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TIP PROJECT: U-5114

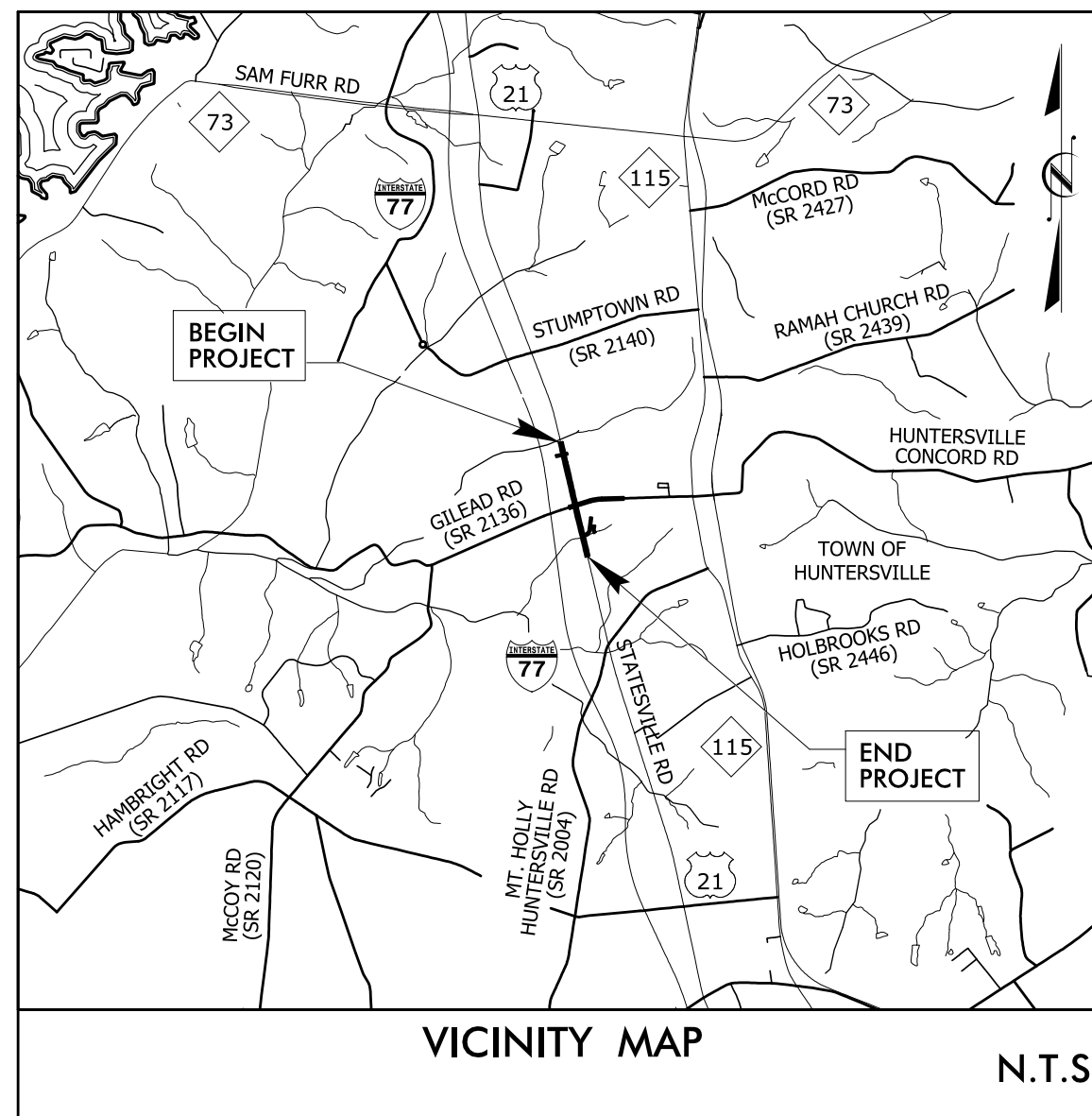
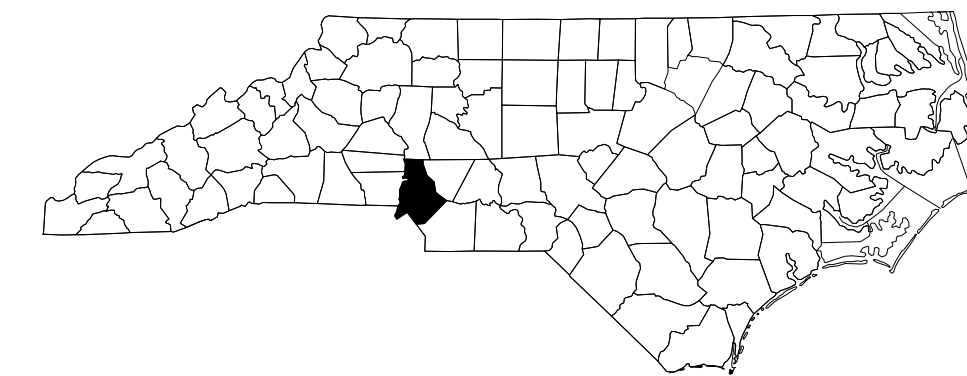
CONTRACT: C204104

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
U-5114	UC-1

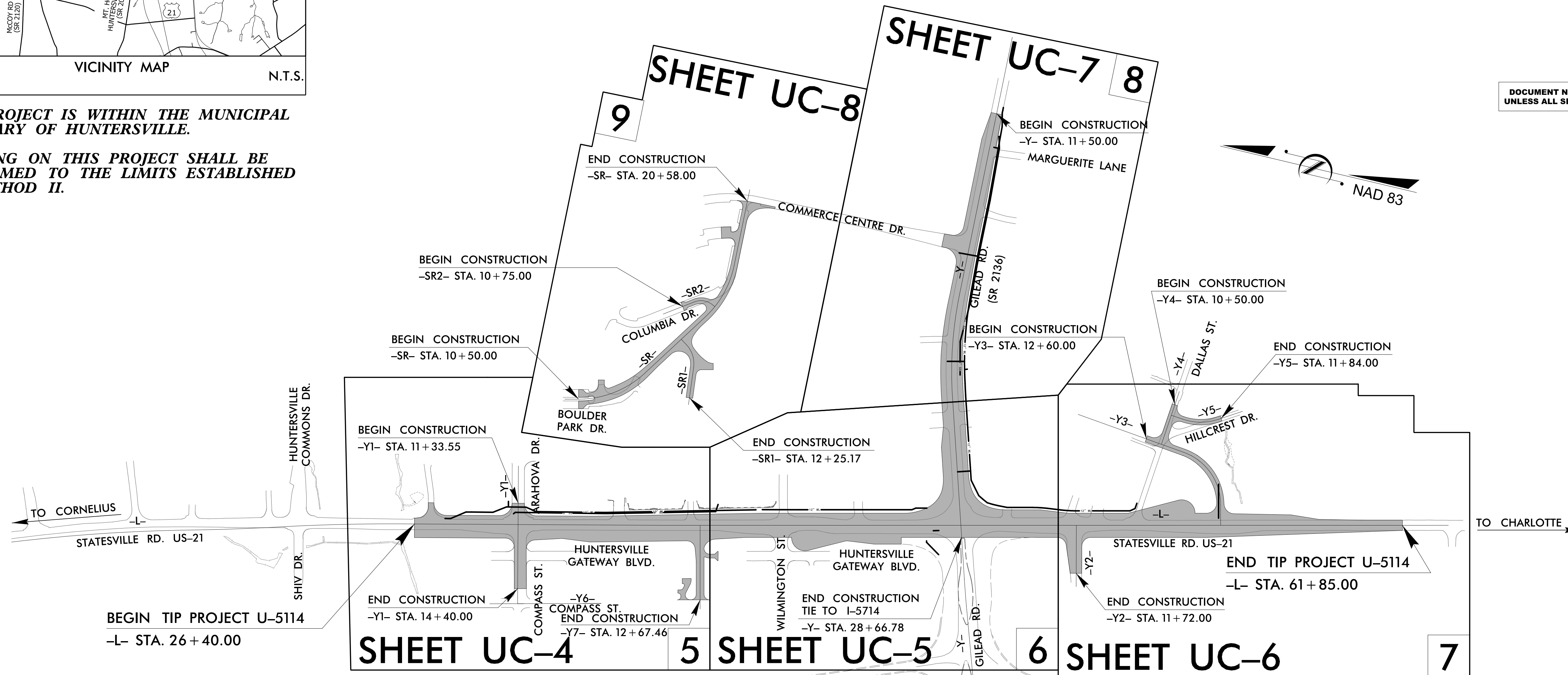
UTILITY CONSTRUCTION PLANS MECKLENBURG COUNTY

LOCATION: US-21 (STATESVILLE ROAD) AND SR 2136 (GILEAD ROAD)
TYPE OF WORK: WATER LINE & SANITARY SEWER RELOCATIONS

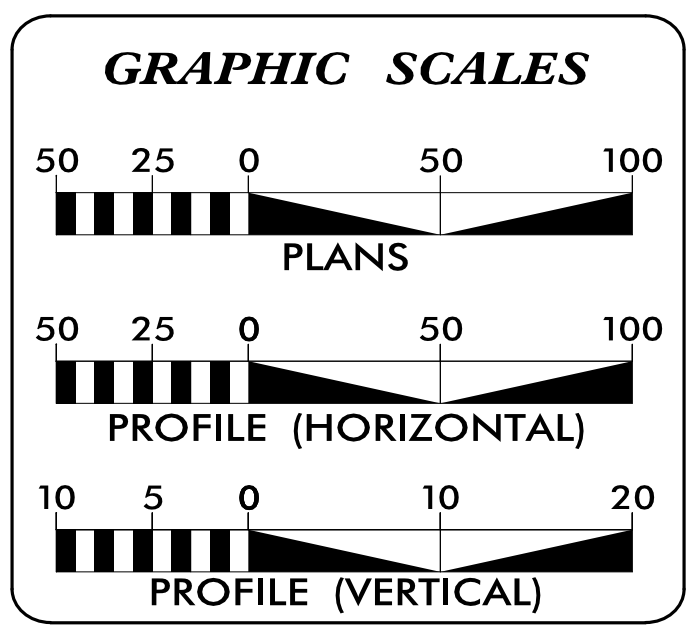
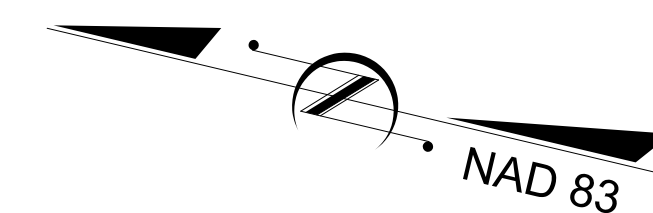


THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF HUNTERSVILLE.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



SHEET NO.:	INDEX OF SHEETS DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A	DETAILS
UC-3B	CLTWATER PERMITS
UC-4 THRU UC-8	UTILITY CONSTRUCTION SHEETS
UC-9 THRU UC-12	PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

(A) WATER - CHARLOTTE WATER
(B) SANITARY SEWER - CHARLOTTE WATER

PREPARED IN THE OFFICE OF

STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991
(704) 372-1885 FAX: (704) 372-3393

NIKKI HONEYCUTT, PE CONSULTANT CONTACT #1
MAAMOON ABDELAZIZ CONSULTANT CONTACT #2
MARTIN DENG, PE CONSULTANT CONTACT #3

SEAL

5/17/2018

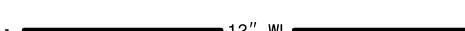

























DIVISION OF HIGHWAYS UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH, NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

BYRON SANDERS, P.E. UTILITIES REGIONAL ENGINEER
XXXX UTILITIES ENGINEER
AMY DUPREE UTILITIES AREA COORDINATOR
MARK CRUMP UTILITIES COORDINATOR

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS






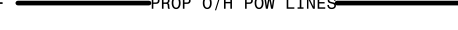

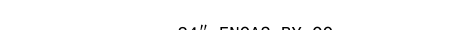
PROPOSED WATER SYMBOLS




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	
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 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	


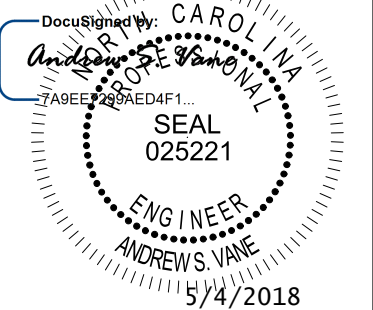
Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

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		Sanitary Sewer Cleanout	
End of Information			

*For Existing Utilities
 Utility Line Drawn from Record (Type as Shown)
 Designated Utility Line (Type as Shown)

UTILITY CONSTRUCTION

 STV Engineers, Inc. 300 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	PROJECT REFERENCE NO.	SHEET NO.
	U-5114	UC-3
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	DESIGNED BY: ASV	
	DRAWN BY: CTH	
	CHECKED BY: ASV	
	APPROVED BY: XMD	
	REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		

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 WATER AND SEWER UTILITIES BELONG TO CHARLOTTE WATER.
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 OF 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.
- ## US-21 WATER & SEWER STA. 16+50± TO STA. 22+00± SEQUENCE OF CONSTRUCTION
1. INSTALL NEW WATER AND SEWER SERVICES AND CONNECT TO EXISTING WATER AND SEWER MAINS AS SHOWN.
 2. INSTALL RETAINING WALL AND FINISH PROPOSED GRADING.
 3. INSTALL AND SUCCESSFULLY TEST ALL NEW WATER AND SEWER PIPES.
 4. CONNECT ALL NEW WATER AND SEWER PIPES TO ACTIVE SERVICES.
 5. ABANDON OLD WATER AND SEWER PIPES.
 6. COORDINATE THROUGHOUT WITH SEQUENCING OF RETAINING WALL CONSTRUCTION.

PROJECT SPECIFIC NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH CHARLOTTE WATER STANDARD DETAILS AND THE PROJECT SPECIAL PROVISIONS.
2. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY CHARLOTTE WATER REPRESENTATIVE.
3. ALL SHORING SHALL BE IN ACCORDANCE WITH OSHA TRENCHING STANDARDS PART 1926, SUBPART P, AS AMENDED TO DATE.
4. ANY NECESSARY LANE CLOSURES SHALL FOLLOW GUIDELINES OUTLINED IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
5. IF THE PROPOSED WATER AND/OR SANITARY SEWER MAIN IS INSTALLED WITHIN 12" IN ANY DIRECTION (VERTICALLY OR HORIZONTALLY) OF A GAS MAIN, THEN THE CONTRACTOR SHALL CALL PIEDMONT NATURAL GAS COMPANY AT 704-525-5585 AND INFORM THEM.
6. THE CONTRACTOR SHALL USE EROSION CONTROL MEASURES, AS DIRECTED.
7. IF ADDITIONAL WORK SPACE IS NEEDED, AN ENCROACHMENT IS TO BE AGREED UPON BETWEEN THE CONTRACTOR AND THE PROPERTY OWNER.
8. THE LOCATION OF EXISTING UTILITIES SHOWN ON THE PLANS IS FOR THE USE OF THE CONTRACTOR IN PROVIDING PROTECTION FOR THE UTILITIES DURING CONSTRUCTION OPERATIONS. NCDOT, DESIGN CONSULTANT AND/OR AGENT SHALL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF LOCATION, SIZE, DEPTH, OR COMPLETENESS OF THE INFORMATION. THE CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
9. THE CONTRACTOR SHALL SUPPORT AND PROTECT ANY EXISTING UNDERGROUND UTILITIES ENCOUNTERED DURING TRENCH EXCAVATION AND/OR PIPE INSTALLATION.
10. MINIMUM PIPE SEPARATION: 10 FEET HORIZONTAL SEPARATION OR 18" VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN WATER MAINS OVER SEWER MAINS. WHEN WATER MAINS ARE BELOW SEWER MAINS OR THE ABOVE MINIMUM SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE SHALL BE USED FOR BOTH MAINS TO 10 FEET ON EITHER SIDE OF THE CROSSING, AND ALL ALONG THE LENGTH OF MAINS WHERE MINIMUM SEPARATION CANNOT BE MAINTAINED.
11. CHARLOTTE WATER SHALL BE NOTIFIED 1 WEEK PRIOR TO THE BEGINNING OF WATER AND/OR SANITARY SEWER WORK. CONTACT BILL DEAL OF CHARLOTTE WATER AT (980)-722-0786 TO PROVIDE THIS NOTIFICATION.
12. WATER AND SEWER LINES ARE TO REMAIN ACTIVE DURING CONSTRUCTION. IF THIS IS NOT POSSIBLE, THEN THE CONTRACTOR SHALL FOLLOW CHARLOTTE WATER PROCEDURES AS OUTLINED IN THE SPECIAL PROVISIONS REGARDING OUTAGE, TEMPORARY WATER SERVICE, AND BYPASS PUMPING.
13. SANITARY SEWER LATERAL LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO RELOCATION DUE TO FIELD CONDITIONS. ALL 4" SANITARY SEWER LATERALS SHALL HAVE A MIN. 1% SLOPE.
14. ALL PROPOSED WATER AND SEWER LINES, UNLESS OTHERWISE INDICATED ON PLANS, ARE TO BE RESTRAINED JOINT DUCTILE IRON PIPE PRESSURE CLASS 350.
15. ALL PROPOSED WATER AND SEWER LINES TO BE TESTED PER CHARLOTTE WATER STANDARD SPECIFICATIONS.
16. CONTRACTOR TO MINIMIZE SHUTDOWN TIME OF 8" WATER LINE ON ARAHOVA DRIVE AND 8" WATER LINE ON COMMERCE CENTRE DRIVE. COORDINATE WITH CHARLOTTE WATER AND LOCAL FIRE DEPARTMENT.

PROJECT REFERENCE NO.	SHEET NO.
U-5114	UC-3A
DESIGNED BY: ASV	
DRAWN BY: CTH	
CHECKED BY: ASV	
APPROVED BY: XMD	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

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PROJECT TYPICAL DETAILS

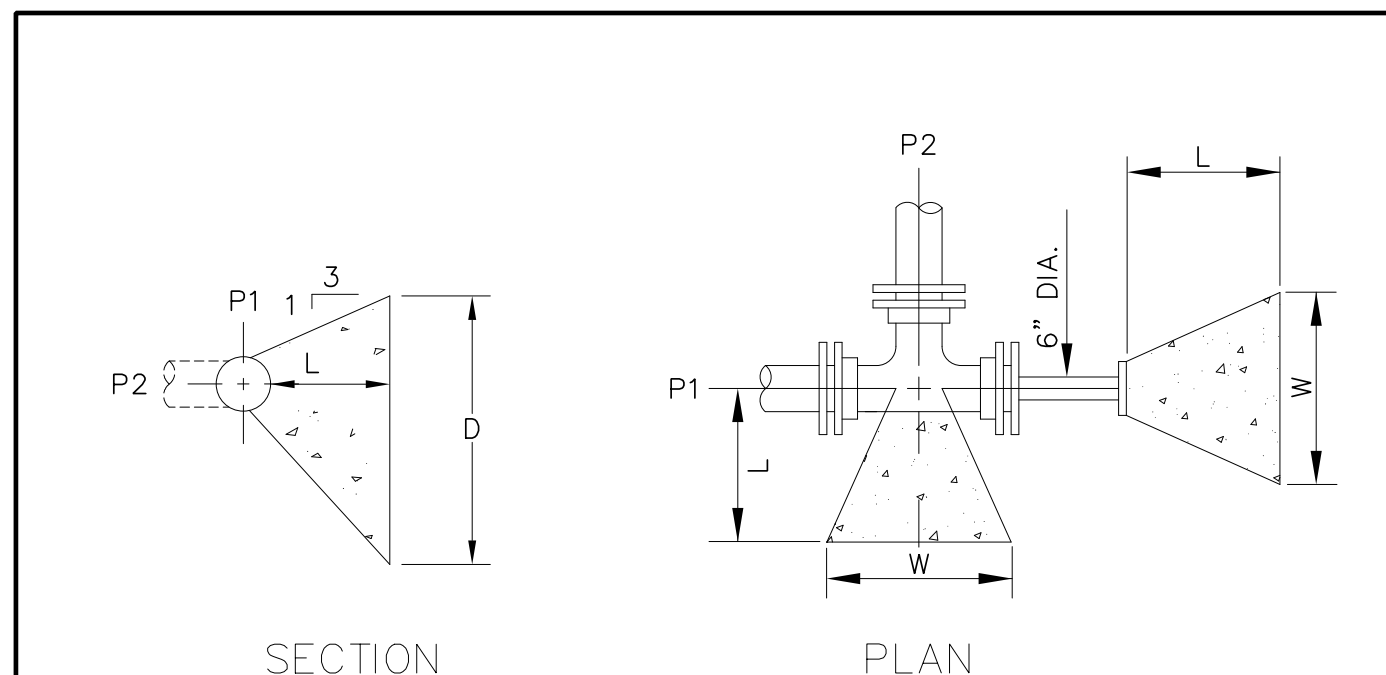
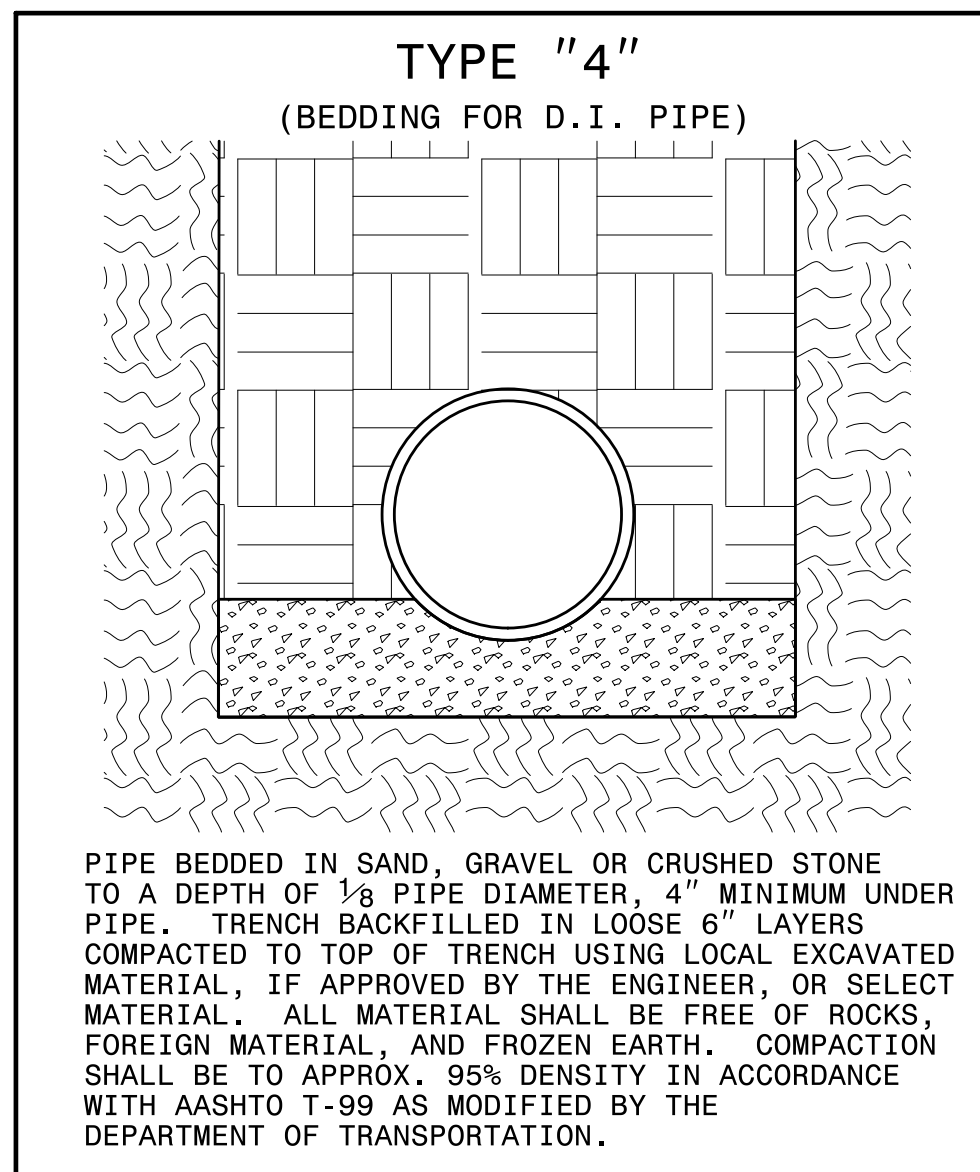
LIST OF CHARLOTTE WATER STANDARD DRAWINGS

WATER DETAILS

- CLTWATER DETAIL SHEET 5 - FIRE HYDRANT
- CLTWATER DETAIL #29 - LOWERING 6 TO 12-INCH WATER MAINS
- CLTWATER DETAIL #AA - PRECAST CONCRETE METER BOX - 0.75-INCH DOMESTIC WATER SERVICE
- CLTWATER DETAIL #BB - PRECAST CONCRETE METER BOX 1-INCH DOMESTIC AND IRRIGATION WATER SERVICE
- CLTWATER DETAIL #C - BACKSIDE TAPPING SLEEVE AND VALVE - 16-INCH AND SMALLER MAINS
- CLTWATER DETAIL #DD - DEAD END THRUST - WALL BLOCKING WITH 2-INCH BLOW-OFF 6 TO 12-INCH MAINS
- CLTWATER DETAIL #FF - CAST IRON VALVE BOX 12-INCH AND SMALLER VALVES
- CLTWATER DETAIL #G - NEW WATER MAIN JUMPER SCHEMATIC 2-24-INCH MAINS
- CLTWATER DETAIL #GG - VALVE BOX ADJUSTMENTS FOR PAVEMENT RESURFACING
- CLTWATER DETAIL #HH - VALVE BOX ASSEMBLY INSTALLATION 12-INCH AND SMALLER VALVES
- CLTWATER DETAIL #I - 4 TO 10-INCH FIRE LINE SERVICE CONNECTION
- CLTWATER DETAIL #K-1 - 3-4THS AND 1-INCH DOMESTIC WATER SERVICE CONNECTION - PART ONE
- CLTWATER DETAIL #K-2 - 3-4THS AND 1-INCH DOMESTIC WATER SERVICE CONNECTION - PART TWO
- CLTWATER DETAIL #LL - DEAD END THRUST - WALL BLOCKING WITH 2-INCH BLOW-OFF 14 TO 30-INCH MAINS
- CLTWATER DETAIL #M - 1.5 INCH DOMESTIC WATER SERVICE CONNECTION
- CLTWATER DETAIL #MM - VALVE BOX CONCRETE GRADE RINGS AND FOOTINGS
- CLTWATER DETAIL #OO - PLASTIC WATER METER BOX AND LID - 0.75-INCH DOMESTIC WATER SERVICE
- CLTWATER DETAIL #PP - WATER METER BOX - PLASTIC LID - 0.75 AND 1-INCH DOMESTIC WATER SERVICES
- CLTWATER DETAIL #QQ - ALUMINUM SINGLE LEAF ACCESS DOOR 24-INCH X 36-INCH OFF STREET H-20 WHEEL LOADING
- CLTWATER DETAIL #R - 2-INCH DOMESTIC WATER SERVICE CONNECTION
- CLTWATER DETAIL #VV - BW FIRE HYDRANT PAINT COLOR SCHEMES - CMUD-CFD STANDARDS - PUBLIC AND PRIVATE HYDRANTS
- CLTWATER DETAIL #X - ERT TRANSMITTER SUPPORT BRACKET ADAPTER

SEWER DETAILS

- CLTWATER DETAIL SHEET 1 - 4" LATERAL (TAP)
- CLTWATER DETAIL SHEET 2 - 4" LATERAL (TEE)
- CLTWATER DETAIL SHEET 3 - LATERAL INSTALLATION AT MANHOLE
- CLTWATER DETAIL SHEET 4 - PRECAST MANHOLES 4' AND 5' DIAMETER
- CLTWATER DETAIL SHEET 6 - OUTSIDE DROP INSTALLATION (ALTERNATE)
- CLTWATER DETAIL SHEET 8 - PRECAST MANHOLES INSTALLED OVER EXISTING PIPE
- CLTWATER DETAIL SHEET 14 - PLASTIC STEP CORED HOLE DRIVEN IN PLACE
- CLTWATER DETAIL #A - TYPE 1 24-INCH MANHOLE COVER VENTED
- CLTWATER DETAIL #B - TYPE 1 24-INCH MANHOLE COVER SOLID
- CLTWATER DETAIL #G - TYPE 1 24-INCH MANHOLE FRAME 7 AND HALF-INCH TALL
- CLTWATER DETAIL #G - TYPE 1 24-INCH MANHOLE FRAME 4-INCH TALL



MINIMUM DIMENSIONS IN FT FOR CONCRETE BLOCKING

P1 SIZE (NOM)	P2 SIZE (FT.)	L (FT.)	W (FT.)	D (FT.)	VOLUME (CU. YDS.) APPROX.	THRUST (LBS.)
12"	6"	1.8	2.6	5.2	0.3	5,655
	8"	2.0	4.3	6.6	0.7	10,053
24"	12"	2.5	8.1	6.8	1.7	22,619

NOTES:

- SOIL CONDITIONS SHALL BE VERIFIED BY THE GEOTECHNICAL ENGINEER BEFORE THRUST BLOCK DESIGN IS IMPLEMENTED.
- POUR BLOCKING AGAINST UNDISTURBED EARTH WHEN OVEREXCAVATION OCCURS.

DESIGN DATA:

- DIMENSION OF THRUST BLOCK IN FEET BASED ON 2000 POUNDS PER SQUARE FOOT SOIL BEARING PRESSURE AND 250 P.S.I. TEST PRESSURE.
- CONCRETE SHALL BE CLASS A, 3600 P.S.I.
- UNDER ADVERSE CONSTRUCTION CONDITIONS, CONCRETE SHALL BE "HIGH EARLY" TYPE

TYPICAL BLOCKING
 NTS

1431

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		



CHARLOTTE, NORTH CAROLINA

STV 100 Years
 STV Engineers, Inc.
 900 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

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PROJECT REFERENCE NO. U-5114	SHEET NO. UC-3B
DESIGNED BY: ASV	
DRAWN BY: CTH	
CHECKED BY: ASV	
APPROVED BY: XMD	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

APPLICATION FOR NON-DISCHARGE PERMIT
 GRAVITY SEWER MAIN EXTENSION
 CHARLOTTE WATER

PROJECT NAME U-5114 - US-21 (STATESVILLE ROAD) AND SR 2136 (GILEAD ROAD) IMPROVEMENTS CREEK BASIN TORRENCE/McDOWELL

1618 LF OF 8-INCH SANITARY SEWER

122 LF OF 12-INCH SANITARY SEWER

CLTWater PROJECT NO.: 7030600017-18-XXX

PROJECT TYPE: NEW CONSTRUCTION RELOCATION MODIFICATION OF PERMIT NO. _____
 OTHER _____

VOLUME OF WASTEWATER GENERATED BY THIS PROJECT: _____ * _____ GALLONS PER DAY BASED
 ON 190 GAL/DAY/SINGLE FAMILY HOUSEHOLD X _____ * _____ HOUSEHOLDS OR

135 GAL/DAY/MULTI-FAMILY UNIT X _____ * _____ UNITS OR IS BASED ON :

WASTEWATER TREATMENT PLANT RECEIVING WASTEWATER:

- McALPINE CR. (NC0024970) IRWIN CR. (NC0024945) McDOWELL CR. (NC0036277)
 SUGAR CR. (NC0024937) MALLARD CR. (NC0030210) ROCKY CR. (NC0036269)

NATURE OF WASTEWATER 50% % DOMESTIC _____ % INDUSTRIAL
 _____ 50% % COMMERCIAL _____ % OTHER _____

ORIGIN OF WASTEWATER SUBDIVISION COMMERCIAL
 SCHOOL INDUSTRIAL
 APARTMENTS/CONDO'S OTHER

LIST ANY PARAMETER AND ITS CONCENTRATION THAT WILL BE GREATER THAN NORMAL DOMESTIC LEVELS:
 NONE

IF WASTEWATER IS NON-DOMESTIC, DESCRIBE LEVEL OF PRETREATMENT:
 N/A

IF A PRETREATMENT PERMIT IS REQUIRED, HAS ONE BEEN ISSUED? YES NO

HAS ENGINEER DETERMINED THAT DOWNSTREAM SEWERS ARE CAPABLE TO HANDLE THIS FLOW? YES NO
 PERMIT NO. FOR SEWERS IMMEDIATELY DOWNSTREAM _____ * _____
 PIPE DIAMETER OF SEWERS IMMEDIATELY DOWNSTREAM _____ 8-INCH

HAS ENGINEER DETERMINED THAT NC DEM AND CLTWater MINIMUM DESIGN STANDARDS ARE MET BY THIS PROJECT? YES NO

COMPLETE NAME AND ADDRESS OF ENGINEERING DESIGN FIRM:

STV ENGINEERS, INC.
 900 WEST TRADE STREET, SUITE 715
 CHARLOTTE, NC 28202-1144

TELEPHONE 704 - 372 - 1885

PROFESSIONAL ENGINEER'S CERTIFICATION:

I, ANDREW VANE, PE, ATTEST THAT THIS APPLICATION FOR PROP. 8" & 12" SANITARY SEWER

RELOCATION HAS BEEN REVIEWED BY ME AND IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE. I FURTHER ATTEST THAT TO THE BEST OF MY KNOWLEDGE THE PROPOSED DESIGN HAS BEEN PREPARED IN ACCORDANCE WITH THE APPLICABLE REGULATIONS. ALTHOUGH CERTAIN PORTIONS OF THIS SUBMITTAL PACKAGE MAY HAVE BEEN DEVELOPED BY OTHER PROFESSIONALS, INCLUSION OF THESE MATERIALS UNDER MY SIGNATURE AND SEAL SIGNIFIES THAT I HAVE REVIEWED THIS MATERIAL AND HAVE JUDGED IT TO BE CONSISTENT WITH THE PROPOSED DESIGN.

NORTH CAROLINA PROFESSIONAL ENGINEER'S SEAL, SIGNATURE, AND DATE:

CLTWater PERMIT NO. _____ ISSUED _____

PLANT FLOW ALLOCATION RECORDED BY: _____

PERMIT APPROVED BY: JOSEPH C WILSON, P.E., CHIEF ENGINEER

APPLICATION FOR PERMIT FOR WATER MAIN EXTENSION

PROJECT NAME: U-5114 - US-21 (STATESVILLE ROAD) AND SR 2136 (GILEAD ROAD) IMPROVEMENTS

CLTWater PROJECT NO.: 7030600038-18-XXX

PROJECT DESCRIPTION: PROPOSED 98 L.F. OF 8", 20 L.F. OF 10", 3765 L.F. OF 12", 30 L.F. OF 16", AND 57 L.F. OF 24" WATER

MAINS WITH ASSOCIATED FITTINGS ALONG GILEAD RD AND US-21 IN THE TOWN OF HUNTERSVILLE

DESIGNED BY: FIRM: STV ENGINEERS, INC.

ENGINEER: ANDREW VANE, PE

ADDRESS: 900 WEST TRADE STREET, SUITE 715
CHARLOTTE, NC 28202-1144

PHONE: (704) 372-1885

THIS APPLICATION IS MADE UNDER AND IN FULL ACCORD WITH THE PROVISIONS OF CHAPTER 130A-317 OF THE NORTH CAROLINA GENERAL STATUTES, AND SUCH OTHER STATUTES AS RELATED TO PUBLIC WATER SYSTEMS. CLTWater HAS BEEN GRANTED AUTHORITY TO ISSUE PERMITS FOR EXTENSION OF WATER MAINS PURSUANT TO 15A NCAC 18C.1801. THE APPLICANT AGREES THAT NO SIGNIFICANT CHANGE OR DEVIATION FROM THE PLANS AND SPECIFICATIONS APPROVED BY CLTWater WILL BE MADE WITHOUT THE WRITTEN CONSENT AND APPROVAL OF CLTWater OR ITS AUTHORIZED REPRESENTATIVE. A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NORTH CAROLINA SHALL SUBMIT A STATEMENT REFLECTING THAT ADEQUATE OBSERVATIONS DURING AND UPON COMPLETION OF CONSTRUCTION INDICATES THAT CONSTRUCTION WAS COMPLETED IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.

PERMIT NO. _____

APPROVED: _____ DATE _____

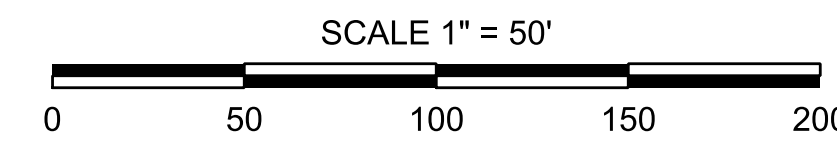
JOSEPH C WILSON, PE, CHIEF ENGINEER
 CHARLOTTE WATER
 5100 BROOKSHIRE BLVD.
 CHARLOTTE, NORTH CAROLINA 28216

5/14/09

UTILITY CONSTRUCTION PLAN SHEET UC-4
CORRESPONDS TO ROADWAY PLAN SHEET NO. 5

NOTES:

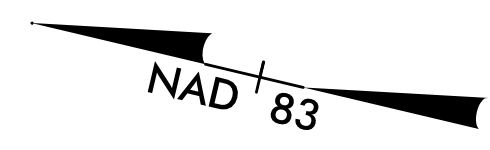
- 1. WATER SERVICE LINES CONNECTED TO EXIST. WATER METERS MARKED FOR REMOVAL SHALL BE ABANDONED BACK TO WATER MAIN AS APPROVED BY CHARLOTTE WATER.
- 2. SEE UC-3 FOR CONSTRUCTION SEQUENCING OF WATER AND SEWER SERVICES.



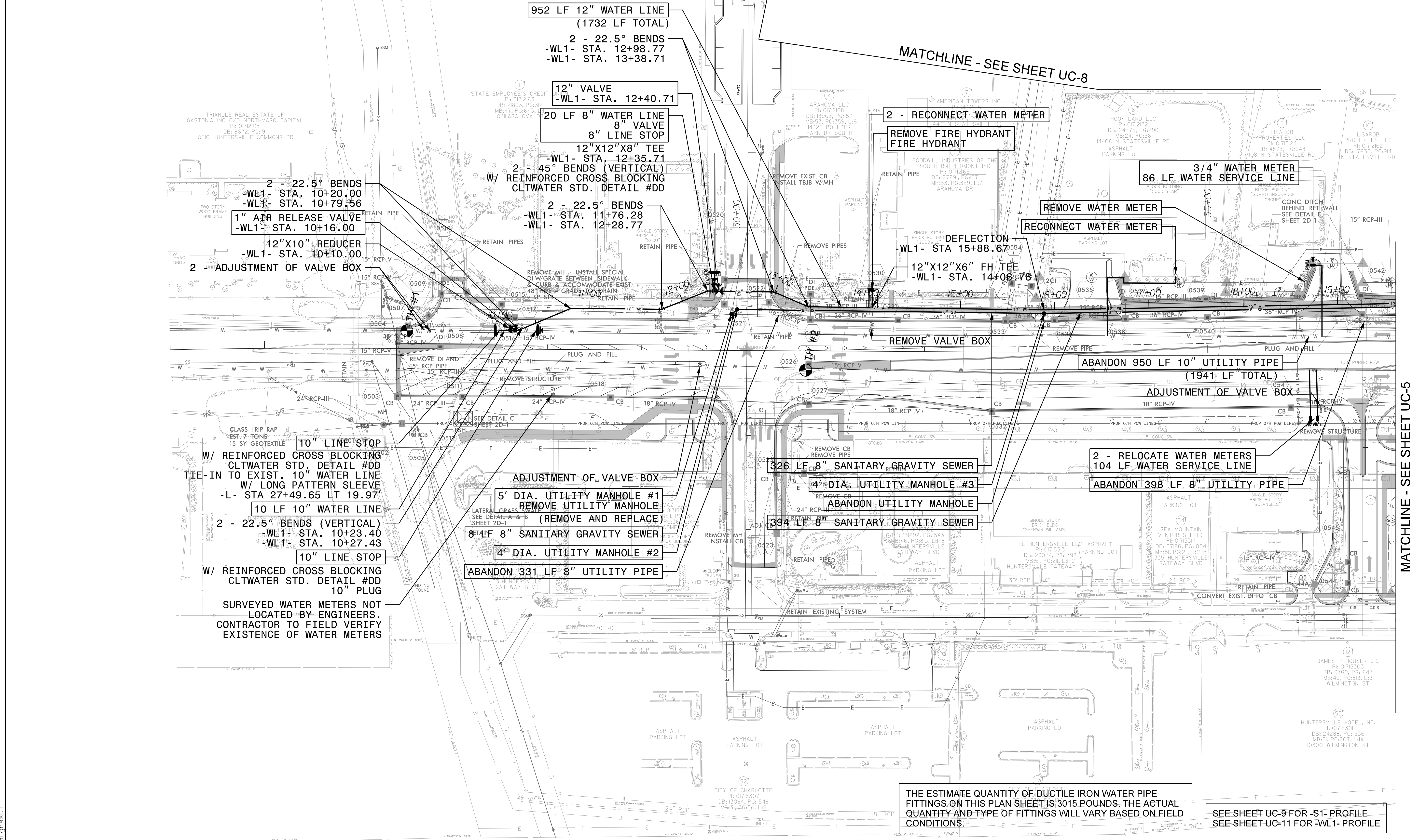
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 STV Engineers, Inc.
 800 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

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PROJECT REFERENCE NO. U-5114	SHEET NO. UC-4
DESIGNED BY: ASV	
DRAWN BY: CTH	
CHECKED BY: ASV	
APPROVED BY: XMD	
REVISED:	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY



UTILITY CONSTRUCTION



THE ESTIMATE QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 3015 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-9 FOR -S1- PROFILE
SEE SHEET UC-11 FOR -WL1- PROFILE

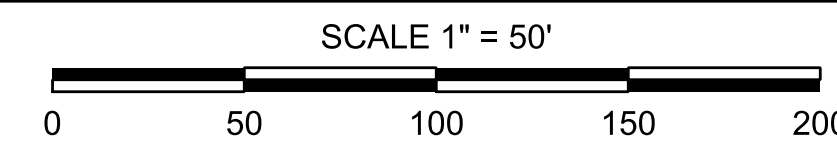
6/4/2008
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L:\Utilities

5/14/19

UTILITY CONSTRUCTION PLAN SHEET UC-5
CORRESPONDS TO ROADWAY PLAN SHEET NO. 6

NOTES:

- 1. WATER SERVICE LINES AND FIRE HYDRANT LEGS CONNECTED TO EXIST. WATER METERS AND EXIST. FIRE HYDRANTS MARKED FOR REMOVAL SHALL BE ABANDONED BACK TO WATER MAIN AS APPROVED BY CHARLOTTE WATER.
- 2. SEE UC-3 FOR CONSTRUCTION SEQUENCING OF WATER AND SEWER SERVICES.

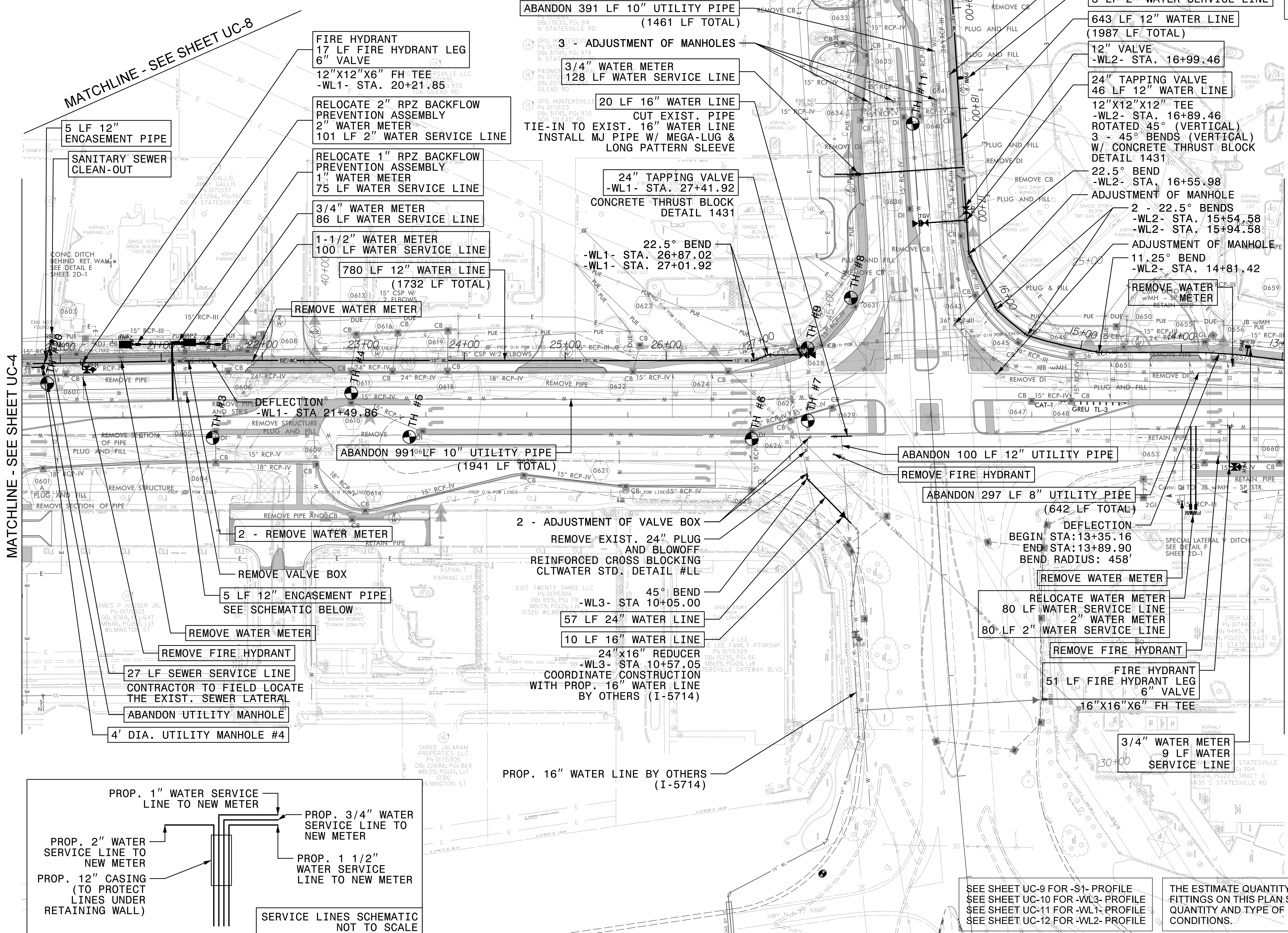
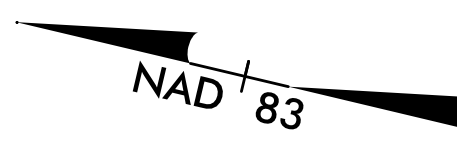


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PROJECT REFERENCE NO.	SHEET NO.
U-5114	UC-5
DESIGNED BY: ASV	
DRAWN BY: CTH	
CHECKED BY: ASV	
APPROVED BY: XMD	
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UTILITY CONSTRUCTION



SEE SHEET UC-9 FOR -S1- PROFILE
 SEE SHEET UC-10 FOR -WL3- PROFILE
 SEE SHEET UC-11 FOR -WL1- PROFILE
 SEE SHEET UC-12 FOR -WL2- PROFILE

THE ESTIMATE QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 5695 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

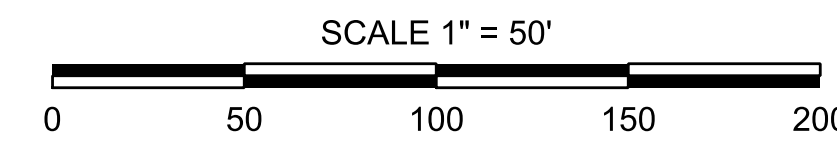
6/4/2018
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5/14/2018

UTILITY CONSTRUCTION PLAN SHEET UC-6
CORRESPONDS TO ROADWAY PLAN SHEET NO. 7

NOTES:

1. WATER SERVICE LINES CONNECTED TO EXIST. WATER METERS MARKED FOR REMOVAL SHALL BE ABANDONED BACK TO WATER MAIN AS APPROVED BY CHARLOTTE WATER.
2. CONTRACTOR TO RECONNECT ALL EXISTING WATER AND SANITARY SERVICES TO NEW PIPES ONCE TESTED AND ACCEPTED BY CHARLOTTE WATER.



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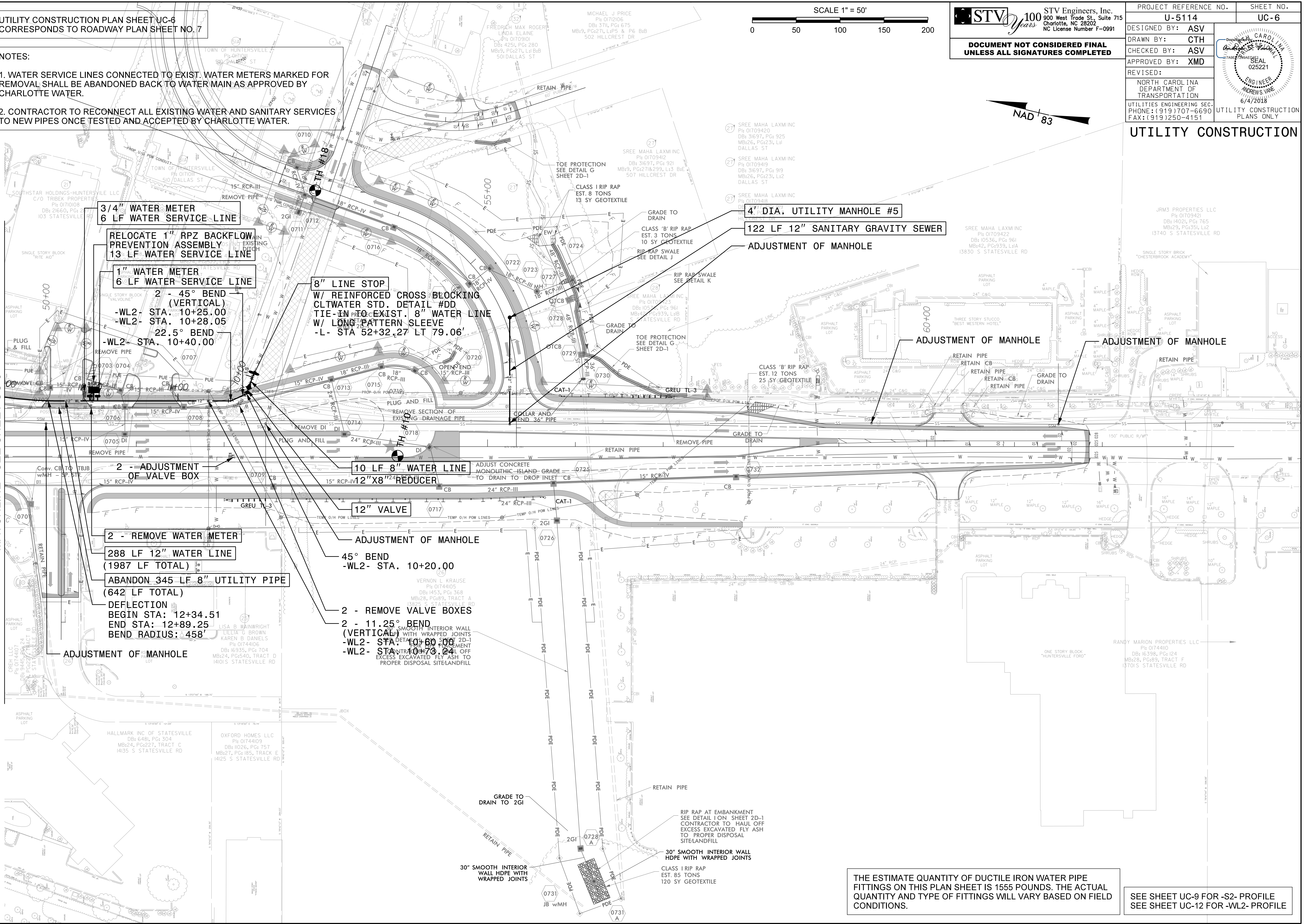
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PROJECT REFERENCE NO.	SHEET NO.
U-5114	UC-6
DESIGNED BY: ASV	
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CHECKED BY: ASV	
APPROVED BY: XMD	
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MATCHLINE - SEE SHEET UC-5

6/4/2018
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THE ESTIMATE QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1555 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-9 FOR -S2- PROFILE
 SEE SHEET UC-12 FOR -WL2- PROFILE

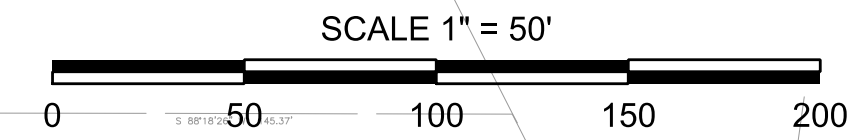
5/14/2018

UTILITY CONSTRUCTION PLAN SHEET UC-7
CORRESPONDS TO ROADWAY PLAN SHEET NO. 8

THE ESTIMATE QUANTITY OF DUCTILE IRON WATER PIPE
FITTINGS ON THIS PLAN SHEET IS 3590 POUNDS. THE ACTUAL
QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD
CONDITIONS.

NOTES:

1. WATER SERVICE LINES AND FIRE HYDRANT LEGS CONNECTED TO EXIST. WATER METERS AND EXIST. FIRE HYDRANTS MARKED FOR REMOVAL SHALL BE ABANDONED BACK TO WATER MAIN AS APPROVED BY CHARLOTTE WATER.
2. CONTRACTOR TO FIELD LOCATE EXISTING 2" WATER LINE ON SOUTH SIDE OF GILEAD ROAD AND CONNECT EXISTING WATER SERVICES TO EXISTING 8" WATER LINE BEFORE ABANDONING.
3. CONTRACTOR TO RECONNECT ALL EXISTING WATER AND SANITARY SERVICES TO NEW PIPES ONCE TESTED AND ACCEPTED BY CHARLOTTE WATER.



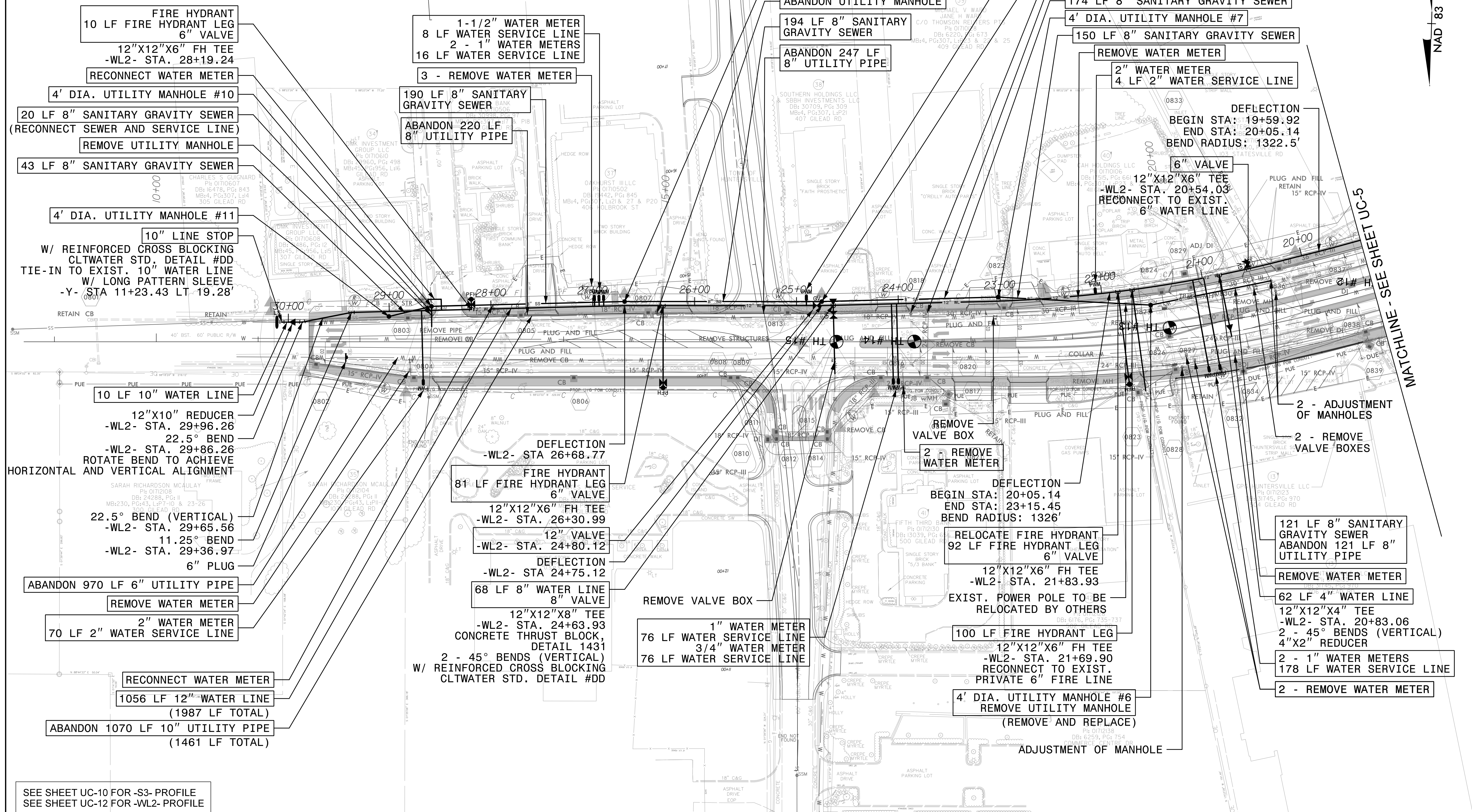
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PROJECT REFERENCE NO. U-5114	SHEET NO. UC-7
DESIGNED BY: ASV	
DRAWN BY: CTH	
CHECKED BY: ASV	
APPROVED BY: XMD	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
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UTILITY CONSTRUCTION

NAD 83



- FIRE HYDRANT
10 LF FIRE HYDRANT LEG
6" VALVE
12"X12"X6" FH TEE
-WL2- STA. 28+19.24
RECONNECT WATER METER
- 4' DIA. UTILITY MANHOLE #10
- 20 LF 8" SANITARY GRAVITY SEWER
(RECONNECT SEWER AND SERVICE LINE)
- REMOVE UTILITY MANHOLE
- 43 LF 8" SANITARY GRAVITY SEWER
- 4' DIA. UTILITY MANHOLE #11
- 10" LINE STOP
W/ REINFORCED CROSS BLOCKING
CLT WATER STD. DETAIL #DD
TIE-IN TO EXIST. 10" WATER LINE
W/ LONG PATTERN SLEEVE
-Y- STA 11+23.43 LT 19.28'

- 10 LF 10" WATER LINE
- 12"X10" REDUCER
-WL2- STA. 29+96.26
22.5° BEND
-WL2- STA. 29+86.26
ROTATE BEND TO ACHIEVE
HORIZONTAL AND VERTICAL ALIGNMENT
- 22.5° BEND (VERTICAL)
-WL2- STA. 29+65.56
- 11.25° BEND
-WL2- STA. 29+36.97
- 6" PLUG

- ABANDON 970 LF 6" UTILITY PIPE
- REMOVE WATER METER
- 2" WATER METER
- 70 LF 2" WATER SERVICE LINE
- RECONNECT WATER METER
- 1056 LF 12" WATER LINE
(1987 LF TOTAL)
- ABANDON 1070 LF 10" UTILITY PIPE
(1461 LF TOTAL)

SEE SHEET UC-10 FOR -S3- PROFILE
SEE SHEET UC-12 FOR -WL2- PROFILE

- 1-1/2" WATER METER
8 LF WATER SERVICE LINE
2 - 1" WATER METERS
16 LF WATER SERVICE LINE
- 3 - REMOVE WATER METER
- 190 LF 8" SANITARY
GRAVITY SEWER
- ABANDON 220 LF
8" UTILITY PIPE

- DEFLECTION
-WL2- STA 26+68.77
- FIRE HYDRANT
81 LF FIRE HYDRANT LEG
6" VALVE
- 12"X12"X6" FH TEE
-WL2- STA. 26+30.99
- 12" VALVE
-WL2- STA. 24+80.12
- DEFLECTION
-WL2- STA 24+75.12
- 68 LF 8" WATER LINE
8" VALVE
- 12"X12"X8" TEE
-WL2- STA. 24+63.93
CONCRETE THRUST BLOCK,
DETAIL 1431
2 - 45° BENDS (VERTICAL)
W/ REINFORCED CROSS BLOCKING
CLT WATER STD. DETAIL #DD

- REMOVE VALVE BOX
- 1" WATER METER
76 LF WATER SERVICE LINE
3/4" WATER METER
76 LF WATER SERVICE LINE

- 4' DIA. UTILITY MANHOLE #9
- ABANDON UTILITY MANHOLE
- 194 LF 8" SANITARY
GRAVITY SEWER
- ABANDON 247 LF
8" UTILITY PIPE

- REMOVE VALVE BOX
- 2 - REMOVE
WATER METER
- DEFLECTION
BEGIN STA: 20+05.14
END STA: 23+15.45
BEND RADIUS: 1326'
- RELOCATE FIRE HYDRANT
92 LF FIRE HYDRANT LEG
6" VALVE
- 12"X12"X6" FH TEE
-WL2- STA. 21+83.93
EXIST. POWER POLE TO BE
RELOCATED BY OTHERS
- 100 LF FIRE HYDRANT LEG
- 12"X12"X6" FH TEE
-WL2- STA. 21+69.90
RECONNECT TO EXIST.
PRIVATE 6" FIRE LINE
- 4' DIA. UTILITY MANHOLE #6
REMOVE UTILITY MANHOLE
(REMOVE AND REPLACE)
- ADJUSTMENT OF MANHOLE

- 3/4" WATER METER
8 LF WATER SERVICE LINE
- 4' DIA. UTILITY MANHOLE #8
- ABANDON UTILITY MANHOLE
- ABANDON 234 LF 8" UTILITY PIPE
- 174 LF 8" SANITARY GRAVITY SEWER
- 4' DIA. UTILITY MANHOLE #7
- 150 LF 8" SANITARY GRAVITY SEWER
- REMOVE WATER METER
- 2" WATER METER
4 LF 2" WATER SERVICE LINE

DEFLECTION
BEGIN STA: 19+59.92
END STA: 20+05.14
BEND RADIUS: 1322.5'

- 6" VALVE
- 12"X12"X6" TEE
-WL2- STA. 20+54.03
RECONNECT TO EXIST.
6" WATER LINE

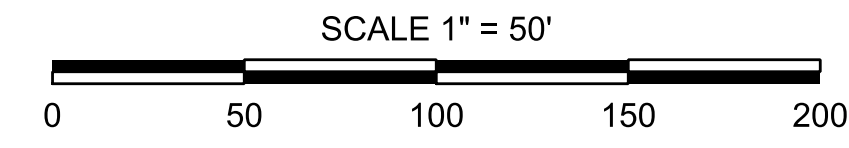
- 2 - ADJUSTMENT
OF MANHOLES
- 2 - REMOVE
VALVE BOXES
- 121 LF 8" SANITARY
GRAVITY SEWER
ABANDON 121 LF 8"
UTILITY PIPE
- REMOVE WATER METER
- 62 LF 4" WATER LINE
12"X12"X4" TEE
-WL2- STA. 20+83.06
2 - 45° BENDS (VERTICAL)
4"X2" REDUCER
- 2 - 1" WATER METERS
178 LF WATER SERVICE LINE
- 2 - REMOVE WATER METER

MATCHLINE - SEE SHEET UC-8

5/14/2018
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L:\Users\C...

5/14/2018

UTILITY CONSTRUCTION PLAN SHEET UC-8
CORRESPONDS TO ROADWAY PLAN SHEET NO: 9

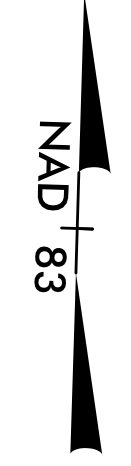


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 NC License Number F-0991

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PROJECT REFERENCE NO. U-5114	SHEET NO. UC-8
DESIGNED BY: ASV	
DRAWN BY: CTH	
CHECKED BY: ASV	
APPROVED BY: XMD	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

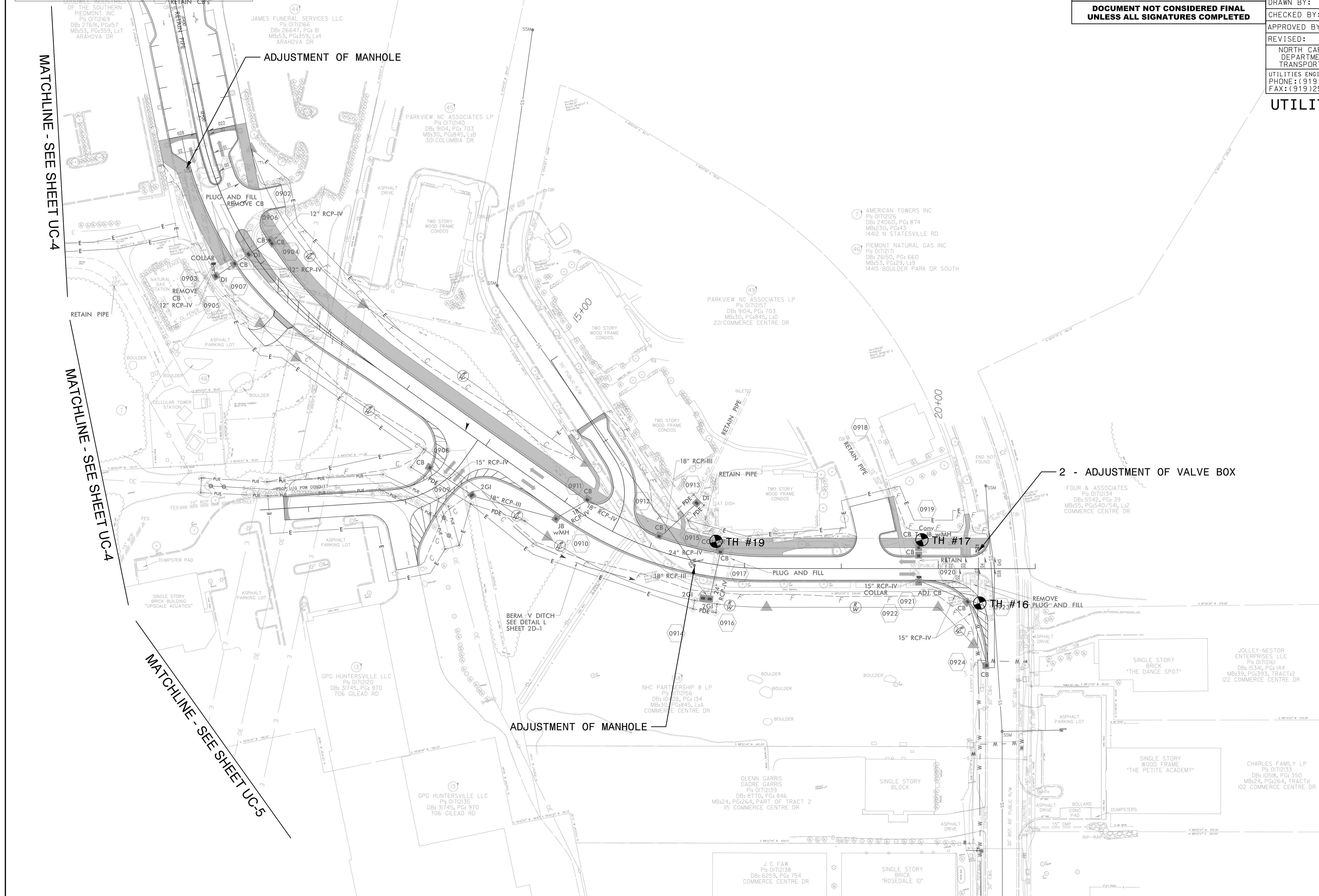


MATCHLINE - SEE SHEET UC-4

MATCHLINE - SEE SHEET UC-4

MATCHLINE - SEE SHEET UC-5

MATCHLINE - SEE SHEET UC-7



ADJUSTMENT OF MANHOLE

2 - ADJUSTMENT OF VALVE BOX

ADJUSTMENT OF MANHOLE

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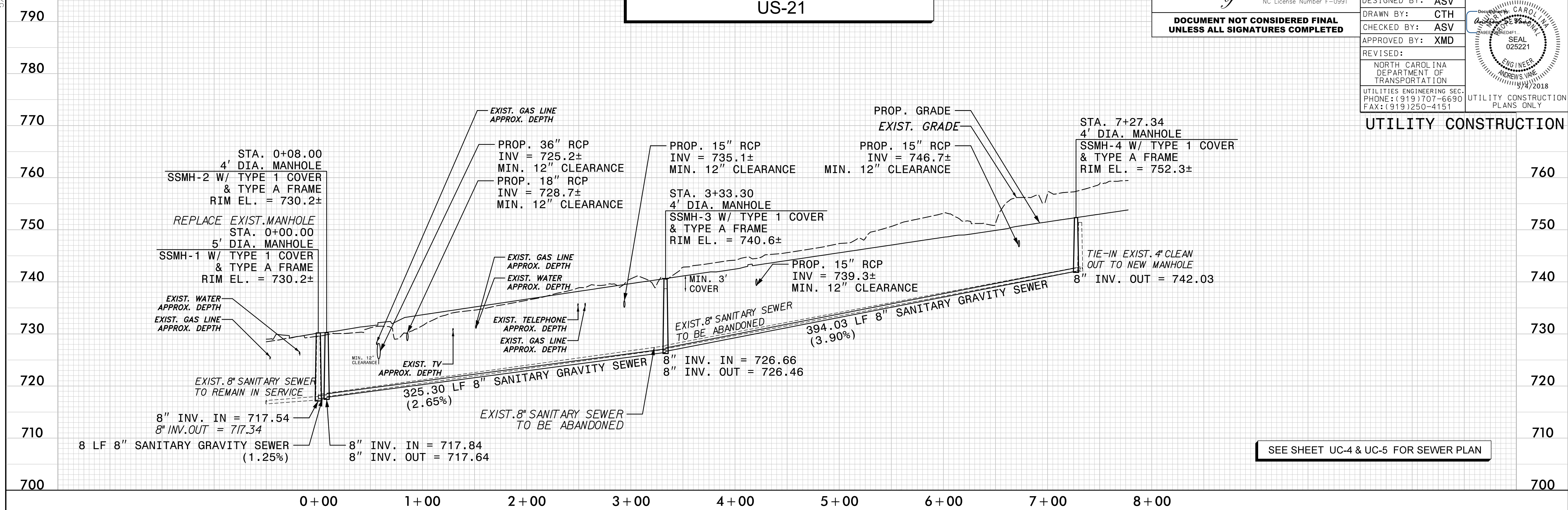
SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

PROP. 8" SANITARY SEWER -S1- US-21

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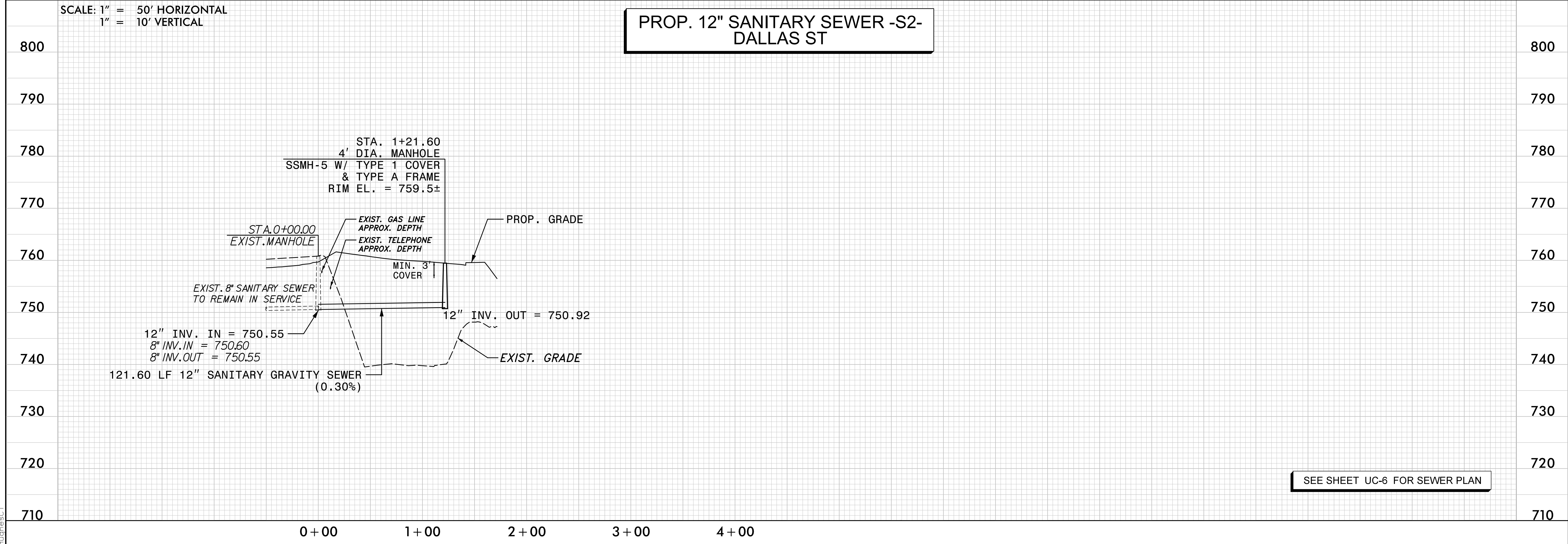
PROJECT REFERENCE NO. U-5114	SHEET NO. UC-9
DESIGNED BY: ASV	
DRAWN BY: CTH	
CHECKED BY: ASV	
APPROVED BY: XMD	
REVISED:	
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UTILITY CONSTRUCTION	



SEE SHEET UC-4 & UC-5 FOR SEWER PLAN

SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

PROP. 12" SANITARY SEWER -S2- DALLAS ST



SEE SHEET UC-6 FOR SEWER PLAN

5/1/2018
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5/28/2018

SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

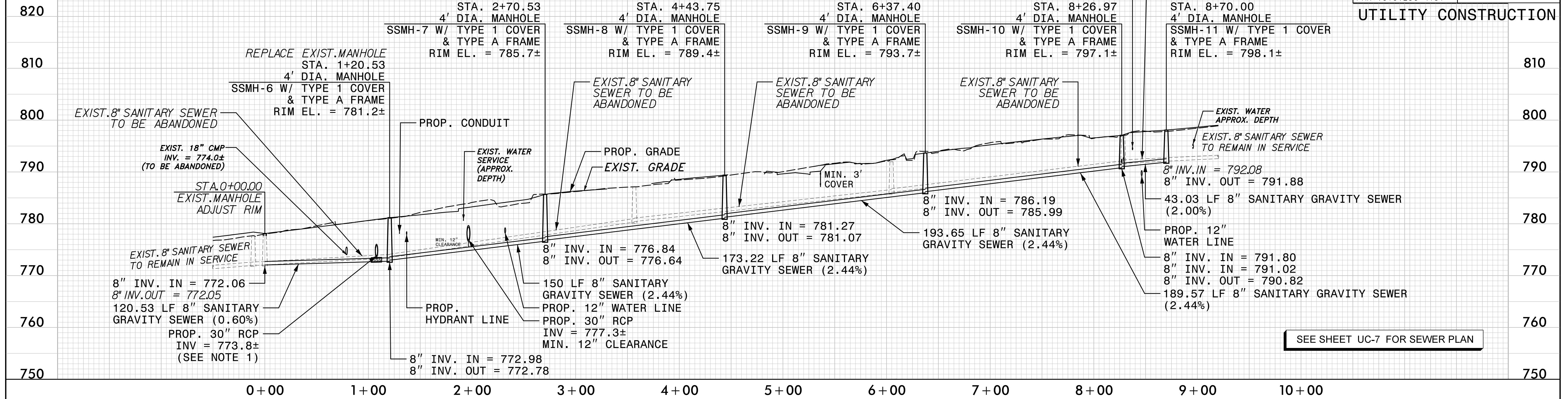
PROP. 8" SANITARY SEWER -S3- GILEAD RD

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PROJECT REFERENCE NO. U-5114	SHEET NO. UC-10
DESIGNED BY: ASV	
DRAWN BY: CTH	
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APPROVED BY: XMD	
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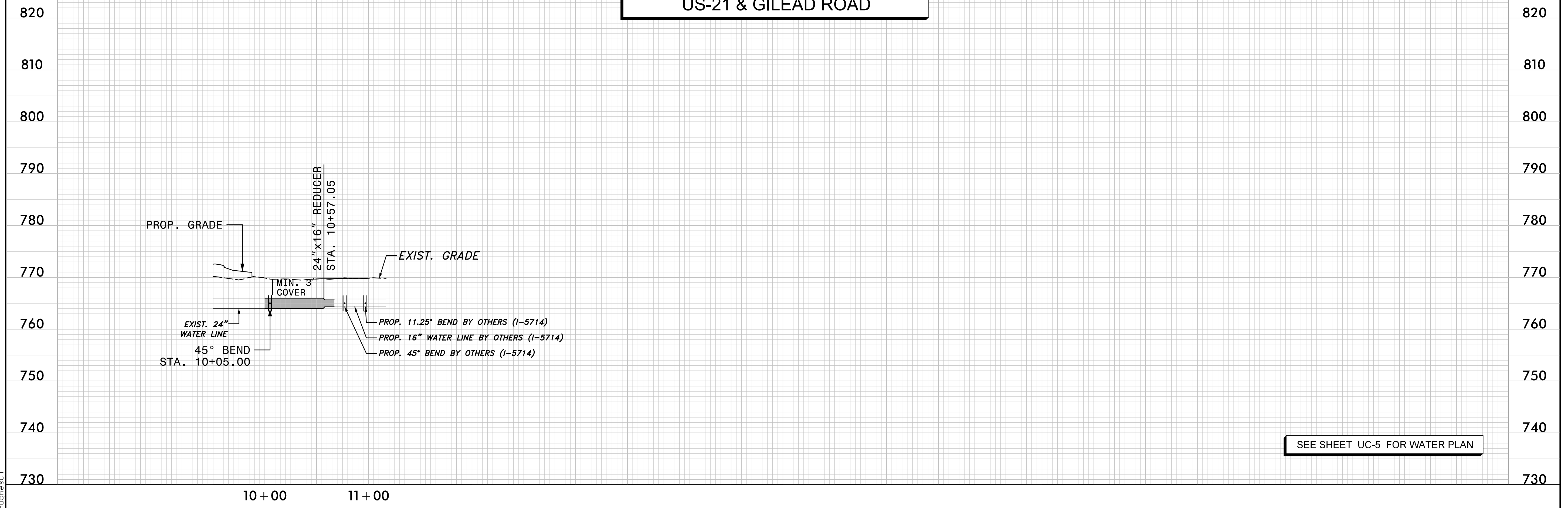
NOTES:
 1. 8" SANITARY SEWER FROM STA. 0+00.00 TO STA. 1+20.53 TO BE RE-LAYED AT MINIMUM SLOPE TO AVOID CONFLICT WITH PROP. 24" DRAINAGE PIPE. ENCASE PROP. 8" SANITARY SEWER 10 FEET CENTERED AT PIPE INTERSECTION IN 3000 PSI CONCRETE.



SEE SHEET UC-7 FOR SEWER PLAN

SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

PROP. 16" & 24" WATER LINE -WL3- US-21 & GILEAD ROAD



SEE SHEET UC-5 FOR WATER PLAN

5/1/2018
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5/28/2018

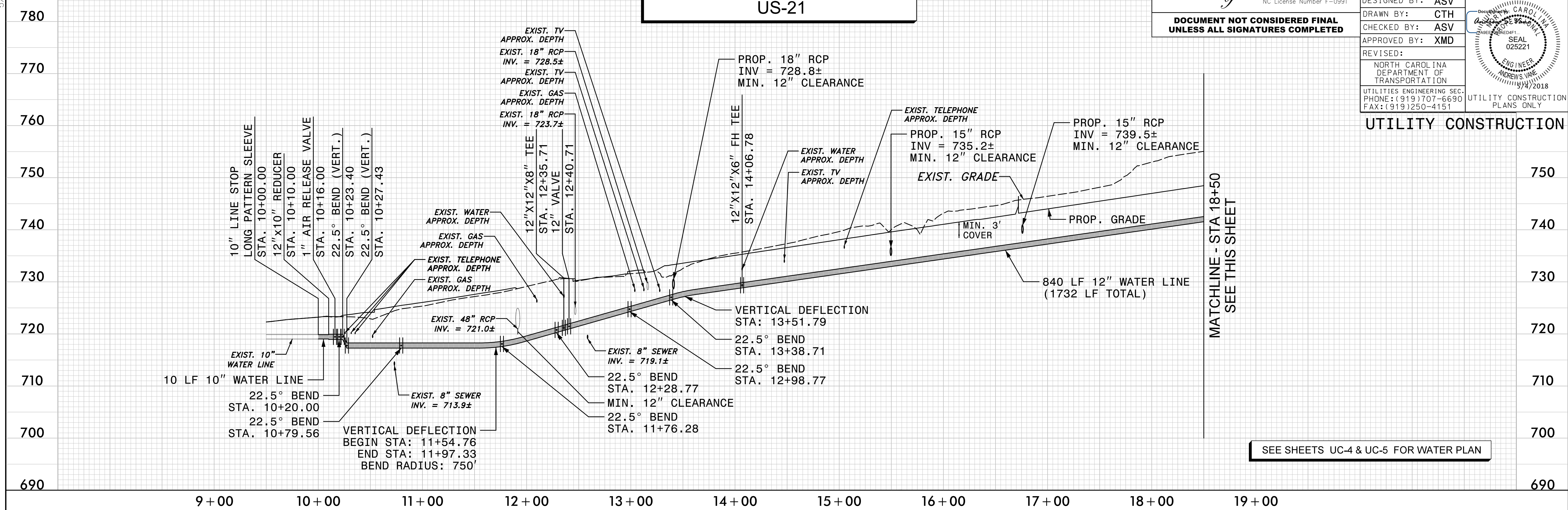
SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

PROP. 12" WATER LINE -WL1-US-21

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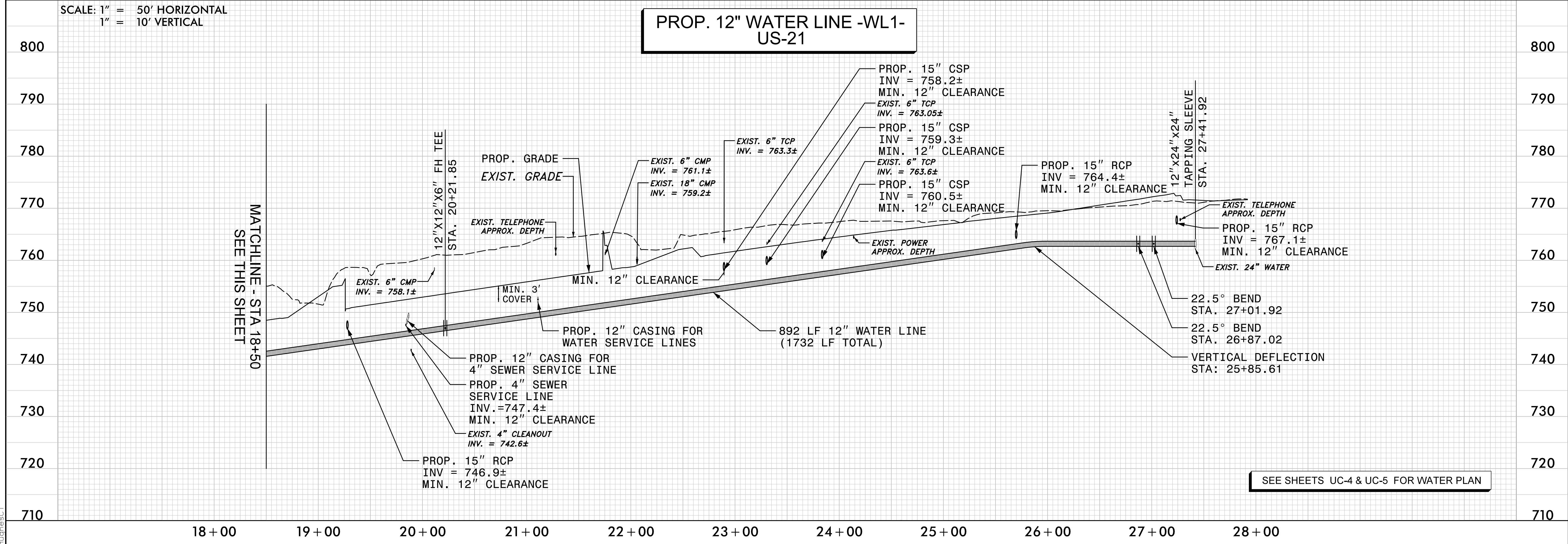
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PROJECT REFERENCE NO. U-5114	SHEET NO. UC-11
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SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

PROP. 12" WATER LINE -WL1-US-21



5/1/2018
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5/28/2018

SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

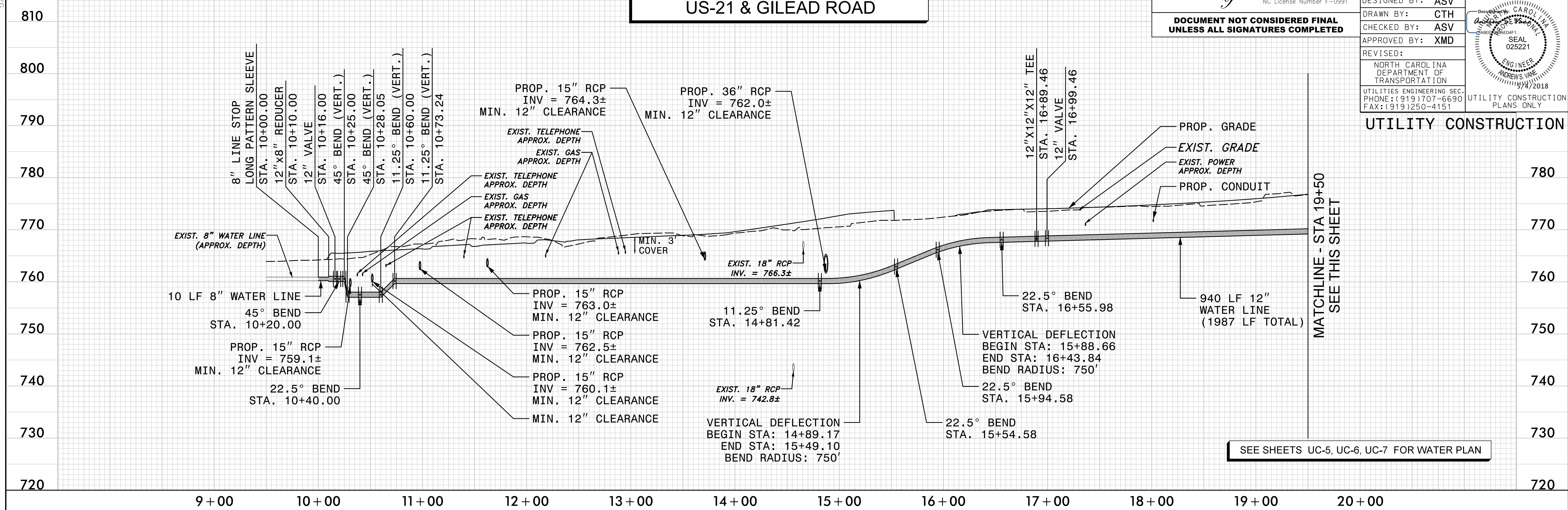
PROP. 12" WATER LINE -WL2- US-21 & GILEAD ROAD

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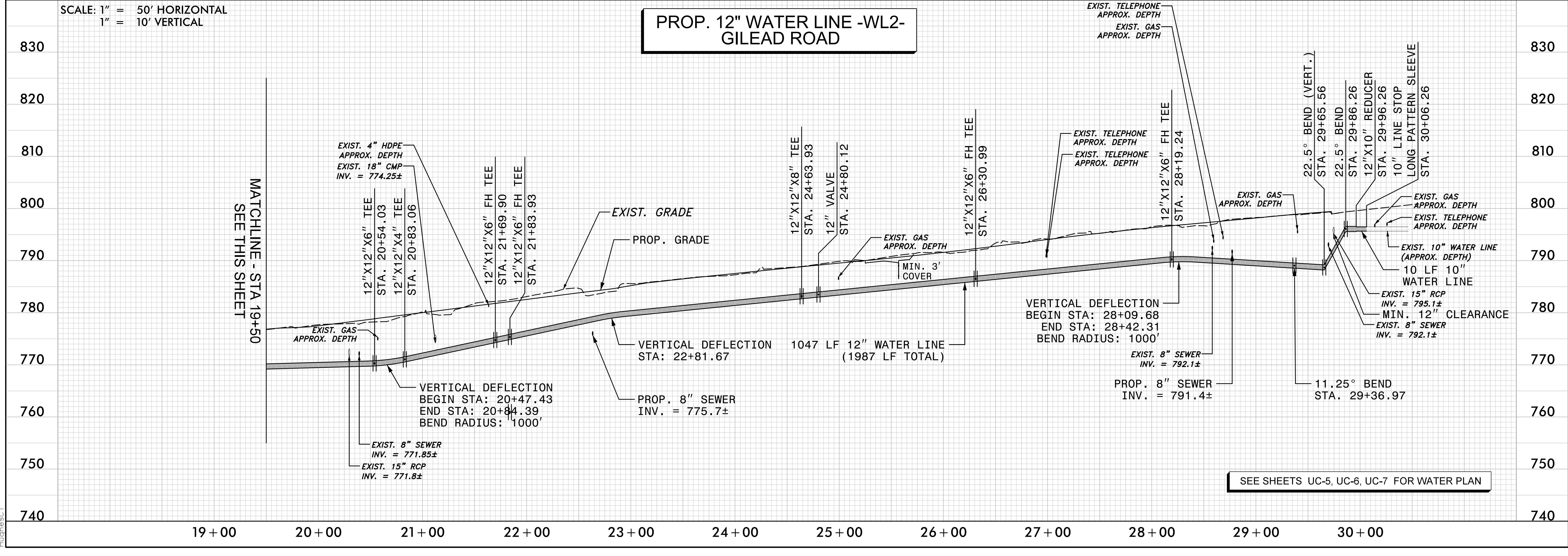
PROJECT REFERENCE NO. U-5114	SHEET NO. UC-12
DESIGNED BY: ASV	
DRAWN BY: CTH	
CHECKED BY: ASV	
APPROVED BY: XMD	
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UTILITY CONSTRUCTION



SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

PROP. 12" WATER LINE -WL2- GILEAD ROAD



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