STOPS
LINE STOPS ARE TO BE INSTALLED ON EX. PIPE AT A MINIMUM OF 38 LF FROM PLUG

DIP, RJ
NEW WATER MAIN TO GO UNDER EXISTING WATER MAIN WITH NO CONNECTION AT THIS POINT. THE EXISTING VALVES AND PIPE TO REMAIN IN SERVICE


PLUG ROD TO EX. TEE

PLUG ROD TO EX. TEE

CUT EX. 6" WATER LINE AND CONNNECT WITH 6" LONG BODY SLEEVE, RJ

DATE: L:\Sharepoint\Projects\60580005 - NC DOT\WLI\900 CAD\GIS\900 CAD\DOT - T\Utilities\Engineering\UC\Pro\NUS824.dwg, J. AGREEMENT.dwg

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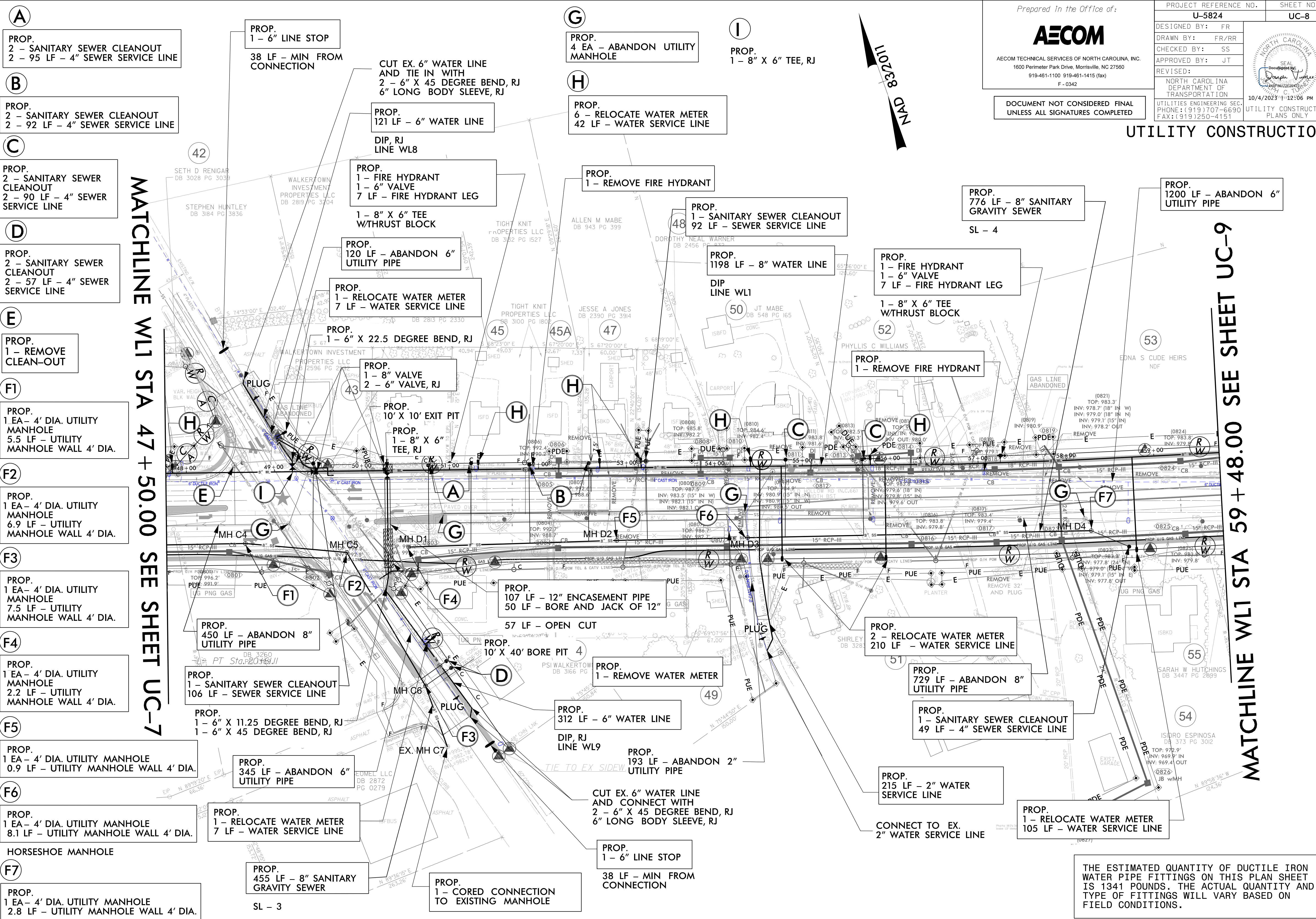


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PROJECT REFERENCE NO.	U-5824	SHEET NO.	UC-8
DESIGNED BY:	FR		
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CHECKED BY:	SS		
APPROVED BY:	JT		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		10/4/2023 11:12:06 PM EDT	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		UTILITY CONSTRUCTION PLANS ONLY	

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UTILITY CONSTRUCTION



A
PROP.
2 - SANITARY SEWER CLEANOUT
2 - 95 LF - 4" SEWER SERVICE LINE

B
PROP.
2 - SANITARY SEWER CLEANOUT
2 - 92 LF - 4" SEWER SERVICE LINE

C
PROP.
2 - SANITARY SEWER CLEANOUT
2 - 90 LF - 4" SEWER SERVICE LINE

D
PROP.
2 - SANITARY SEWER CLEANOUT
2 - 57 LF - 4" SEWER SERVICE LINE

E
PROP.
1 - REMOVE CLEAN-OUT

F1
PROP.
1 EA - 4' DIA. UTILITY MANHOLE
5.5 LF - UTILITY MANHOLE WALL 4' DIA.

F2
PROP.
1 EA - 4' DIA. UTILITY MANHOLE
6.9 LF - UTILITY MANHOLE WALL 4' DIA.

F3
PROP.
1 EA - 4' DIA. UTILITY MANHOLE
7.5 LF - UTILITY MANHOLE WALL 4' DIA.

F4
PROP.
1 EA - 4' DIA. UTILITY MANHOLE
2.2 LF - UTILITY MANHOLE WALL 4' DIA.

F5
PROP.
1 EA - 4' DIA. UTILITY MANHOLE
0.9 LF - UTILITY MANHOLE WALL 4' DIA.

F6
PROP.
1 EA - 4' DIA. UTILITY MANHOLE
8.1 LF - UTILITY MANHOLE WALL 4' DIA.

F7
HORSESHOE MANHOLE
PROP.
1 EA - 4' DIA. UTILITY MANHOLE
2.8 LF - UTILITY MANHOLE WALL 4' DIA.

PROP.
1 - 6" LINE STOP
38 LF - MIN FROM CONNECTION

CUT EX. 6" WATER LINE AND TIE IN WITH
2 - 6" X 45 DEGREE BEND, RJ
6" LONG BODY SLEEVE, RJ

PROP.
121 LF - 6" WATER LINE
DIP, RJ
LINE WL8

PROP.
1 - FIRE HYDRANT
1 - 6" VALVE
7 LF - FIRE HYDRANT LEG
1 - 8" X 6" TEE
W/THRUST BLOCK

PROP.
120 LF - ABANDON 6" UTILITY PIPE

PROP.
1 - RELOCATE WATER METER
7 LF - WATER SERVICE LINE

PROP.
1 - 6" X 22.5 DEGREE BEND, RJ

PROP.
1 - 8" VALVE
2 - 6" VALVE, RJ

PROP.
10' X 10' EXIT PIT

PROP.
1 - 8" X 6" TEE, RJ

G
PROP.
4 EA - ABANDON UTILITY MANHOLE

H
PROP.
6 - RELOCATE WATER METER
42 LF - WATER SERVICE LINE

PROP.
1 - REMOVE FIRE HYDRANT

PROP.
1 - SANITARY SEWER CLEANOUT
92 LF - SEWER SERVICE LINE

PROP.
1198 LF - 8" WATER LINE
DIP
LINE WL1

PROP.
1 - FIRE HYDRANT
1 - 6" VALVE
7 LF - FIRE HYDRANT LEG
1 - 8" X 6" TEE
W/THRUST BLOCK

PROP.
1 - REMOVE FIRE HYDRANT

PROP.
107 LF - 12" ENCASUREMENT PIPE
50 LF - BORE AND JACK OF 12"

57 LF - OPEN CUT
PROP.
10' X 40' BORE PIT 4

PROP.
1 - REMOVE WATER METER

PROP.
312 LF - 6" WATER LINE
DIP, RJ
LINE WL9

PROP.
193 LF - ABANDON 2" UTILITY PIPE

CUT EX. 6" WATER LINE AND CONNECT WITH
2 - 6" X 45 DEGREE BEND, RJ
6" LONG BODY SLEEVE, RJ

PROP.
1 - 6" LINE STOP
38 LF - MIN FROM CONNECTION

PROP.
1 - CORED CONNECTION TO EXISTING MANHOLE

PROP.
2 - RELOCATE WATER METER
210 LF - WATER SERVICE LINE

PROP.
729 LF - ABANDON 8" UTILITY PIPE

PROP.
1 - SANITARY SEWER CLEANOUT
49 LF - 4" SEWER SERVICE LINE

PROP.
215 LF - 2" WATER SERVICE LINE

PROP.
1 - RELOCATE WATER METER
105 LF - WATER SERVICE LINE

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1341 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

MATCHLINE WL1 STA 47 + 50.00 SEE SHEET UC-7

MATCHLINE WL1 STA 59 + 48.00 SEE SHEET UC-9

DATE: L:\Secure_LDS3\Projects\60381005_UCDOT\W\517A\900_CAD_GIS\900_CAD\DWG\UC-7\Utilities\Engineering\UC7\U5824_UC-8.dwg, L:\Secure_LDS3\Projects\60381005_UCDOT\W\517A\900_CAD_GIS\900_CAD\DWG\UC-7\Utilities\Engineering\UC7\U5824_UC-8.dwg, L:\Secure_LDS3\Projects\60381005_UCDOT\W\517A\900_CAD_GIS\900_CAD\DWG\UC-7\Utilities\Engineering\UC7\U5824_UC-8.dwg

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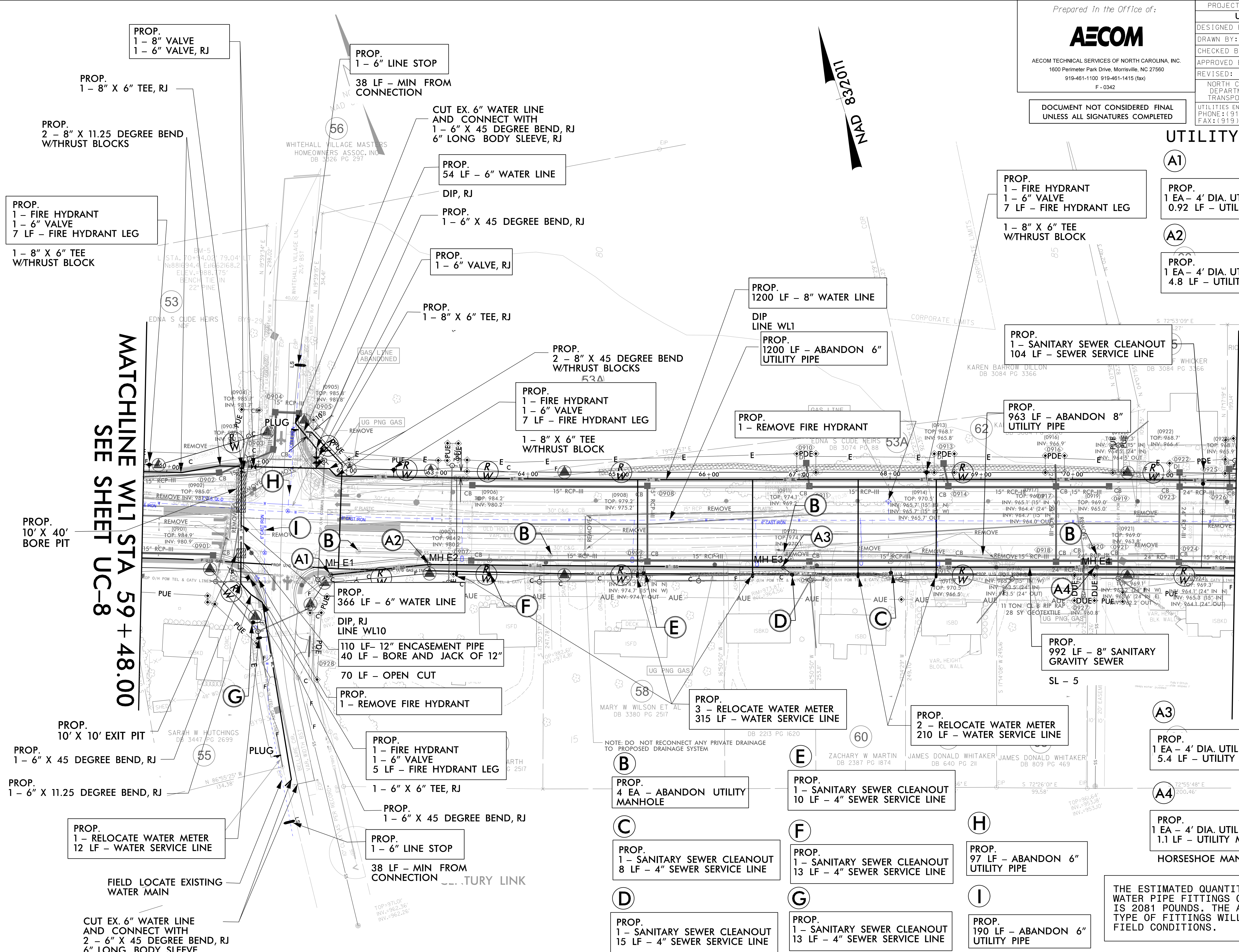


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1600 Perimeter Park Drive, Morrisville, NC 27560
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PROJECT REFERENCE NO.	U-5824	SHEET NO.	UC-9
DESIGNED BY:	FR		
DRAWN BY:	FR/RR		
CHECKED BY:	SS		
APPROVED BY:	JT		
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
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UTILITY CONSTRUCTION

- A1**
PROP. 1 EA - 4' DIA. UTILITY MANHOLE
0.92 LF - UTILITY MANHOLE WALL 4' DIA.
- A2**
PROP. 1 EA - 4' DIA. UTILITY MANHOLE
4.8 LF - UTILITY MANHOLE WALL 4' DIA.



MATCHLINE W/L1 STA 59 + 48.00
SEE SHEET UC-8

MATCHLINE W/L1 STA 71 + 55.00
SEE SHEET UC-10

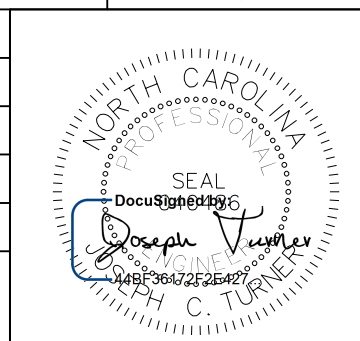
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2081 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

DEN: L:\Secure\DCS\Pro\files\60580005_UCDOT\W\1900_CAD\GIS\910_CAD\DOT_T\Utilities\Engineering\UC\Pro\U5824_UC.ssh.9_AGREEMENT.dgn

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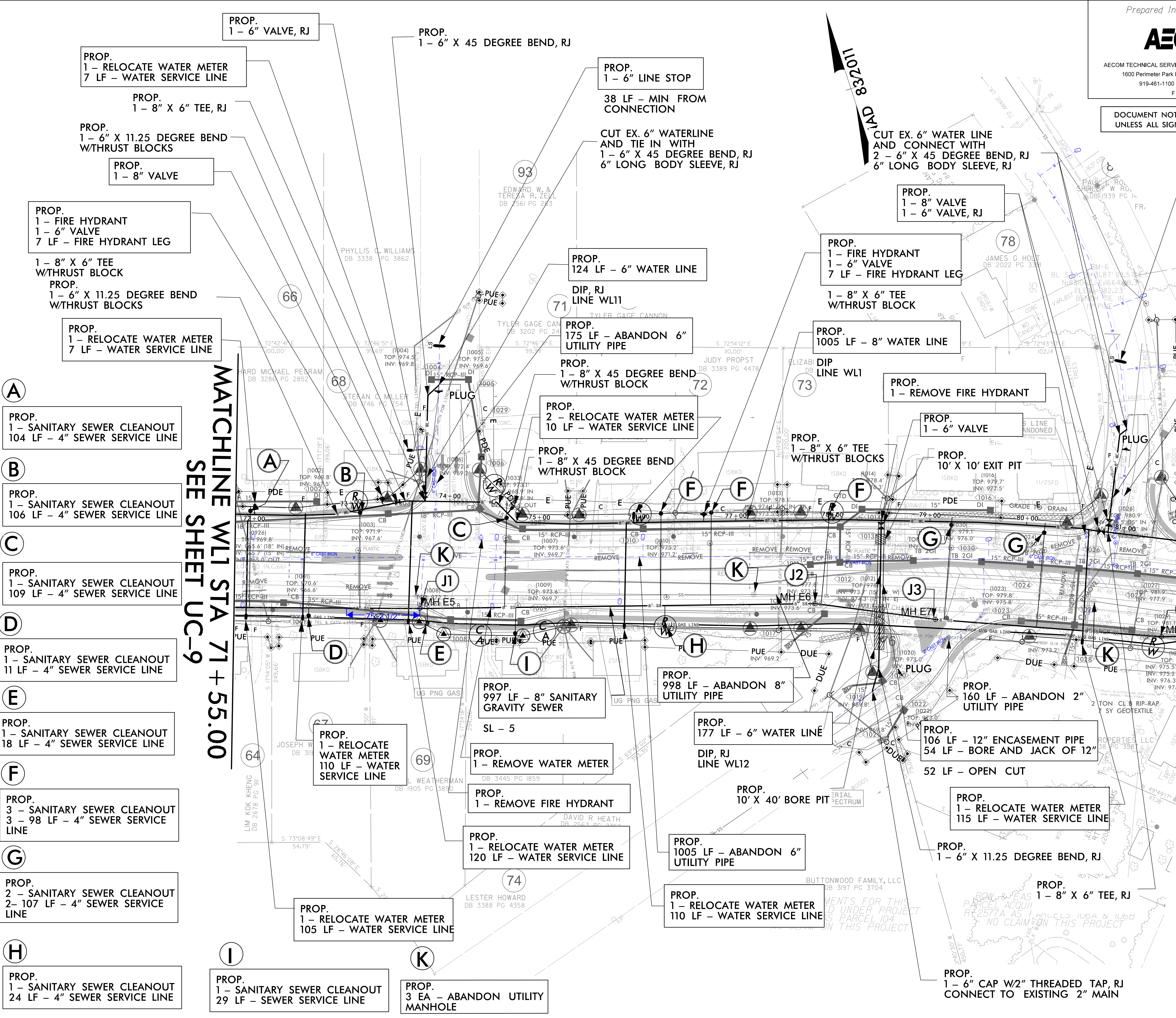
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1600 Perimeter Park Drive, Morrisville, NC 27560
919-461-1100 919-461-1415 (fax)
F-0342

PROJECT REFERENCE NO.	U-5824	SHEET NO.	UC-10
DESIGNED BY:	FR		
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APPROVED BY:	JT		
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		10/4/2023 12:06 PM EDT	
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UTILITY CONSTRUCTION



- A** PROP. 1 - SANITARY SEWER CLEANOUT 104 LF - 4" SEWER SERVICE LINE
- B** PROP. 1 - SANITARY SEWER CLEANOUT 106 LF - 4" SEWER SERVICE LINE
- C** PROP. 1 - SANITARY SEWER CLEANOUT 109 LF - 4" SEWER SERVICE LINE
- D** PROP. 1 - SANITARY SEWER CLEANOUT 11 LF - 4" SEWER SERVICE LINE
- E** PROP. 1 - SANITARY SEWER CLEANOUT 18 LF - 4" SEWER SERVICE LINE
- F** PROP. 3 - SANITARY SEWER CLEANOUT 3 - 98 LF - 4" SEWER SERVICE LINE
- G** PROP. 2 - SANITARY SEWER CLEANOUT 2 - 107 LF - 4" SEWER SERVICE LINE
- H** PROP. 1 - SANITARY SEWER CLEANOUT 24 LF - 4" SEWER SERVICE LINE

MATCHLINE WL1 STA 71 + 55.00
SEE SHEET UC-9

MATCHLINE WL1 STA 81 + 70.00
SEE SHEET UC-11

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2241 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

DEN: L:\Secure_DCS\Pro Files\6059005_UC\DOT\W\5000_CAD\GIS\900_CAD\GIS\900_CAD\VO\NCDDT_T\Utilities\Engineering\UC\Pro\NUG24.Luc.dwg, ID: AGREEMENT, new.dwg

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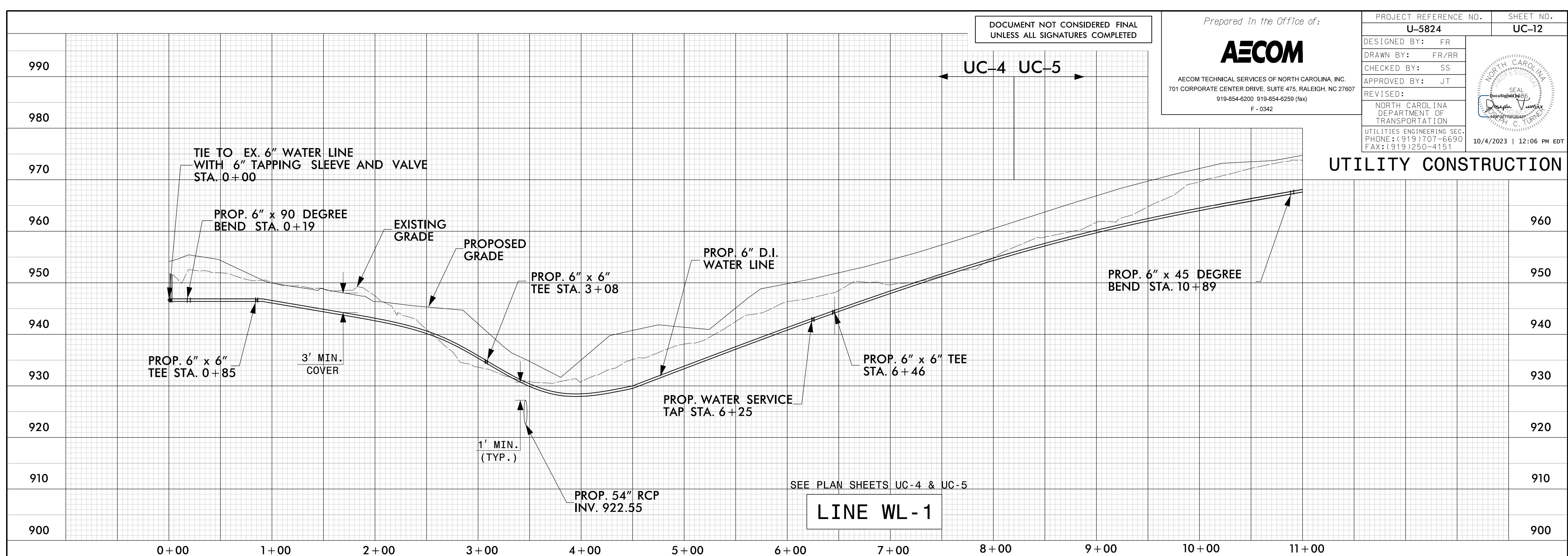
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701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607
919-854-6200 919-854-6259 (fax)
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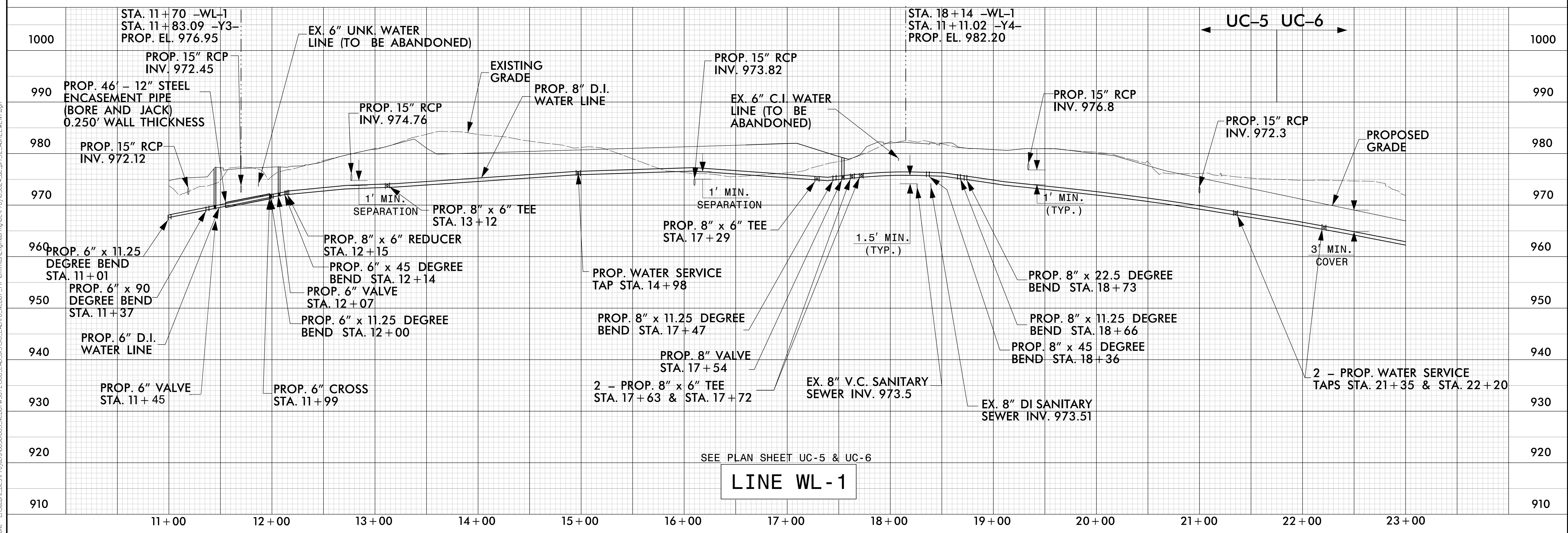
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DESIGNED BY: FR	
DRAWN BY: FR/RR	
CHECKED BY: SS	
APPROVED BY: JT	
REVISED:	
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UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
10/4/2023 12:06 PM EDT	

UTILITY CONSTRUCTION



LINE WL-1

SEE PLAN SHEETS UC-4 & UC-5



LINE WL-1

SEE PLAN SHEET UC-5 & UC-6

DATE: 9/21/2023
TIME: 3:39:21 PM
DWG: U:\Secure_DCS\Pro\betaeta\62561005_MCDOT\WST\1900_CAD_05\910_CAD\00_MCDOT_T\Utilities\Engineering\UC\Pro\U5824_uc.dwg

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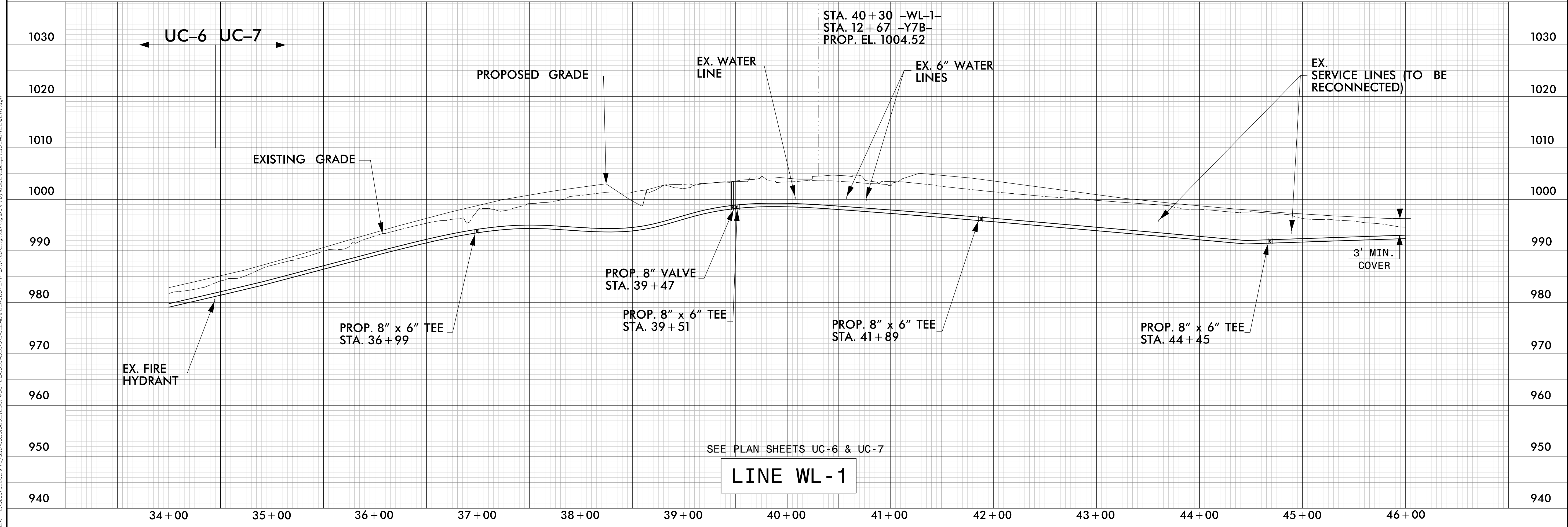
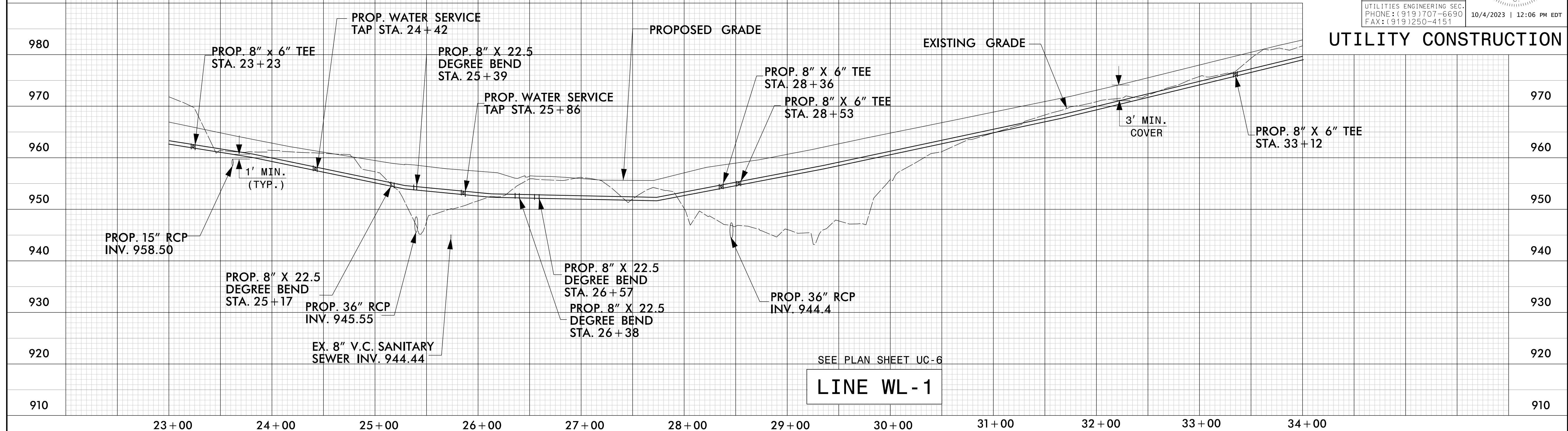
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701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607
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PROJECT REFERENCE NO. U-5824	SHEET NO. UC-13
DESIGNED BY: FR	
DRAWN BY: FR/RR	
CHECKED BY: SS	
APPROVED BY: JT	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
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UTILITY CONSTRUCTION



DATE: 9/21/2023
TIME: 4:45:37 PM
DGN: L:\Secure-DCS\Projects\62581005_MCDOT\WSU\1900_CAD_05\919_CAD\00_MCDOT_TIP\Utilities\Engineering\UC\Proj\U5824_uc.dwg

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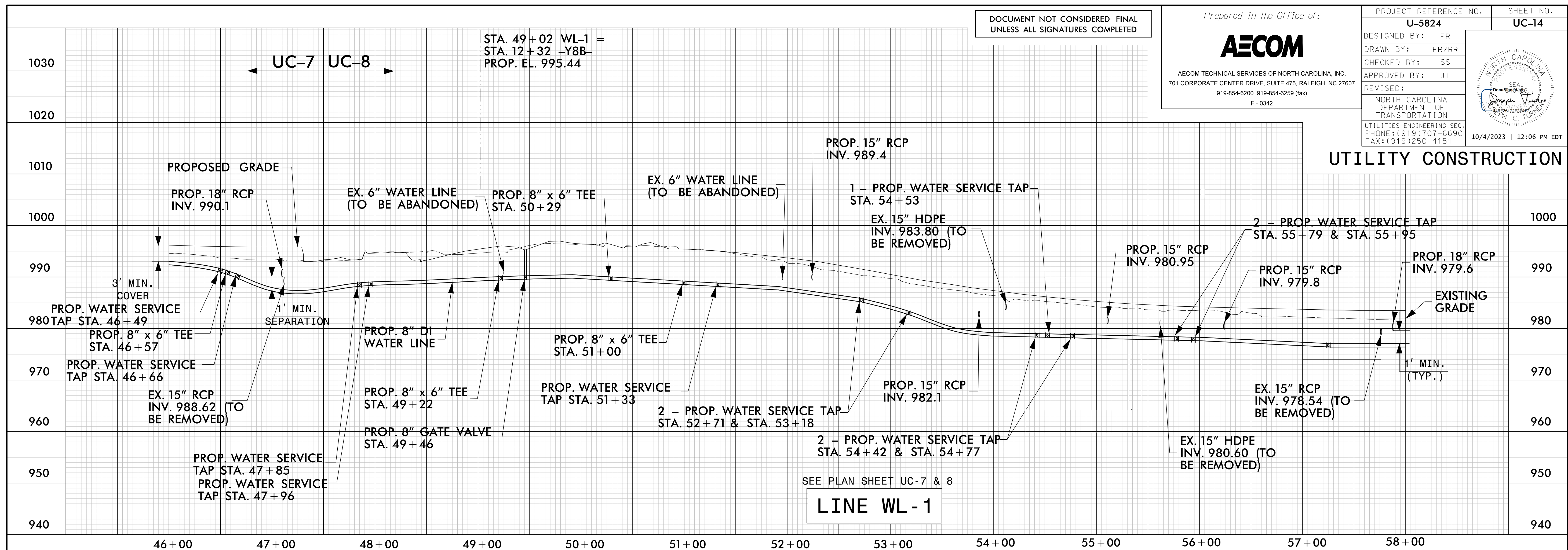
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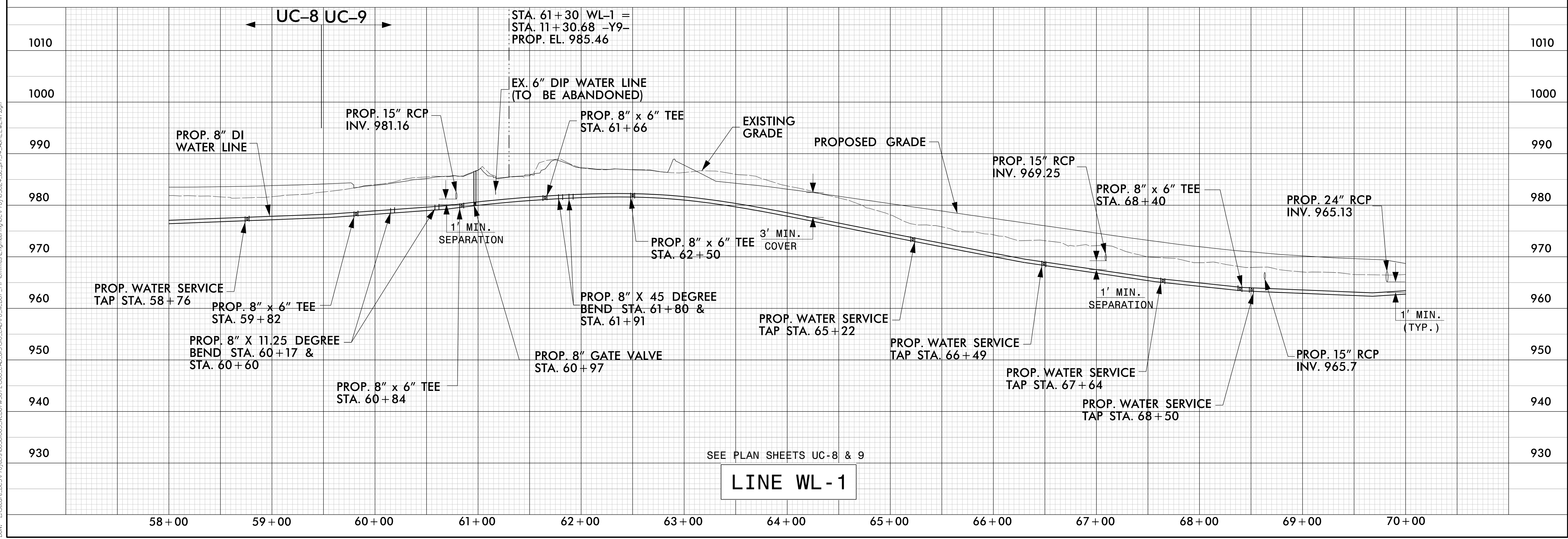
AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607
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PROJECT REFERENCE NO. U-5824	SHEET NO. UC-14
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DRAWN BY: FR/RR	
CHECKED BY: SS	
APPROVED BY: JT	
REVISED:	
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UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
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UTILITY CONSTRUCTION



LINE WL-1



LINE WL-1

DATE: 9/21/2023
TIME: 3:47:01 PM
DGN: L:\Secure-DCS\Pro\betaeta\62581005_MCDOT\WST\1900_CAD_05\919_CAD\00_MCDOT_TIP\Utilities\Engineering\UC\Proj\U5824_uc.dgn

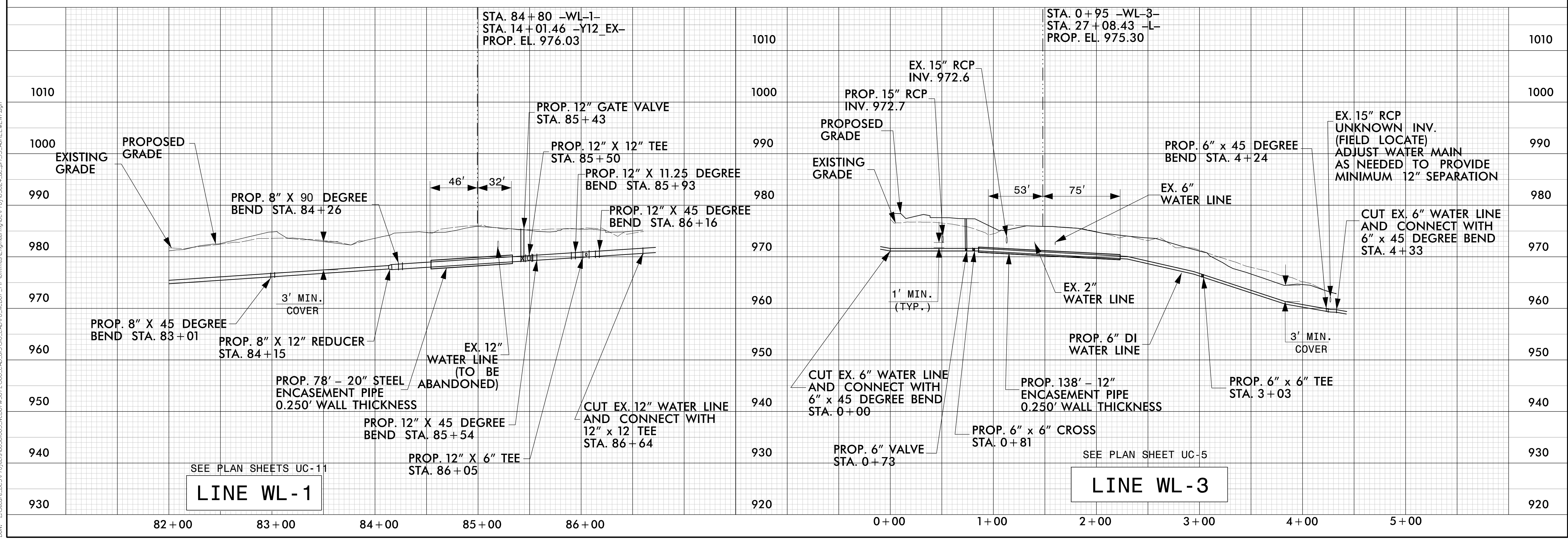
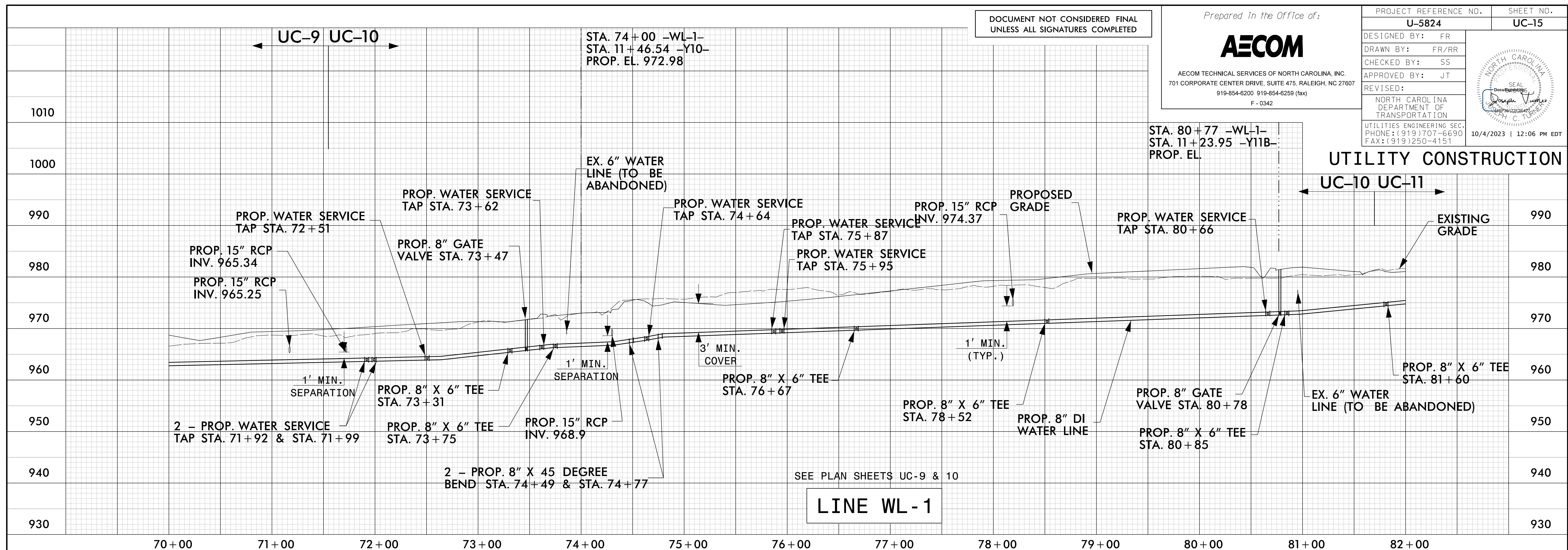
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701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607
919-854-6200 919-854-6259 (fax)
F-0342

PROJECT REFERENCE NO. U-5824	SHEET NO. UC-15
DESIGNED BY: FR	
DRAWN BY: FR/RR	
CHECKED BY: SS	
APPROVED BY: JT	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	10/4/2023 12:06 PM EDT



DATE: 9/21/2023
TIME: 4:45:00 PM
DWG: U:\Secure-DCS\Pro\betaeta\62581005_MCDOT\WST\1900_CAD\51910_CAD\700_MCDOT_TIP\Utilities\Engineering\UC\Pro\U5824_uc.dwg

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UNLESS ALL SIGNATURES COMPLETED

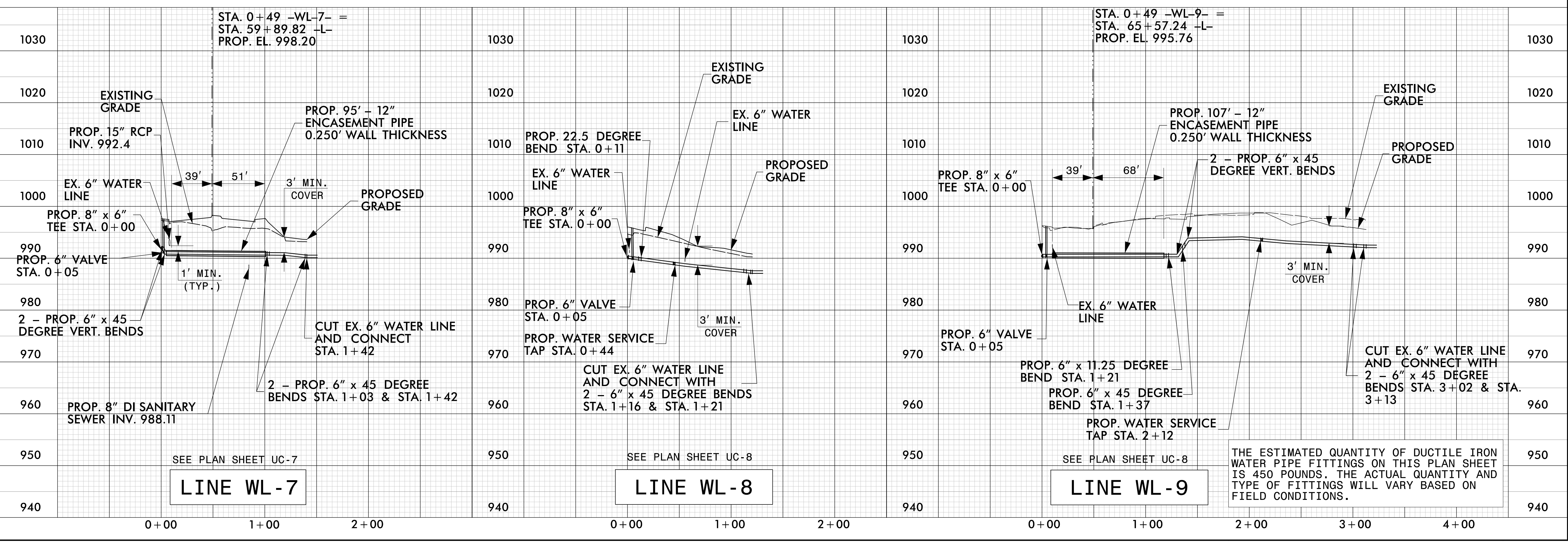
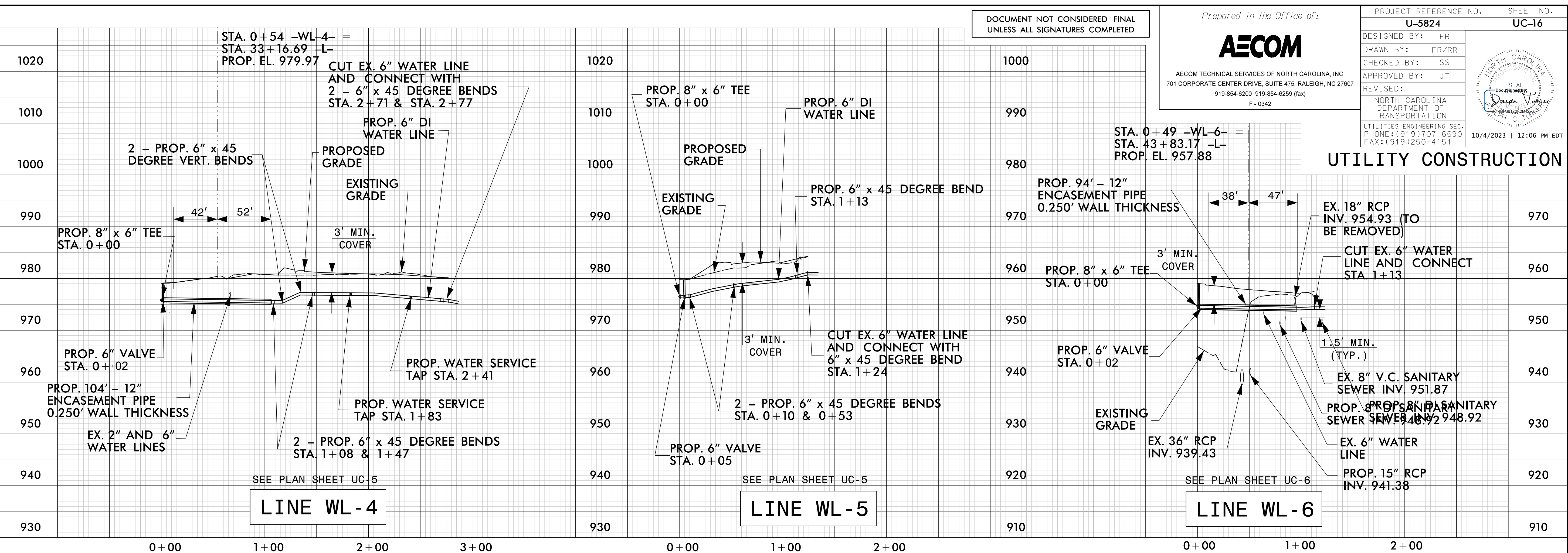
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919-854-6200 919-854-6259 (fax)
F-0342

PROJECT REFERENCE NO. U-5824	SHEET NO. UC-16
DESIGNED BY: FR	
DRAWN BY: FR/RR	
CHECKED BY: SS	
APPROVED BY: JT	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
10/4/2023 12:06 PM EDT	

UTILITY CONSTRUCTION



THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 450 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

DATE: 9/21/2023
TIME: 4:58:09 PM
DWG: U5824-UC16-Utilities-DCS-Protection-UC-UC16-AGREEMENT.dgn

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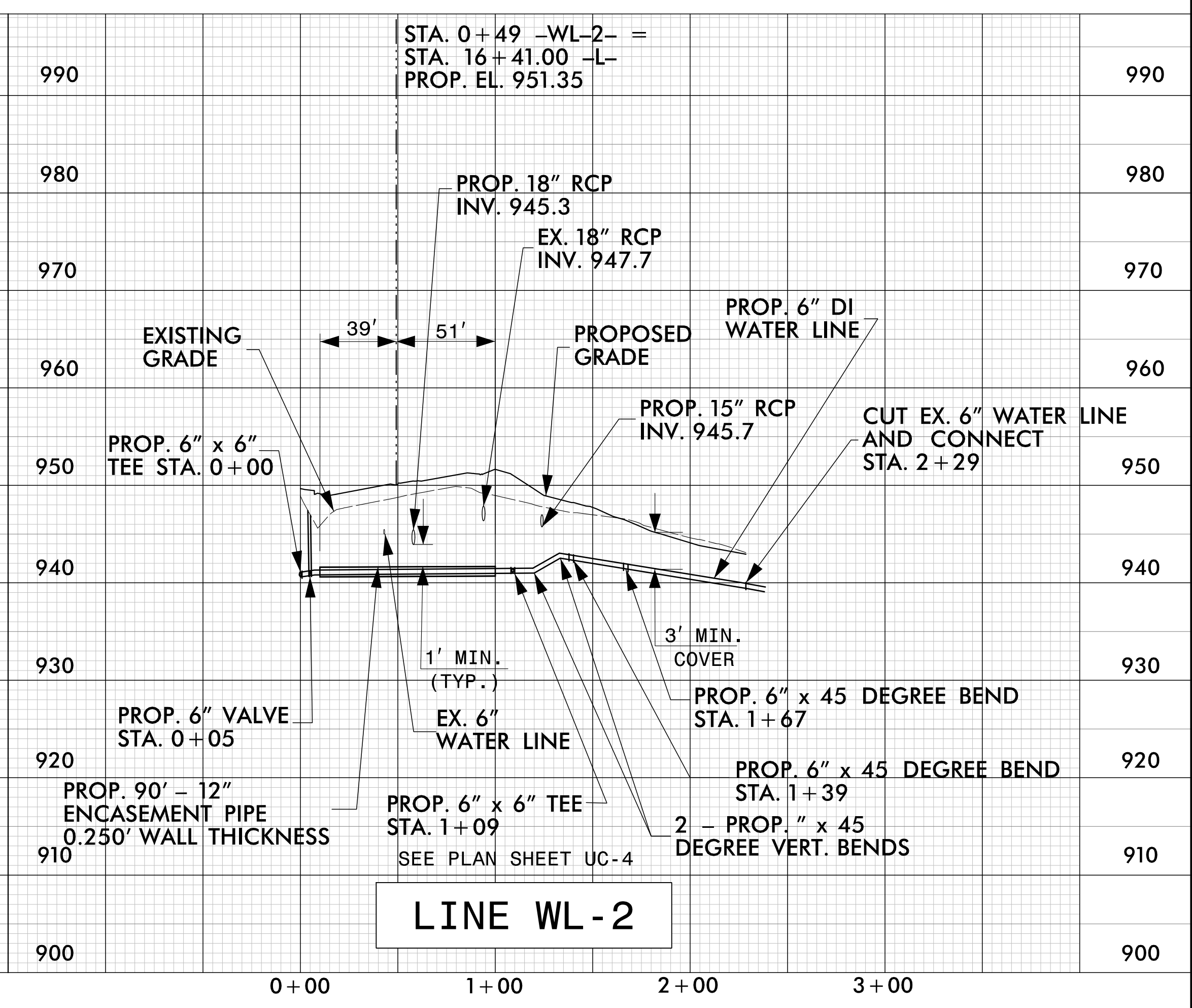
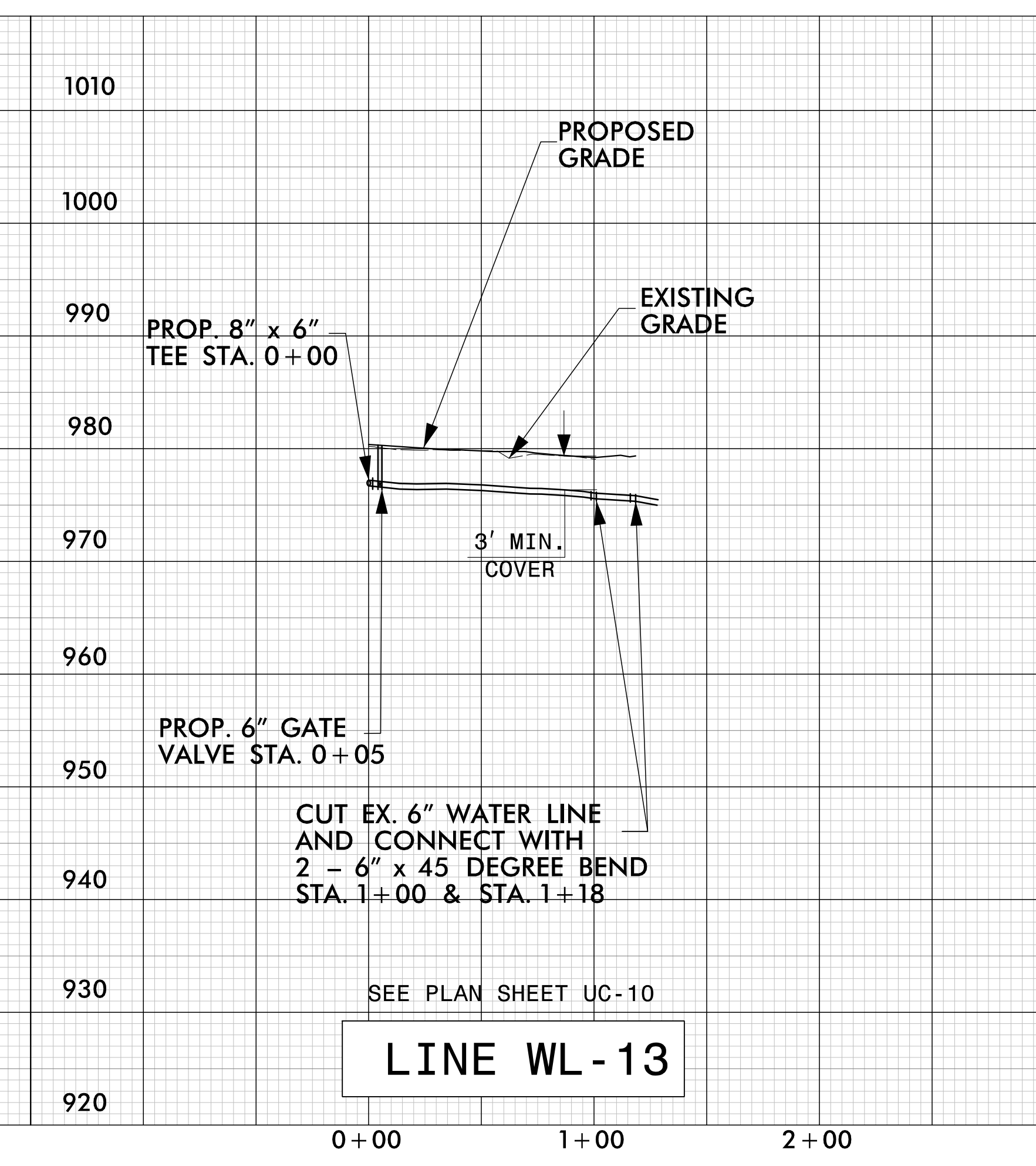
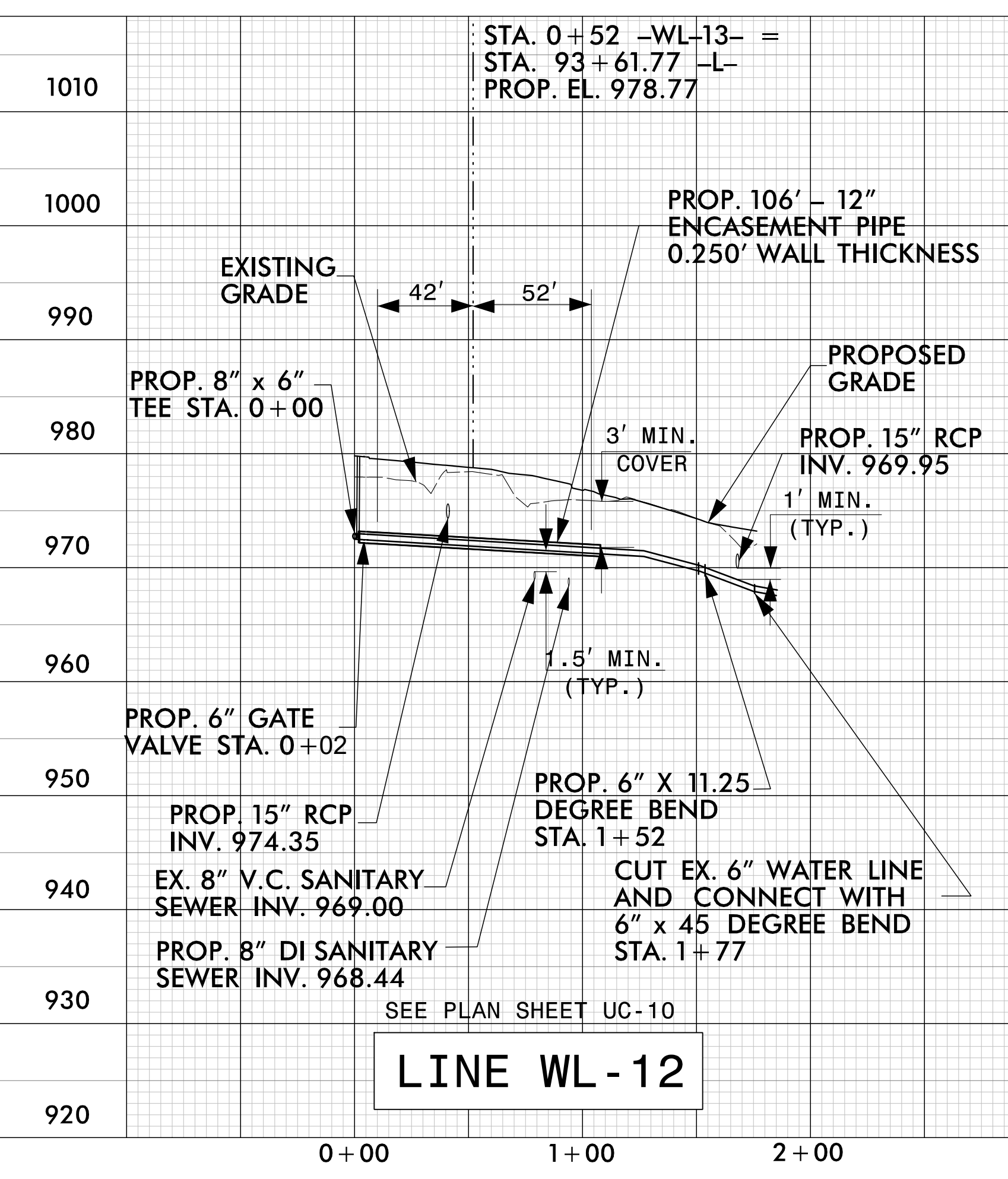
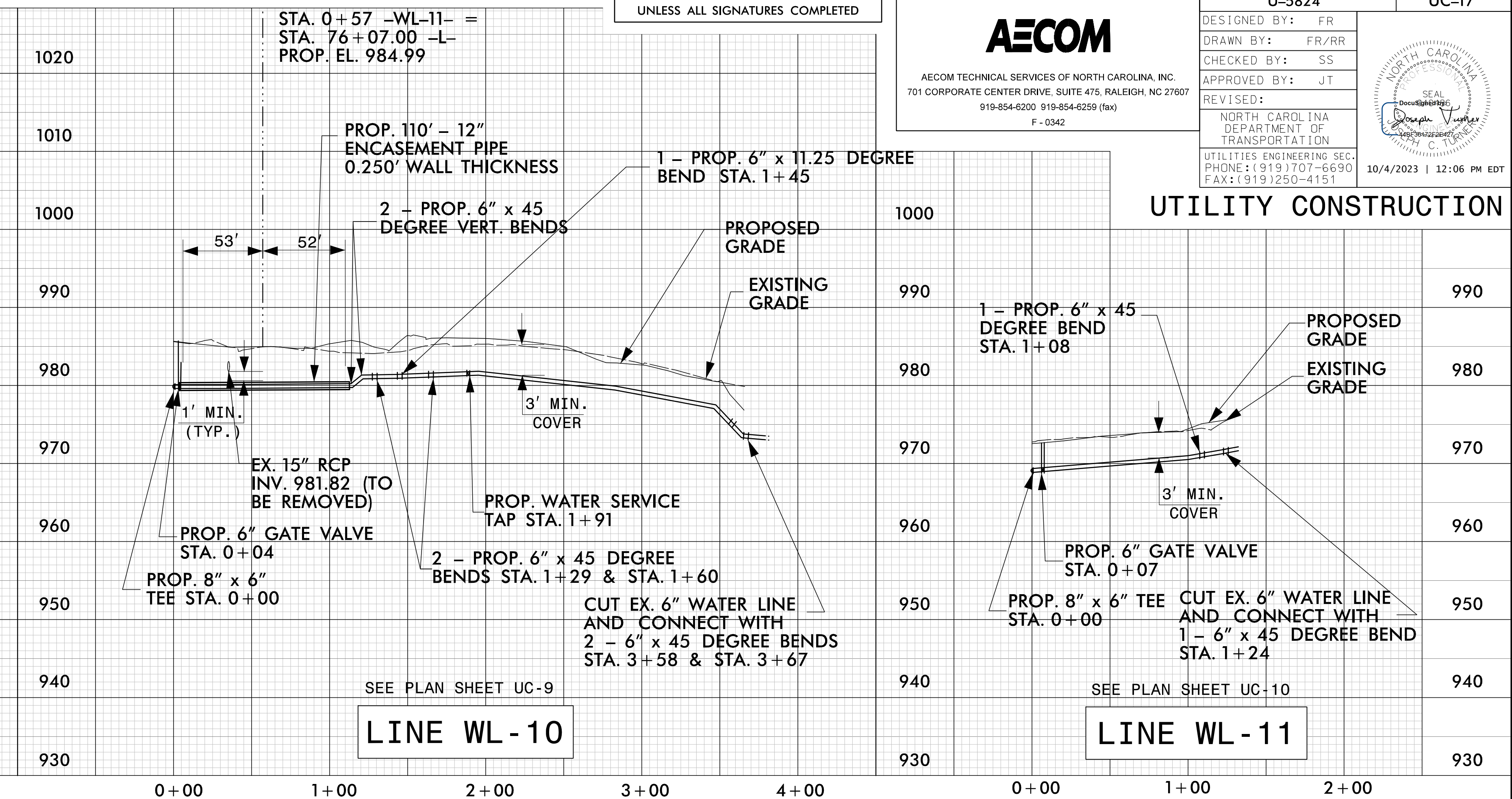


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919-854-6200 919-854-6259 (fax)
F - 0342

PROJECT REFERENCE NO. U-5824	SHEET NO. UC-17
DESIGNED BY: FR	
DRAWN BY: FR/RR	
CHECKED BY: SS	
APPROVED BY: JT	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
10/4/2023 12:06 PM EDT	

UTILITY CONSTRUCTION

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 300 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



DATE: 9/21/2023
TIME: 5:02:20 PM
DWG: U5824-UC-17.dwg

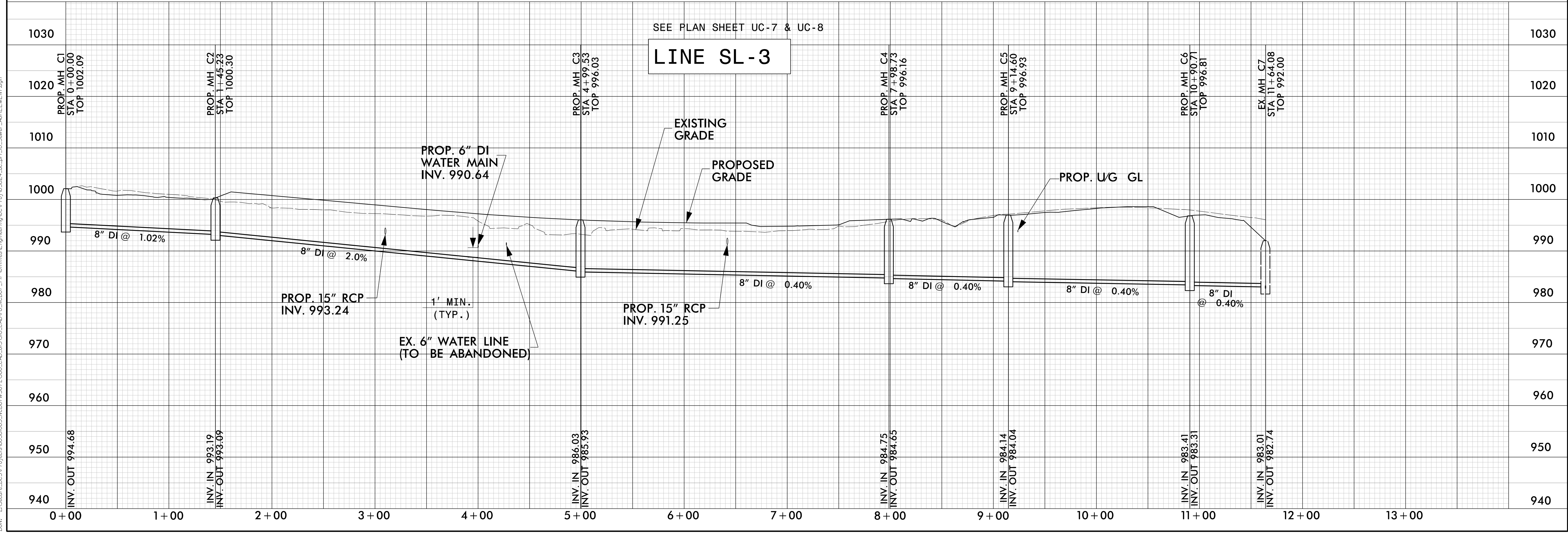
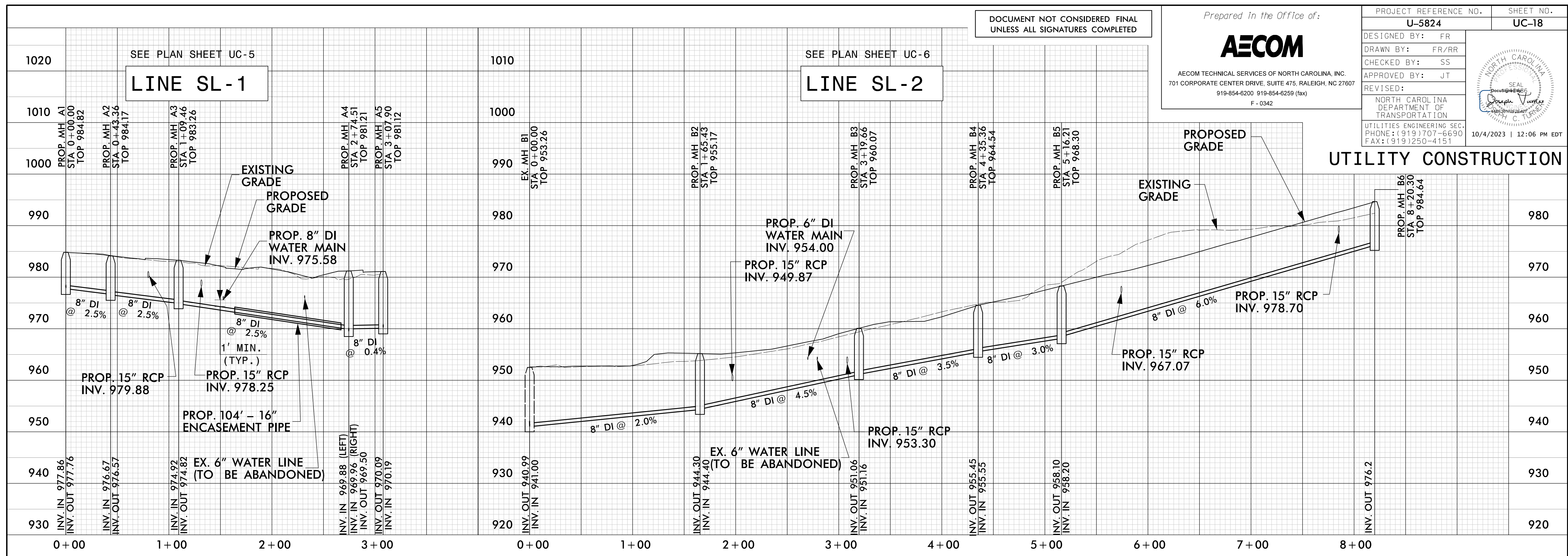
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PROJECT REFERENCE NO. U-5824	SHEET NO. UC-18
DESIGNED BY: FR	
DRAWN BY: FR/RR	
CHECKED BY: SS	
APPROVED BY: JT	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
10/4/2023 12:06 PM EDT	



DATE: 9/21/2023
TIME: 3:43:07 PM
DGN: L:\Secure-DCS\Pro\betaeta\62561005_MCDOT\W\SU\1900_CAD_015\910_CAD\00_MCDOT_TIP\Utilities\Engineering\UC\Proj\U5824_uc.dwg

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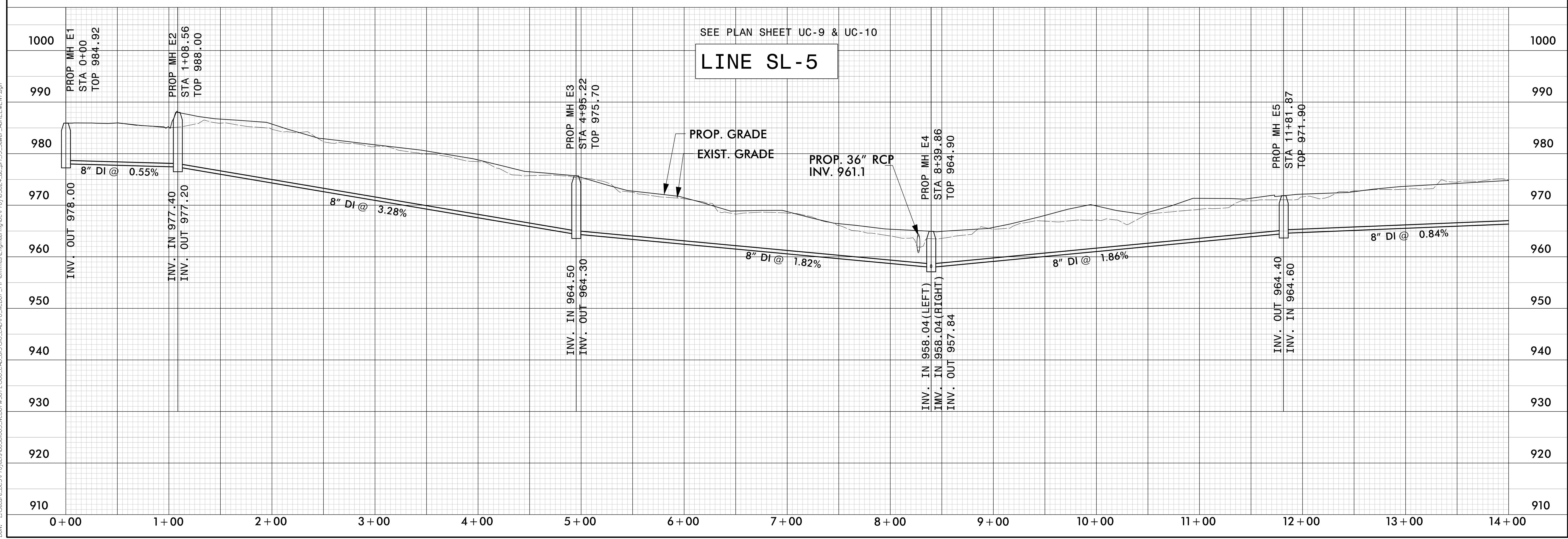
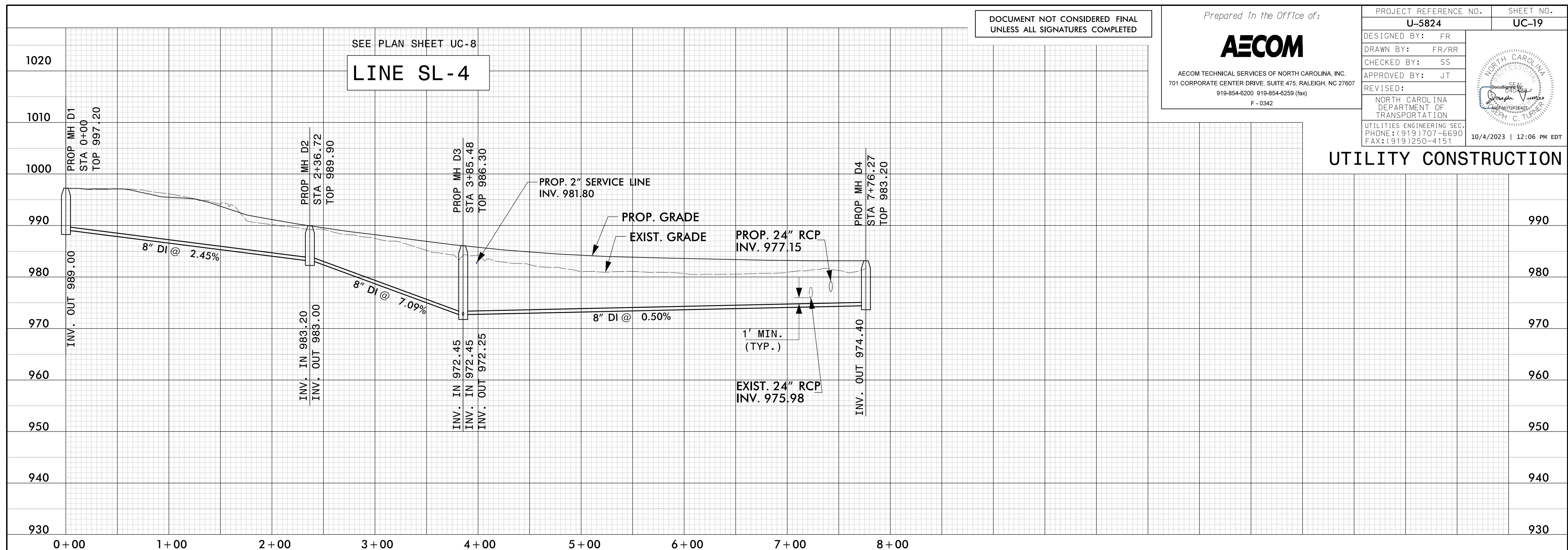
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F - 0342

PROJECT REFERENCE NO.	SHEET NO.
U-5824	UC-19
DESIGNED BY: FR	
DRAWN BY: FR/RR	
CHECKED BY: SS	
APPROVED BY: JT	
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
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UTILITY CONSTRUCTION



DATE: 9/21/2023
TIME: 3:46:04 PM
DGN: L:\Secure-DCS\Proj\beta\62561005_MCDOT\WSU\1900_CAD_051910_CAD\00_MCDOT_T\Utilities\Engineering\UC\Proj\U5824_uc.dgn_19_Sewer_AGREEMENT.dgn