

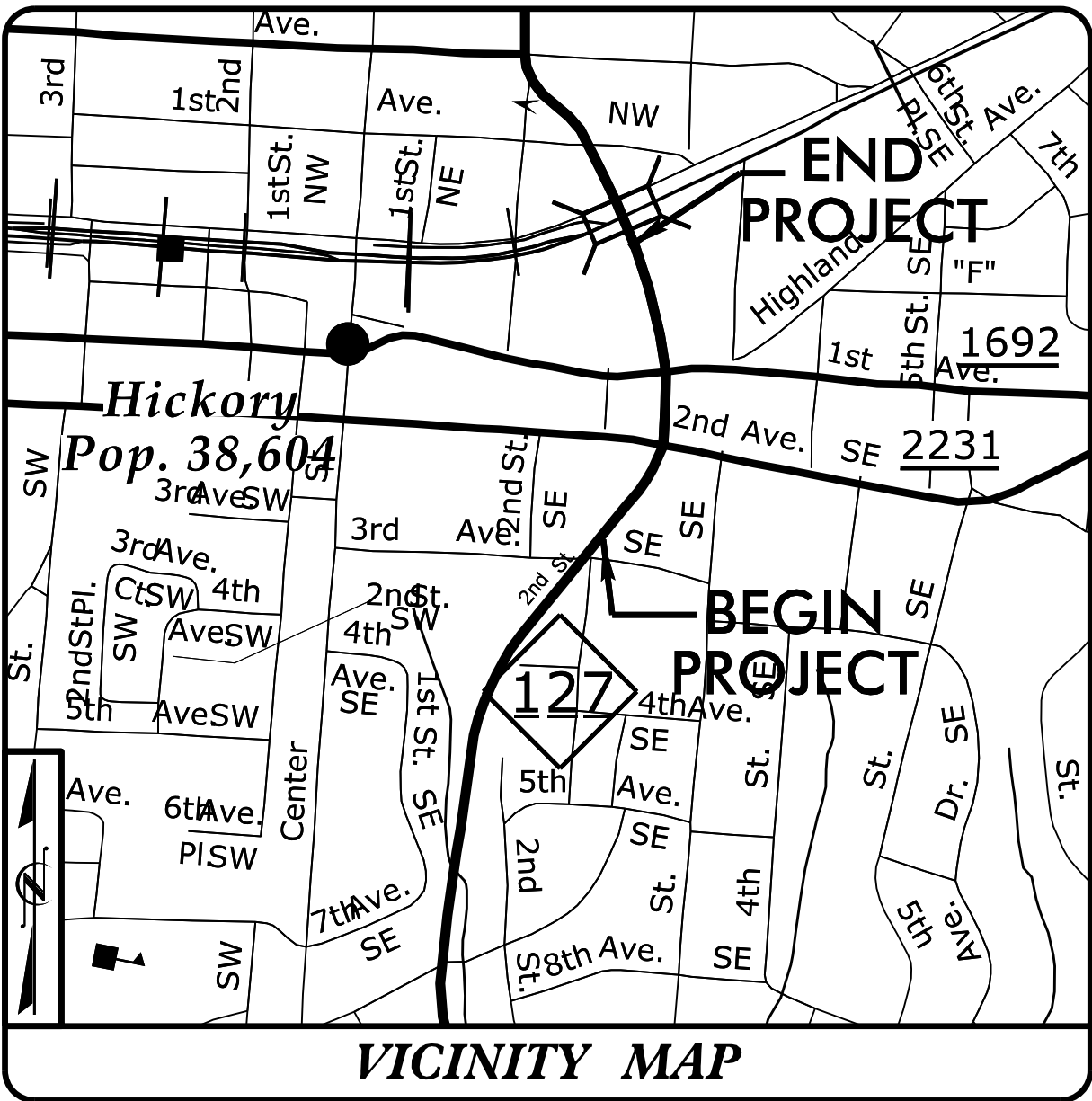
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TIP PROJECT: U-5777

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

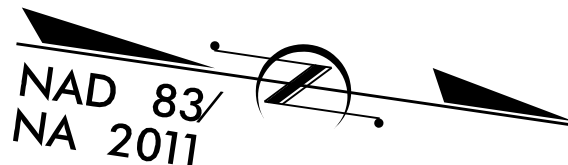


VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
CATAWBA COUNTY

LOCATION: NC 127 - 1ST AVENUE SE TO 2ND AVENUE SE
TYPE OF WORK: WATER LINE AND SANITARY SEWER RELOCATION



T.I.P. NO.	SHEET NO.
U-5777	UC-01

HISTORIC
BOUNDARY
LINE

EXISTING SIGNAL

BEGIN PROJECT U-5777
-L- POT STA 10+00.00

BEGIN CONSTRUCTION
-Y- POT STA 10+75.00

BEGIN CONSTRUCTION
-Y1- PC STA 10+00.00

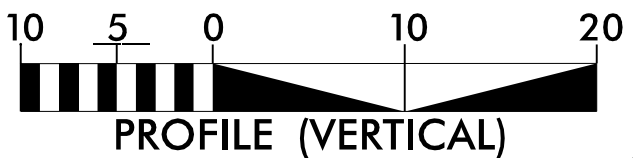
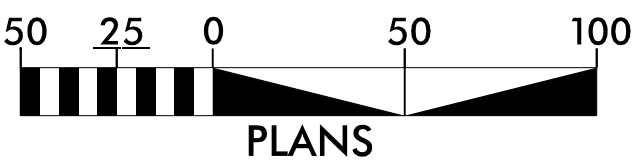
END CONSTRUCTION
-Y- POT STA 14+50.00

END CONSTRUCTION
-Y1- POC STA 14+51.00

END PROJECT U-5777
-L- POC STA 23+95.00

BEGIN CONSTRUCTION
-Y2- POT STA 11+50.00

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:

DESCRIPTION:

UC-01	TITLE SHEET
UC-02	UTILITY SYMBOLOGY
UC-03	UTILITY NOTES
UC-04 TO UC-05	PLAN SHEETS
UC-06 TO UC-08	PROFILE SHEETS

WATER AND SEWER
OWNERS ON PROJECT

WATER & SEWER: CITY OF HICKORY

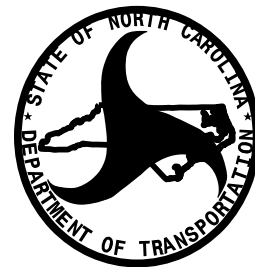
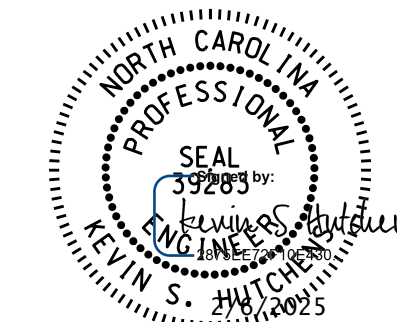
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CONOR A. ROBYN, EIT	PROJECT DESIGN ENGINEER
JIM FORBES	UTILITY PROJECT MANAGER

SEAL



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SHELBY, NC 28151
PHONE (980) 552-4200
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BRYAN SOWELL, PE	DIVISION PROJECT ENGINEER
RODNEY W. GANTT	DIVISION CONSTRUCTION ENGINEER
WARREN ANDERSON	DIVISION UTILITY ENGINEER

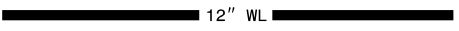
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8/13/2024
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

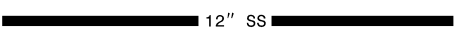
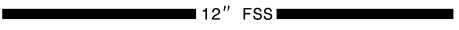
PROJECT REFERENCE NO.	SHEET NO.
U-5777	UC-02

UTILITIES PLAN SHEET SYMBOLS

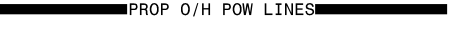
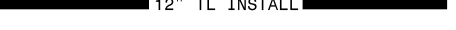
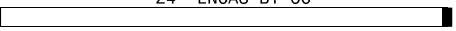
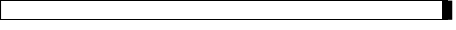
PROPOSED WATER SYMBOLS

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	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
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	

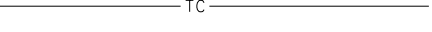
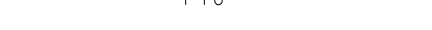
PROPOSED MISCELLANOUS UTILITIES SYMBOLS

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	
End of Information	

*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)

8/17/99

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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 LINE UTILITIES BELONG TO THE CITY OF HICKORY

CONTACT: CALEB BYNUM, P.E.
SR. UTILITIES ENGINEER
PHONE: 828-323-7473
EMAIL: CBYNUM@HICKORYNC.GOV
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 OWNER'S 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. CONTRACTOR SHALL 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. CONTRACTOR SHALL REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
7.

CONTRACTOR SHALL 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.

CONTRACTOR SHALL 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. CONTRACTOR SHALL 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 NOTES:

1.

CONTRACTOR'S ATTENTION IS DIRECTED TO THE UTILITY CONSTRUCTION SPECIAL PROVISIONS .
2.

WATER LINES 3-INCHES AND LARGER SHALL BE DUCTILE IRON PIPE AND SHALL CONFORM WITH AWWA C151 AND C150, WITH A PRESSURE CLASS OF 350.
3.

ALL PROPOSED RESIDENTIAL WATER SERVICES SHALL BE 1-INCH DIAMETER PIPE.
4.

ALL PROPOSED COMMERCIAL WATER SERVICES SHALL BE THE SAME DIAMETER AS EXISTING.
5.

CONTRACTOR SHALL NOT OPERATE ANY VALVES ON THE EXISTING UTILITY SYSTEMS. CONTRACTOR SHALL CONTACT THE UTILITY OWNER TO CONDUCT STRATEGIC OPERATION OF VALVES FOR SERVICE INTERRUPTION IN ORDER TO PERFORM SPECIFIC WORK.
6.

PVC PIPE MANUFACTURED MORE THAN TWELVE (12) MONTHS BEFORE THE INSTALLATION DATE WILL NOT BE ACCEPTED.
7.

ALL WATER LINE FITTINGS SHALL BE DUCTILE IRON, MECHANICAL JOINT OR RESTRAINED JOINT FITTINGS. FITTINGS SHALL BE FULL BODY CONFORMING WITH ANSI / AWWA C110 / A21.10 AND C111, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. FITTINGS 4-INCH THROUGH 24-INCH DIAMETER SHALL HAVE A MINIMUM PRESSURE RATING OF 350 PSI. RESTRAINED JOINT FITTINGS SHALL HAVE THE SAME MANUFACTURER AS THE RESTRAINED JOINT PIPE. MECHANICAL JOINT FITTINGS SHALL UTILIZE A RESTRAINING GLAND RESTRAINT SYSTEM. THRUST BLOCKS ARE NOT PERMITTED, UNLESS APPROVED BY THE ENGINEER AND THE UTILITY OWNER.
8.

ALL VALVES ON THE WATER LINE SHALL BE GATE VALVES WITH MECHANICAL JOINT ENDS. GATE VALVES SHALL CONFORM TO ASTM A-536, AWWA C509 AND C500. REFER TO UTILITY OWNER MANUAL OF PRACTICE FOR WATER SYSTEMS.

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PROJECT REFERENCE NO.
U-5777

SHEET NO.
UC-03

DESIGNED BY: KD
DRAWN BY: KD
CHECKED BY: KSH
APPROVED BY: KSH
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PHONE: (919) 707-6690
FAX: (919) 250-4151

UTILITY CONSTRUCTION
PLANS ONLY

PROFESSIONAL
ENGINEER
KEVIN S. WATKINS

9.

IN THE EVENT THAT EXCESSIVE GROUND-WATER OR SPRINGS ARE ENCOUNTERED DURING UTILITY CONSTRUCTION, THE CONTRACTOR SHALL EMPLOY ALL METHODS NECESSARY TO KEEP THE TRENCHES DRY AS DIRECTED BY THE ENGINEER.
10.

ALL PROPOSED FITTINGS (BENDS, TEES, CROSSES, REDUCERS, PLUGS, ETC.) SHALL BE ADEQUATELY RESTRAINED BY THE USE OF RESTRAINED JOINT.
11.

EXISTING WATER METERS TO REMAIN SHALL BE RECONNECTED TO THE EXISTING / PROPOSED WATER MAIN WITH EITHER NEW OR EXISTING WATER SERVICE LINES DEPENDING ON THE MATERIAL TYPE. IF THE EXISTING SERVICE IS POLY, A NEW SERVICE MUST BE INSTALLED FROM THE MAIN AND THE EXISTING SERVICE SHALL BE ABANDONED. IF THE EXISTING SERVICE IS COPPER, IT MAY BE EXTENDED PER UTILITY OWNER'S STANDARDS.
12.

ALL NEW OR RELOCATED WATER METERS SHALL BE INSTALLED WITH THE BACK (CUSTOMER SIDE) OF THE METER BOX AT THE RIGHT-OF-WAY LINE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
13.

EXISTING WATER SERVICE LINES BETWEEN THE EXISTING WATER LINE AND THE REMOVED WATER METER SHALL BE ABANDONED IN PLACE OR REMOVED AS NEEDED AS PER SECTION 1530 OF THE NCDOT SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER.
14.

EXISTING WATER METERS TO BE REMOVED AND/OR RELOCATED SHALL BE RETURNED TO THE UTILITY OWNER FOR INSPECTION. CONTRACTOR SHALL DELIVER THESE UTILITY ITEMS TO A MUTUALLY AGREED UPON LOCATION. ALL OTHER PARTS, PIPING, AND METER BOXES REMOVED FROM THE SYSTEM SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AND BE PROPERLY DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
15.

WATER METER BOXES SHALL NOT BE INSTALLED WITHIN PAVED OR SIDEWALK AREA UNLESS APPROVED BY UTILITY OWNER.
16.

ALL WATER AND SEWER SERVICES SHALL BE INSTALLED PERPENDICULAR TO THE MAIN AND TERMINATE AT THE RIGHT-OF-WAY LINE.

8/17/99

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UTILITY CONSTRUCTION

PROJECT NOTES (CONTINUED):

17. NO FLEXIBLE COUPLINGS SHALL BE USED.
18. SANITARY SEWER CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS. CLEANOUTS SHOULD BE RELOCATED ADJACENT TO EXISTING SEWER CONNECTION.
19. SEWER GUARDS ARE REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS ARE REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
20. UNUSED SERVICES SHALL NOT BE ABANDONED WITHOUT THE WRITTEN AUTHORIZATION FROM UTILITY OWNER. ABANDONED WATER SERVICES SHALL BE DISCONNECTED FROM THE WATER MAIN.
21. MANHOLE TOP ELEVATIONS SHALL BE AT OR ABOVE FINISHED GRADE IN UNPAVED AREAS AND AT FINISHED GRADE IN PAVED AREAS. THE USE OF STEEL GRADE ADJUSTMENT RINGS IS PROHIBITED.
22. USE WATER TIGHT RING AND MANHOLE COVER IN FLOOD PLAINS OR AREAS SUBJECT TO FLOODING.
23. CUT-IN MANHOLES ARE REQUIRED AT CONNECTIONS TO EXISTING GRAVITY SEWER MAINS. DOG HOUSE MANHOLES CONSTRUCTED OVER EXISTING GRAVITY SEWER MAINS ARE NOT ALLOWED.
24. ALL CONNECTIONS TO EXISTING MANHOLES AND EXISTING GRAVITY SEWER MAINS MUST BE MADE IN THE PRESENCE OF THE UTILITY OWNER'S REPRESENTATIVE.
25. SEWER SERVICES THAT HAVE BEEN EXTENDED WILL REQUIRE POST CCTV INSPECTION OF ENTIRE SERVICE LINE (FROM MAIN TO CLEAN OUT).
26. INCIDENT ACTION PLAN IS REQUIRED FOR ALL SEWER RELOCATIONS REQUIRING A BY-PASS PLAN.
27. ALL SEWER SERVICES THAT ARE TYING INTO A MANHOLE SHALL BE CORED TO MATCH THE HIGHEST AVAILABLE INVERT WHILE MAINTAINING A MINIMUM 3-FEET OF COVER. CONTRACTOR MUST COORDINATE ALL SEWER SERVICE INSTALLATIONS WITH THE UTILITY OWNER TO ENSURE THERE IS A MINIMUM 18-INCH SEPARATION AT WATER MAIN CROSSINGS. ALL SEWER SERVICES THAT ARE REINSTALLED OR REPAIRED SHALL BE CCTV'D FOR UTILITY OWNER'S REVIEW.

28. GRAVITY SEWER SHALL BE EITHER PVC SDR-35 FOR SEWER LINE A DEPTH OF 16 FT OR LESS AND DUCTILE IRON CLASS 350 FOR SEWER LINE A DEPTH OF 16 FT OR MORE.
29. ALL PROPOSED RESIDENTIAL SEWER SERVICES SHALL BE 4-INCH DIAMETER PIPE.
30. ALL PROPOSED COMMERCIAL SEWER SERVICES SHALL BE 6-INCH DIAMETER PIPE.
31. PROPOSED SANITARY CLEANOUTS SHALL BE INSTALLED AT THE RIGHT-OF-WAY LINE, UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER.
32. EXISTING SANITARY SEWER CLEANOUTS THAT REMAIN SHALL BE RECONNECTED TO THE PROPOSED SANITARY SEWER PIPE WITH NEW SEWER SERVICE LINES.
33. CONTRACTOR SHALL RECONNECT THE EXISTING CUSTOMER SIDE SEWER SERVICE LINE TO THE NEW SANITARY SEWER CLEANOUT. THIS WORK IS INCIDENTAL TO THE PAY ITEM. ALL WORK SHALL BE CONDUCTED WITH LIKE PIPE MATERIALS AS THE EXISTING PIPE.
34. EXISTING SEWER SERVICE LINES TO BE ABANDONED SHALL BE DONE IN ACCORDANCE WITH SECTION 1530 OF THE NCDOT SPECIFICATIONS OR AS DIRECTED BY THE RESIDENT ENGINEER.
35. ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED FOR LEAKAGE IN THE PRESENCE OF A UTILITY OWNER REPRESENTATIVE.
36. GRAVITY SEWER PIPE TIE-IN WORK SHALL BE DONE AT PERIODS OF LOW FLOW. CONTRACTOR SHALL COORDINATE TIMING OF THE WORK WITH THE UTILITY OWNER. CONTRACTOR SHALL OBTAIN A PUMP AND HAUL PERMIT AND HAVE OPERATION PLAN IN PLACE TO PUMP OUT FLOW FROM A MANHOLE UPSTREAM OF THE TIE-IN WORK AND HAUL FLOW TO A MANHOLE DOWNSTREAM OF THE TIE-IN WORK AND REINTRODUCE THE FLOW INTO THE GRAVITY SYSTEM.
37. CONTRACTOR SHALL CONTACT THE UTILITY OWNER PRIOR TO PERFORMING SYSTEM FLUSHING OR BLOW-OFF OPERATIONS.

38. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING SANITARY SEWER SERVICE CONNECTIONS AND CLEANOUTS THAT MAY BE COVERED AND / OR NOT TO GRADE. VERIFY LOCATION, SIZE AND MATERIALS AND RECONNECT PER ENGINEER'S DIRECTION.
39. CONTRACTOR MUST SURVEY ALL WATER AND SEWER INSTALLATIONS. THE SURVEY SHALL THEN BE INCORPORATED INTO A FINAL SET OF ENGINEERED AS-BUILTS. THE SURVEY SHALL BE PROVIDED ALONG WITH A FINAL SET OF ENGINEERED AS-BUILTS TO UTILITY OWNER FOR A FORMAL REVIEW. CONTRACTOR'S MARK UPS ON THE DESIGN PLANS WILL NOT BE ACCEPTABLE AS AN AS-BUILT SUBMITTAL. THE FINAL INSTALLATION SURVEY SHALL INCLUDE EVERY 50FT OF THE UTILITY MAIN, EVERY HORIZONTAL AND VERTICAL DIRECTION CHANGE (EVERY FITTING), ALL VALVES, AND ALL UTILITY CROSSINGS.
40. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18-INCHES OF HORIZONTAL SEPARATION FROM STORM DRAIN UTILITIES, AND AT NO TIME SHALL FACILITIES EVER BE INSTALLED UNDERNEATH A CATCH BASIN. IF SEPARATION CAN NOT BE ACHIEVED, THEN 10 FT OF CONTINUOUS DI PIPE IN EACH DIRECTION FROM THE CROSSING IS REQUIRED.
41. ALL WATER METER BOXES AND SEWER CLEANOUTS SHALL BE INSTALLED FLUSH WITH FINAL GRADE. THE WATER METER AND SETTER MUST FIT WITHIN THE METER BOX AND REMAIN ACCESSIBLE BY UTILITY OWNER AT ALL TIMES DURING CONSTRUCTION.
42. OPEN TRENCH CONSTRUCTION SHALL PROVIDE (A) 3-FEET MINIMUM COVER FROM FINAL GRADE TO TOP-OF-PIPE, AND (B) 1.5-FEET MINIMUM SEPARATION AT ALL UTILITY CROSSINGS.
43. DOCUMENTS THAT MUST BE RECEIVED PRIOR TO UTILITY OWNER'S SIGNING THE NCDEQ-PWSS APPLICANT CERTIFICATION INCLUDE THE FOLLOWING: BACTERIOLOGICAL TESTS, PRESSURE TESTS, WARRANTY, AND AS-BUILT PLANS [PROVIDED AS PDF FILES AND AN AUTOCAD (.DWG) FILE, IN THE LATEST VERSION OF AUTOCAD].

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PROJECT REFERENCE NO.
U-5777

SHEET NO.
UC-03A

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SEAL
39283
KEVIN S. HUGHES
ENGINEER
08/17/2025

UTILITY CONSTRUCTION
PLANS ONLY

UTILITY CONSTRUCTION

UTILITY CONSTRUCTION DETAILS

WATER

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westonandsampson.com

PROJECT REFERENCE NO.

U-5777

SHEET NO.

UC-03B

DESIGNED BY: CAR

DRAWN BY: CAR

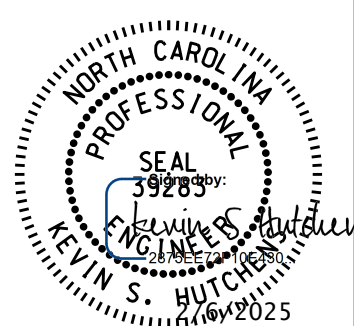
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APPROVED BY: KSH

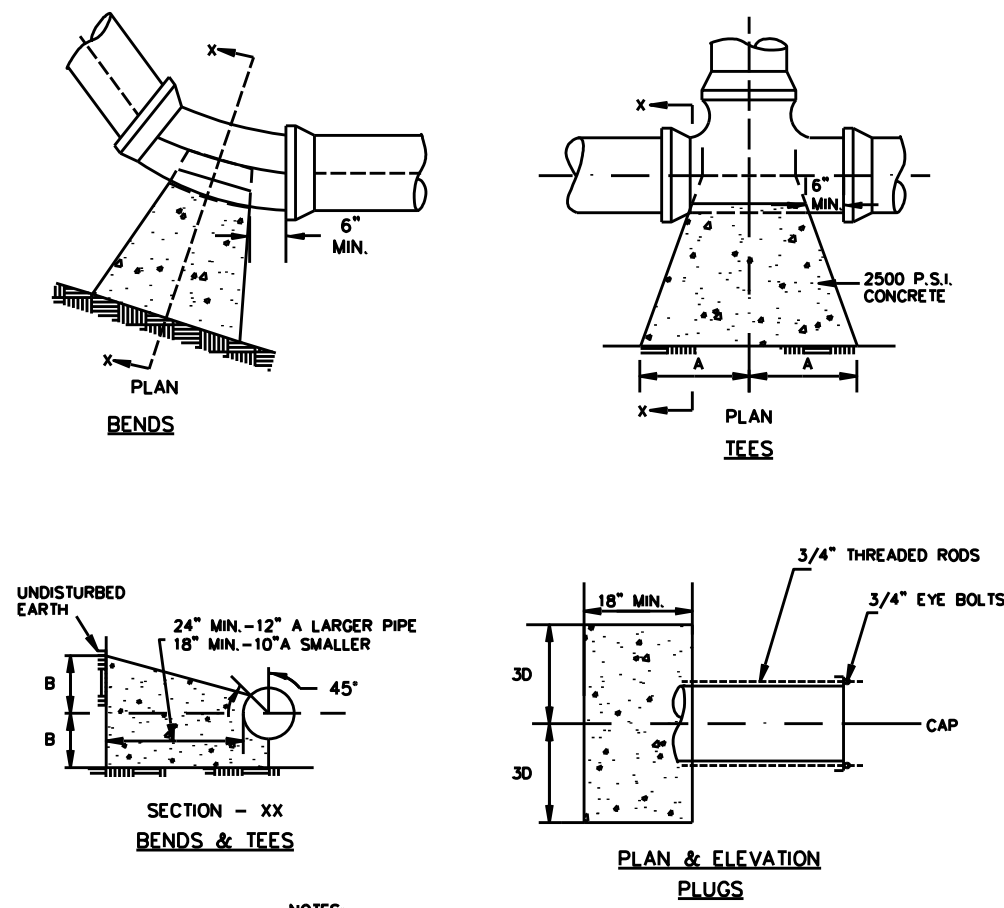
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UTILITY CONSTRUCTION
PLANS ONLY



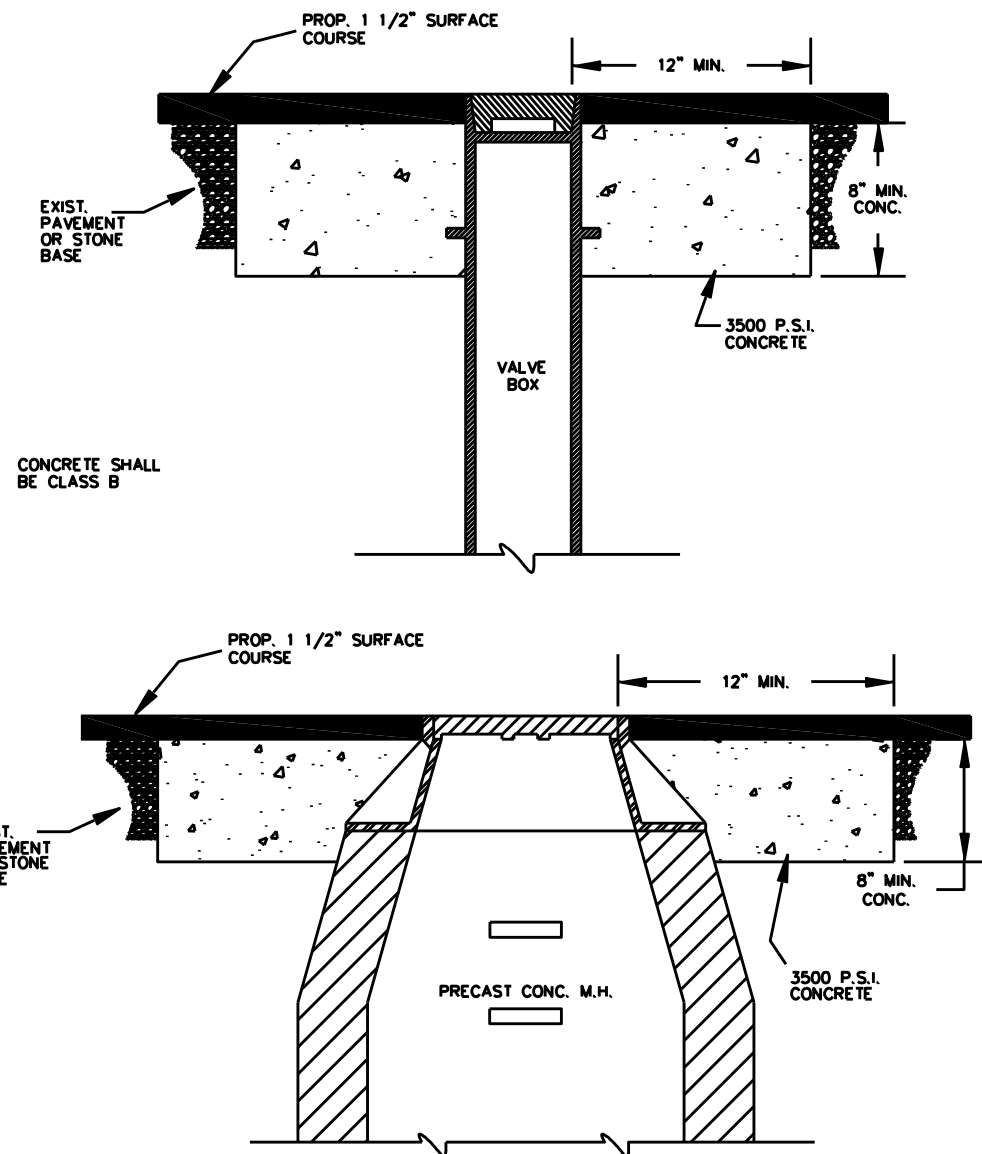
NOTES:
1. DEAD MAN RESTRAINED
W/ 2-3/4" ALL THREAD
RODS 3' TO 8' AND 4-3/4"
ALL THREAD RODS 12' TO 16"

PIPE SIZE	11 1/4" BEND	22 1/2" BEND	45° BEND	90° BEND	TEE
6	A	D	A	B	A
8	9	10	12	10	10
10	12	13	16	13	13
12	16	21	22	21	18
14	21	27	30	27	24

ALL DIMENSIONS IN TABLE ARE IN INCHES.
NOTE: WHERE WORKING PRESSURES EXCEED 150 PSI,
AWWA STANDARDS SHALL APPLY.

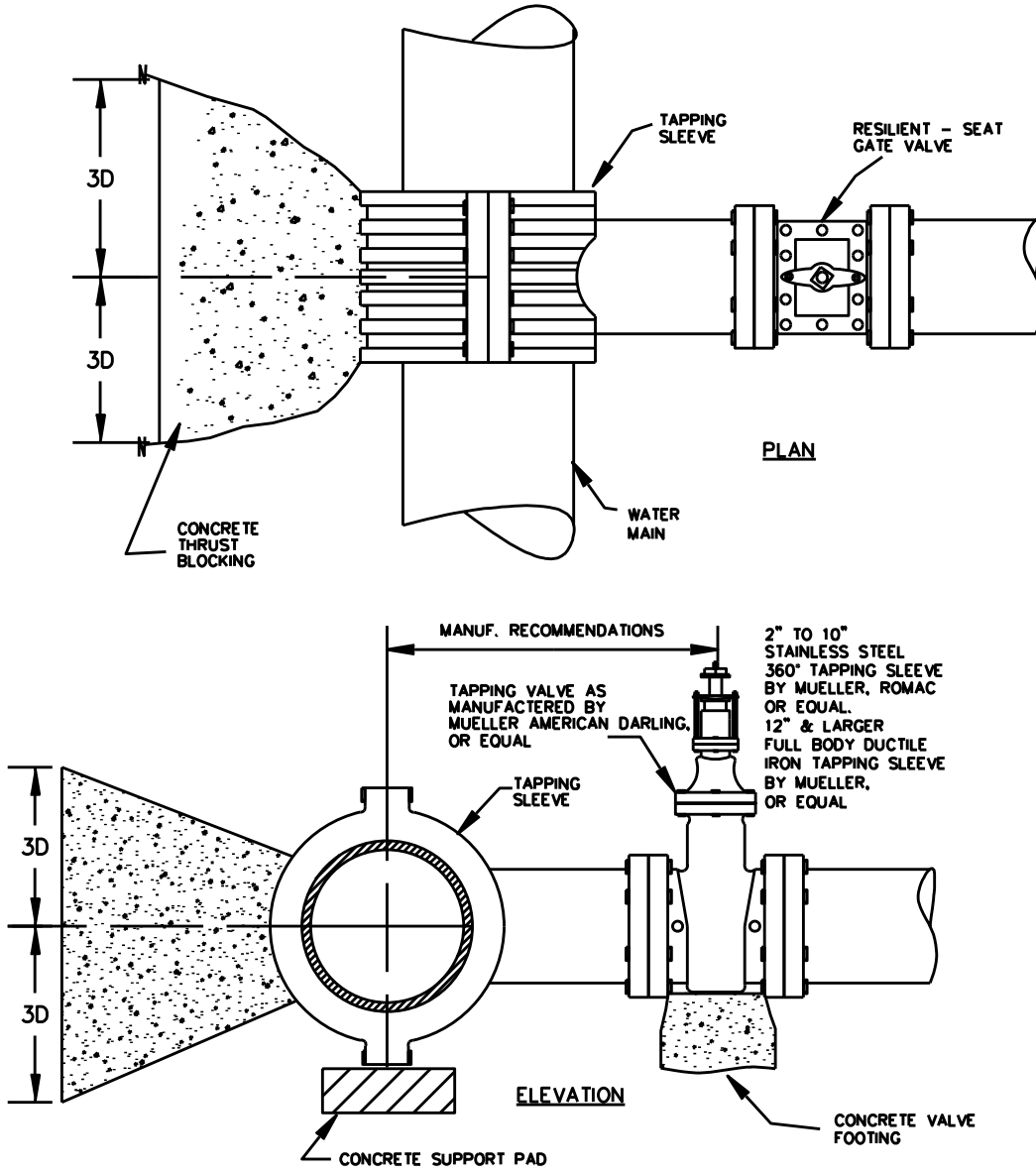
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THRUST BLOCK FOR WATER MAINS (150 PSI WORKING PRESSURE)
NOT TO SCALE



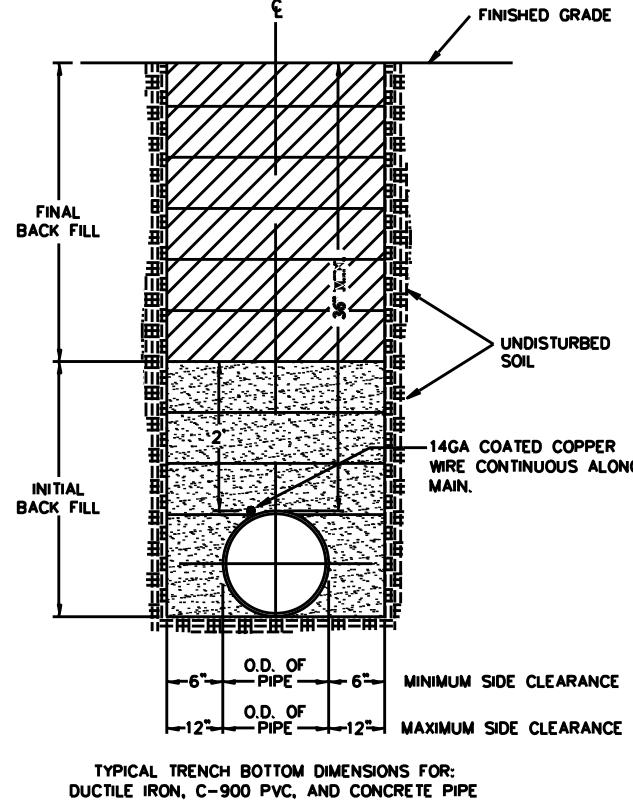
W505

CONCRETE ENCASEMENT FOR MANHOLE & CASTINGS IN PAVEMENT
NOT TO SCALE



W506

TAPPING SLEEVE & VALVE ASSEMBLY
NOT TO SCALE

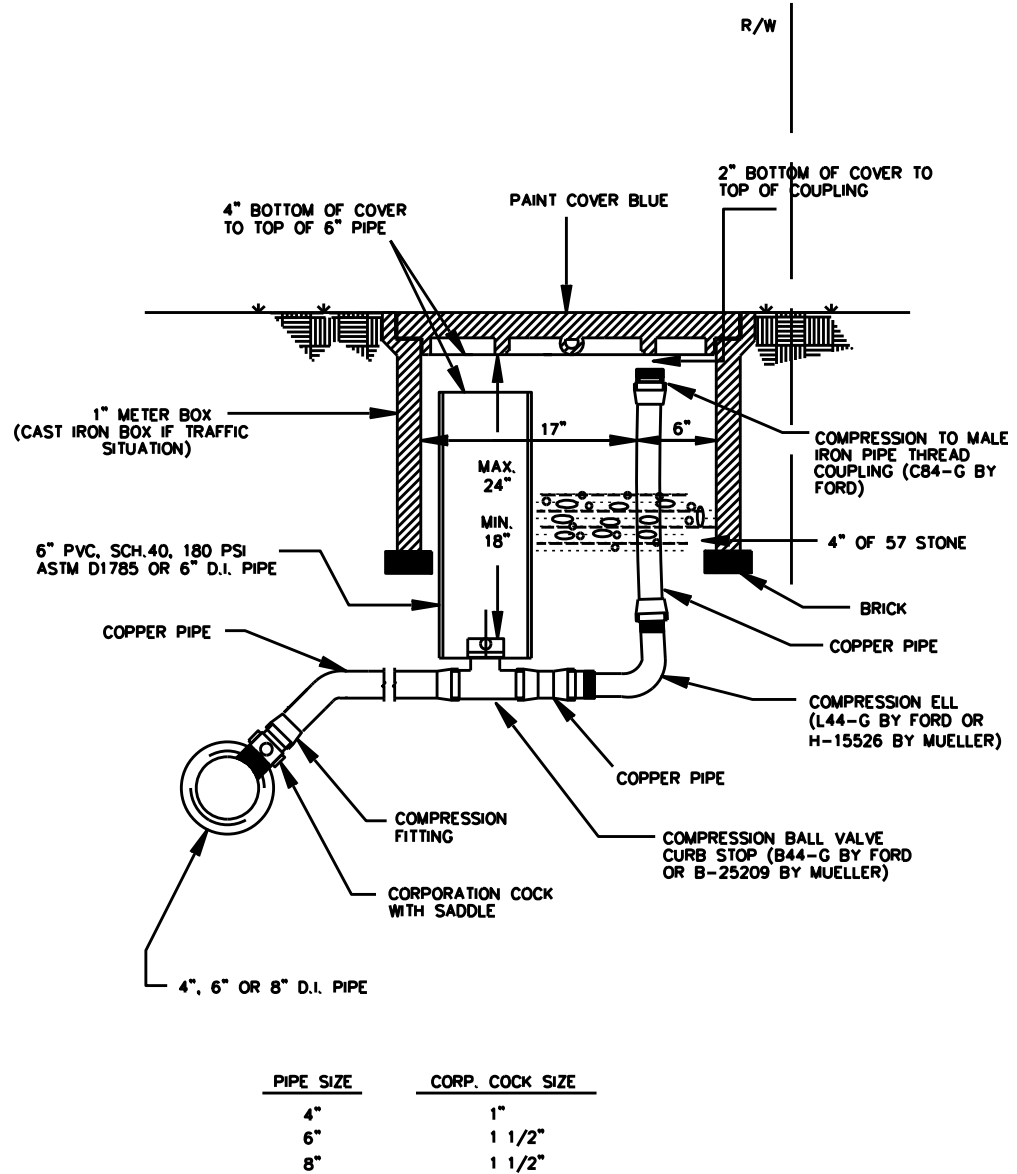


NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING,
DIMENSIONS SHALL BE TAKEN FROM THE
INSIDE FACE OF THE SHORING AND BRACING.
2. NO RODS OR BOULDERS 2" OR LARGER TO
BE USED IN INITIAL BACKFILL.
3. ALL BACKFILLED MATERIAL SHALL BE SUITABLE
MATERIAL.
4. BACK FILL SHALL BE COMPACTED IN 6" LAYERS
IN TRAFFIC AREAS, 12" LAYERS IN NON-
TRAFFIC AREAS USING VIBRATORY EQUIPMENT.

DEPTH OF BEDDING MATERIAL BELOW PIPE	
D	8 (MIN.)
27" & SMALLER	6"
30" - 60"	12"
66" & LARGER	18"

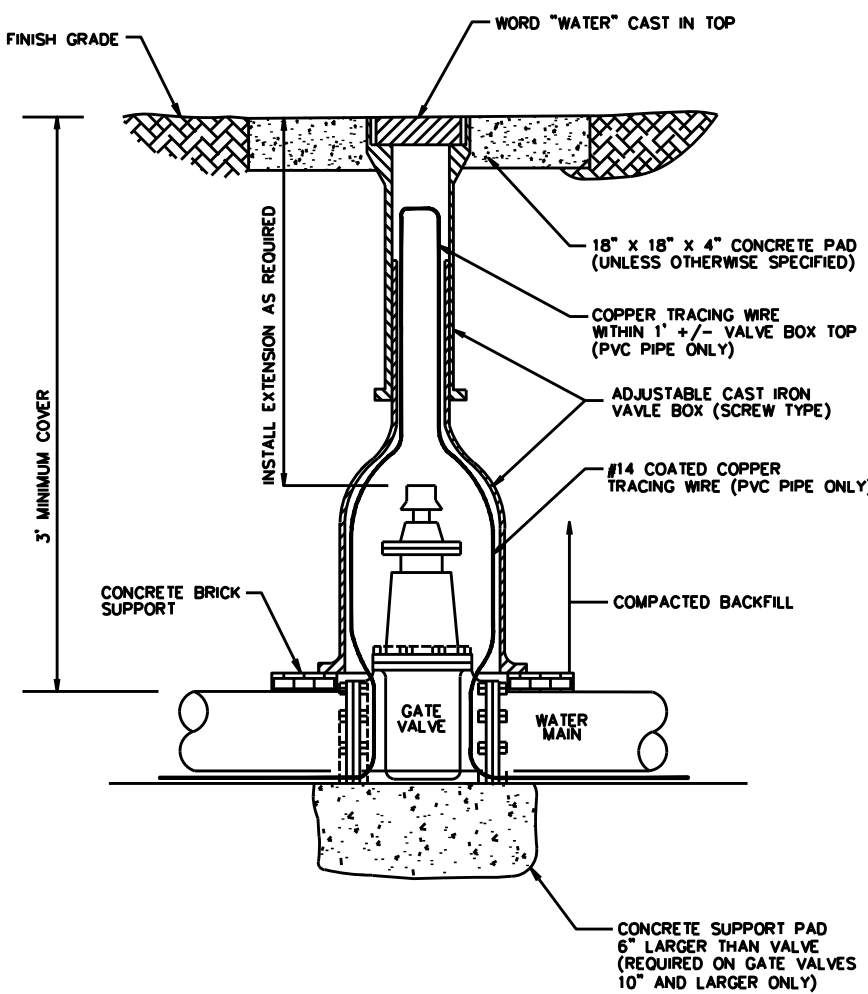
W508

WATER LINE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS
NOT TO SCALE



W510

AIR BLOW-OFF ASSEMBLY
NOT TO SCALE



W513

VERTICAL GATE VALVE ASSEMBLY
NOT TO SCALE

5/14/2025

8/13/2024
\\ss03\local\WSE\Projects\NC_City\03\Server\Engineer\NC_City\03\U-5777\ut-UC-038-3C_details.dgn
3:25:16 PM

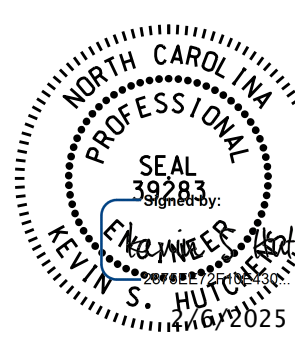
UTILITY CONSTRUCTION DETAILS

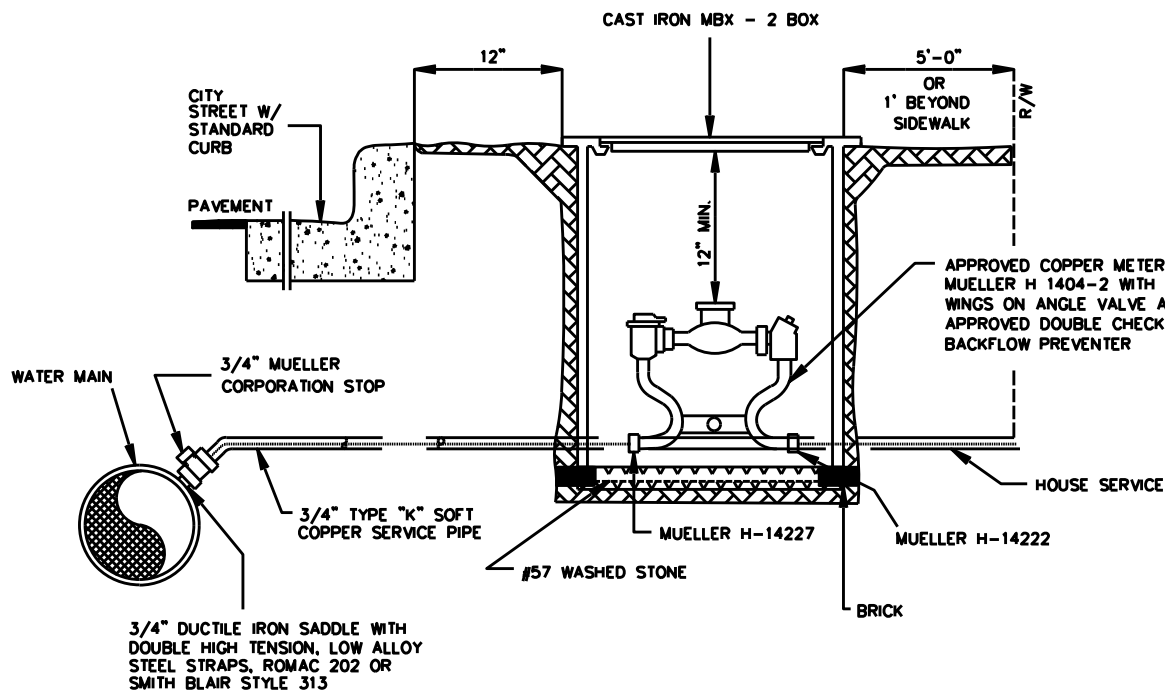
WATER / SEWER

Weston & SampsonTM
WSE of North Carolina, PC
2052 Energy Drive
Phone: 919.297.0220

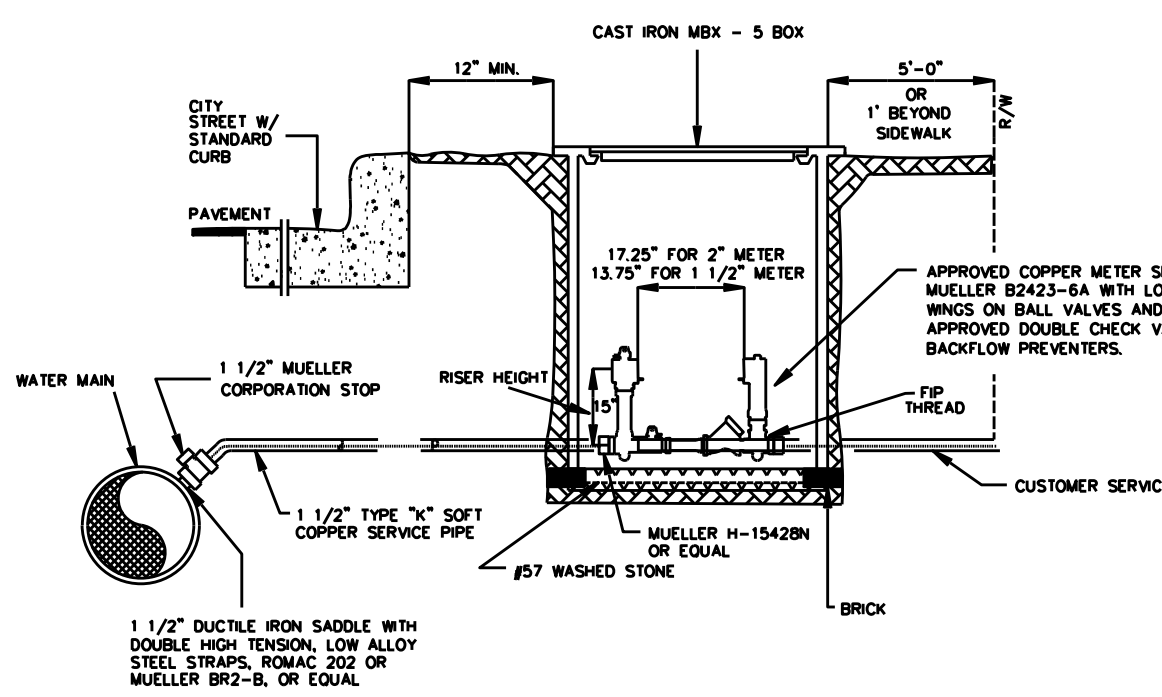
NC
License:
C-4647
Apex, NC 27502
westonandsampson.com

UTILITY CONSTRUCTION

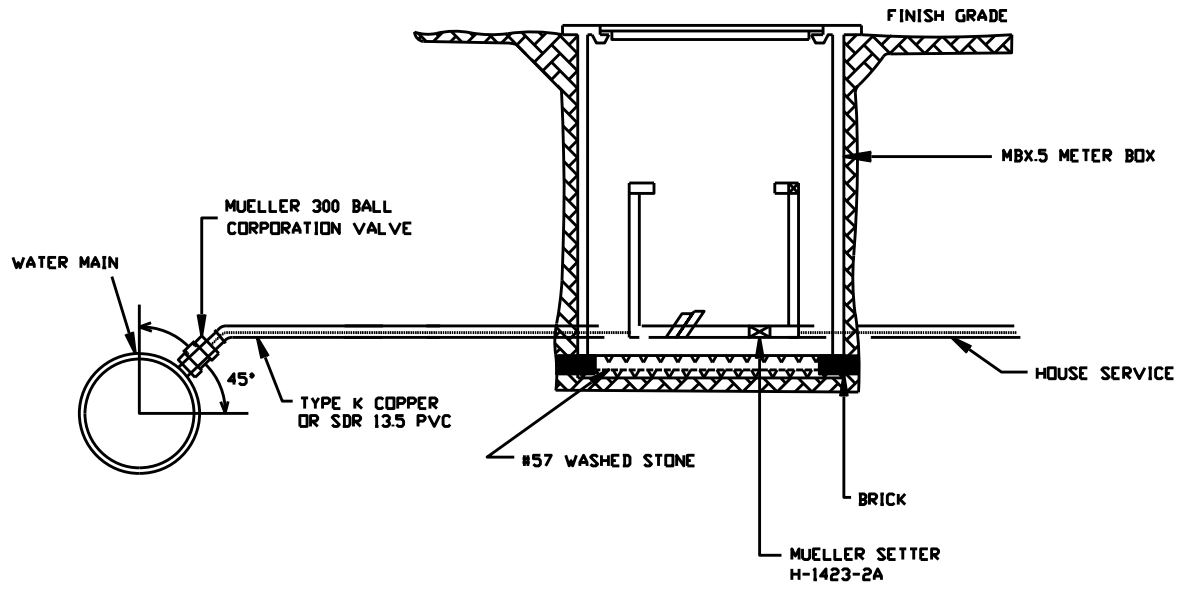
PROJECT REFERENCE NO.		SHEET NO.
U-5777		UC-03C
DESIGNED BY: CAR		UTILITY CONSTRUCTION PLANS ONLY
DRAWN BY: CAR		
CHECKED BY: KSH		
APPROVED BY: KSH		
REVISED:		
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		



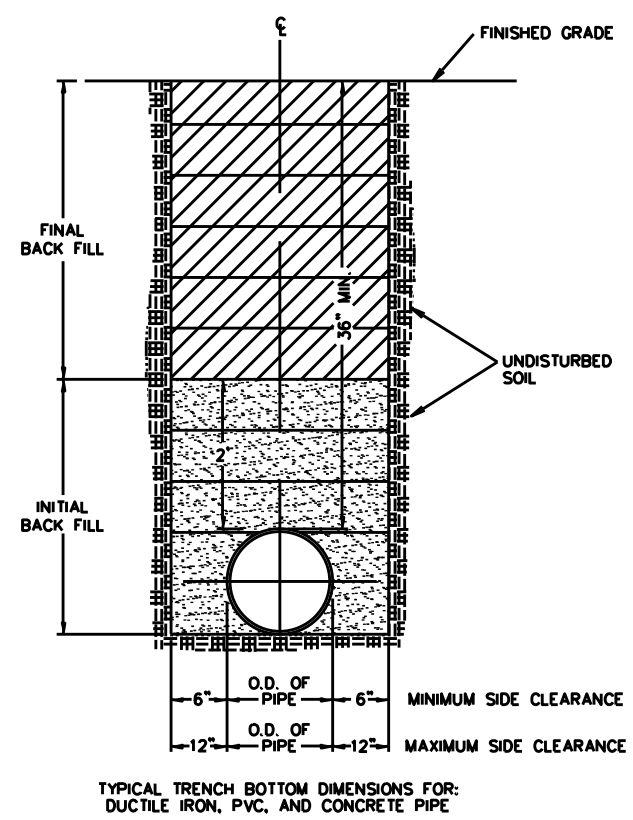
W515A TYPICAL WATER SERVICE CONNECTION (3/4" & 1")
NOT TO SCALE



W515B TYPICAL WATER SERVICE CONNECTION (1 1/2" & 2")
NOT TO SCALE

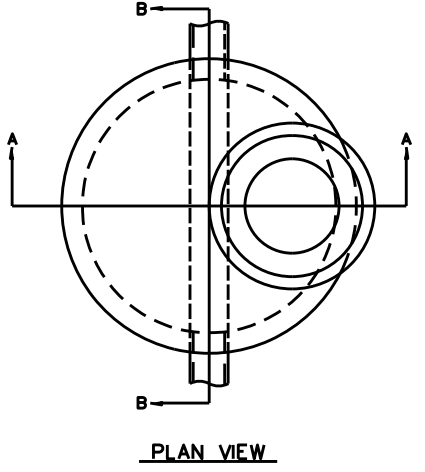


W520 1 1/2" - 2" STANDARD WATER SERVICE CONNECTION
NOT TO SCALE



DEPTH OF BEDDING MATERIAL BELOW PIPE	
D	d (MIN.)
27" & SMALLER	6"
30" - 60"	12"
66" & LARGER	18"

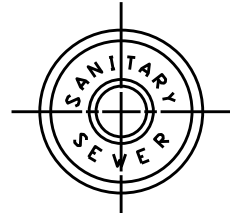
S602 SEWER LINE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS
NOT TO SCALE



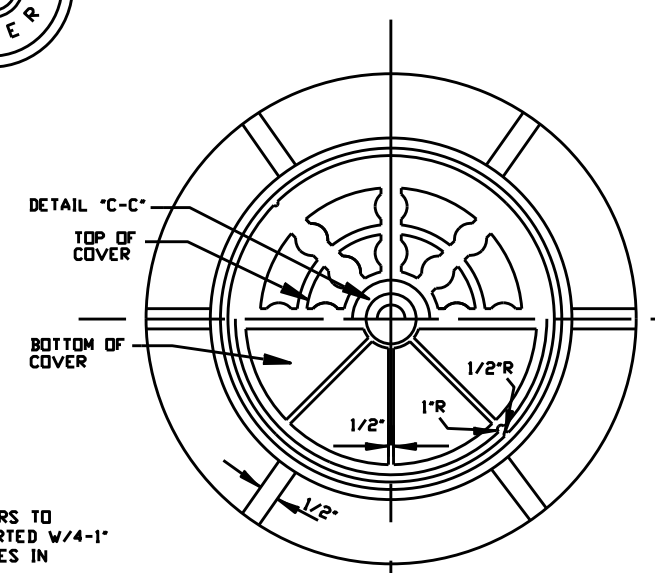
- NOTES:
- ON NEW INSTALLATION, A MAXIMUM OF 2 GRADE RINGS SHALL BE USED.
 - CONCRETE SHALL BE 4000 PSI AS PER ASTM C-476.
 - STEEL REINFORCING SHALL MEET ASTM A-305, A-15, A-160 OR LATEST STANDARD.
 - MANHOLES OVER 3'-0" IN DEPTH SHALL BE PROVIDED WITH STEPS 1'-3" ON CENTER. STEPS SHALL BE IN ACCORDANCE WITH STANDARD NO. 603.
 - INVERT SHALL HAVE 0.20' OF FALL UNLESS OTHERWISE SPECIFIED.

MANHOLE DIAMETER VS. PIPE DIAMETER	
4'-0" = 27" PIPE MAXIMUM	
5'-0" = 36" PIPE MAXIMUM	
6'-0" = ABOVE 36" PIPE	

S603 SANITARY SEWER MANHOLE DETAIL
NOT TO SCALE



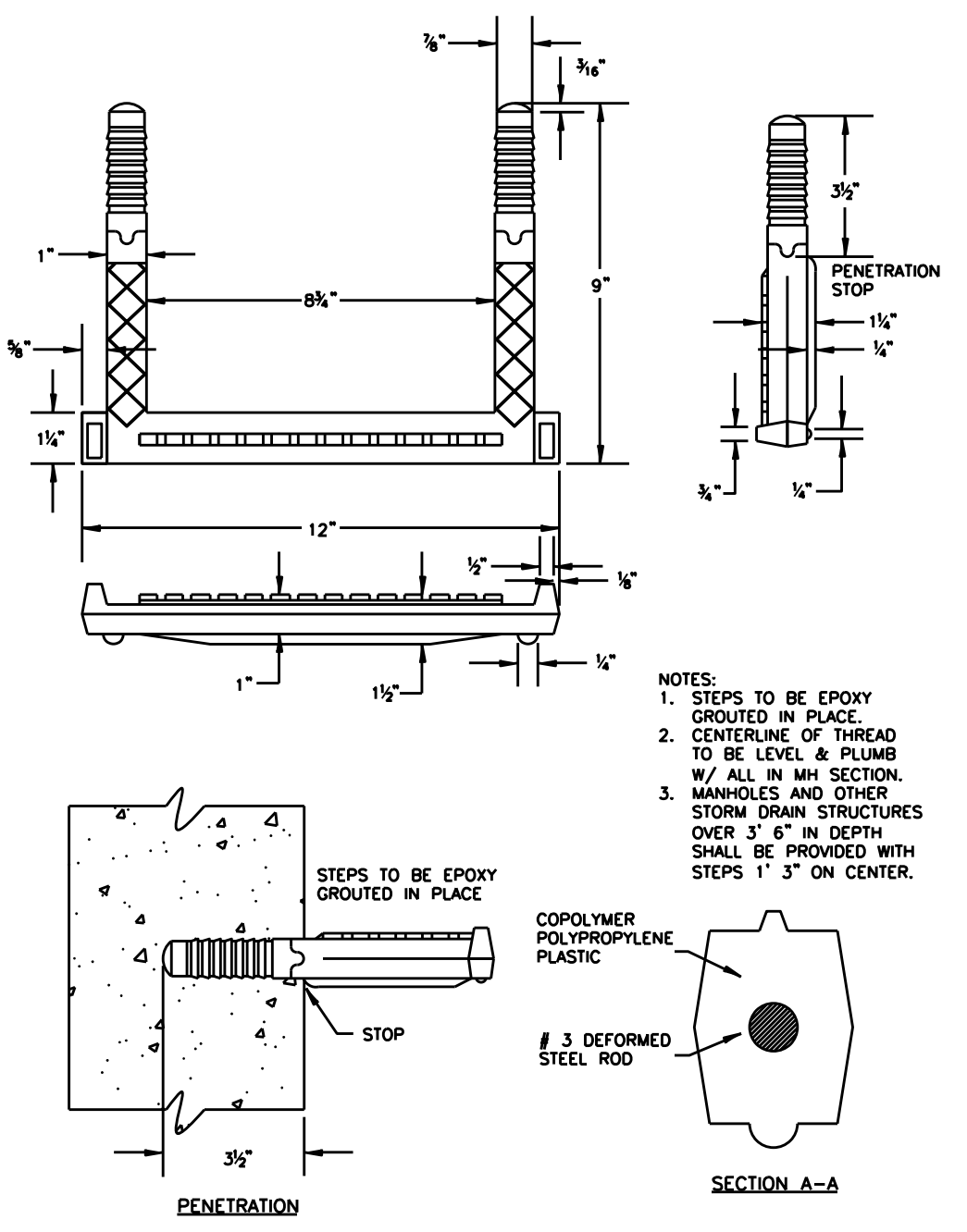
ALL MANHOLE COVERS SHALL MEET ASTM A48-94 OR LATEST STANDARD



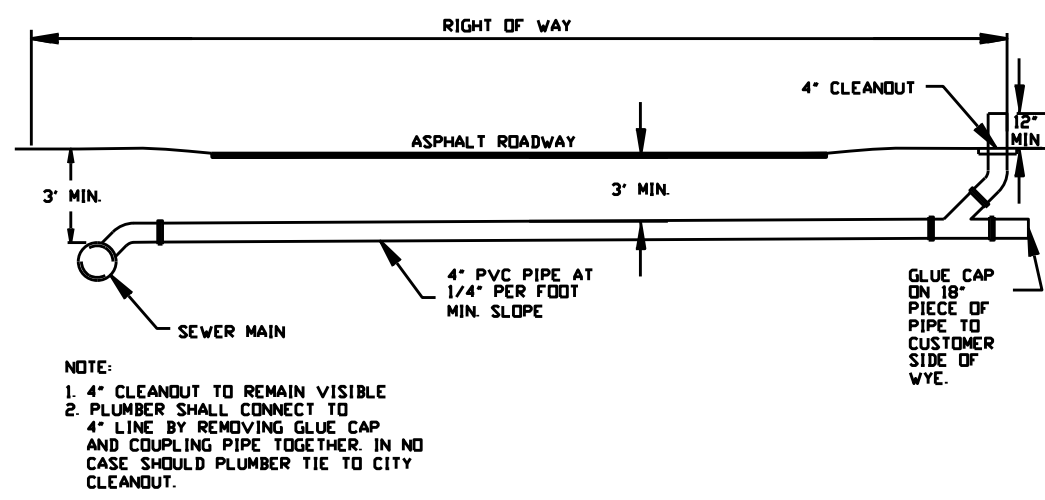
- NOTES:
- ALL COVERS TO BE SUPPORTED W/4-1" VENT HOLES IN COVER
 - ALL RINGS TO BE SUPPORTED W/4-1" DIA ANCHOR HOLES
 - RING & COVER TO BE USF 669/KL OR EQUAL
 - SHORT RAG TO BE USF 668/KN OR EQUAL
 - BOLT DOWN WATER TIGHT RAG TO BE USF 668-KL-BVT OR EQUAL

	A	B	C	D	E	F	G	H
STND	25 1/4	23 1/2	23 1/2	1'	7 1/2	22"	25"	33 1/4
SHORT	25"	23 1/2	23 1/2	1'	4"	22 1/2	23 1/2	33 1/4

S605 STANDARD & SHORT MANHOLE RING & COVER
NOT TO SCALE



S606 MANHOLE STEP FOR PRECAST CONCRETE MANHOLE
NOT TO SCALE



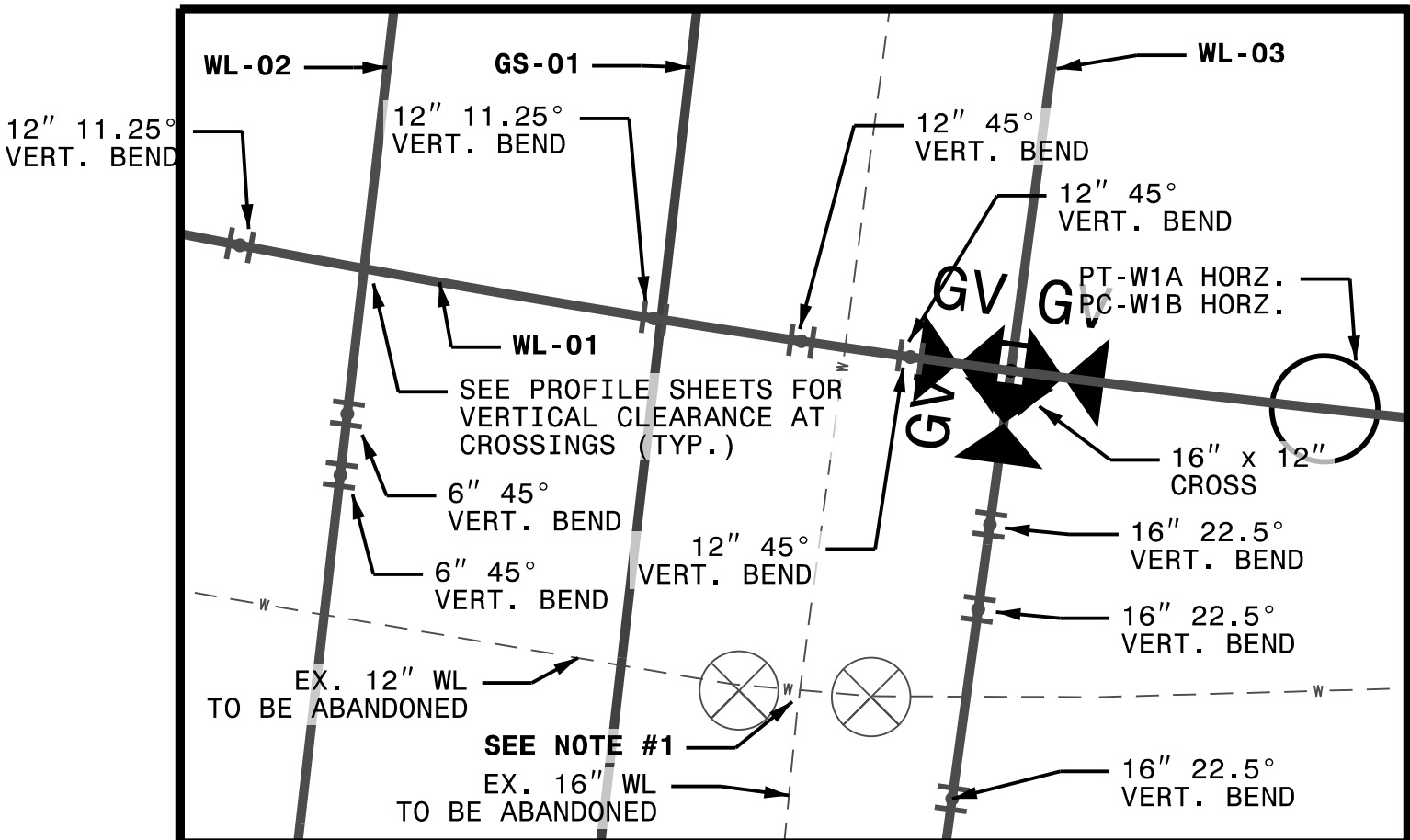
S607 RESIDENTIAL SEWER TAP
NOT TO SCALE

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 9000 LBS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

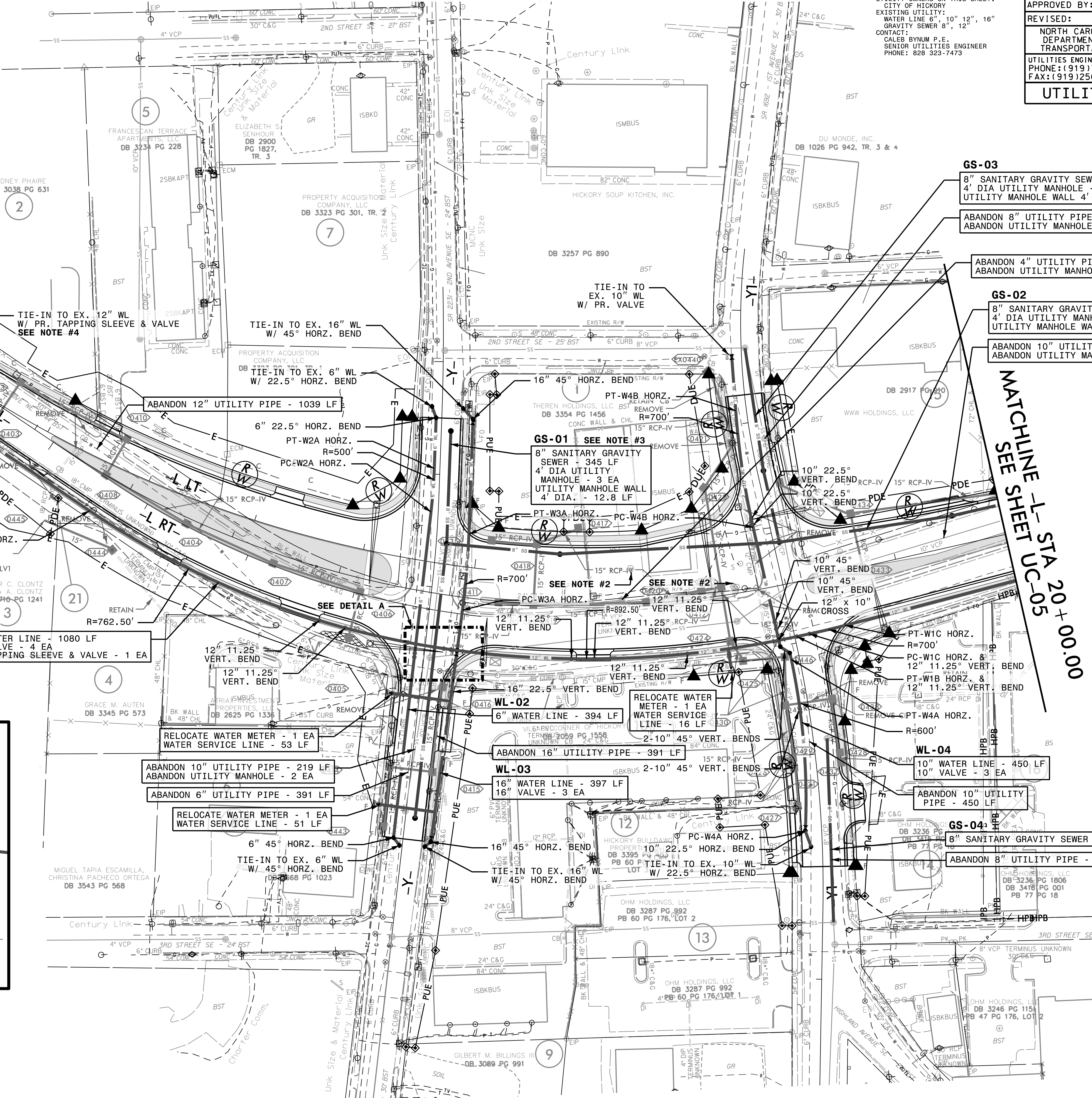
- GENERAL NOTES:
- CONTRACTOR TO VERIFY THE EXISTING CONNECTION (CROSS) OF THE 12-INCH MAIN AND 16-INCH MAIN PRIOR TO REPLACEMENT.
 - PARCELS SERVED BY CITY OF HICKORY SEWER DO NOT HAVE CLEAN-OUTS TO GRADE AND/OR ARE NOT DEPICTED IN THE SURVEY. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING SEWER SERVICE LINES AND COORDINATE WITH THE CITY TO TIE OVER AS NEEDED.
 - THE UTILITY OWNER INDICATES THE EXISTING SEWER PIPES ARE 8-INCH, BUT THE SURVEY SHOWS THEM AS 10-INCH. THE PROPOSED SEWER INFRASTRUCTURE IS DESIGNED AS 8-INCH ACCORDINGLY.
 - THE TAPPING SLEEVE & VALVE FOR WL-01 SHALL BE INSTALLED AS A WET TAP. CONTRACTOR TO COORDINATE WITH THE UTILITY OWNER FOR ABANDONMENT OPERATIONS ON THE EXISTING MAIN.

- REFERENCE SHEET NOTES:
- FOR WL-01 AND WL-02 PROFILES, REFER TO SHEET UC-06.
 - FOR WL-03 AND WL-04 PROFILES, REFER TO SHEET UC-07.
 - FOR GS-01, GS-02, GS-03, AND GS-04 PROFILES, REFER TO SHEET UC-08.
- CURVATURE ABBREVIATIONS:
- PC-W1B HORIZ. = SECOND HORIZONTAL POINT-OF-CURVATURE ALONG WL-01
- PT-W1B HORIZ. = SECOND HORIZONTAL POINT-OF-TANGENCY ALONG WL-01

NAD 83/2011



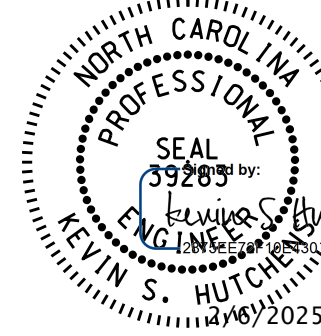
DETAIL A
SCALE: 1" = 10'



Weston & Sampson
WSE of North Carolina, PC
2052 Energy Drive
Phone: 919.297.0220

NC License: C-4847
Apex, NC 27502
westonandsampson.com

WATER / SANITARY SEWER UTILITY OWNERS ON THIS SHEET: CITY OF HICKORY
EXISTING UTILITY: WATER LINE 8", 10", 12", 16" GRAVITY SEWER 8", 12"
CONTACT: CALEB BYNUM P.E. SENIOR UTILITIES ENGINEER PHONE: 828 323-7473

PROJECT REFERENCE NO.		SHEET NO.	
U-5777		UC-04	
DESIGNED BY: KCZ			
DRAWN BY: CAR			
CHECKED BY: KSH			
APPROVED BY: KSH			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY	
UTILITIES ENGINEERING SEC.			
PHONE: (919) 707-6690			
FAX: (919) 250-4151			
UTILITY CONSTRUCTION			

GS-03
8" SANITARY GRAVITY SEWER - 175 LF
4' DIA UTILITY MANHOLE - 1 EA
UTILITY MANHOLE WALL 4' DIA. - 1.5 LF

ABANDON 8" UTILITY PIPE - 213 LF
ABANDON UTILITY MANHOLE - 1 EA

ABANDON 4" UTILITY PIPE - 56 LF
ABANDON UTILITY MANHOLE - 1 EA

GS-02
8" SANITARY GRAVITY SEWER - 494 LF
4' DIA UTILITY MANHOLE - 3 EA
UTILITY MANHOLE WALL 4' DIA. - 11.6 LF

ABANDON 10" UTILITY PIPE - 528 LF
ABANDON UTILITY MANHOLE - 1 EA

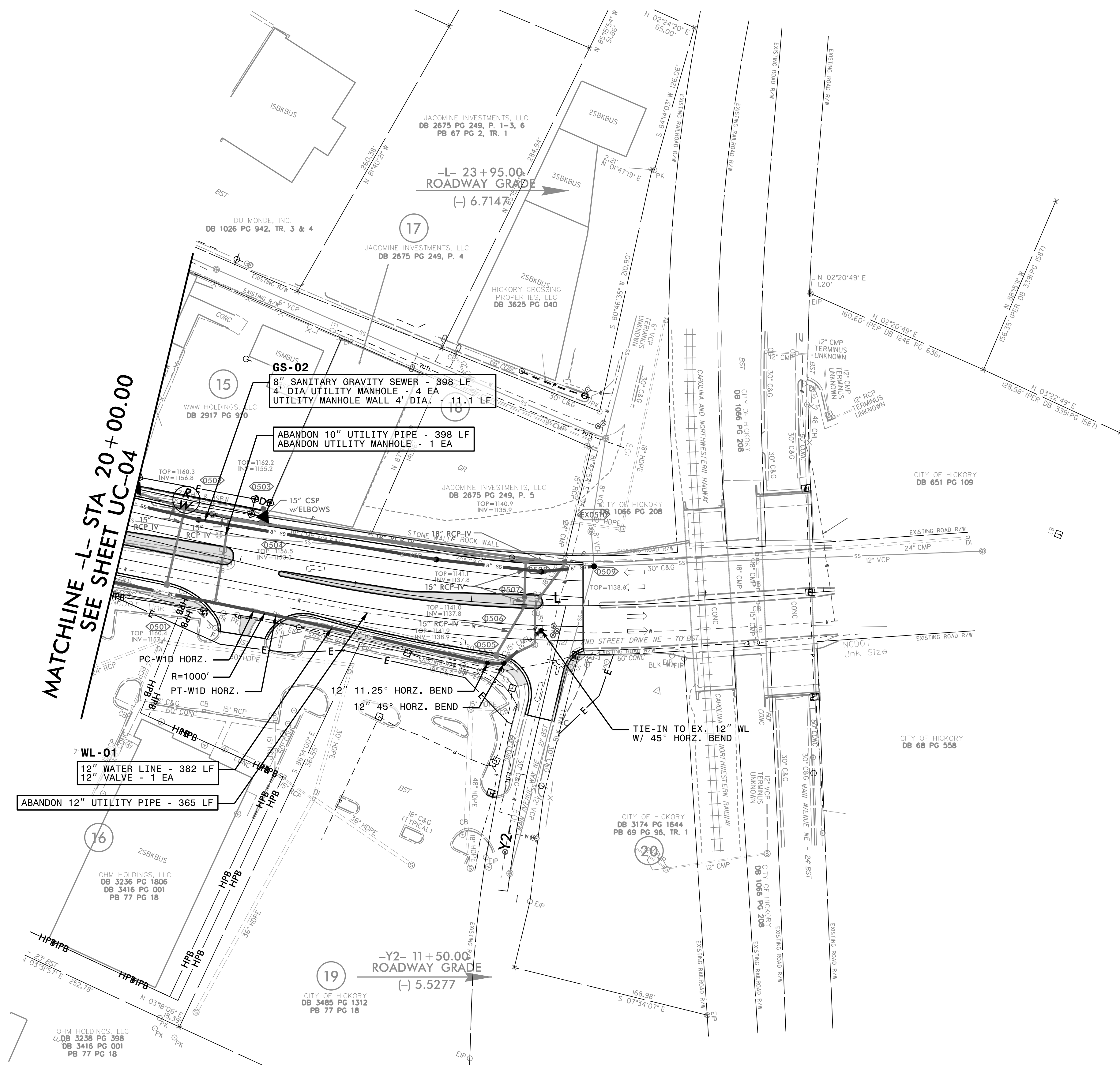
MATCHLINE - STA 20+00.00
SEE SHEET UC-05

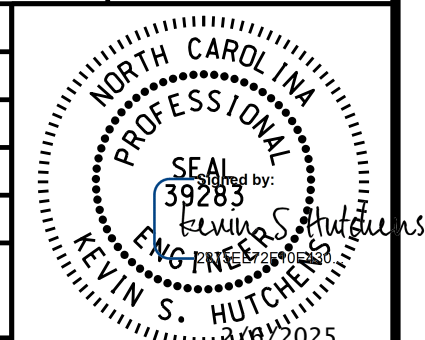
REFERENCE SHEET NOTES:

1. FOR WL-01 PROFILE, REFER TO SHEET UC-06.
2. FOR GS-02 PROFILE, REFER TO SHEET UC-08.

WATER / SANITARY SEWER
UTILITY OWNERS ON THIS SHEET:
CITY OF HICKORY
EXISTING UTILITY:
WATER LINE 12"
GRAVITY SEWER 8", 12"
CONTACT:
CALEB BYNUM P.E.
SENIOR UTILITIES ENGINEER
PHONE: 828 323-7473

A circular professional engineer seal for the State of North Carolina. The outer ring contains the text "NORTH CAROLINA" at the top and "PROFESSIONAL ENGINEER" at the bottom. The inner circle contains the word "SEAL" at the top, the license number "39283" in the center, and the name "KEVIN S. HUTCHINS" at the bottom. To the right of the seal, the text "Expires: 12/31/2025" is printed.







NOTES:

1. EXISTING PIPE AT TIE-IN LOCATIONS ARE ESTIMATED ASSUMING 3 FEET OF COVER. CONTRACTOR SHALL FIELD VERIFY PIPE LOCATION BEFORE STARTING WORK.
2. ALL PROPOSED PIPE ELEVATIONS IN PROFILE REFER TO CENTER OF PIPE UNLESS INDICATED AS INVERT.
3. OPEN TRENCH CONSTRUCTION SHALL PROVIDE 3 FEET MINIMUM COVER FROM FINAL GRADE TO TOP OF PIPE.

