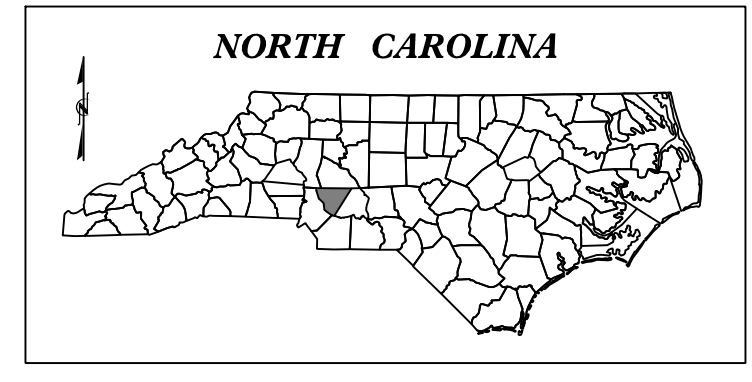


T.I.P. NO.	SHEET NO.
B-5808	UC-1

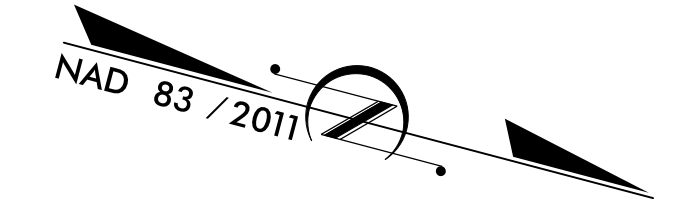


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

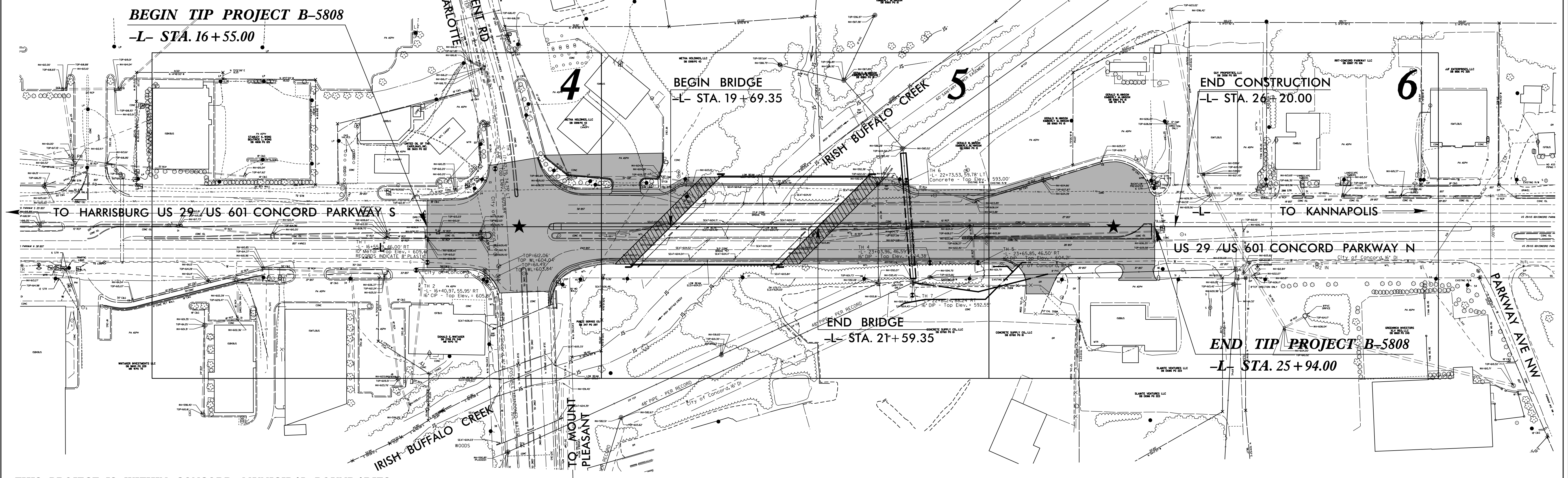
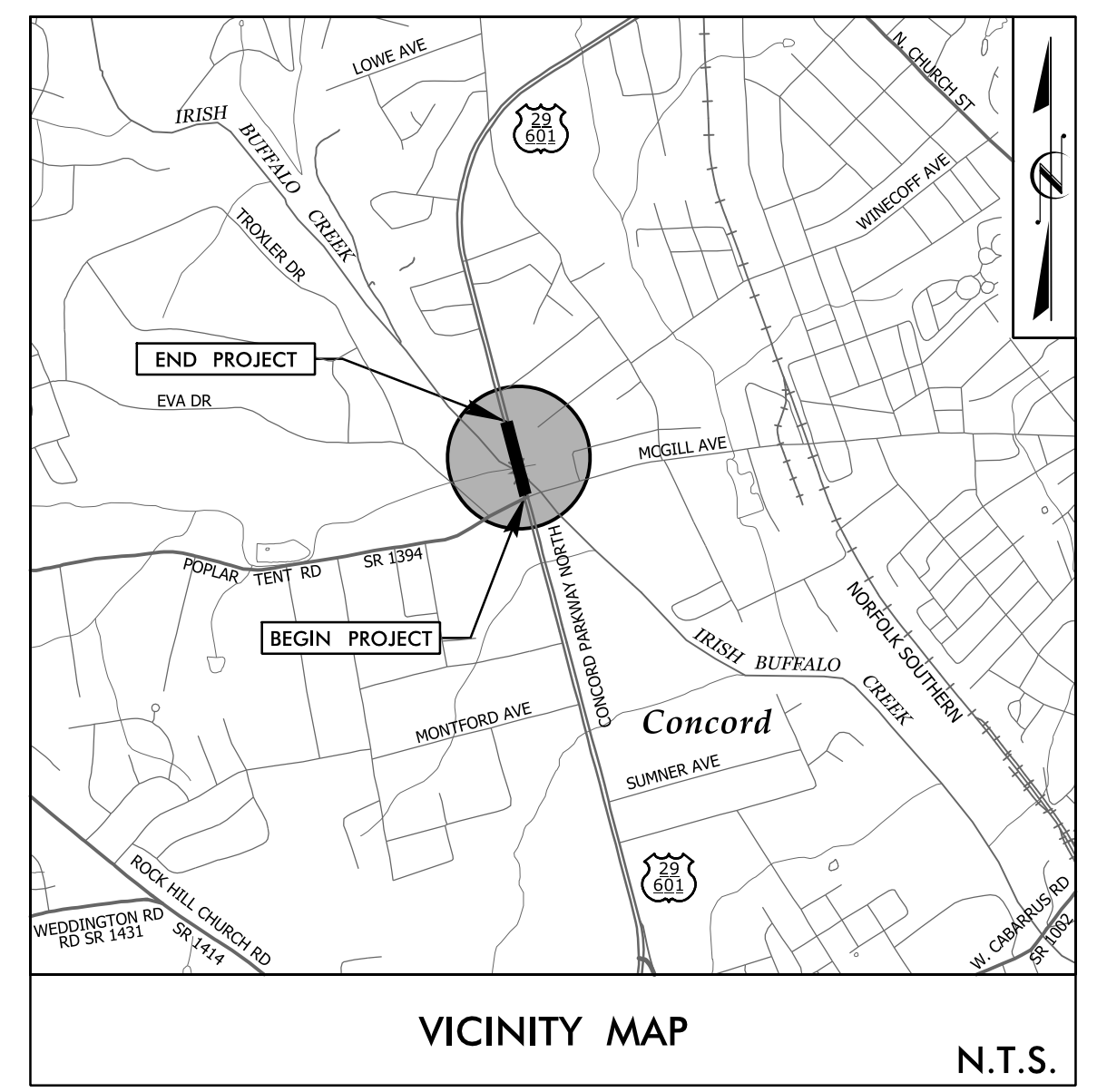
UTILITY CONSTRUCTION PLANS
CABARRUS COUNTY

**LOCATION: BRIDGES #057 & #059 OVER IRISH BUFFALO CREEK
ON US 29 /US 601**

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE & SIGNALS

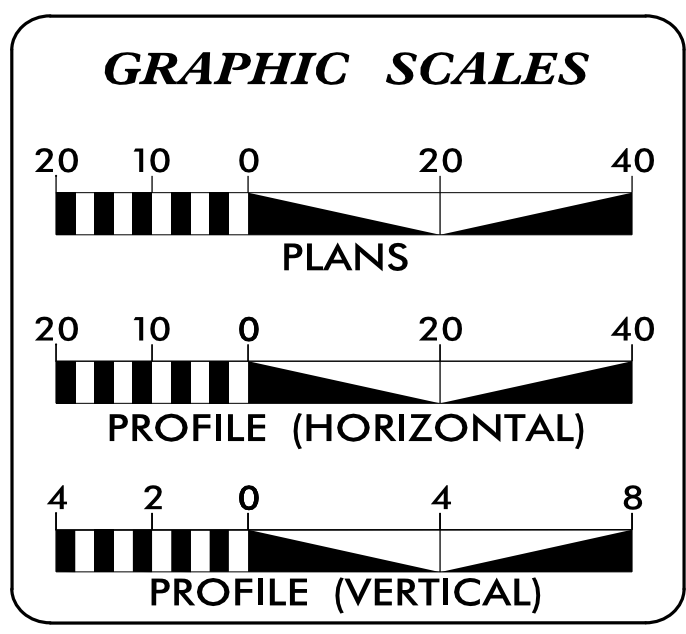


TIP PROJECT: B-5808



**THIS PROJECT IS WITHIN CONCORD MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED
TO THE LIMITS ESTABLISHED BY METHOD II.**

**DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED**



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY NOTES
UC-3	DETAILS
UC-3A THRU UC3E	UTILITY CONSTRUCTION SHEETS
UC-4 THRU UC-6	UTILITY CONSTRUCTION SHEETS
UC-7 THRU UC-8	PROFILE SHEETS

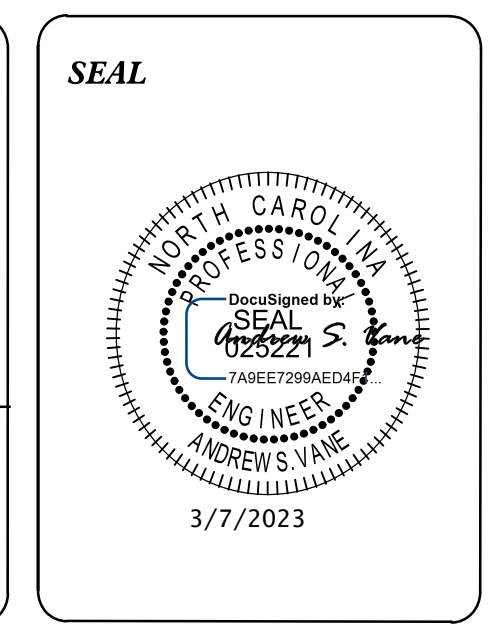
WATER AND SEWER OWNERS ON PROJECT

(A) CITY OF CONCORD
(B) WSACC

PREPARED IN THE OFFICE OF

STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

NIKKI T. HONEYCUTT, PE CONSULTANT CONTACT #1
ANDREW S. VANE PE CONSULTANT CONTACT #2
CONSULTANT CONTACT #3



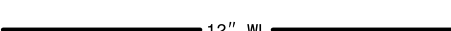























DIVISION OF HIGHWAYS UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH, NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

DON HAMPTON UTILITIES REGIONAL ENGINEER
LYNN BASSINGER UTILITIES ENGINEER
JON GAILLARD UTILITIES AREA COORDINATOR
STEVE TREXLER UTILITIES COORDINATOR


STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS





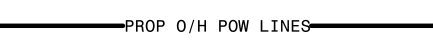
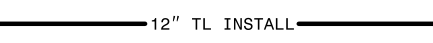
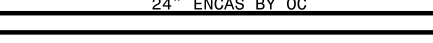
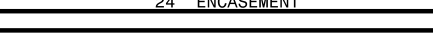
PROPOSED WATER SYMBOLS








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 MISCELLANEOUS 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		*Underground Power Line	
Telephone Pole		*Underground Telephone Cable	
Joint Use Pole		*Underground Telephone Conduit	
Utility Pole		*Underground Fiber Optics Telephone Cable	
Utility Pole with Base		*Underground TV Cable	
H-Frame Pole		*Underground Fiber Optics TV Cable	
Power Transmission Line Tower		*Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		*Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		*Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		*Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
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)
 Designated Utility Line (Type as Shown)

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.

2. THE EXISTING UTILITIES BELONG TO THE CITY OF CONCORD AND WATER AND SEWER AUTHORITY OF CABARUS COUNTY (WSACC).

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE 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. PER CITY OF CONCORD CODE OF ORDINANCE CHAPTER 62, ARTICLE 3, SECTION 62-98 (2) ALL MATERIALS, EQUIPMENT, LABOR, AND WORKMANSHIP ASSOCIATED WITH PUBLIC WATER AND /OR SEWER EXTENSION AND/OR MODIFICATION SHALL BE IN ACCORDANCE WITH AND SUBJECT TO THE WATER AND SEWER AUTHORITY OF CABARRUS COUNTY'S STANDARD SPECIFICATIONS; THE CITY OF CONCORD'S ORDINANCES, POLICIES, AND STANDARD SPECIFICATIONS, AND THE NORTH CAROLINA ADMINISTRATIVE CODE FOR WASTEWATER COLLECTION AND WATER DISTRIBUTION SYSTEMS. IN THE EVENT OF CONFLICT BETWEEN THE WATER AND SEWER AUTHORITY OF CABARRUS COUNTY'S STANDARD SPECIFICATIONS; THE CITY OF CONCORD'S ORDINANCES, POLICIES, AND STANDARD SPECIFICATIONS, OR THE NORTH CAROLINA ADMINISTRATIVE CODE, THE MORE RESTRICTIVE REQUIREMENTS SHALL APPLY.

2. REVIEW AND APPROVAL OF THE PLANS DOES NOT RELIEVE THE OWNER, CONTRACTOR, OR DEVELOPER FROM MEETING THE REQUIREMENTS OF THE CITY OF CONCORD'S OR CABARRUS COUNTY ORDINANCES, POLICIES, AND STANDARD SPECIFICATIONS, (AS APPLICABLE), CONCORD WATER & SEWER POLICIES AND TECHNICAL SPECIFICATIONS, THE STANDARD SPECIFICATION FOR WASTEWATER COLLECTION & WASTE DISTRIBUTION FOR CABARRUS COUNTY (WSACC MANUAL) AND ANY OTHER LOCAL, STATE, AND FEDERAL REGULATIONS & APPROVALS.

3. THE CONTRACTOR MUST CONTACT THE WATER AND SEWER AUTHORITY OF CABARRUS COUNTY (WSACC) AT 704-786-1783 AT LEAST 24 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY RELATED TO SANITARY SEWER SYSTEMS.

4. THE EXISTING WATER MAIN VALVE RIMS AND STEMS AND THE EXISTING SEWER MAIN MANHOLES RIMS ARE TO BE RAISED OR LOWERED TO FINAL GRADE, AS APPLICABLE AND AT LEAST 3-FT OF GROUND COVER IS TO BE MAINTAINED OVER THE EXISTING UTILITIES AT ALL TIMES PER THE CITY OF CONCORD CODE OF ORDINANCE CHAPTER 62, ARTICLE 3, SECTION 62-98.

5. PER THE CITY OF CONCORD CODE OF ORDINANCE CHAPTER 62, ARTICLE 3, SECTION 62-98- THE FOLLOWING MINIMUM SEPARATIONS MUST BE INDICATED, UNLESS OTHERWISE APPROVED BY THE CITY.
 A MINIMUM HORIZONTAL SEPARATION OF FIVE FEET SHALL BE MAINTAINED BETWEEN ANY TYPE OF MAINTENANCE OBSTRUCTION AND THE CITY'S WATER DISTRIBUTION LINES, WASTEWATER COLLECTION LINES, AND ASSOCIATED APPURTENANCES, UNLESS AN EXCEPTION IS GRANTED. GREATER SEPARATION DISTANCES MAY BE REQUIRED AS SPECIFIED BY FEDERAL, STATE, OR LOCAL REGULATIONS.

6. A MINIMUM VERTICAL SEPARATION OF TWO FEET SHALL BE MAINTAINED BETWEEN ANY TYPE OF MAINTENANCE OBSTRUCTION, INCLUDING BUT NOT LIMITED TO ANY OTHER UTILITY PROVIDER'S LINES OR EQUIPMENT, AND THE CITY WATER DISTRIBUTION LINES, WASTEWATER COLLECTION LINES, AND ASSOCIATED APPURTENANCES, UNLESS AN EXCEPTION IS GRANTED. IF AN EXCEPTION IS GRANTED, A MINIMUM VERTICAL SEPARATION OF ONE FOOT MUST BE MAINTAINED AND THE CITY WATER DISTRIBUTION LINES, WASTEWATER COLLECTION LINES, AND ASSOCIATED APPURTENANCES SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE OR AN APPROVED FERROUS MATERIAL WITH JOINTS THAT ARE EQUIVALENT TO POTABLE WATER MAIN STANDARDS FOR A DISTANCE OF TEN FEET ON EITHER SIDE OF THE POINT OF CROSSING. GREATER SEPARATION DISTANCES MAY BE REQUIRED AS SPECIFIED BY FEDERAL, STATE, OR LOCAL REGULATIONS.

7. A MINIMUM HORIZONTAL SEPARATION OF TEN FEET SHALL BE MAINTAINED BETWEEN THE CITY WATER DISTRIBUTION SYSTEM AND WASTEWATER COLLECTION LINES, AND ASSOCIATED APPURTENANCES, UNLESS AN EXCEPTION IS GRANTED.

8. THE CONTRACTOR SHALL NOTE THE GRAPHICAL REPRESENTATION OF VALVE, TEE, HYDRANT, METER, ETC. LOCATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY.

9. CONTRACTOR SHALL OBTAIN THE LOCATION AND ELEVATIONS OF EXISTING WATER AND SEWER PIPES; AND DENOTE IN AS-BUILT AND RECORD DRAWINGS THE EXISTING MATERIAL TYPE AND LINEAR FOOTAGE RERQUIREMENTS AT ALL PROPOSED CROSSINGS BETWEEN THE CITY'S PUBLIC MAINS AND ALL OTHER UTILITIES, STORM SEWER, AND/OR OTHER MAINTENANCE OBSTRUCTIONS AND THE FINAL GRADE ELEVATION AT EACH CROSSING FOR RECORDS.

10. CONTRACTOR SHALL NOTIFY THE DESIGNATED CITY OF CONCORD CONSTRUCTION INSPECTOR AND THE PROFESSIONAL ENGINEER OF ANY UTILITY CONFLICTS WHERE THE CITY OF CONCORD'S MINIMUM GROUND COVER AND UTILITY SEPARATIONS CANNOT BE MET TO OBTAIN RESOLUTION AND/OR A FORMAL FIELD REVISION REVIEWED AND APPROVAL BY THE CITY OF CONCORD.

11. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS, RECORD DRAWINGS AND CERTIFICATION OF THE CONSTRUCTED PUBLIC WATER AND SEWER UTILITY MODIFICATION/EXTENSIONS IN COMPLIANCE WITH THE CITY OF CONCORD CODE OF ORDINANCE CHAPTER 62, ARTICLE 3, SECTION 62-85 THROUGH 62-93.

12. RELOCATED AND/OR ADJUSTED WATER SERVICES, SEWER LATERALS, BACKFLOW UNITS AND OTHER APPURTANANCES SHALL COMPLY WITH THE THE CITY'S STANDARDS, NC PLUMBING CODE AND CABARRUS COUNTY BUILDING INSPECTION PERMIT REQUIREMENTS. BACKFLOW UNITS SHALL BE RECERTIFIED BY A LICENSED CERTIFIED BACKFLOW TECHNICIAN AND REPORTS SHALL BE SUBMITTED TO THE CITY THROUGH THE ONLINE REPORTING PORTAL LOCATED ON THE CITYOF CONCORD'S WATER RESOURCES BACKFLOW PREVENTION WEB PAGE.

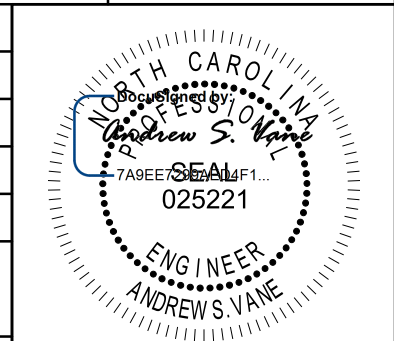
13. THE CONTRACTOR AFTER RECEIVING AUTHORIZATION FROM THE DESIGNATED CITY OF CONCORD CONSTRUCTION INSPECTOR AND WATER RESOURCES SHALL INCORPORATE INSERTION VALVES AND MUST MAKE EVERY EFFORT TO LIMIT THE DURATION OF ANY WATER SUPPLY DISRUPTION/LOSS TO 6 HOURS OR LESS. ANY PLANNED DISRUPTION OF WATER SERVICE/SERVICE DISRUPTION MUST BE SCHEDULED DURING OFF PEAK DEMAND HOURS BETWEEN MIDNIGHT TO 6:00AM AND IN CLOSE COORDINATION WITH NCDOT AND THE CITY OF CONCORD.

14. THE CONTRACTOR SHALL NOTIFY THE ASSIGNED CITY OF CONCORD CONSTRUCTION INSPECTOR AT LEAST 48 HOURS IN ADVANCE OF ANY SCHEDULED WATER SERVICE LOSS OR DISRUPTION, AND PROVIDE WRITTEN NOTIFICATION ON A CITY APPROVED FORM TO EACH CITY OF CONCORD CUSTOMER THAT SPECIFIES THE DAY AND DURATION OF ANY SCHEDULED WATER SERVICE LOSS OR DISRUPTION.

15. CONTRACTOR SHALL UTILITZE THE FOLLOWING CITY WATER RESOURCES CONTACT INFORMATION FOR NOTIFICATION OF EXTENDED SERVICE DISRUPTIONS AND/OR UNAUTHORIZED WATER DISTRIBUTION BREAKS AND/OR WASTEWATER SSOS:
 FOR WATER SERVICE ISSUES: ANTHONY ALLMAN, WATER RESOURCES OPERATIONS MANAGER, 704-920-5355 (OFFICE) OR 704-202-4966 (CELL)
 FOR WASTEWATER SPILLS (SSO): CHAD GRIMM, WASTE WATER SUPERINTENDENT, 704-920-5355 (OFFICE) OR 704-796-4114 (CELL). FOR AFTER BUSINESS HOURS, PLEASE CALL CUSTOMER SERVICE AT 704-920-5555

PROJECT REFERENCE NO.		SHEET NO.	
B-5808		UC-3	
DESIGNED BY:	NKA		
DRAWN BY:	NKA		
CHECKED BY:	ASV		
APPROVED BY:			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151			
UTILITY CONSTRUCTION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
		STV Engineers, Inc. 300 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	

UTILITY CONSTRUCTION

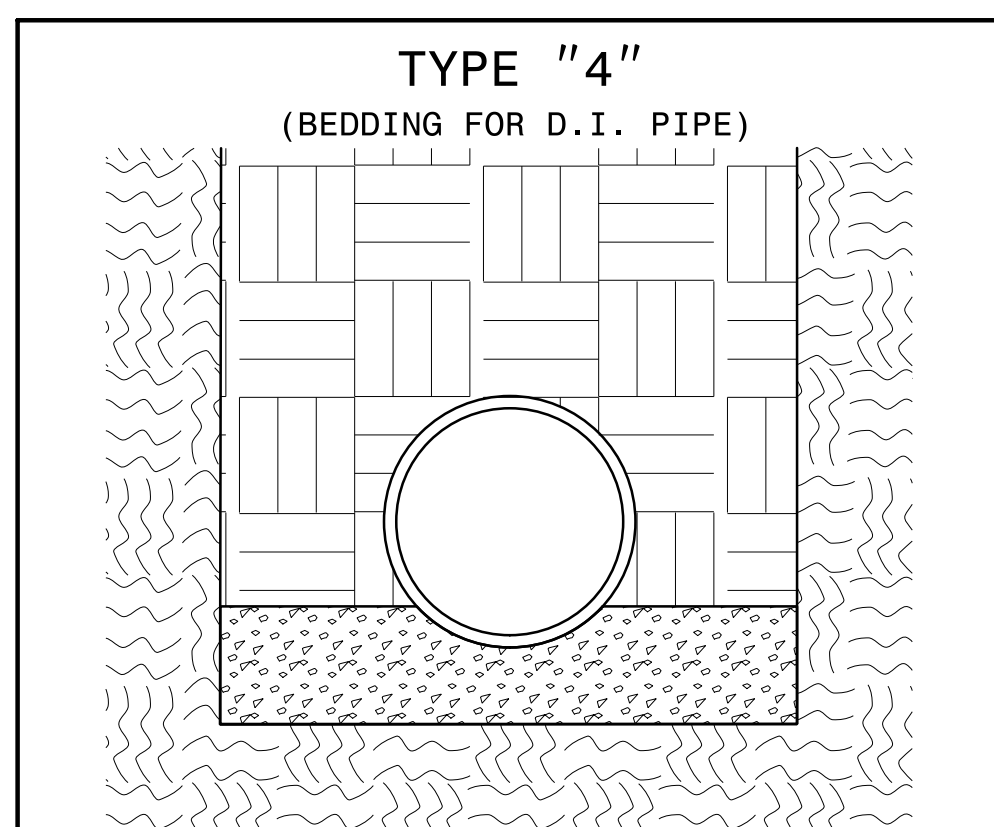
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DESIGNED BY: NKA	
DRAWN BY: NKA	
CHECKED BY: ASV	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	1/11/2023
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991



PIPE BEDDED IN SAND, GRAVEL OR CRUSHED STONE TO A DEPTH OF 1/8 PIPE DIAMETER, 4" MINIMUM UNDER PIPE. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL, IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

MAXIMUM TRENCH WIDTH AT TOP OF PIPE

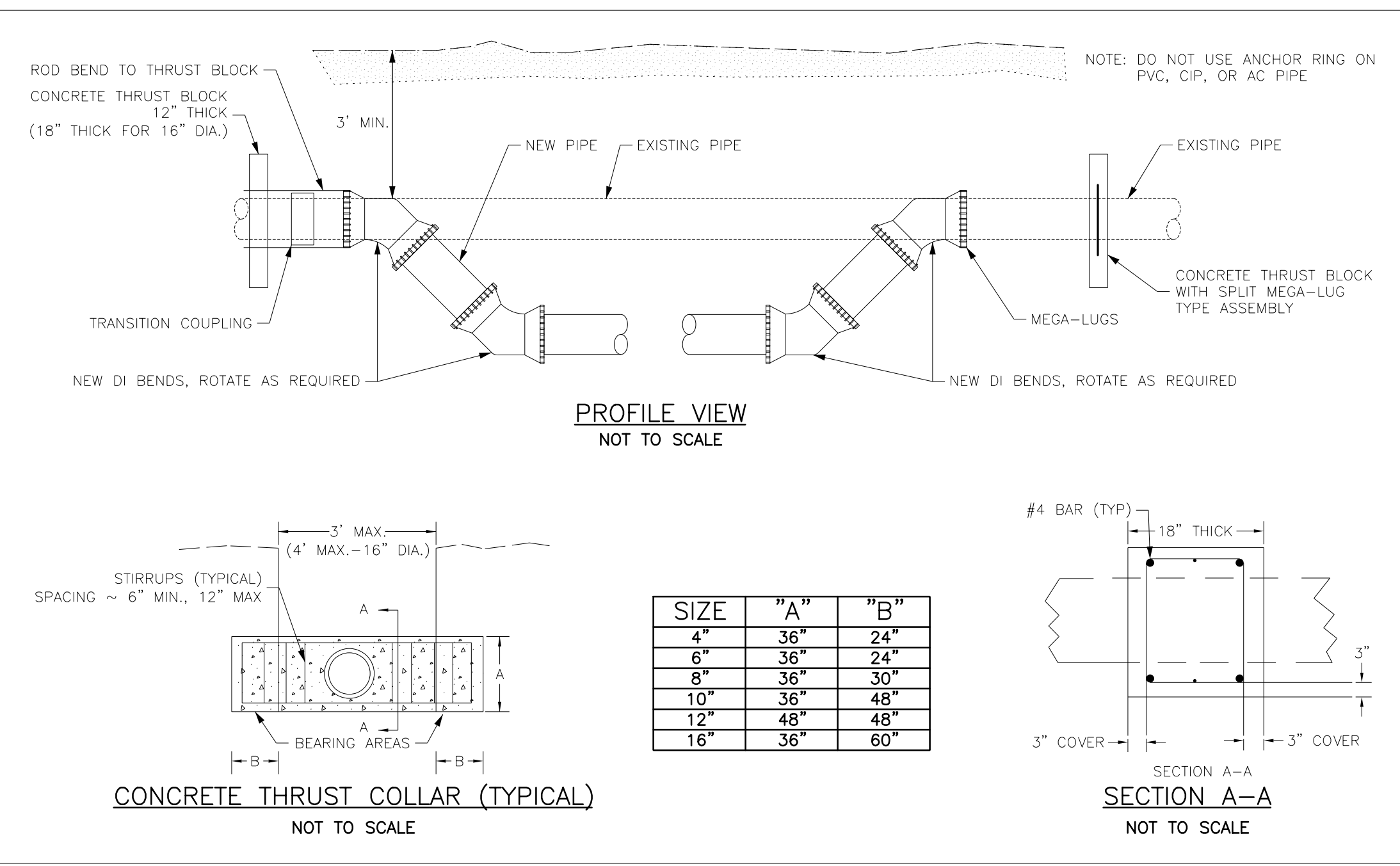
NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		

LIST OF CITY OF CONCORD STANDARD DETAILS

- DIRECT BURY BUTTERFLY VALVE INSTALLATION
- 2-INCH COMMERCIAL WATER SERVICE METER
- 3/4-INCH AND 1-INCH IRRIGATION OR COMMERCIAL WATER SERVICE METER
- 3/4-INCH AND 1-INCH RESIDENTIAL WATER SERVICE METER
- TYPICAL AIR RELEASE
- BLOW-OFF ASSEMBLY
- FIRE HYDRANT
- TYPICAL VALVE BOX
- TYPICAL ANCHOR BLOCK
- TYPICAL UTILITY LAYOUT
- RELATION OF WATER MAINS TO SEWER MAINS
- RELATION OF WATER MAINS AND SEWER MAINS TO STORM SEWER
- DOGHOUSE CONCRETE MANHOLE

LIST OF WSACC STANDARD DETAILS

- W3.0 RELATION OF WATER MAINS TO SANITARY SEWER MAINS
- W4.0 RELATION OF WATER MAINS AND SANITARY SEWER MAINS TO STORM SEWERS
- WS1.0 EMBEDMENTS FOR MAIN
- M1.0 ENCASEMENT PIPE UNDER HIGHWAYS AND RAILROADS
- M2.0 CASING SPIDER DETAIL
- S4.0 DROP MANHOLE DETAIL
- WS1.0 PIPE BEDDING DETAIL



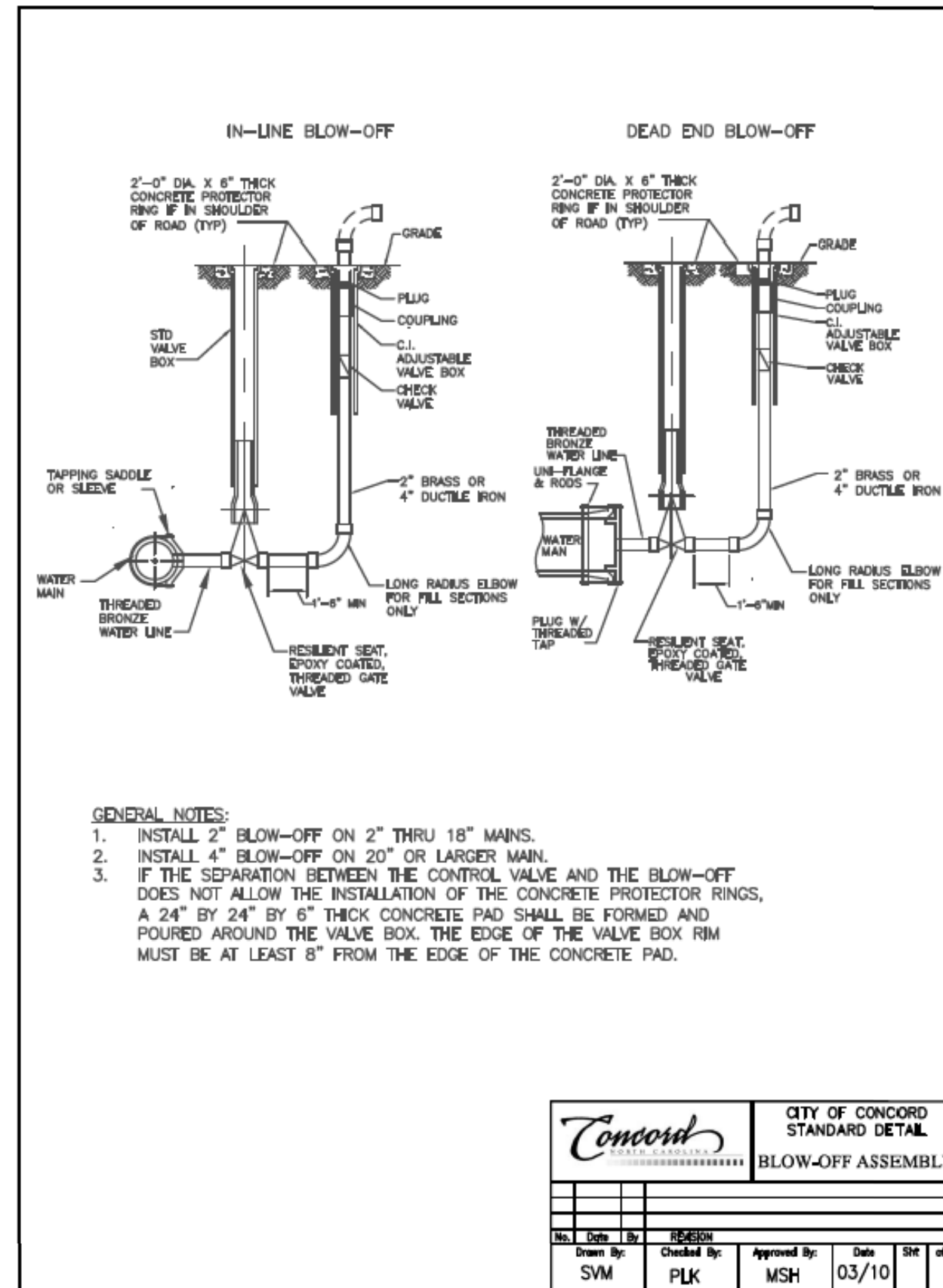
CITY OF CONCORD STANDARD DETAILS

PROJECT REFERENCE NO.	SHEET NO.
B-5808	UC-3B
DESIGNED BY: NKA	
DRAWN BY: NKA	
CHECKED BY: ASV	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	1/11/2023 UTILITY CONSTRUCTION PLANS ONLY

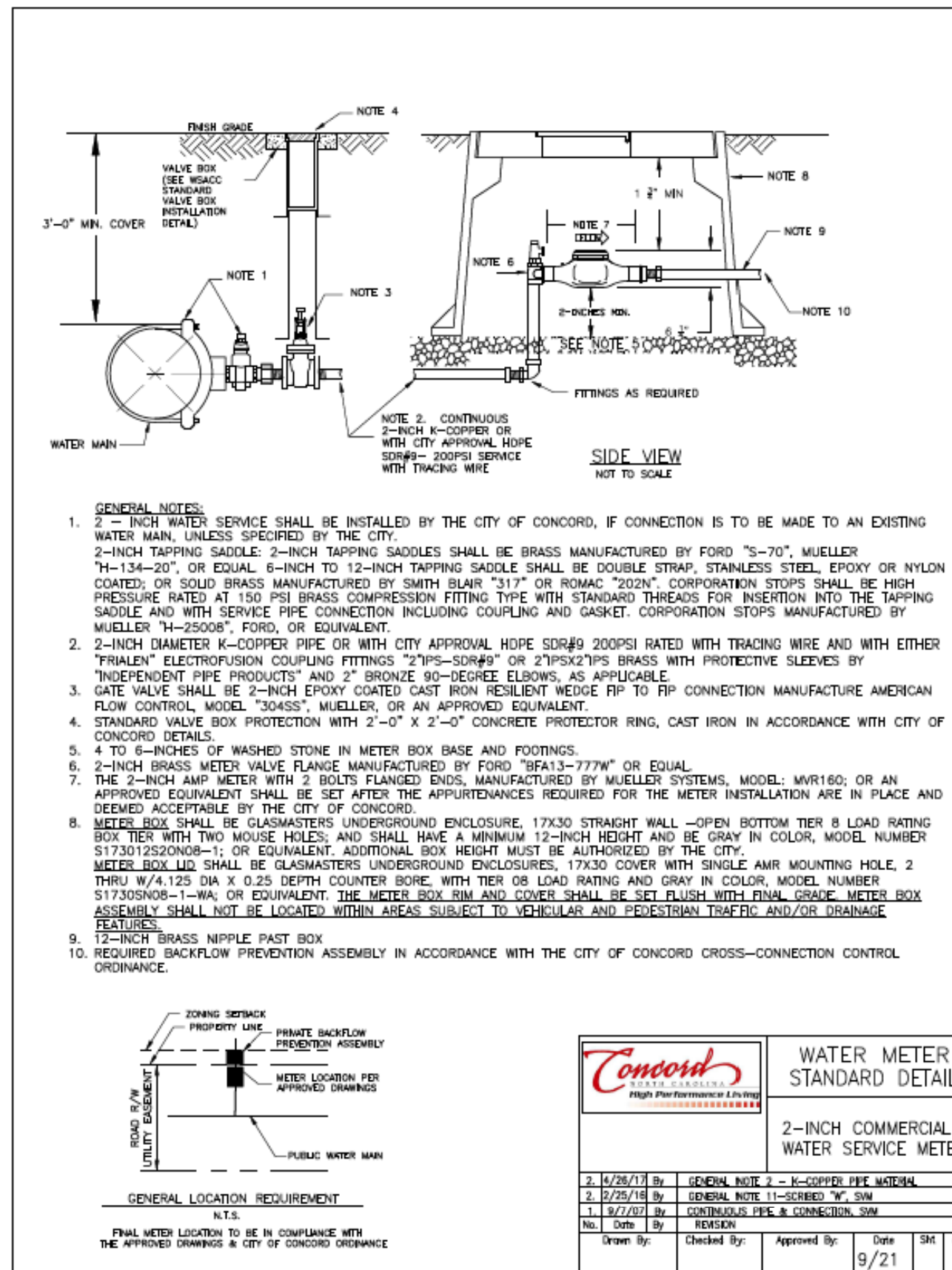
UTILITY CONSTRUCTION

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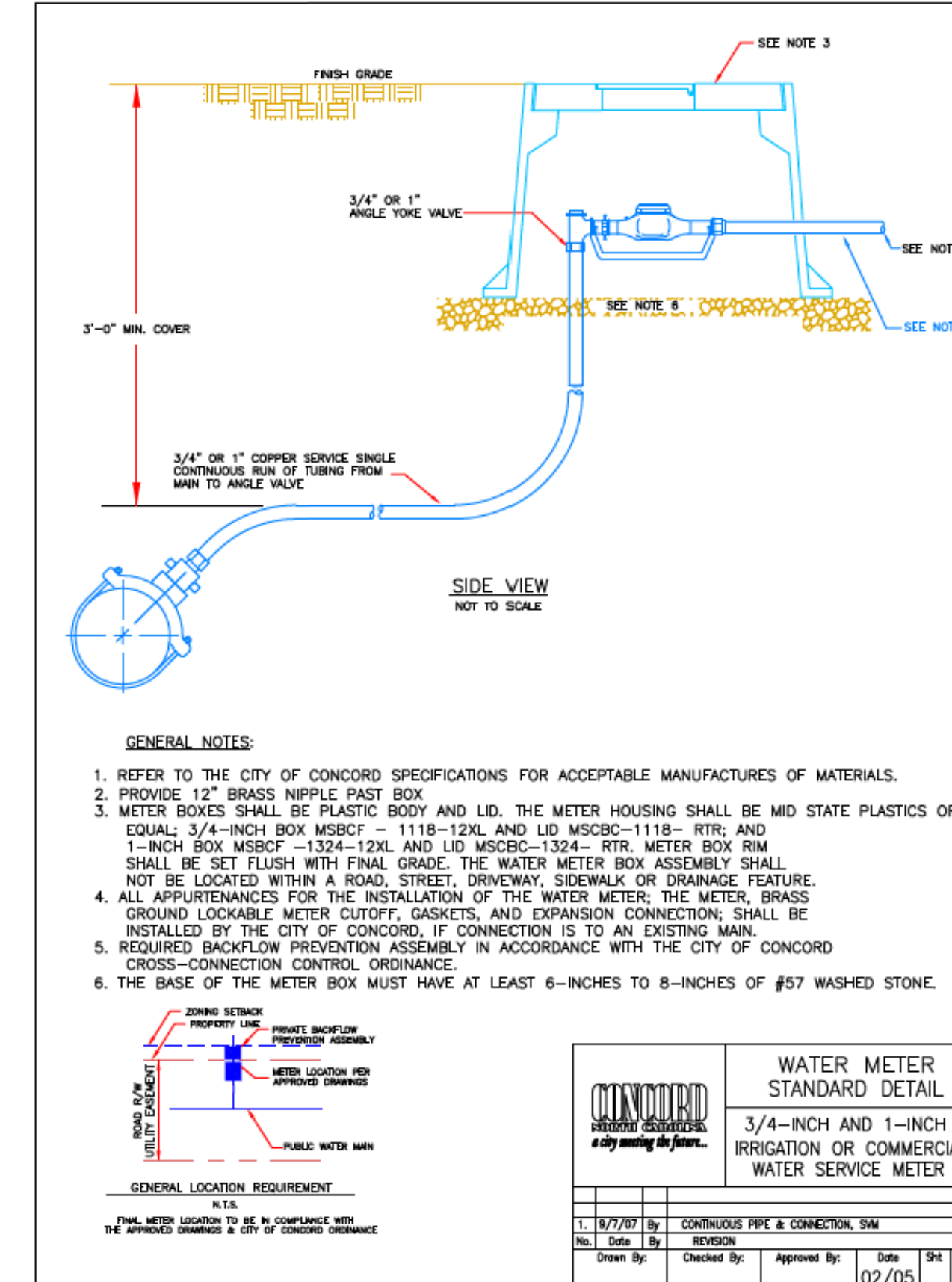
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
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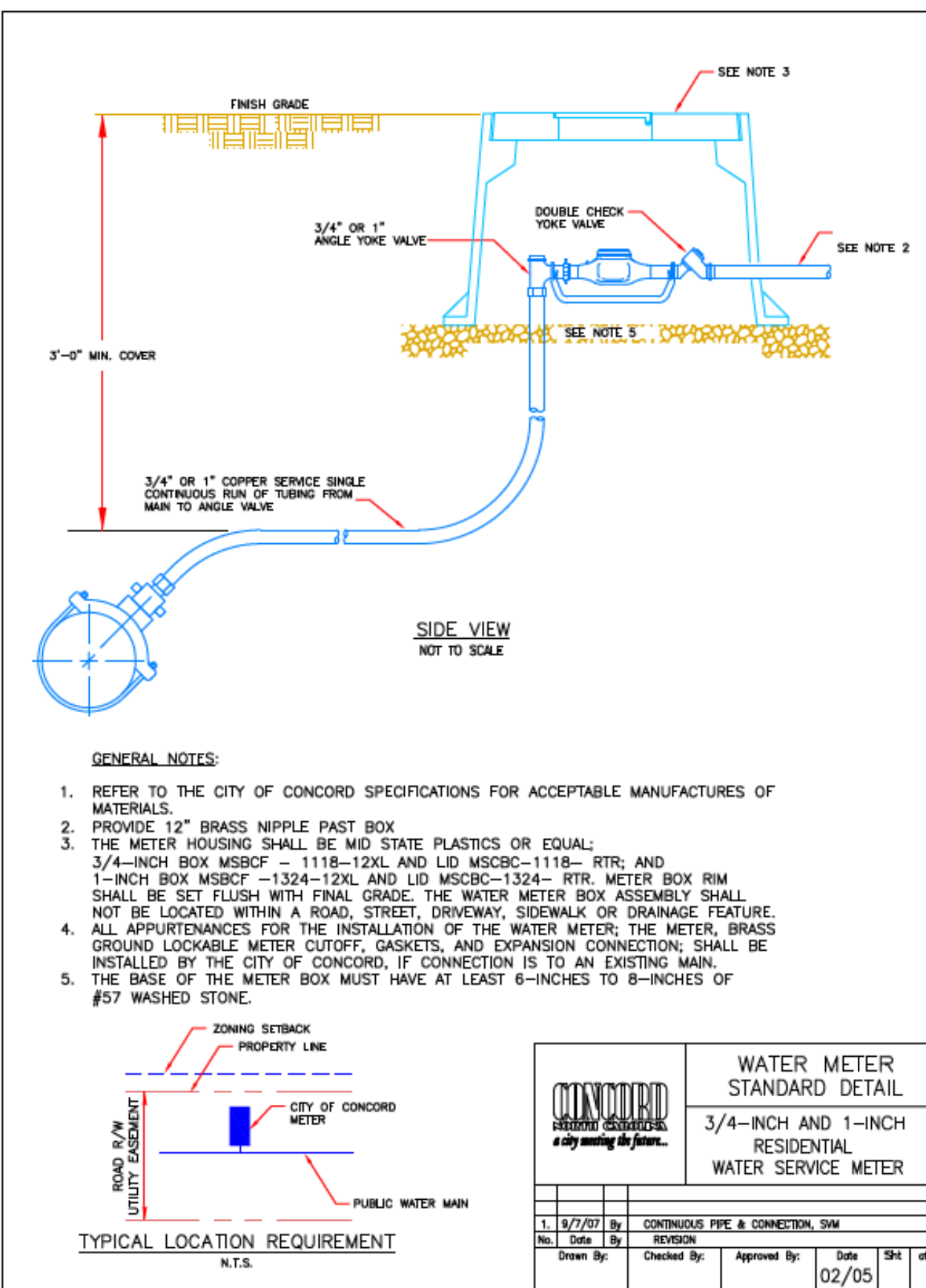
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		BLOW-OFF ASSEMBLY	
No.	Date	By	REVISION
1	03/10	MSH	



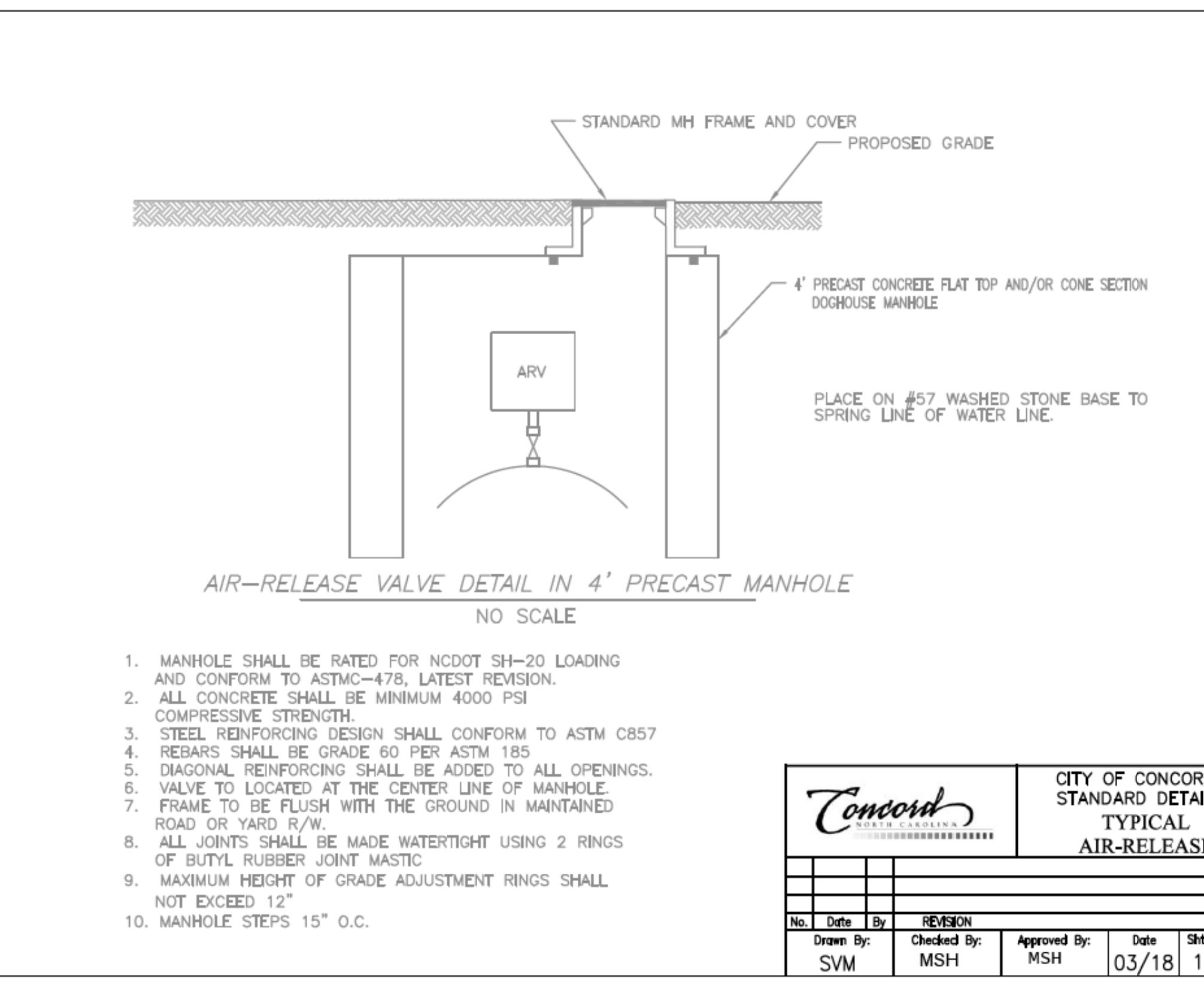
		WATER METER STANDARD DETAIL	
		2-INCH COMMERCIAL WATER SERVICE METER	
No.	Date	By	REVISION
1	09/21	MSH	



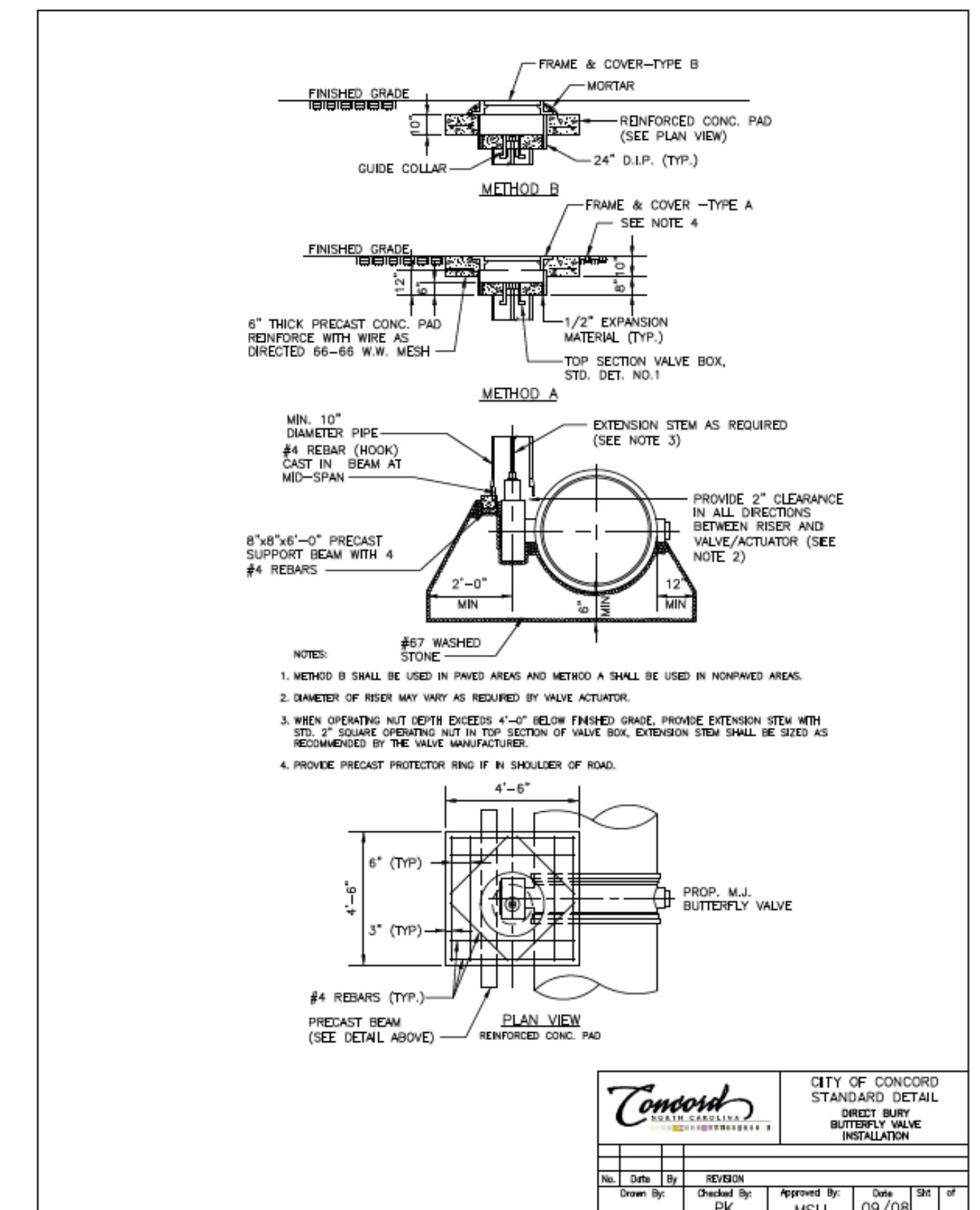
		WATER METER STANDARD DETAIL	
		3/4-INCH AND 1-INCH IRRIGATION OR COMMERCIAL WATER SERVICE METER	
No.	Date	By	REVISION
1	02/05	MSH	



		WATER METER STANDARD DETAIL	
		3/4-INCH AND 1-INCH RESIDENTIAL WATER SERVICE METER	
No.	Date	By	REVISION
1	02/05	MSH	

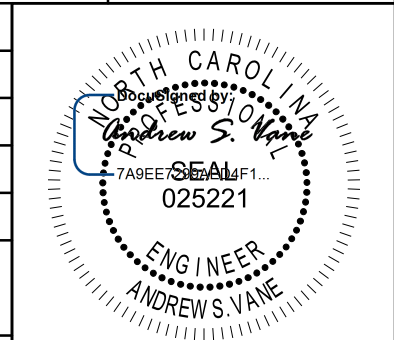


		CITY OF CONCORD STANDARD DETAIL	
		TYPICAL AIR-RELEASE	
No.	Date	By	REVISION
1	03/18	MSH	



		CITY OF CONCORD STANDARD DETAIL	
		DIRECT BURY BUTTERFLY VALVE INSTALLATION	
No.	Date	By	REVISION
1	09/08	MSH	

CITY OF CONCORD STANDARD DETAILS

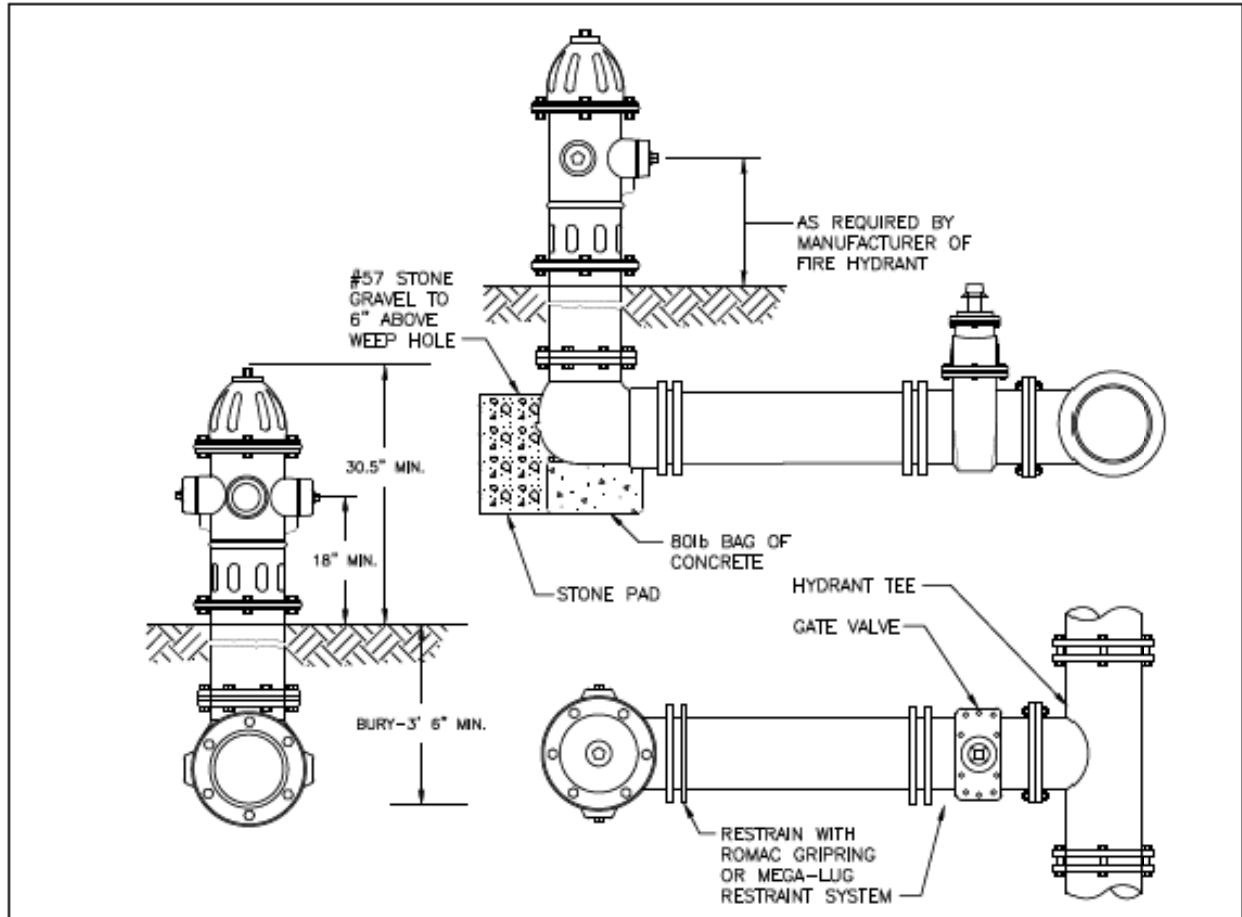
PROJECT REFERENCE NO.	SHEET NO.
B-5808	UC-3C
DESIGNED BY: NKA	
DRAWN BY: NKA	
CHECKED BY: ASV	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	1/11/2023 UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991



- GENERAL NOTES:**
- HYDRANTS SHALL BE MUELLER COMPANY - MODEL: SUPER CENTURION 250; AMERICAN FLOW CONTROL - MODEL 5K* 8-84-B; MEDALLION; OR EQUAL WITH BLACK PRIMER FINISH.
 - HYDRANT SHALL HAVE INTEGRAL SNAP-TIGHT STYLE STORZ CONNECTION WITH 5/8" VALVE OPENING, OPEN LEFT, 1/2" PENTAGON NUTS, TWO-2 3/8" NST CONNECTIONS, ONE-5" STORZ CONNECTION, DRAIN HOLES OPEN, AND 6" MJ SHOE.
 - MINIMUM BURY DEPTH OF 3'-6"
 - ALL HYDRANTS SHALL STAND PLUMB. HYDRANTS WITH PUMPER NOZZLES SHALL HAVE HOSE NOZZLES PARALLEL WITH AND THE PUMPER NOZZLE PERPENDICULAR TO THE CURB LINE. ALL HYDRANTS SHALL BE ORIENTED SO THAT THE PUMPER NOZZLE FACES THE CURB OR AS DIRECTED BY THE CITY.
 - HYDRANT SHALL BE LOCATED AT LEAST 3' BEHIND THE CURB AND LESS THAN 10' FROM THE EDGE OF THE ROAD PAVEMENT OR AS DIRECTED BY THE CITY.
 - ALL OTHER MATERIALS AND INSTALLATION MUST CONFORM WITH THE TECHNICAL STANDARDS OF WSACC AND CITY OF CONCORD.

FIRE HYDRANT PAINT COLOR CODE REQUIREMENTS:
ALL NEW FIRE HYDRANTS INSTALLED IN THE CITY OF CONCORD SHALL BE PAINTED IN ACCORDANCE WITH THE FOLLOWING COLORS:

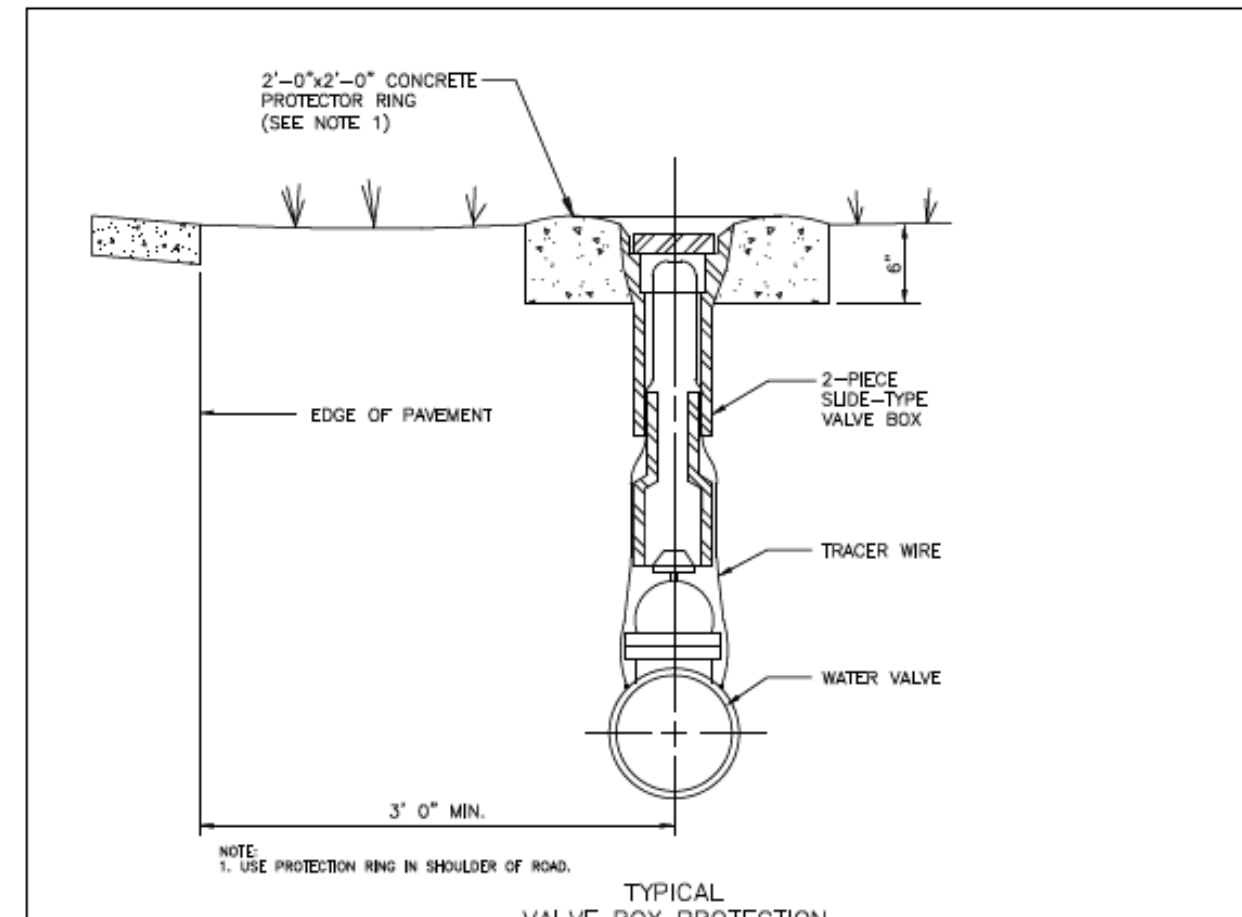
- HYDRANTS ON PUBLIC WATER MAINS SHALL BE PAINTED SAFETY YELLOW, SHERWIN WILLIAMS STEEL MASTER 9500 856-300 SERIES, LRV 30% OR EQUAL.
- PRIVATE HYDRANTS ON PRIVATE WATER MAINS SHALL BE PAINTED SAFETY RED, SHERWIN WILLIAMS SW601 CLR 11% OR EQUAL.

FOR ALL FIELD PAINTING, ALL SURFACES SHALL BE SANDBLASTED AND PROPERLY PREPARED ACCORDING TO THE PAINT MANUFACTURER'S RECOMMENDATION PRIOR TO PAINTING. ALL FIRE HYDRANTS AND ANY PORTIONS OF THE HYDRANT ASSEMBLY EXPOSED TO VIEW (ABOVE ADJACENT GROUND ELEVATION) SHALL BE PAINTED WITH TWO (2) OR MORE EVENLY APPLIED COATS OF HYDRANT ENAMEL PAINT. HYDRANTS WILL BE RETOUCHED / REPAINTED AS NECESSARY AFTER INSTALLATION AND PRIOR TO ACCEPTANCE.




CITY OF CONCORD
STANDARD DETAIL
FIRE HYDRANT

No.	Date	By	REVISION	Checked By	Date	SH	of
		SVM/BCC	MSH	MSH	07/21	1	1

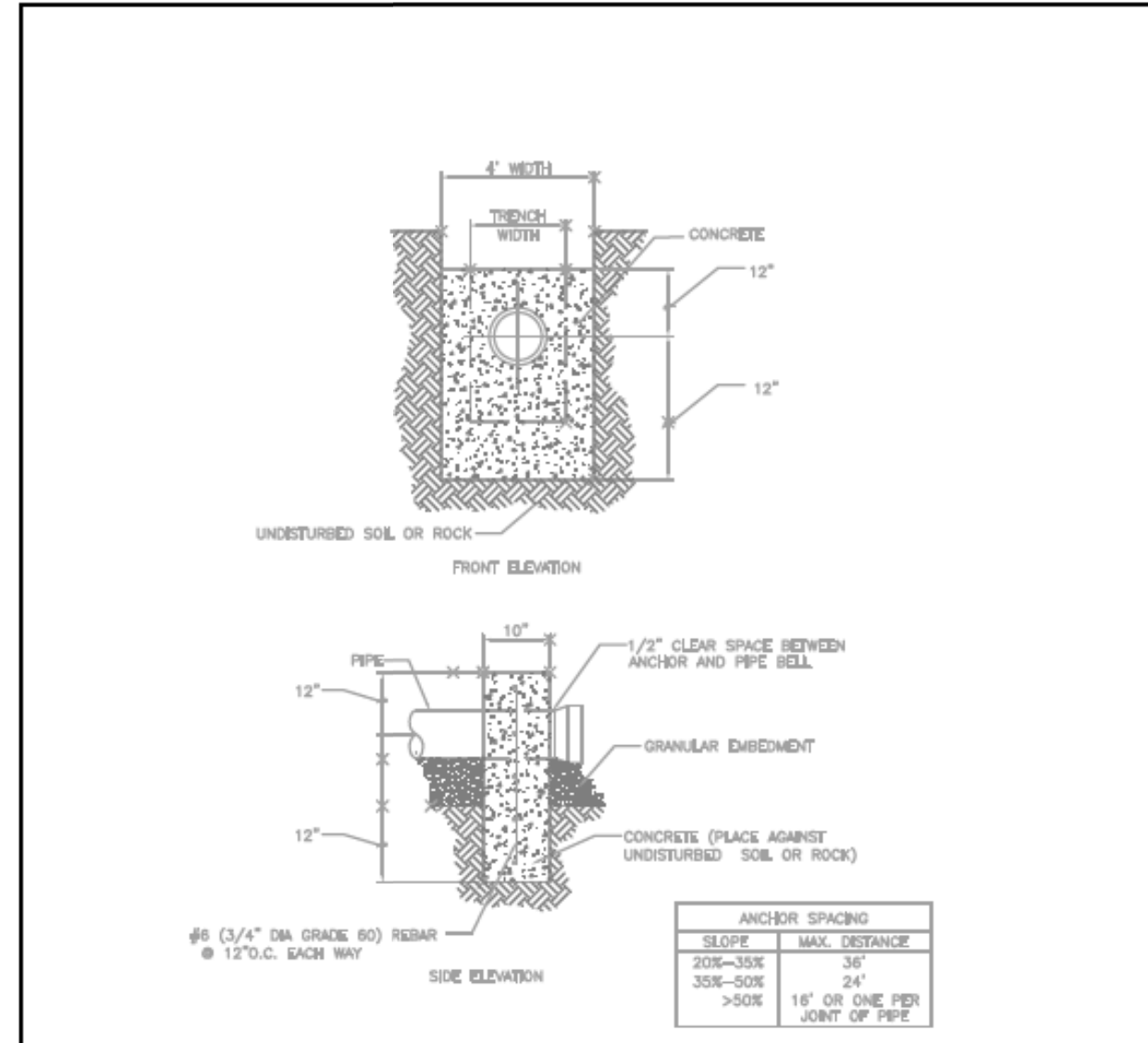


- NOTES:**
- EACH BURIED VALVE TO A DEPTH OF 4 FEET OR LESS SHALL BE PROVIDED WITH A CHARLOTTE FOUNDRY VALVE BOX OR EQUAL. VALVE BOXES SHALL BE CAST IRON, EXTENSION SLEEVE TYPE, FOR THE DEPTH OF COVER REQUIRED BY THE DRAWINGS. NOT MORE THAN ONE EXTENSION WILL BE ALLOWED WITH EACH SLIDE TYPE VALVE BOX. VALVE BOXES SHALL BE NOT LESS THAN 5 INCHES IN INSIDE DIAMETER, SHALL HAVE A MINIMUM THICKNESS AT ANY POINT OF 3/16 INCH, AND SHALL BE PROVIDED WITH SUITABLE CAST IRON BASES AND COVERS.
 - EACH VALVE BURIED TO A DEPTH GREATER THAN 4 FEET SHALL BE PROVIDED WITH A VALVE BOX CONSISTING OF A CAST IRON COVER AND A 6 INCH DUCTILE IRON PIPE SECTION. THE COVER SHALL BE CLAY & BAILEY "NO. 2193" OR TYLER "SERIES 6690-A". THE PIPE SHAFT SHALL BE SIZED TO EXTEND FROM THE VALVE TO 5 INCHES INSIDE THE VALVE BOX COVER.
 - ALL PARTS OF VALVE BOXES, BASES, AND COVERS SHALL BE SHOP COATED BY DIPPING IN ASPHALT VARNISH.
 - VALVES AND VALVE BOXES SHALL BE SET PLUMB. EACH VALVE BOX SHALL BE PLACED DIRECTLY OVER THE VALVE IT SERVES, WITH THE TOP OF THE BOX BROUGHT FLUSH WITH THE FINISHED GRADE. AFTER BEING PLACED IN PROPER POSITION, EARTH/FILL SHALL BE PLACED AROUND EACH VALVE BOX AND THOROUGHLY TAMPED ON EACH SIDE OF THE BOX. THE TOP OF THE BOX SHALL BE SET IN A CONCRETE PROTECTOR RING.
 - NO MORE THAN 6" OF GRADE RINGS SHALL BE USED FOR GRADE ADJUSTMENTS.




CITY OF CONCORD
STANDARD DETAIL
TYPICAL VALVE BOX

No.	Date	By	REVISION	Checked By	Date	SH	of
		SVM/BCC	PK	MSH	07/21	1	1

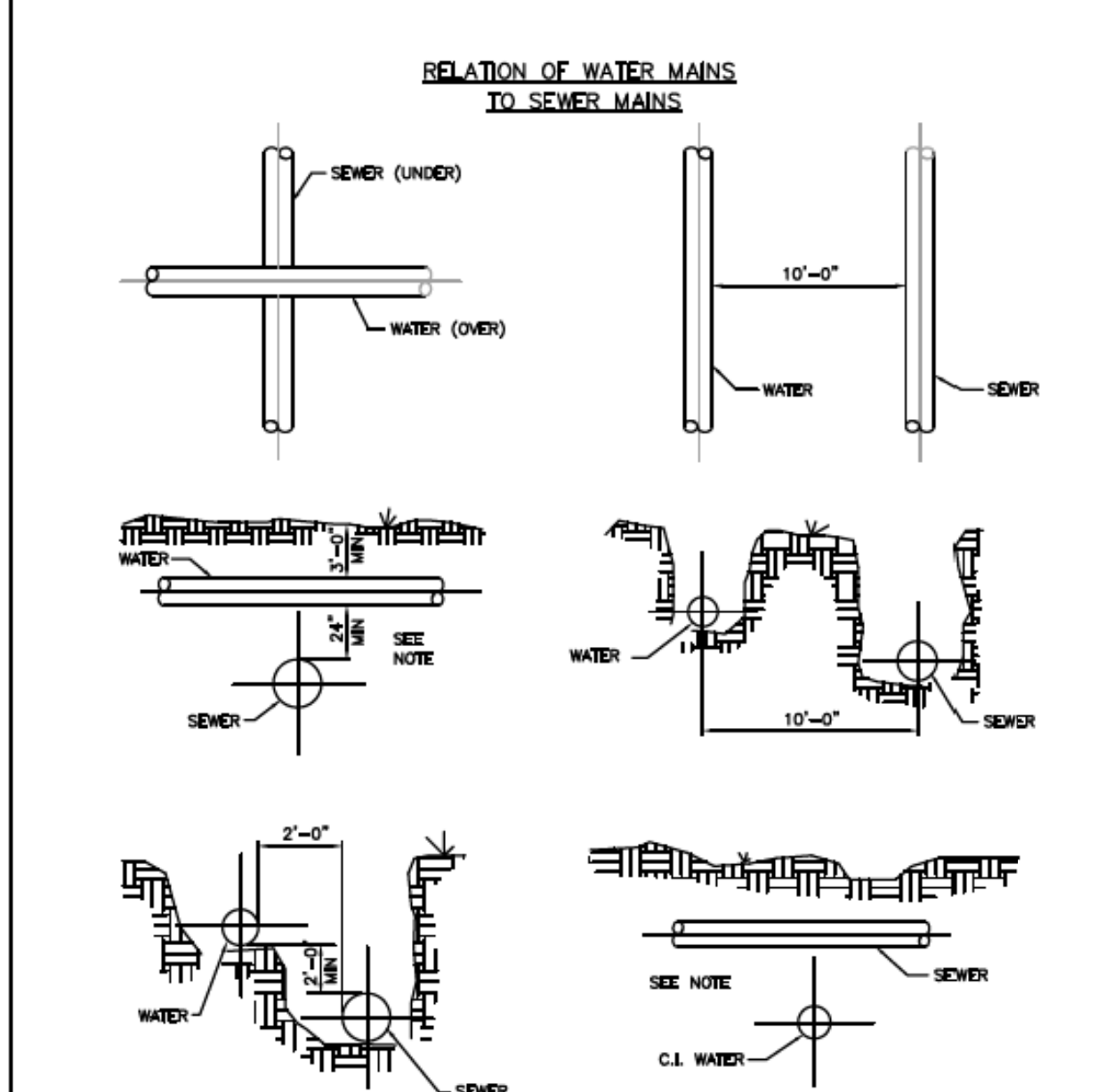


- NOTES:**
- CONCRETE AND REINFORCING STEEL BARS FOR BURIED BLOCKING AND BRACING OF PIPE SHALL CONFORM TO THE LIMITING REQUIREMENTS SPECIFIED IN WSACC TECHNICAL SPECIFICATION SECTION 03301, EXCEPT THAT THE CEMENT FACTOR AND TOTAL WATER CONTENT MAY BE ADJUSTED TO PROVIDE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS. CONCRETE SHALL HAVE A SLUMP OF NOT LESS THAN 3 INCHES NOR MORE THAN 5 INCHES WHEN PLACED.
 - KEEP ALL PIPING JOINTS CLEAR OF CONCRETE ANCHOR BLOCKS.




CITY OF CONCORD
STANDARD DETAIL
TYPICAL ANCHOR BLOCK

No.	Date	By	REVISION	Checked By	Date	SH	of
		SVM	EAB	MSH	10/11	1	1

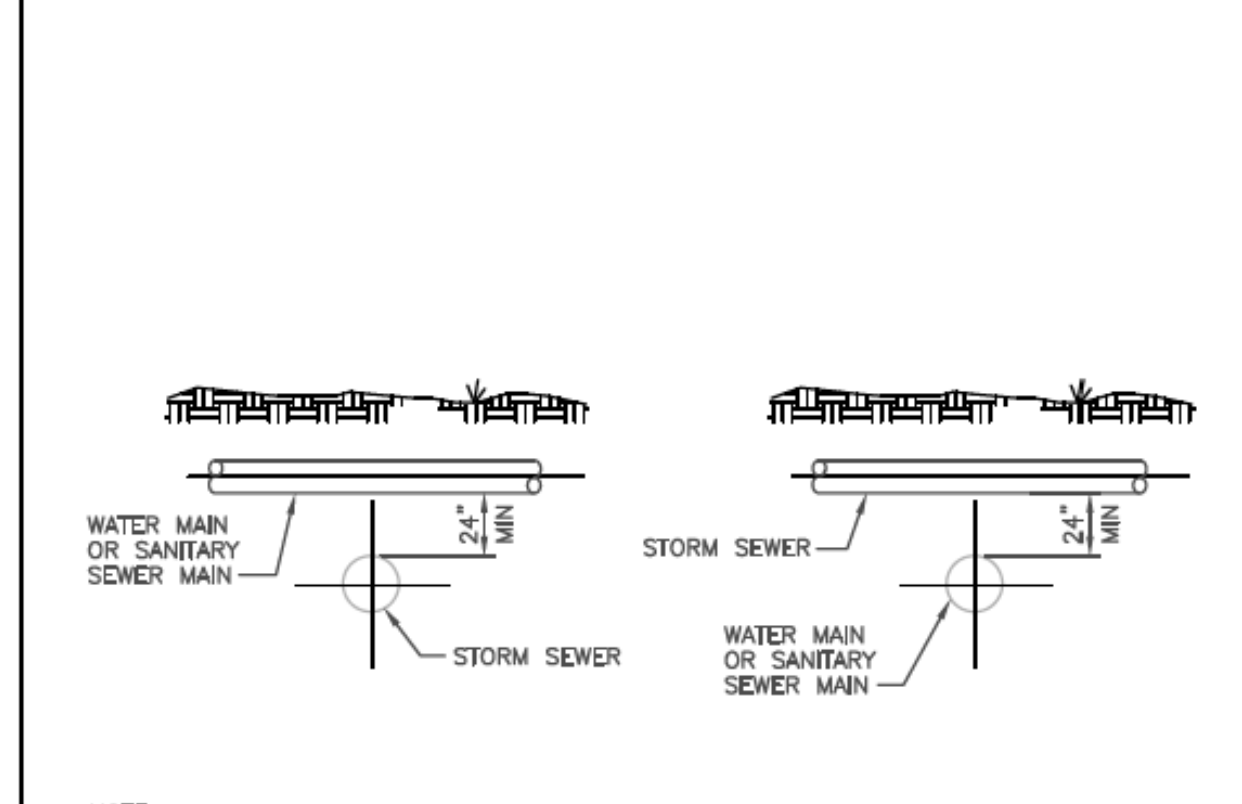


NOTE:
WHEN THE WATER MAIN IS ABOVE THE SEWER, BUT WITH LESS THAN 24" OF VERTICAL CLEARANCE, OR WHEN THE SEWER IS ABOVE THE WATER MAIN, BOTH THE WATER MAIN AND THE SEWER MAIN SHALL BE CONSTRUCTED OF 20 LINEAR FEET OF PERVIOUS MATERIALS LOCATED ON CENTER TO THE CROSSING WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A MINIMUM LATERAL DISTANCE OF 10 FEET TO EACH SIDE OF THE CROSSING, AS MEASURED AT RIGHT ANGLES TO THE SEWER CROSSING.
FOR ALL WATER MAINS AT THE PIPE MATERIAL TRANSITIONS FROM C-900 PVC TO DUCTILE IRON (DI) PIPE, RESTRAINED MECHANICAL JOINT SLEEVES SHALL BE UTILIZED TO JOIN THE PIPES.




CITY OF CONCORD
STANDARD DETAIL
RELATION OF WATER MAINS TO SEWER MAINS

No.	Date	By	REVISION	Checked By	Date	SH	of
		SVM	CS	MSH	2/10	1	1



NOTE:
WHEN A WATER MAIN OR SANITARY SEWER MAIN CROSSES OVER OR UNDER A STORM SEWER AND CONDITIONS PREVENT THE REQUIRED 24" MIN VERTICAL SEPARATION, THE WATER MAIN OR SANITARY SEWER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A MINIMUM DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.

FOR ALL WATER MAINS AT THE PIPE MATERIAL TRANSITIONS FROM C-900 PVC TO DUCTILE IRON (DI) PIPE, RESTRAINED MECHANICAL JOINT SLEEVES SHALL BE UTILIZED TO JOIN THE PIPES.



CITY OF CONCORD
STANDARD DETAIL
RELATION OF WATER MAINS AND SEWER MAINS TO STORM SEWER

No.	Date	By	REVISION	Checked By	Date	SH	of
		SVM	MSH	MSH	11/09	1	1

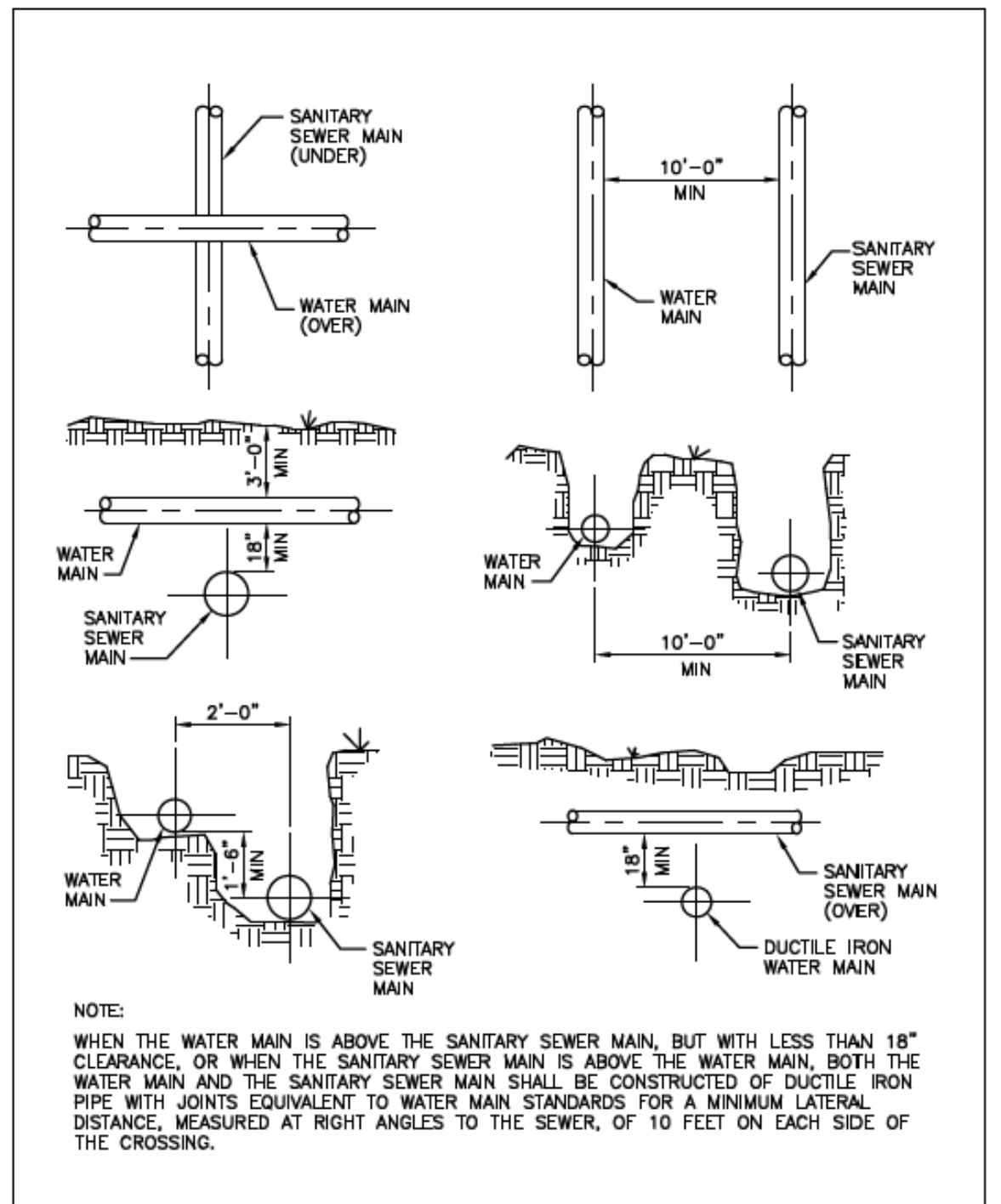
WSACC STANDARD DETAILS

PROJECT REFERENCE NO.	SHEET NO.
B-5808	UC-3D
DESIGNED BY: NKA	
DRAWN BY: NKA	
CHECKED BY: ASV	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	1/11/2023 UTILITY CONSTRUCTION PLANS ONLY

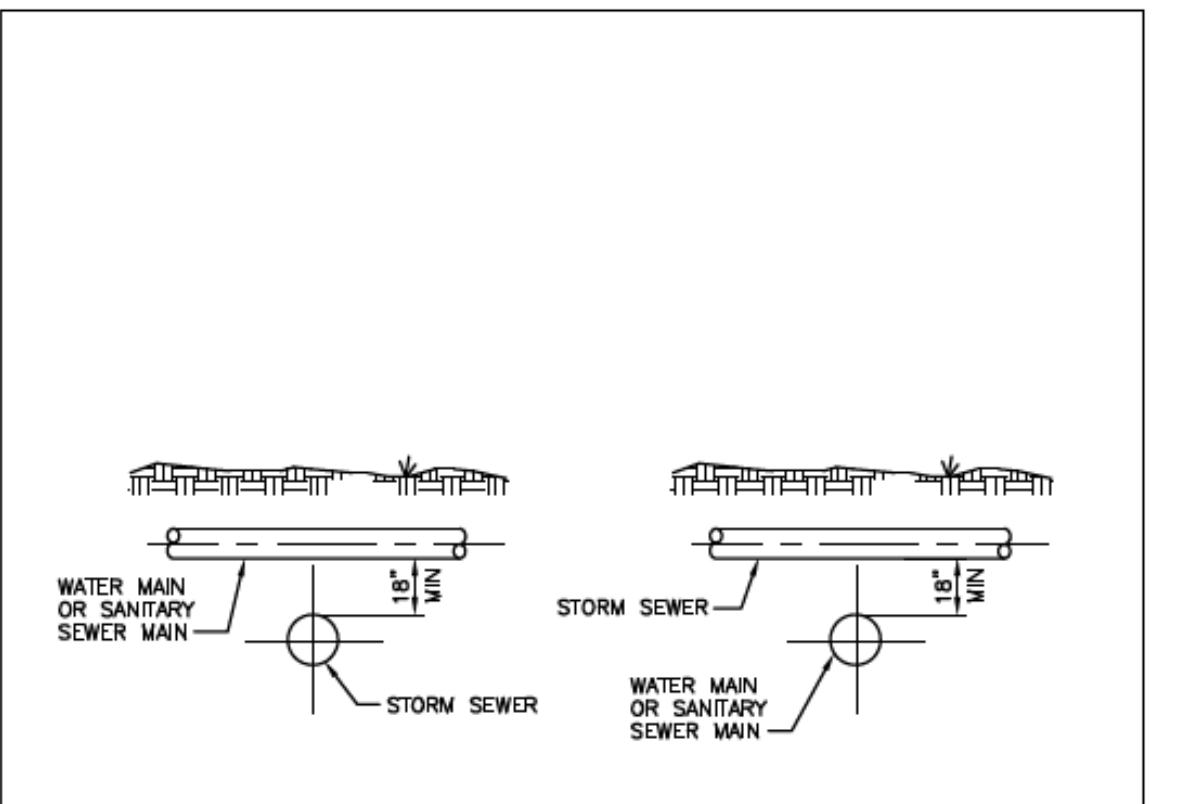
UTILITY CONSTRUCTION

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 900 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

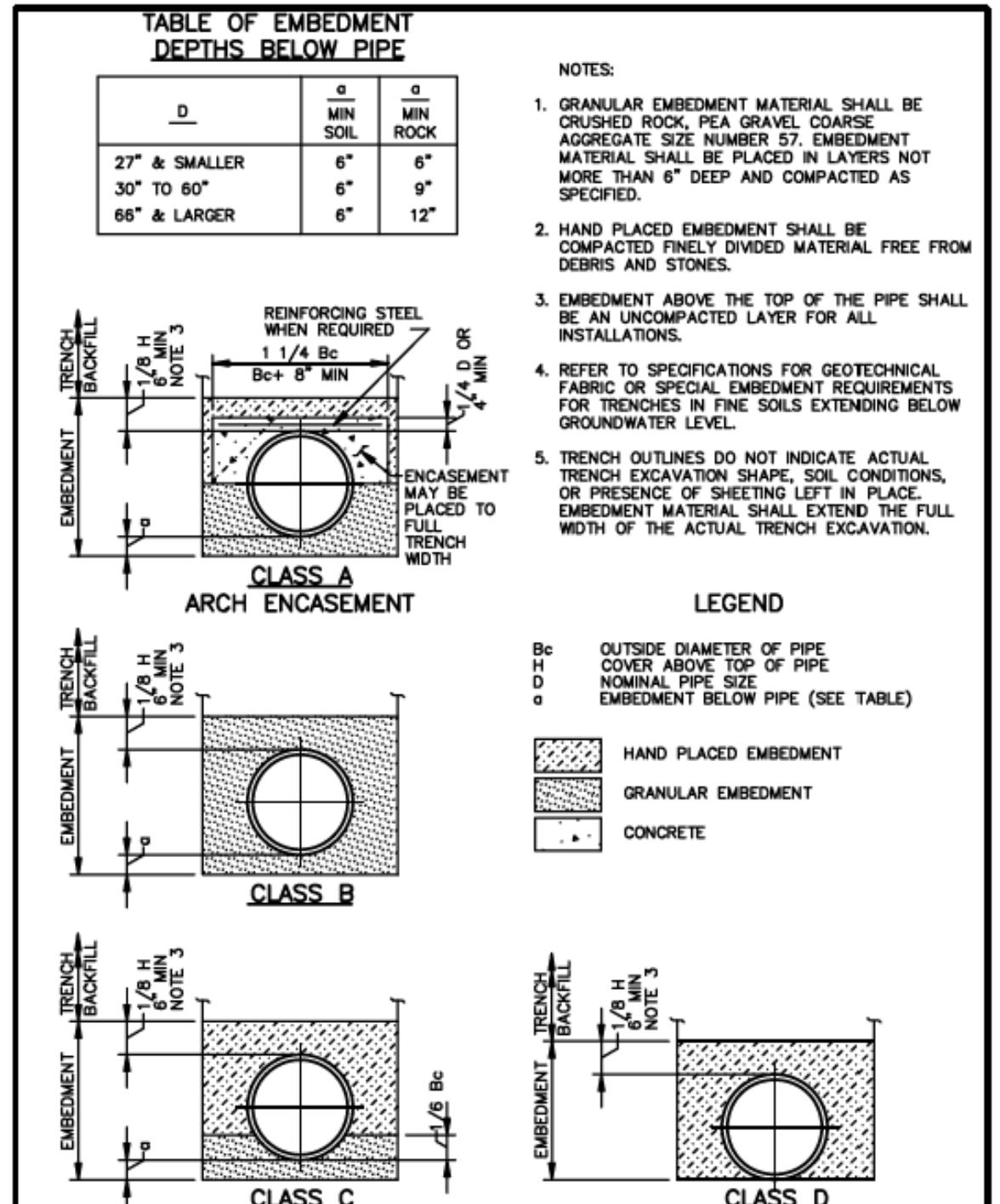


WSACC				RELATION OF WATER MAINS TO SANITARY SEWER MAINS			
WATER AND SEWER AUTHORITY OF CABARRUS COUNTY				FILE NAME: W3.0 DATE: 8/08			
REVISION NO.	DATE	BY	CHKD	REVISION NO.	DATE	BY	CHKD

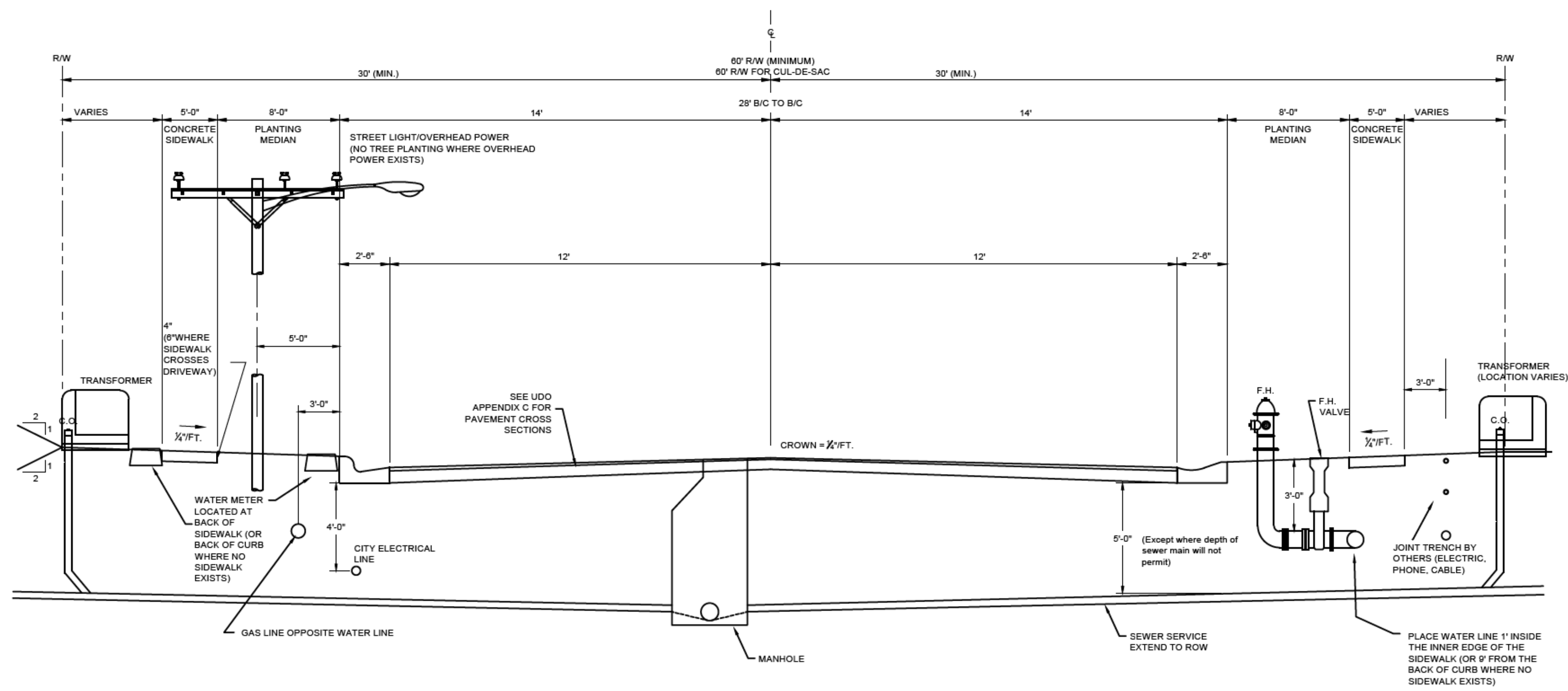


NOTE:
 WHEN A WATER MAIN OR SANITARY SEWER MAIN CROSSES OVER OR UNDER A STORM SEWER AND CONDITIONS PREVENT THE REQUIRED 18" MIN VERTICAL SEPARATION, THE WATER MAIN OR SANITARY SEWER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A MINIMUM DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.

WSACC				RELATION OF WATER MAINS AND SANITARY SEWER MAINS TO STORM SEWERS			
WATER AND SEWER AUTHORITY OF CABARRUS COUNTY				FILE NAME: W4.0 DATE: 8/08			
REVISION NO.	DATE	BY	CHKD	REVISION NO.	DATE	BY	CHKD



WSACC				EMBEDMENTS FOR MAINS			
WATER AND SEWER AUTHORITY OF CABARRUS COUNTY				FILE NAME: WS 1.0 DATE: 8/08			
REVISION NO.	DATE	BY	CHKD	REVISION NO.	DATE	BY	CHKD



TYPICAL UTILITY LAYOUT NTS

WSACC STANDARD DETAILS

PROJECT REFERENCE NO.	SHEET NO.
B-5808	UC-3E
DESIGNED BY: NKA	
DRAWN BY: NKA	
CHECKED BY: ASV	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
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UTILITY CONSTRUCTION

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Charlotte, NC 28202
NC License Number F-0991

STANDARD DROP MANHOLE DETAIL

1. PIPE FOR INSIDE DROP SHALL BE 35 PVC CONFORMING TO ASTM SPECIFICATION D3034.
2. BOTTOM BEND TO BE 90° SHORT BEND, BELL-SPIGOT, OF SDR 35 PVC. SPIGOT OF BEND TO REST DIRECTLY ON EXISTING SLEEF. CONTRUCT MASONRY TROUGH FROM DROP EFFLUENT TO MAIN CHANNEL.
3. NOTCH BELL OF PVC DROP TO ACCEPT DIP SPIGOT AS SHOWN.
4. LOCATE STRAPS AT PIPE BELL AND ABOVE BELL OF 90° BEND AS SHOWN. ADD EXTRA STRAPS AS NECESSARY TO MAINTAIN MAXIMUM SPACING OF TEN FEET.
5. HOLE IN MANHOLE WALL TO BE MADE WITH A CORING MACHINE. INSTALL FLEXIBLE RUBBER COUPLING.
6. CORE HOLE SHALL NOT ENTER CONE SECTION.
7. STEPS SHALL BE RELOCATED IF THEY CONFLICT WITH INSIDE DROP.
8. A DROP MANHOLE SHALL BE REQUIRED WHEN DIA. "A" EXCEEDS 24" EXCEPT WHEN THE INLET PIPE INVERT LIES WITHIN THE LOWER HALF OF THE OUTLET PIPE. SEE FIGURE S2.0 FOR STANDARD MANHOLE.

WSACC
WATER AND SEWER AUTHORITY OF CABARRUS COUNTY

STANDARD DROP MANHOLE DETAIL
FILE NAME: S4.0 DATE: 8/08

CARRIER PIPE

NOMINAL DIA.	O. D.	A	B	C
6"	6.90"	11"	1 1/4"	5/8"
8"	9.05"	16 1/2"	2 1/4"	1"
12"	13.20"	22 1/2"	3"	1 1/4"
16"	17.40"	28 1/2"	3 1/2"	1 1/2"
24"	25.80"	34 1/4"	4"	2"

PIPE SUPPORT ASSEMBLY MARK NUMBER

NOMINAL DIA.	1	2	3	4
6"	8" x 2" x 1/4" PL	8" x 1 1/2" x 1/4" PL	8" x 1/4" PL	3/8" NUT & BOLT
8"	8" x 3" x 1/4" PL	8" x 3 1/4" x 1/4" PL	8" x 1/4" PL	1/2" NUT & BOLT
12"	8" x 4" x 1/4" PL	8" x 3 5/8" x 3/8" PL	8" x 3/8" PL	1/2" NUT & BOLT
16"	8" x 4" x 3/8" PL	8" x 4 3/4" x 3/8" PL	8" x 3/8" PL	1/2" NUT & BOLT
24"	8" x 4" x 3/8" PL	8" x 5 1/2" x 3/8" PL	8" x 3/8" PL	1/2" NUT & BOLT

WSACC
WATER AND SEWER AUTHORITY OF CABARRUS COUNTY

CASING SPIDER
FILE NAME: M2.0 DATE: 09/08

TYPICAL PIPE CROSSING UNDER HIGHWAYS

TYPICAL PIPE CROSSING UNDER RAILROADS

WSACC
WATER AND SEWER AUTHORITY OF CABARRUS COUNTY

ENCASEMENT PIPE UNDER HIGHWAYS AND RAILROADS
FILE NAME: M1.0 DATE: 8/08

TABLE OF EMBEDMENT DEPTHS BELOW PIPE

D	MIN SOIL	MIN ROCK
27" & SMALLER	6"	6"
30" TO 60"	6"	9"
66" & LARGER	6"	12"

CLASS A ARCH ENCASEMENT

CLASS B

CLASS C

CLASS D

WSACC
WATER AND SEWER AUTHORITY OF CABARRUS COUNTY

EMBEDMENTS FOR MAINS
FILE NAME: WS 1.0 DATE: 8/08

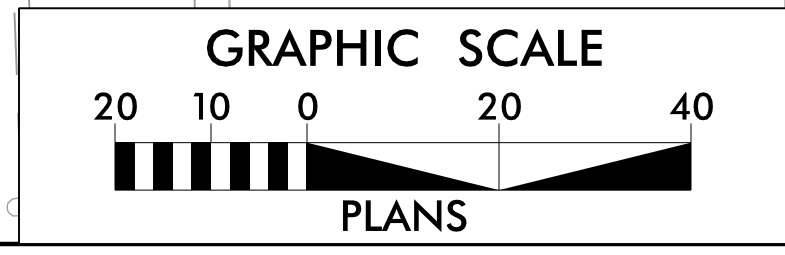
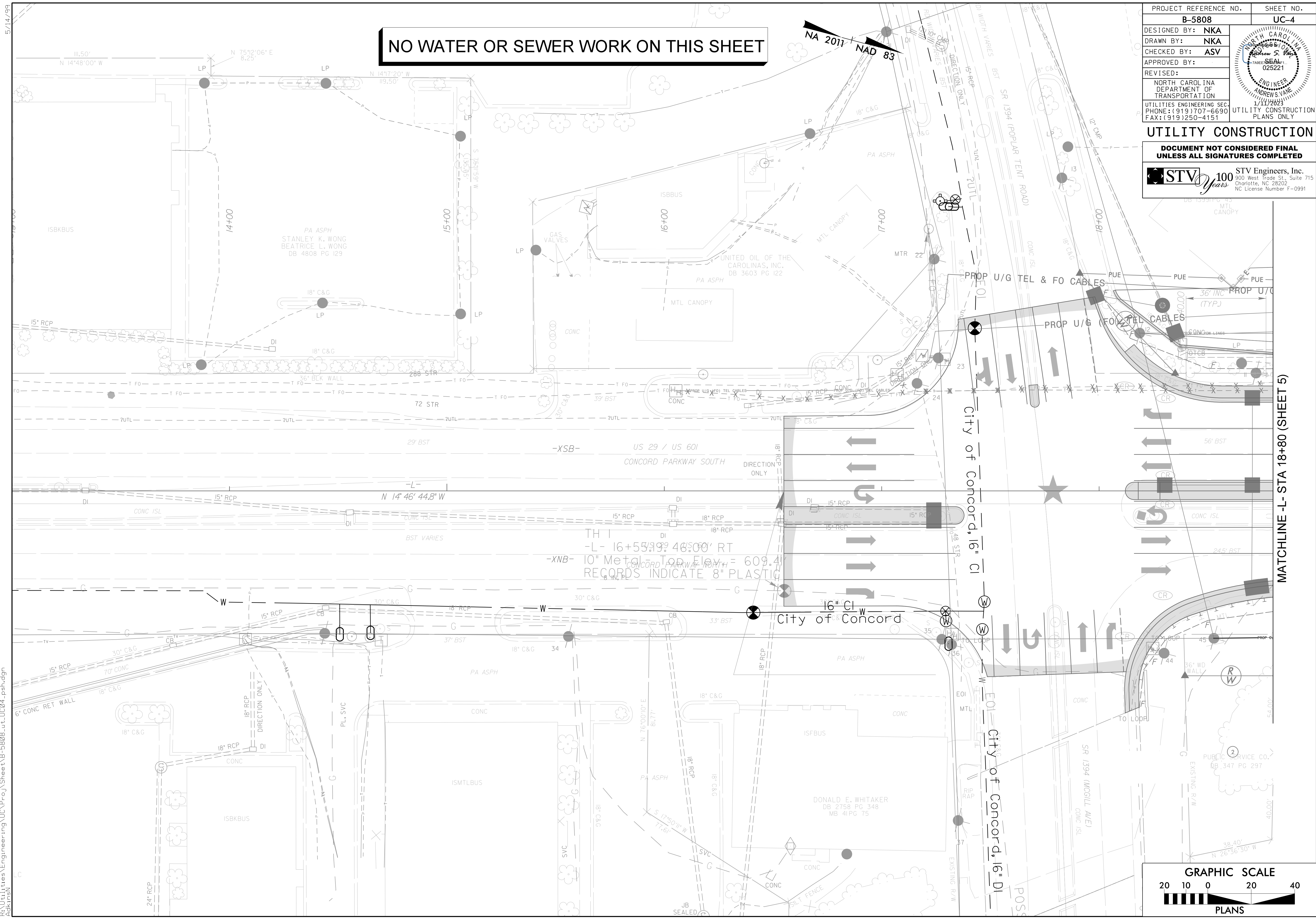
PROJECT REFERENCE NO.	SHEET NO.
B-5808	UC-4
DESIGNED BY: NKA	
DRAWN BY: NKA	
CHECKED BY: ASV	
APPROVED BY:	
REVISED:	1/11/2023
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 250-4151	
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NO WATER OR SEWER WORK ON THIS SHEET

UTILITY CONSTRUCTION

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NC License Number F-0991



1/11/2023
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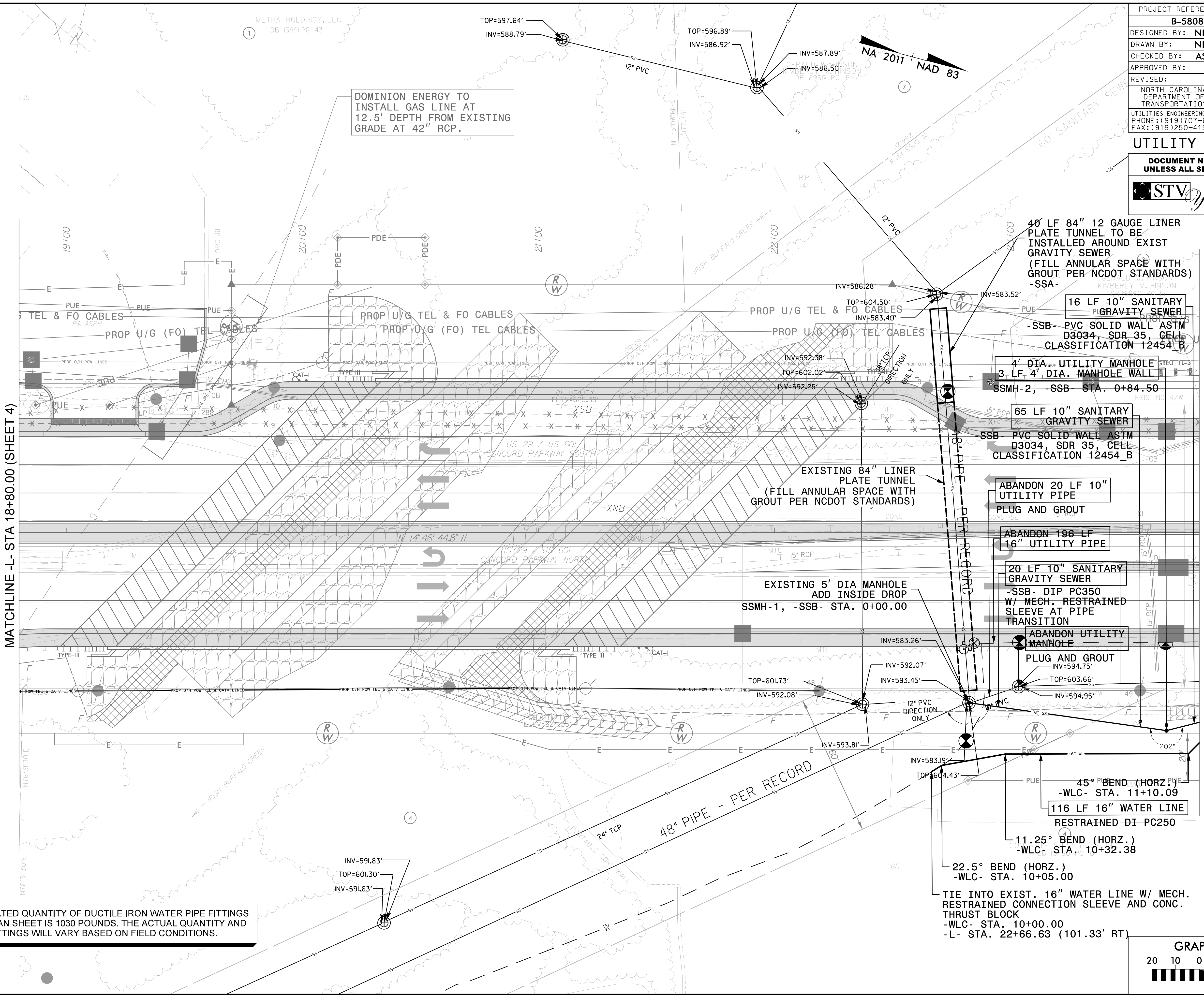
5/14/23

PROJECT REFERENCE NO. B-5808	SHEET NO. UC-5
DESIGNED BY: NKA	
DRAWN BY: NKA	
CHECKED BY: ASV	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	1/11/2023
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

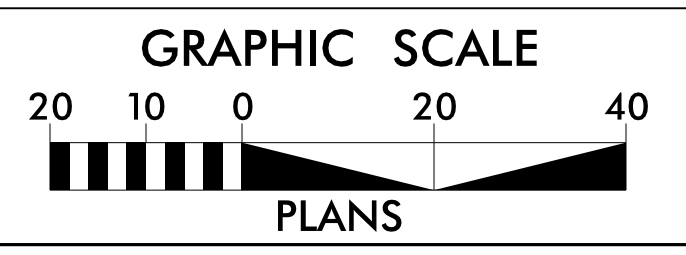
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Charlotte, NC 28202
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THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1030 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



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5/14/23

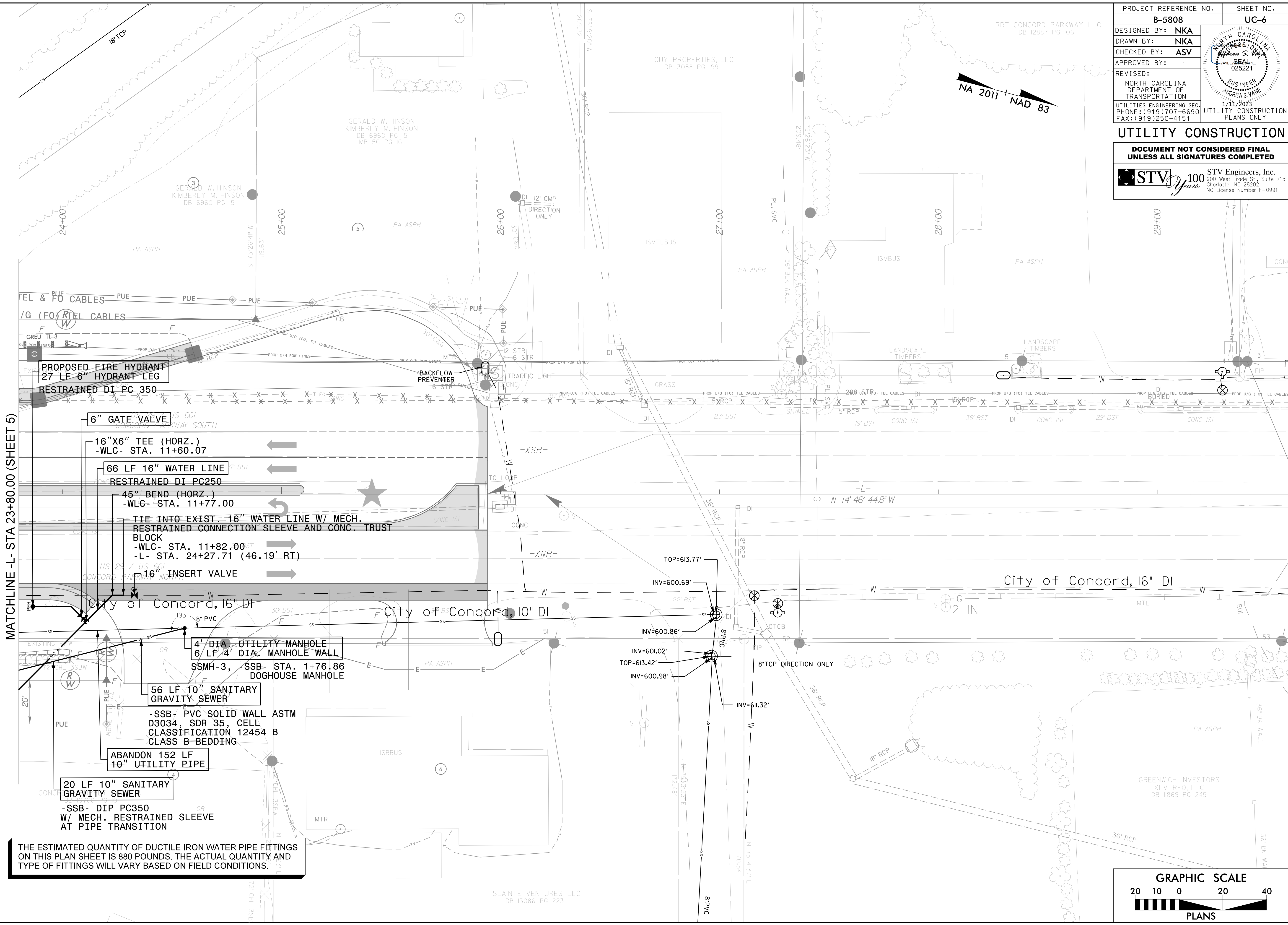
PROJECT REFERENCE NO.	SHEET NO.
B-5808	UC-6
DESIGNED BY: NKA	
DRAWN BY: NKA	
CHECKED BY: ASV	
APPROVED BY:	
REVISED:	1/11/2023
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
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MATCHLINE -L- STA 23+80.00 (SHEET 5)

PROPOSED FIRE HYDRANT
27 LF 6" HYDRANT LEG
RESTRAINED DI PC 350

6" GATE VALVE

16"x6" TEE (HORZ.)
-WLC- STA. 11+60.07

66 LF 16" WATER LINE
RESTRAINED DI PC250

45° BEND (HORZ.)
-WLC- STA. 11+77.00

TIE INTO EXIST. 16" WATER LINE W/ MECH.
RESTRAINED CONNECTION SLEEVE AND CONC. TRUST
BLOCK

-WLC- STA. 11+82.00
-L- STA. 24+27.71 (46.19' RT)

16" INSERT VALVE

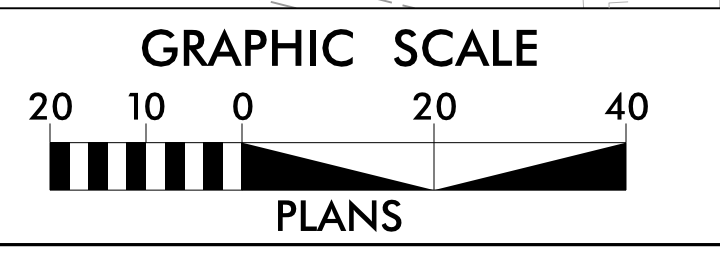
4' DIA. UTILITY MANHOLE
6 LF 4' DIA. MANHOLE WALL
SSMH-3, SSB- STA. 1+76.86
DOGHOUSE MANHOLE

56 LF 10" SANITARY
GRAVITY SEWER
-SSB- PVC SOLID WALL ASTM
D3034, SDR 35, CELL
CLASSIFICATION 12454_B
CLASS B BEDDING

ABANDON 152 LF
10" UTILITY PIPE

20 LF 10" SANITARY
GRAVITY SEWER
-SSB- DIP PC350
W/ MECH. RESTRAINED SLEEVE
AT PIPE TRANSITION

**THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS
ON THIS PLAN SHEET IS 880 POUNDS. THE ACTUAL QUANTITY AND
TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.**



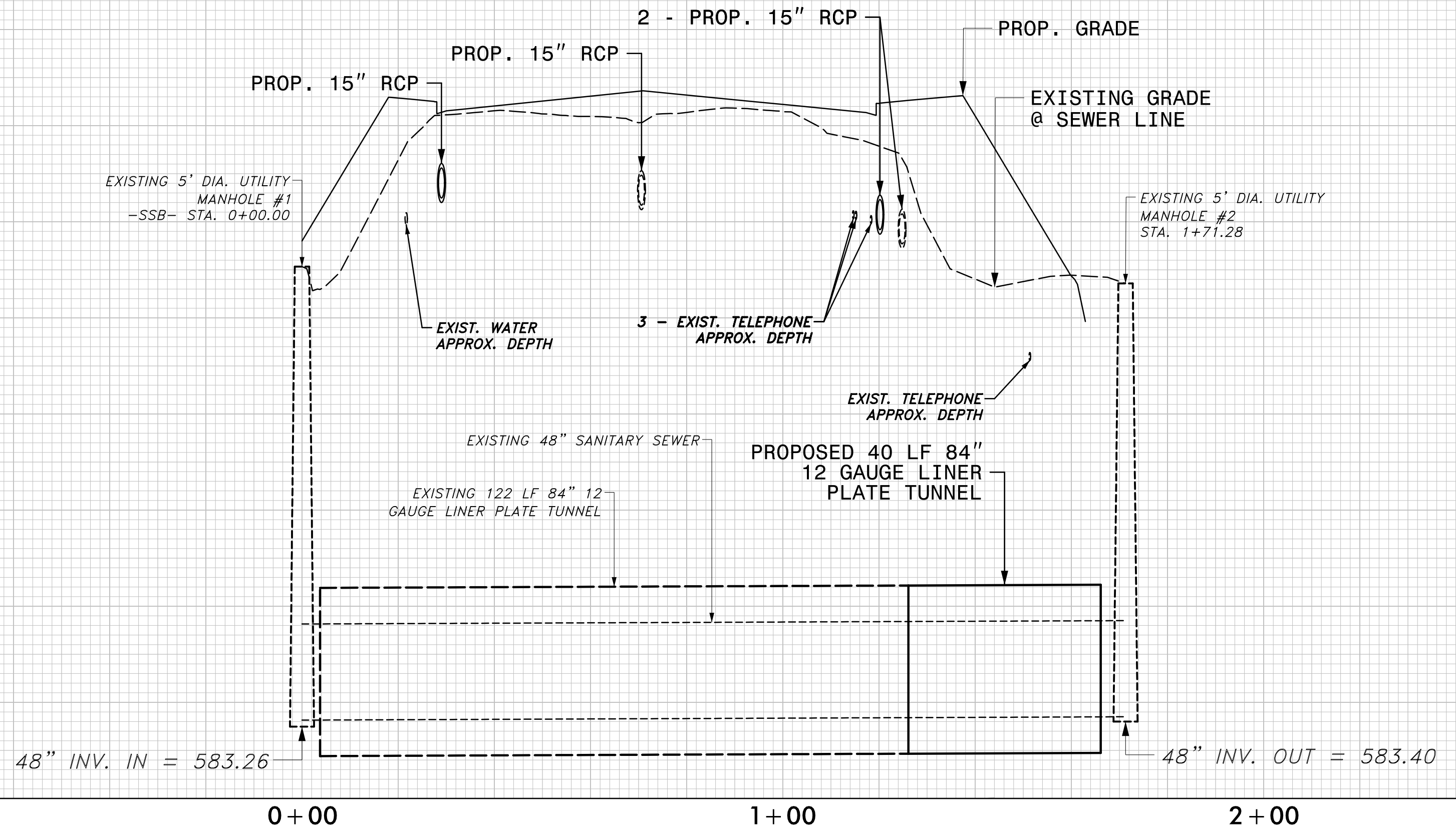
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5/28/99

SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL

- NOTES:
1. LOCATION AND DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY LOCATIONS AND DEPTHS PRIOR TO FORCE MAIN & WATER LINE CONSTRUCTION.
 2. EXPOSE EXISTING 48" SANITARY GRAVITY SEWER, INSTALL 84" DIAMETER 12-GAUGE LINER PLATE TUNNEL AROUND EXISTING SEWER. BOLT LINER PLATE TUNNEL TO EXISTING TUNNEL AT INTERFACE.

EXISTING 48" GRAVITY SEWER -EX SSA-WSACC



SEE SHEET UC-5 FOR -EX SSA- PLAN

PROJECT REFERENCE NO.	SHEET NO.
B-5808	UC-7
DESIGNED BY: NKA	
DRAWN BY: NKA	
CHECKED BY: ASV	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
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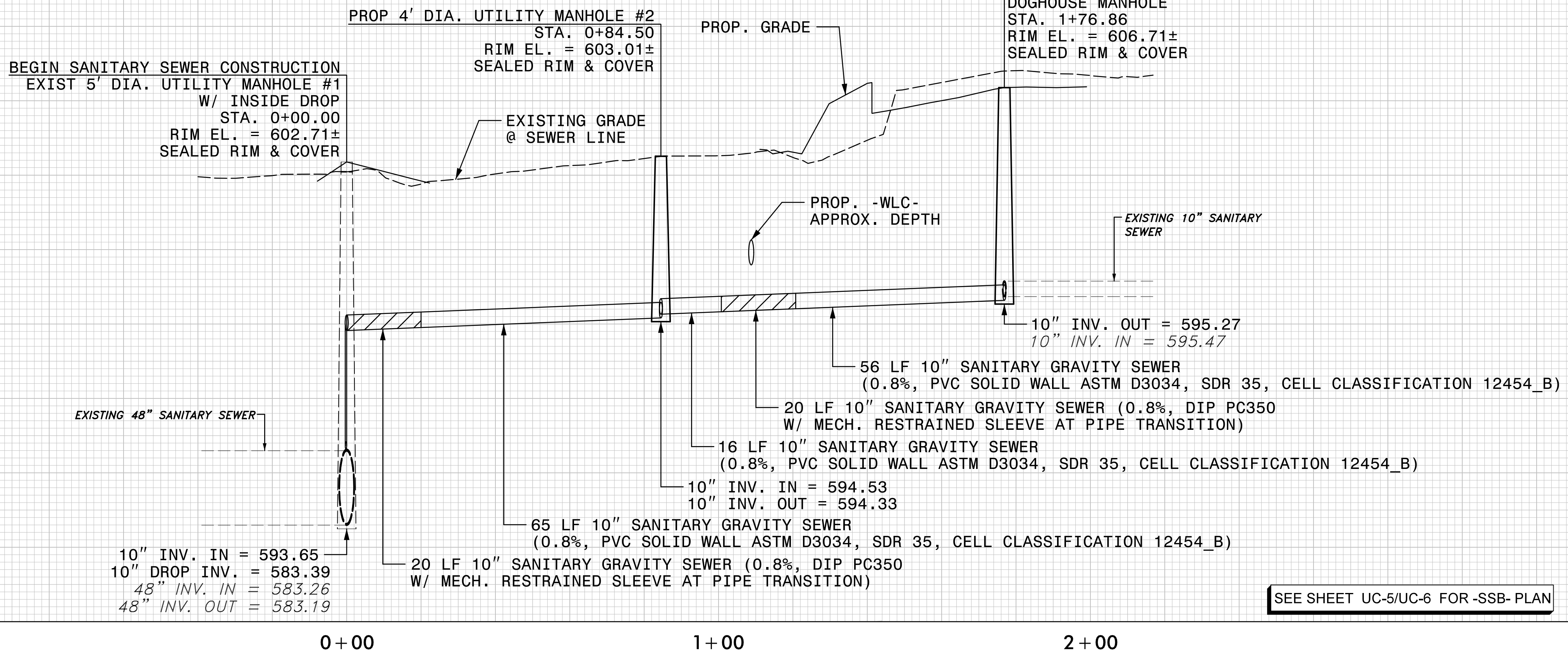
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PROP. 10" GRAVITY SEWER -SSB-CITY OF CONCORD



SEE SHEET UC-5/UC-6 FOR -SSB- PLAN

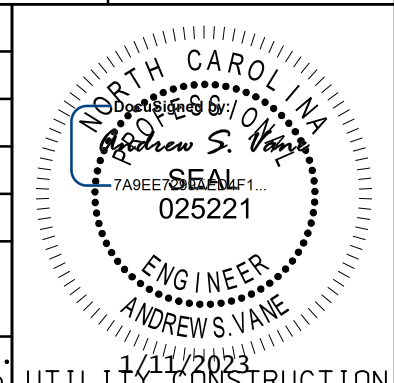
1/1/2023

5/28/99

SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL

NOTES:
1. LOCATION AND DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY LOCATIONS AND DEPTHS PRIOR TO FORCE MAIN & WATER LINE CONSTRUCTION.

**PROPOSED 16" WATER LINE -WLC-
CITY OF CONCORD**

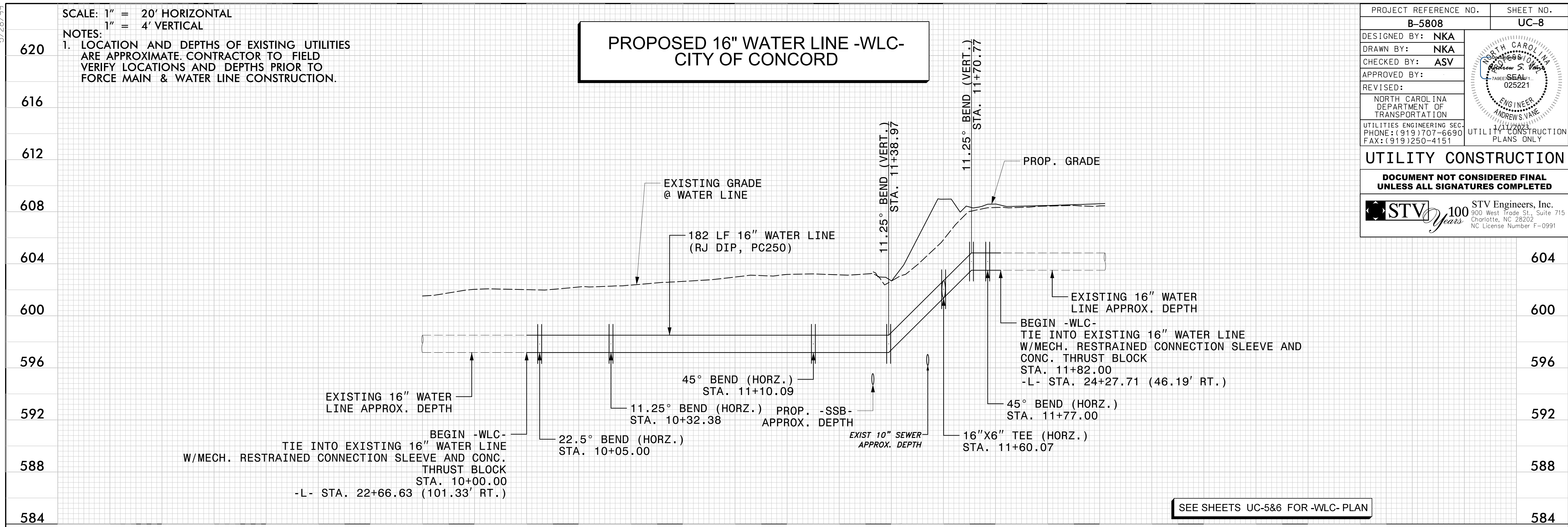
PROJECT REFERENCE NO. B-5808	SHEET NO. UC-8
DESIGNED BY: NKA	
DRAWN BY: NKA	
CHECKED BY: ASV	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	1/11/2023
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991



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