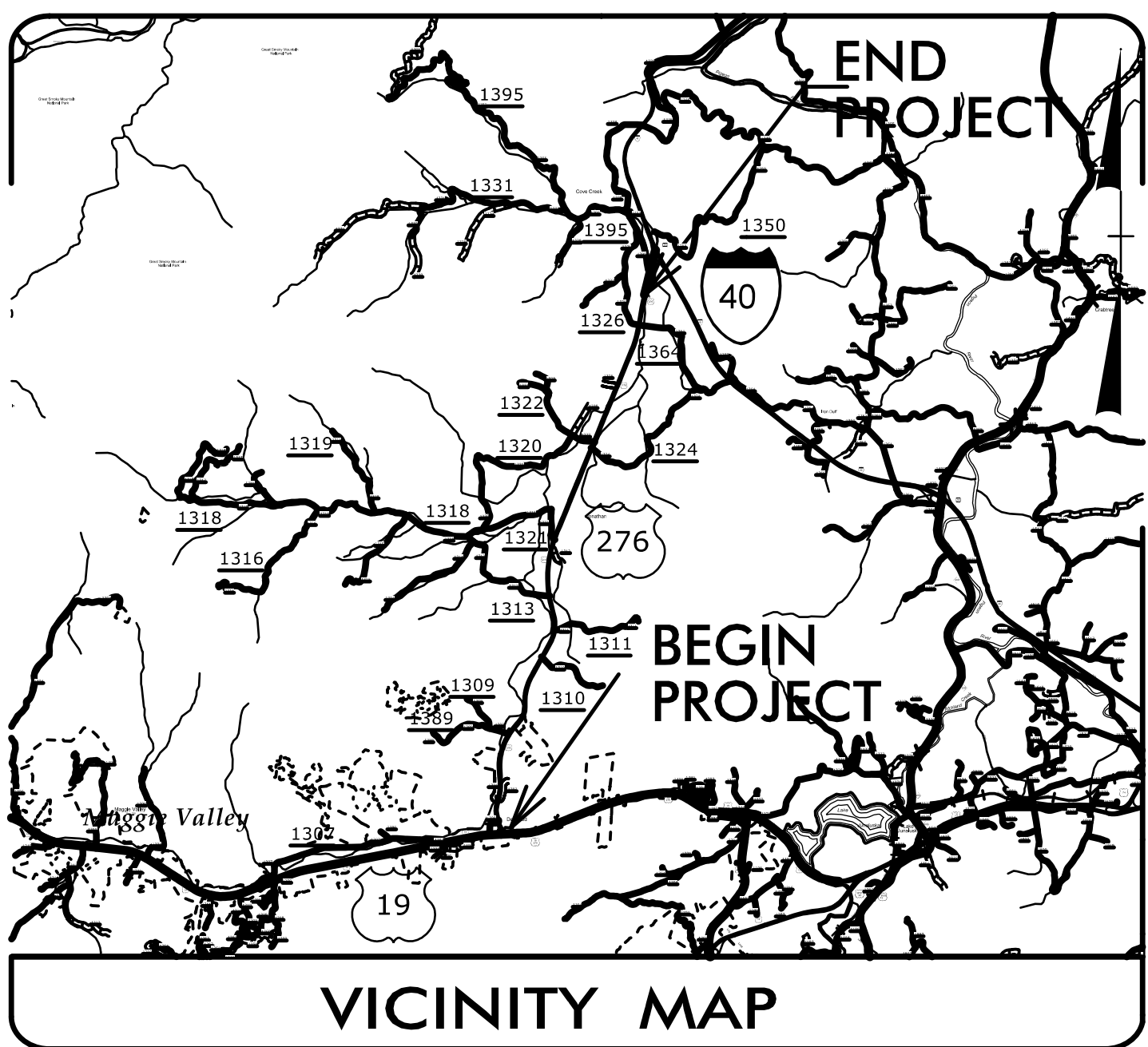


**TIP PROJECT: R-5921**

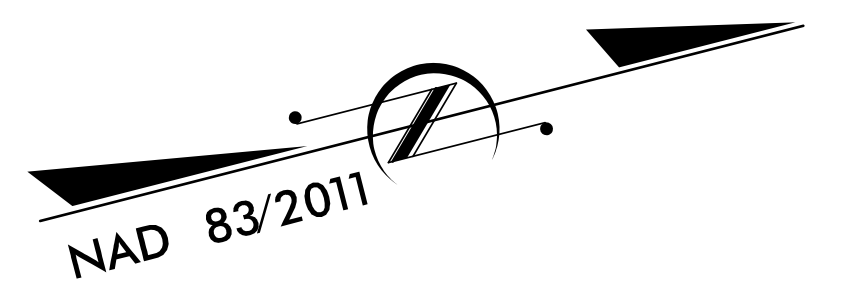
T.I.P. NO.	SHEET NO.
R-5921	UC-1



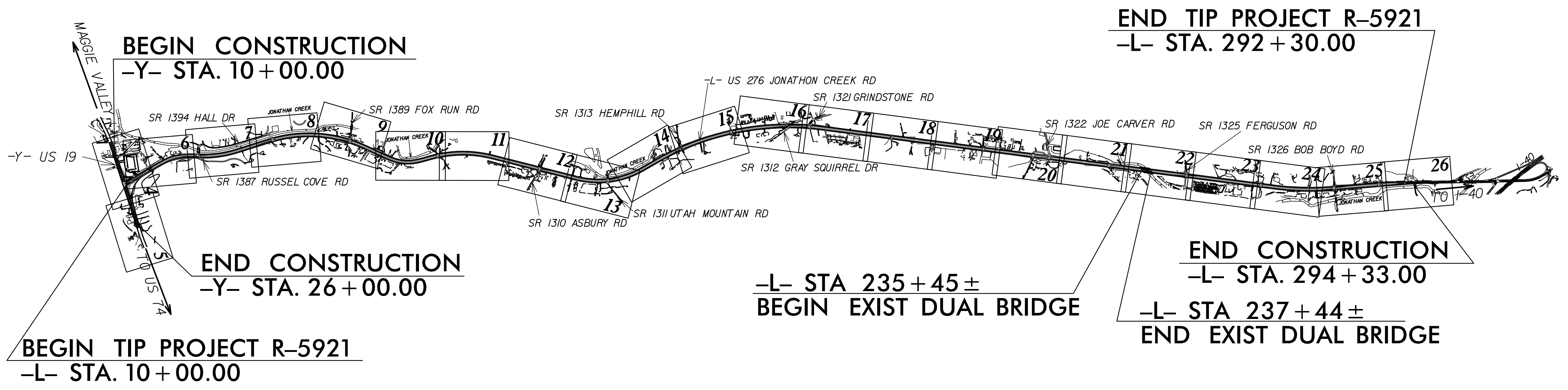
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# UTILITY CONSTRUCTION PLANS HAYWOOD COUNTY

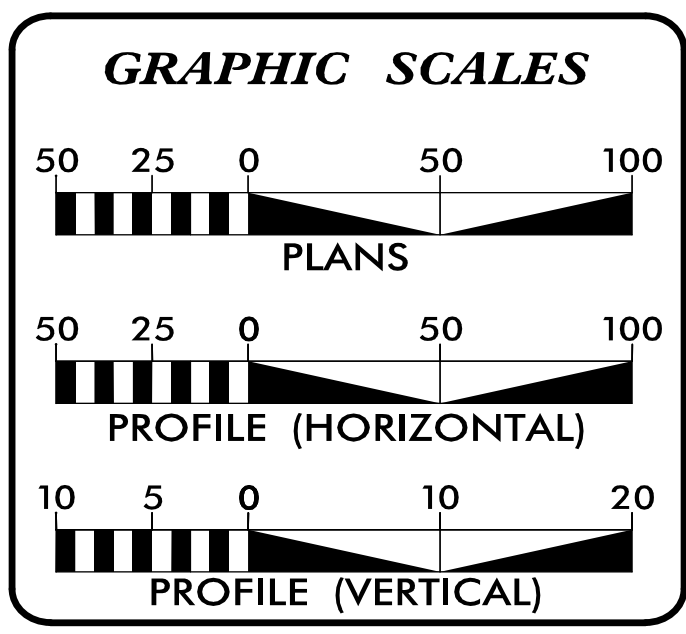
**LOCATION: US 276 (JONATHAN CREEK RD) FROM US 19 TO  
0.5 MILES SOUTH OF I-40**



**TYPE OF WORK: WATER & SEWER CONSTRUCTION**



DOCUMENT NOT CONSIDERED FINAL  
UNTIL ALL SIGNATURES ARE COMPLETED



**INDEX OF SHEETS**

SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A-3C	DETAILS
UC-4 THRU UC-26	UTILITY CONSTRUCTION SHEETS
UC-27 THRU UC-29	PROFILE SHEETS

**WATER AND SEWER OWNERS ON PROJECT**

(A) WATER - TOWN OF MAGGIE VALLEY  
(B) SEWER - TOWN OF MAGGIE VALLEY

PREPARED IN THE OFFICE OF

**TGS ENGINEERS**  
201 W. MARION ST STE 200  
SHELBY, NC 28150  
PH (704) 476-0003  
CORP. LICENSE NO.: C-0275

**CHAD HOUSER, PE, PLS** UTILITY ENGINEER  
**JIMMY TERRY, PE** PROJECT ENGINEER

SEAL

4/12/2024

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

**BOB GOLDING** DIVISION UTILITY ENGINEER  
**JARED BOND** DIVISION PROJECT MANAGER  
**DON HAMPTON** REGIONAL UTILITIES MANAGER

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## UTILITIES PLAN SHEET SYMBOLS

### PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 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	
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) W  
 Designated Utility Line (Type as Shown) W



# UTILITY CONSTRUCTION NOTES

## GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.

2. THE EXISTING UTILITIES BELONG TO THE TOWN OF MAGGIE VALLEY (SANITARY SEWER) CONTACTS: PUBLIC WORKS DIRECTOR MIKE MEHAFFEY (828-400-9494), mmehaffey@maggievalleync.gov SENIOR WASTEWATER OPERATOR SETH BOYD (828-400-1190), sbody@maggievalleync.com AND THE MAGGIE VALLEY SANITARY DISTRICT (WATER LINES), CONTACT: DISTRICT MANAGER JASON HERBERT (828-734-6988), jherbert@mvsdh2o.com

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

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

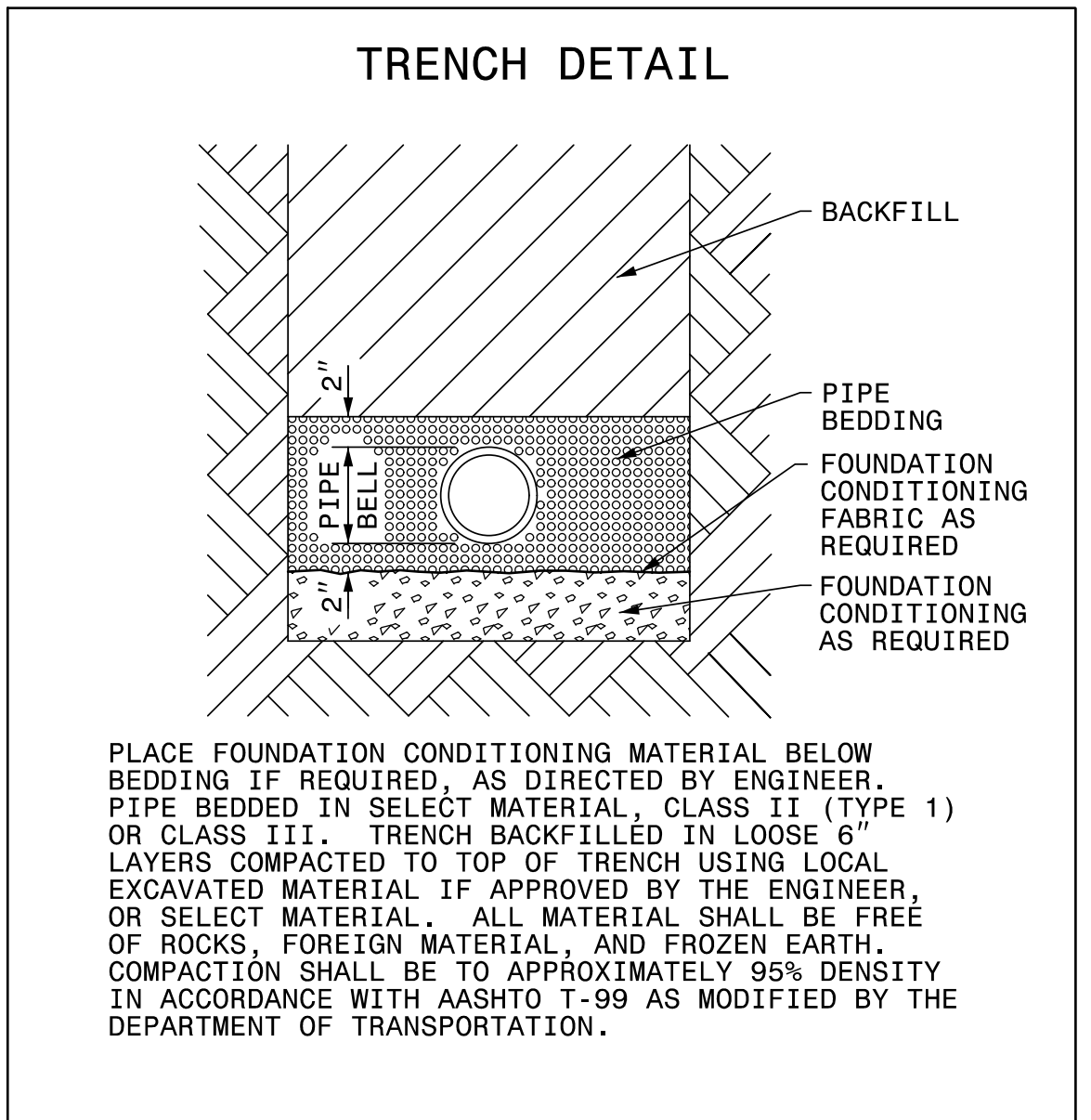
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.



## PROJECT SPECIFIC NOTES:

1. ALL PROPOSED WATER LINE 4 TO 16 INCHES IN DIAMETER, SHALL BE DUCTILE IRON PIPE - PRESSURE CLASS 350 AND UTILIZE FLEXIBLE PUSH-ON RESTRAINED JOINTS.

2. ALL PROPOSED STEEL ENCASEMENTS SHALL BE SMOOTH WALL WITH A MINIMUM THICKNESS OF 0.25 INCHES.

3. ALL WATER LINE FITTINGS 4 TO 16 INCHES IN DIAMETER, SHALL BE PRESSURE CLASS 350 DUCTILE IRON RESTRAINED JOINT IN ACCORDANCE WITH ANSI A21.10 / AWWA C110 AND ANSI A21.4 / AWWA C104.

4. WATER LINE UTILIZING RESTRAINED JOINTS SHALL BE TYTON JOINT, HP LOK, AMERICAN "FAST GRIP", US PIPE "FIELD-LOK" OR APPROVED EQUAL.

5. ALL WATERLINE SHALL HAVE COATED TRACER WIRE NO SMALLER THAN 12 AWG SOLID COPPER.

6. ALL VALVES - 2" THROUGH 16" SHALL BE RESILIENT WEDGE GATE, CAST IRON BODY, CONFORMING TO AWWA C509, LATEST VERSION. SEALING MECHANISM SHALL PROVIDE ZERO LEAKAGE AT THE WATER WORKING PRESSURE AGAINST THE LINE FLOW FROM EITHER DIRECTION AND BE DESIGNED SUCH THAT NO EXPOSED METAL SEAMS, EDGES, SCREWS, ETC. ARE WITHIN THE WATERWAY IN THE CLOSED POSITION. THE GATE SHALL NOT BE WEDGED INTO A POCKET NOR SLIDE ACROSS THE SEATING SURFACE TO OBTAIN TIGHT CLOSURE. ALL INTERNAL AND EXTERNAL FERROUS SURFACES OF THE VALVE, INCLUDING THE INTERIOR OF THE GATE, SHALL BE COATED WITH A PROTECTIVE COATING CONFORMING TO AWWA C550, LATEST VERSION. COATING SHALL BE APPLIED TO CASTINGS PRIOR TO ASSEMBLY TO ASSURE ALL EXPOSED AREAS WILL BE COVERED. VALVES SHALL BE RATED AT 200 PSI WORKING PRESSURE. UNLESS OTHERWISE NOTED, UNDERGROUND VALVES SHALL HAVE AN OPERATING NUT AND EXPOSED VALVES SHALL HAVE A HAND WHEEL OPERATOR. OPERATING NUT SHALL BE 2"x2", OPEN LEFT.

7. EACH VALVE BURIED IN THE GROUND SHALL BE PROVIDED WITH AN APPROVED TYPE OF VALVE BOX AND COVER. THE BOXES SHALL BE ADJUSTABLE SCREW TYPE 24-INCH OR 36-INCH.

8. ALL VALVE BOXES SHALL BE CONSTRUCTED OF CAST IRON THAT COMPLIES WITH THE REQUIREMENTS OF ASTM A48. VALVE BOXES SHALL BE THE APPROPRIATE RANGE OF ADJUSTMENT FOR THE SITE AND CONTRACTOR SHOULD MINIMIZE THE USE OF EXTENSIONS.

9. PROVIDE THRUST RESTRAINT ON THE EXISTING WATER LINE WHERE TIE-INS ARE MADE AS NECESSARY.

10. 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.

11. ANY BENDS OF PVC WATER PIPE NOT SPECIFICALLY CALLED OUT WITH A 90, 45, 22.5, OR 11.25 DEGREE BEND FITTING, SHALL BE CONSTRUCTED BY A RADIAL BEND OF THE PIPE AS NOTED ON THE PLANS OR IN ACCORDANCE WITH PIPE MANUFACTURER'S SPECIFICATIONS (WHICHEVER IS MORE STRINGENT) - OR A COMBINATION OF BEND FITTINGS AND A RADIAL BEND OF THE PIPE. DEFLECTION OF THE PIPE JOINTS ON PVC PIPE MATERIAL IS NOT AN ACCEPTABLE METHOD OF PIPE BENDING.

12. ALL MATERIALS, EQUIPMENT, LABOR, AND WORKSMANSHIP SHALL BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

13. UTILITY OWNER MUST BE PRESENT FOR ANY TESTING OR CONNECTIONS TO THE EXISTING SYSTEM INCLUDING BUT NOT LIMITED TO ALL TAPS AND TEMPORARY CONSTRUCTION CONNECTIONS. A NOTICE OF 72 HOURS MUST BE PROVIDED.

14. ALL PROPOSED GRAVITY SEWER SHALL BE DUCTILE IRON PIPE - THICKNESS CLASS 50 OR PRESSURE CLASS 350.

15. ALL PROPOSED FORCE SEWER LINE SHALL BE I.P.S SDR 21 PVC.

16. IF IT IS DETERMINED THAT TYING TO AN EXISTING MANHOLE SHALL CAUSE SIGNIFICANT DAMAGE OR THAT THE STRUCTURAL INTEGRITY OF A GIVEN MANHOLE IS IN QUESTION, THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER IMMEDIATELY.

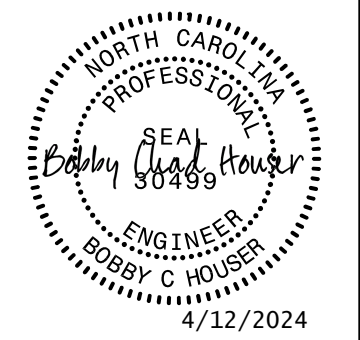
17. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

PROJECT REFERENCE NO.	SHEET NO.
U-5921	UC-3
DESIGNED BY: BCH	
DRAWN BY: ADC	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



# WATER TYPICAL DETAILS

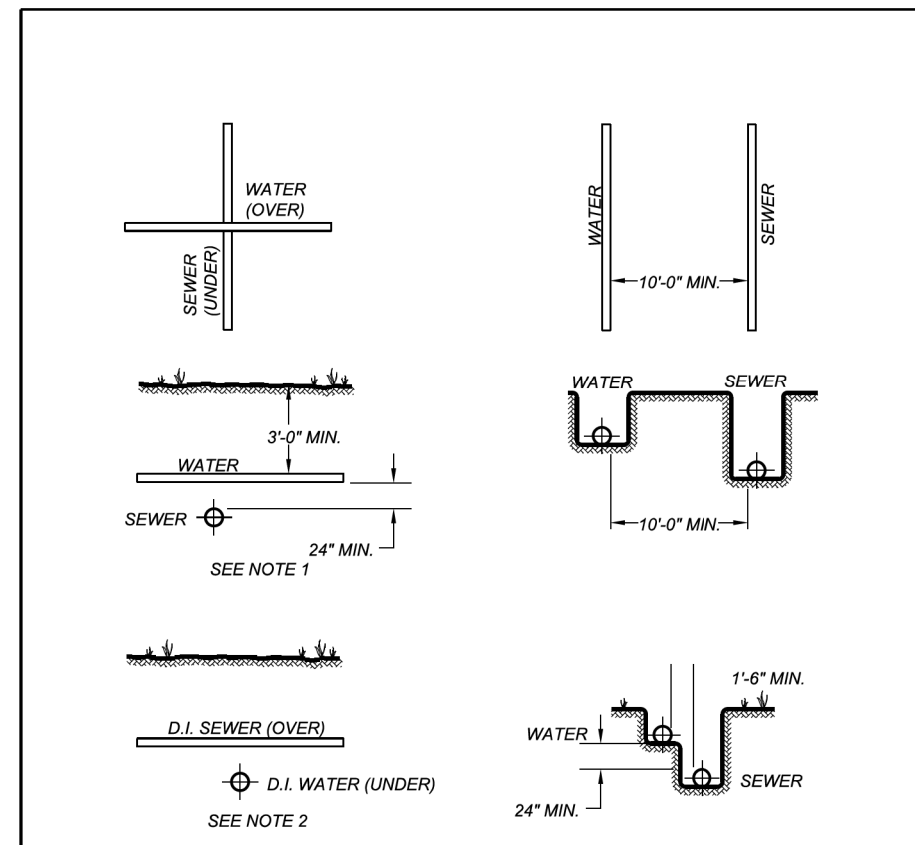
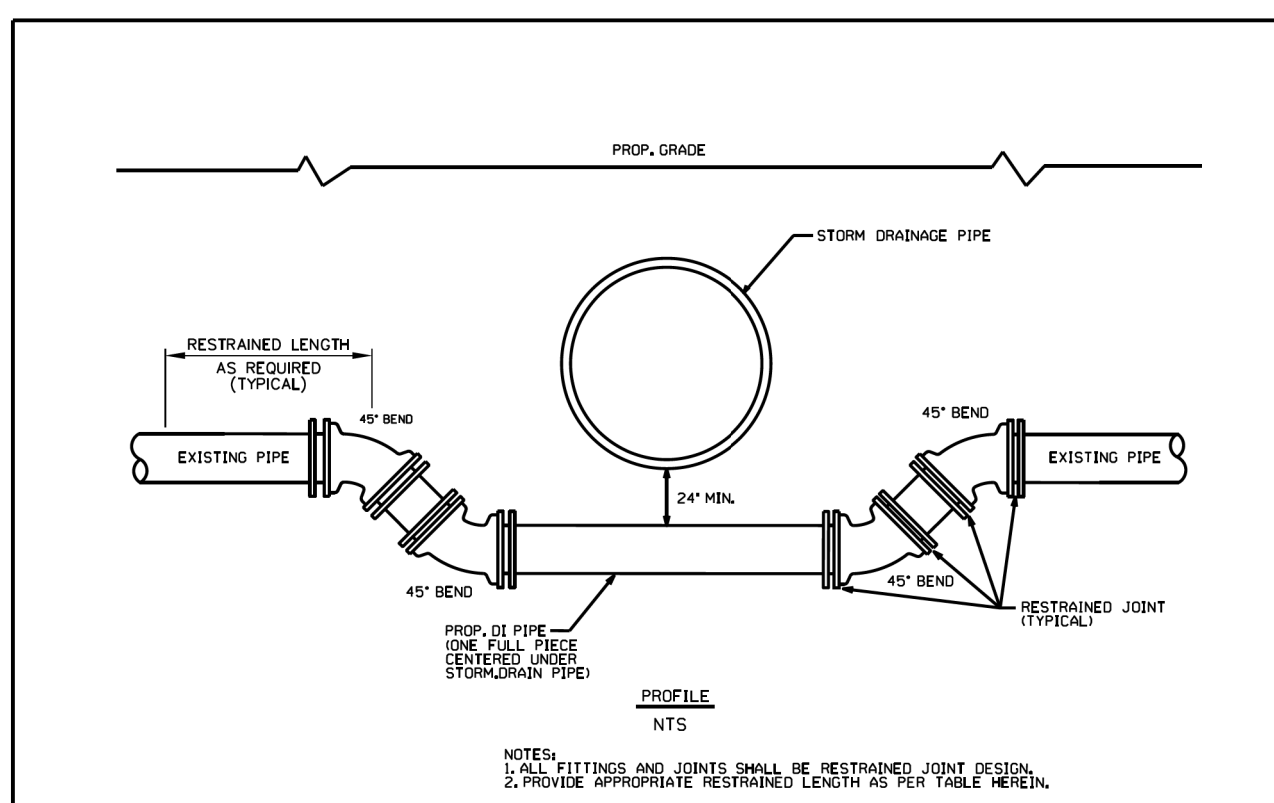
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DESIGNED BY: <b>BCH</b>	
DRAWN BY: <b>KSA</b>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690	
FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	
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**STEEL ENCASEMENT PIPE UNDER ROADS**

**NOTES:**

- CASING SPACERS "SPIDERS" SHALL BE USED FOR SUPPORT OF THE CARRIER PIPE WITHIN THE STEEL ENCASEMENT PIPE. SPIDERS SHALL BE CENTERED AND RESTRAINED. SPIDERS SHALL HAVE A STAINLESS STEEL SHEET AND STAINLESS STEEL RISERS WITH POLYETHYLENE RUMMERS. MANUFACTURED BY CASCADE WATERWORKS MFG. COMPANY, OR APPROVED EQUAL.
- MINIMUM SPACING OF 2 SPIDERS PER JOINT OF CARRIER PIPE SHALL BE REQUIRED IN ORDER TO PREVENT SAGGING OF CARRIER PIPE. REFER TO THE MANUFACTURER'S RECOMMENDATIONS FOR SPACING AND SIZE OF SPACERS BASED ON THE SIZE AND TYPE OF THE CARRIER PIPE.
- THE SPIDERS SHALL BE SPACED EVENLY ALONG THE CARRIER PIPE SUCH THAT EACH SPIDER SUPPORTS THE SAME UNIT WEIGHT OF THE CARRIER MAIN.
- REFER TO PLAN SHEETS AND PROFILE SHEETS FOR LENGTH AND DIAMETER OF PROPOSED STEEL ENCASEMENT PIPES FOR EACH CROSSING.
- STEEL ENCASEMENT PIPES SHALL EXTEND AS A MINIMUM: TO 3 FEET BEHIND BACK OF CURB LINES; TO 5 FEET BEYOND THE TOE OF SLOPE IN FILL SECTIONS, AND FROM DITCH LINE TO DITCH LINE IN CUT SECTIONS.
- THE TOP OF ENCASEMENT PIPE SHALL PROVIDE THE FOLLOWING MINIMUM BURY DEPTHS: 3 FEET BELOW THE TRAVEL SURFACE OF ROADWAYS, AND; 2 FEET BELOW PAVED OR UNPAVED DITCH ELEVATIONS, UNLESS OTHERWISE NOTED ON THE PLANS.
- THE INSIDE DIAMETER OF THE ENCASEMENT PIPE SHALL BE AT LEAST 2 INCHES GREATER THAN THE LARGEST OUTSIDE DIAMETER OF THE CARRIER PIPE JOINTS OR COUPLINGS FOR CARRIER PIPE LESS THAN 6 INCHES IN DIAMETER, AND AT LEAST 4 INCHES GREATER FOR CARRIER PIPE 6 INCHES AND LARGER IN DIAMETER.
- ALL JOINTS BETWEEN THE SECTIONS OF ENCASEMENT PIPE SHALL BE FULLY WELDED AROUND THE COMPLETE CIRCUMFERENCE OF THE PIPE.
- FOR EXISTING UTILITY PIPE INSTALLATIONS, THE STEEL ENCASEMENT PIPE SHALL BE A SPLIT STEEL ENCASEMENT PIPE MADE UP OF TWO (2) SEMI-CIRCULAR SECTIONS JOINED BY A CONTINUOUS WELD FROM ONE END TO THE OTHER WITHOUT ANY TRACEABLE JOINTS. JOINTS BETWEEN HORIZONTAL SECTIONS OF ENCASEMENT PIPE SHALL BE FULLY WELDED AROUND THE COMPLETE CIRCUMFERENCE OF THE PIPE.
- STEEL ENCASEMENT PIPES SHALL BE EITHER SMOOTH WALL OR SPIRAL WELDED AND HAVE A SPECIFIED MINIMUM YIELD STRENGTH OF AT LEAST 35,000 PSI.
- UNCOATED AND UNPROTECTED STEEL ENCASEMENT PIPE SHALL HAVE A MINIMUM WALL THICKNESS AS NOTED BELOW FOR THE FOLLOWING OUTSIDE DIAMETER OF PIPES: 0.188 INCHES FOR 12" AND SMALLER; 0.312 INCHES FOR 20"; 0.250 INCHES FOR 14"; 0.312 INCHES FOR 30"; 0.250 INCHES FOR 18"; 0.375 INCHES FOR 36"; 0.250 INCHES FOR 24"; 0.500 INCHES FOR 42"; 0.500 INCHES FOR 48".

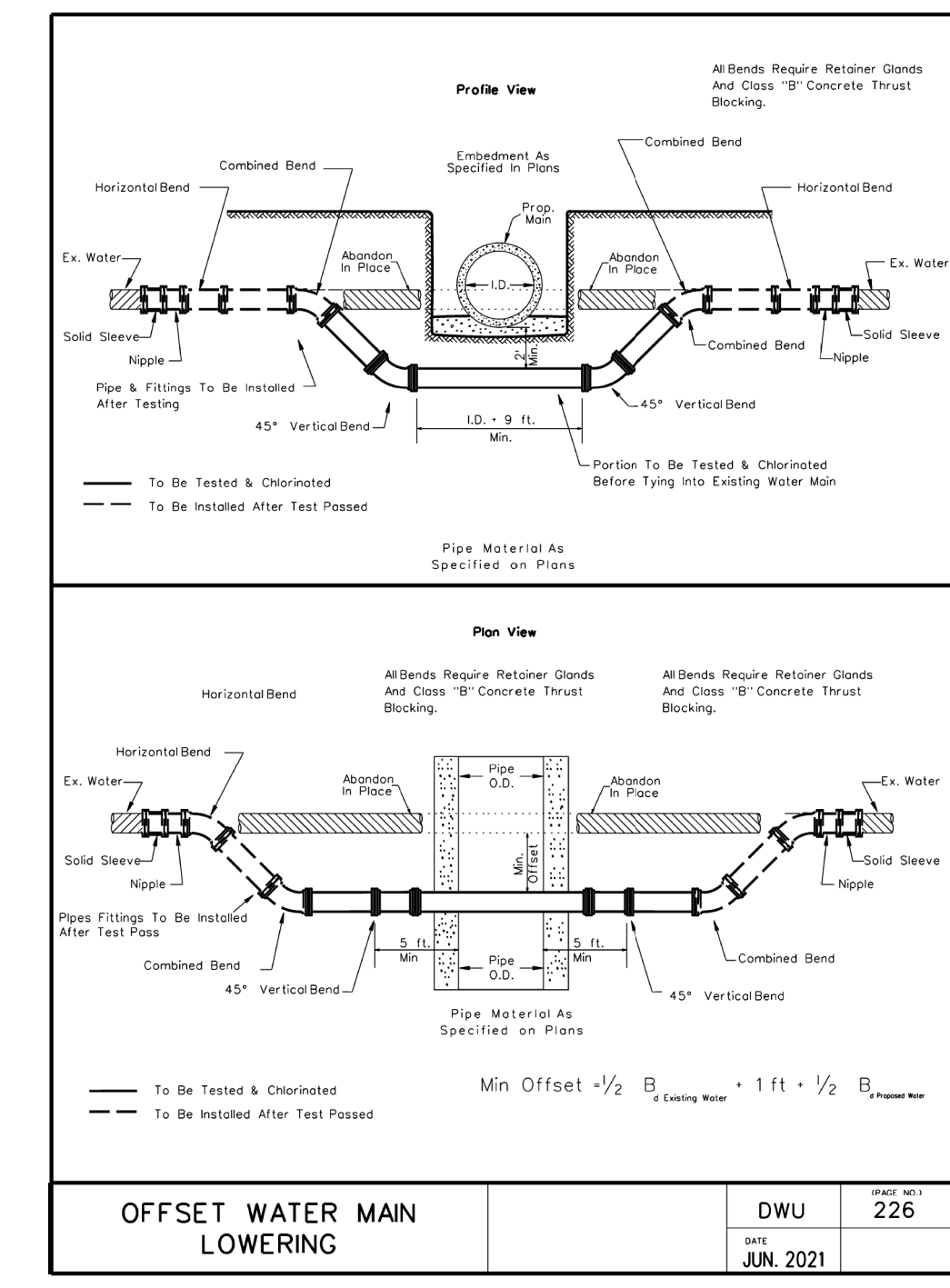
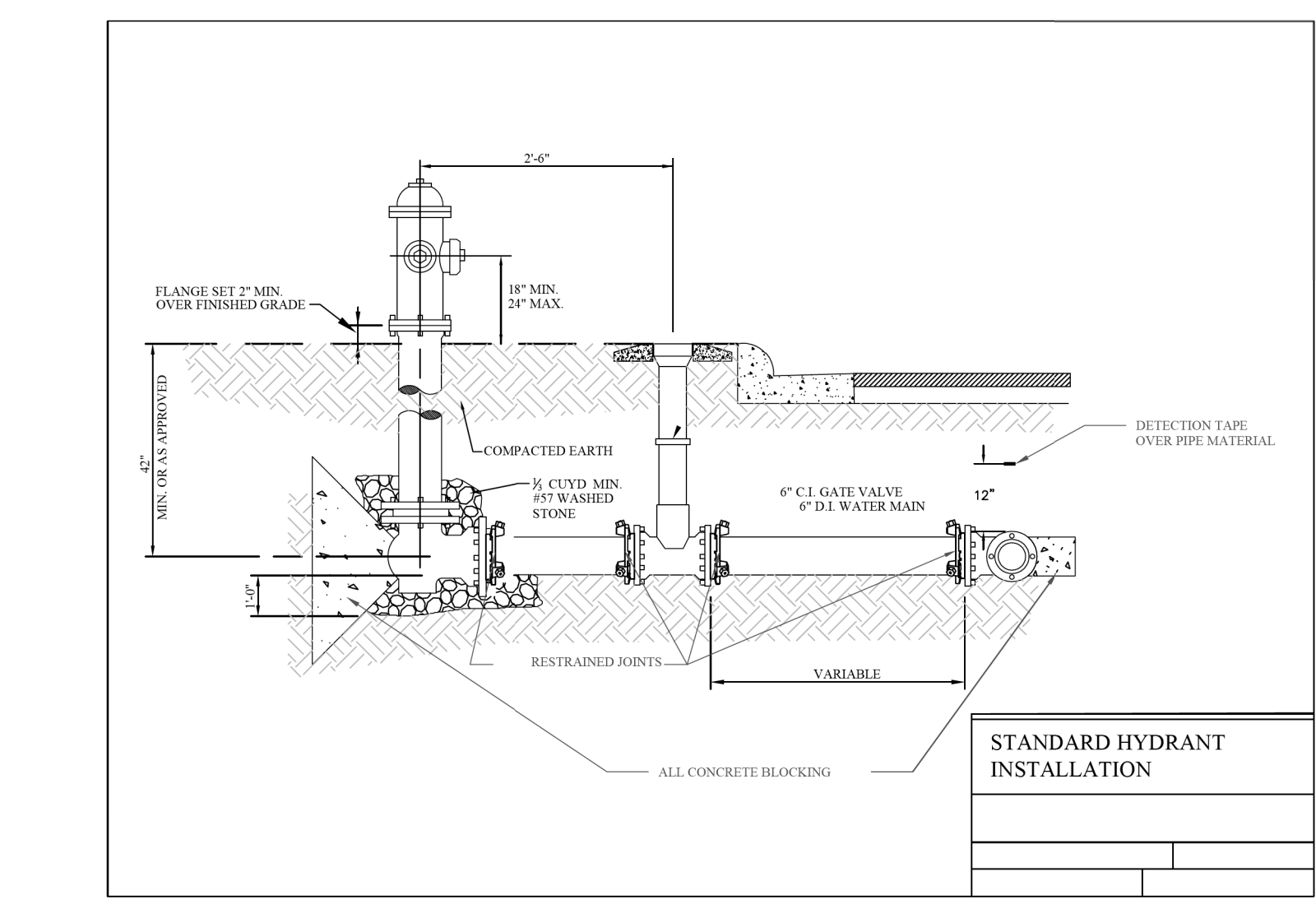


**RESTRAINED JOINT DESIGN TABLE FOR DUCTILE IRON PIPE**

FITTING	REQUIRED RESTRAINED LENGTH (FT) OF BARE D.I. PIPE BY DEPTH OF COVER									
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT	11 FT	12 FT
<b>HORIZONTAL BENDS</b>										
6 INCH DIA - 11.25 DEG	3	2	2	2	2	1	1	1	1	1
6 INCH DIA - 22.5 DEG	5	4	4	3	3	3	3	2	2	2
6 INCH DIA - 45 DEG	11	9	8	7	7	6	5	5	5	5
8 INCH DIA - 11.25 DEG	26	22	19	17	16	14	13	12	12	12
8 INCH DIA - 22.5 DEG	3	3	2	2	2	2	2	2	2	2
8 INCH DIA - 45 DEG	7	6	5	5	4	4	3	3	3	3
12 INCH DIA - 11.25 DEG	14	12	10	9	8	8	7	7	7	7
12 INCH DIA - 22.5 DEG	13	12	10	9	8	8	7	7	7	7
12 INCH DIA - 45 DEG	5	4	4	3	3	3	3	2	2	2
16 INCH DIA - 11.25 DEG	9	8	7	6	6	5	5	5	5	5
16 INCH DIA - 22.5 DEG	20	17	15	13	12	11	10	10	10	10
16 INCH DIA - 45 DEG	47	41	36	33	29	27	25	23	23	23
20 INCH DIA - 11.25 DEG	6	5	5	4	4	4	3	3	3	3
20 INCH DIA - 22.5 DEG	12	11	9	8	8	7	6	6	6	6
20 INCH DIA - 45 DEG	25	22	19	17	16	14	13	12	12	12
24 INCH DIA - 11.25 DEG	7	6	6	5	5	4	4	4	4	4
24 INCH DIA - 22.5 DEG	15	13	11	10	9	9	8	7	7	7
24 INCH DIA - 45 DEG	31	27	24	21	19	18	16	15	15	15
30 INCH DIA - 11.25 DEG	74	65	57	52	47	43	40	37	37	37
30 INCH DIA - 22.5 DEG	91	79	70	63	57	52	48	44	44	44
30 INCH DIA - 45 DEG	179	157	140	127	115	103	93	84	84	84
<b>VERTICAL BENDS - DOWN</b>										
6 INCH DIA - 11.25 DEG	2	2	2	2	2	1	1	1	1	1
6 INCH DIA - 22.5 DEG	5	4	4	3	3	3	3	2	2	2
6 INCH DIA - 45 DEG	11	9	8	7	7	6	5	5	5	5
8 INCH DIA - 11.25 DEG	3	3	2	2	2	2	2	2	2	2
8 INCH DIA - 22.5 DEG	10	8	7	6	6	5	5	5	5	5
8 INCH DIA - 45 DEG	19	17	15	13	12	11	10	9	9	9
12 INCH DIA - 11.25 DEG	14	12	10	9	8	8	7	7	7	7
12 INCH DIA - 22.5 DEG	28	24	21	18	17	16	14	13	13	13
12 INCH DIA - 45 DEG	57	50	44	39	35	32	30	28	28	28
16 INCH DIA - 11.25 DEG	18	15	14	12	11	10	9	9	9	9
16 INCH DIA - 22.5 DEG	36	31	27	23	22	20	18	17	17	17
16 INCH DIA - 45 DEG	74	65	57	51	46	42	39	36	36	36
20 INCH DIA - 11.25 DEG	22	19	17	15	14	12	11	11	11	11
20 INCH DIA - 22.5 DEG	44	38	34	30	27	25	23	21	21	21
20 INCH DIA - 45 DEG	91	79	70	63	57	52	48	44	44	44
24 INCH DIA - 11.25 DEG	3	2	2	2	2	1	1	1	1	1
24 INCH DIA - 22.5 DEG	5	4	4	3	3	3	3	2	2	2
24 INCH DIA - 45 DEG	11	9	8	7	7	6	5	5	5	5
30 INCH DIA - 11.25 DEG	3	3	2	2	2	2	2	2	2	2
30 INCH DIA - 22.5 DEG	7	6	5	5	4	4	3	3	3	3
30 INCH DIA - 45 DEG	14	12	10	9	8	8	7	6	6	6
36 INCH DIA - 11.25 DEG	5	4	4	3	3	3	2	2	2	2
36 INCH DIA - 22.5 DEG	9	8	7	6	6	5	5	5	5	5
36 INCH DIA - 45 DEG	20	17	15	13	12	11	10	10	10	10
42 INCH DIA - 11.25 DEG	6	5	5	4	4	3	3	3	3	3
42 INCH DIA - 22.5 DEG	12	11	9	8	8	7	6	6	6	6
42 INCH DIA - 45 DEG	25	22	19	17	16	14	13	12	12	12
48 INCH DIA - 11.25 DEG	7	6	6	5	5	4	4	4	4	4
48 INCH DIA - 22.5 DEG	13	13	11	10	9	9	8	7	7	7
48 INCH DIA - 45 DEG	31	27	24	21	19	18	16	15	15	15
<b>DEAD ENDS / VALVES</b>										
6 INCH DIA	50	45	41	38	35	33	31	29	29	29
8 INCH DIA	65	59	54	50	46	43	40	38	38	38
10 INCH DIA	80	72	66	61	56	52	49	46	46	46
12 INCH DIA	94	85	78	72	66	62	58	54	54	54
16 INCH DIA	123	111	103	94	87	81	76	71	71	71
20 INCH DIA	151	137	125	115	107	100	93	88	88	88
<b>REDUCERS</b>										
3 FT	3	4	4	5	5	5	5	5	5	5
4 FT	4	5	5	6	6	6	6	6	6	6
5 FT	5	6	6	7	7	7	7	7	7	7
6 FT	6	7	7	8	8	8	8	8	8	8
7 FT	7	8	8	9	9	9	9	9	9	9
8 FT	8	9	9	10	10	10	10	10	10	10
9 FT	9	10	10	11	11	11	11	11	11	11
10 FT	10	11	11	12	12	12	12	12	12	12
<b>TEES</b>										
3 FT	3	4	4	5	5	5	5	5	5	5
4 FT	4	5	5	6	6	6	6	6	6	6
5 FT	5	6	6	7	7	7	7	7	7	7
6 FT	6	7	7	8	8	8	8	8	8	8
7 FT	7	8	8	9	9	9	9	9	9	9
8 FT	8	9	9	10	10	10	10	10	10	10
9 FT	9	10	10	11	11	11	11	11	11	11
10 FT	10	11	11	12	12	12	12	12	12	12
8" RUN X 8" BRANCH - RL = 1 FT	64	58	53	48	44	41	38	36	36	36
8" RUN X 8" BRANCH - RL = 5 FT	59	52	47	42	39	35	32	30	30	30
12" RUN X 12" BRANCH - RL = 1 FT	93	84	77	70	65	60	56	53	53	53
12" RUN X 12" BRANCH - RL = 5 FT	88	79	71	65	59	54	50	47	47	47

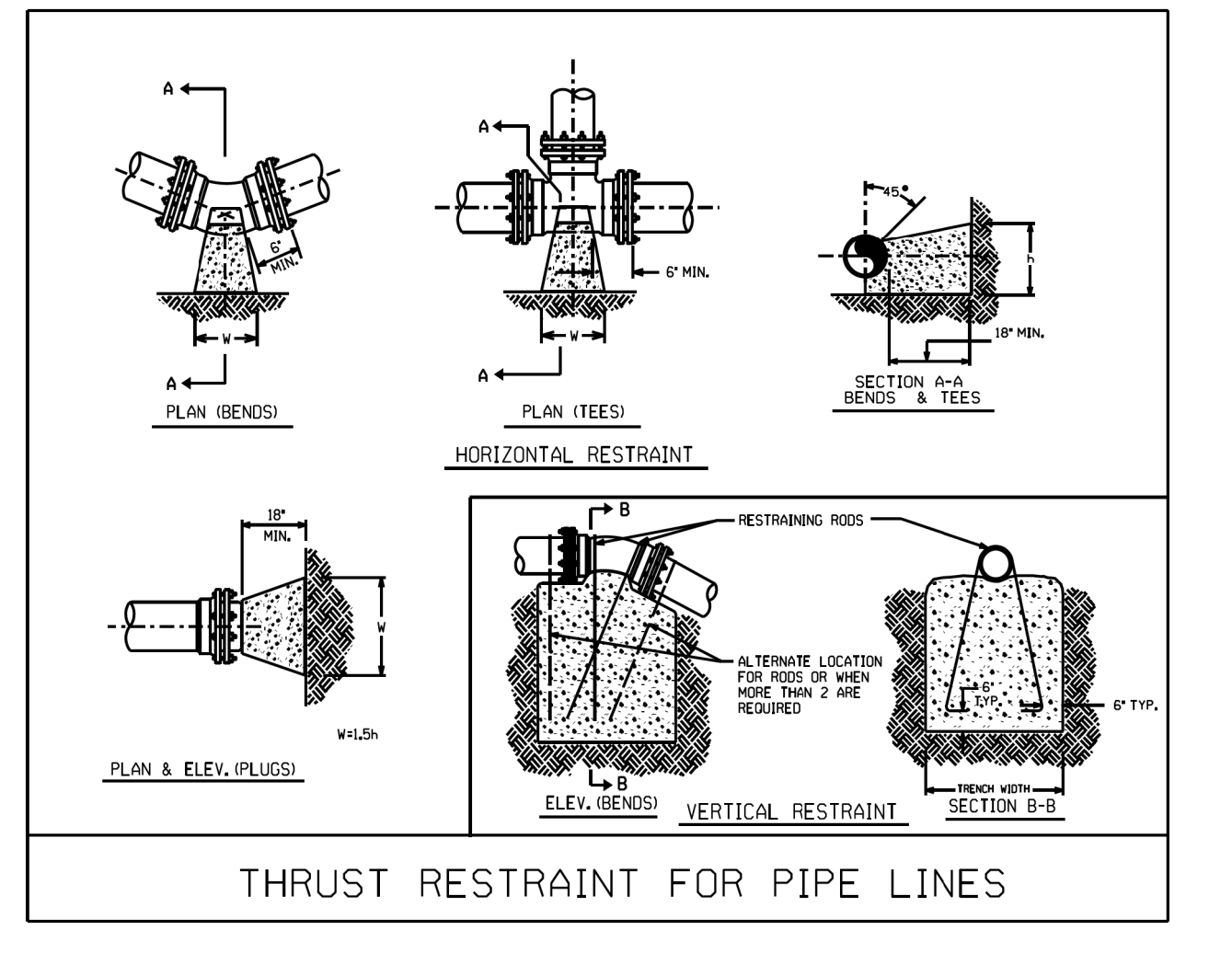
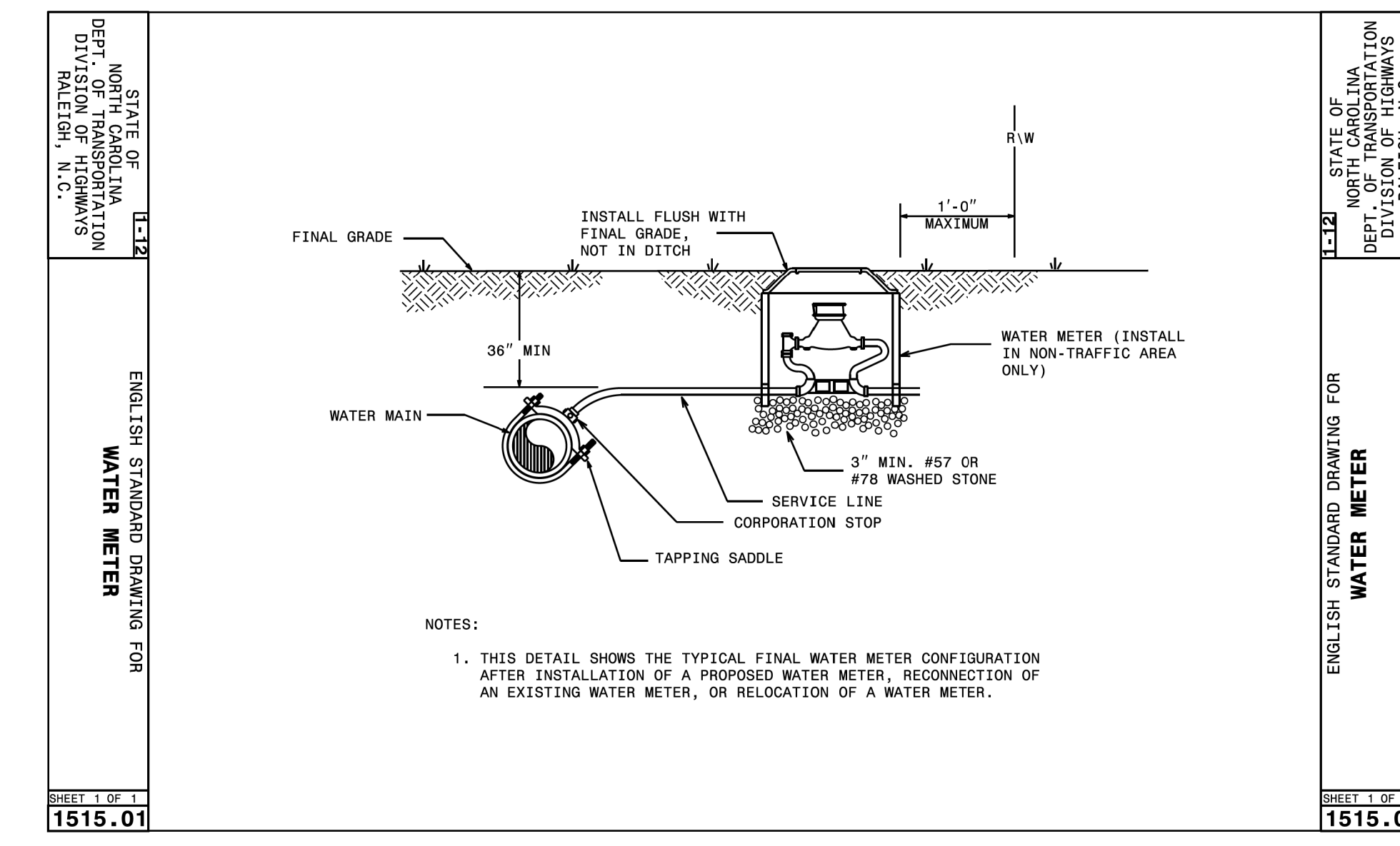
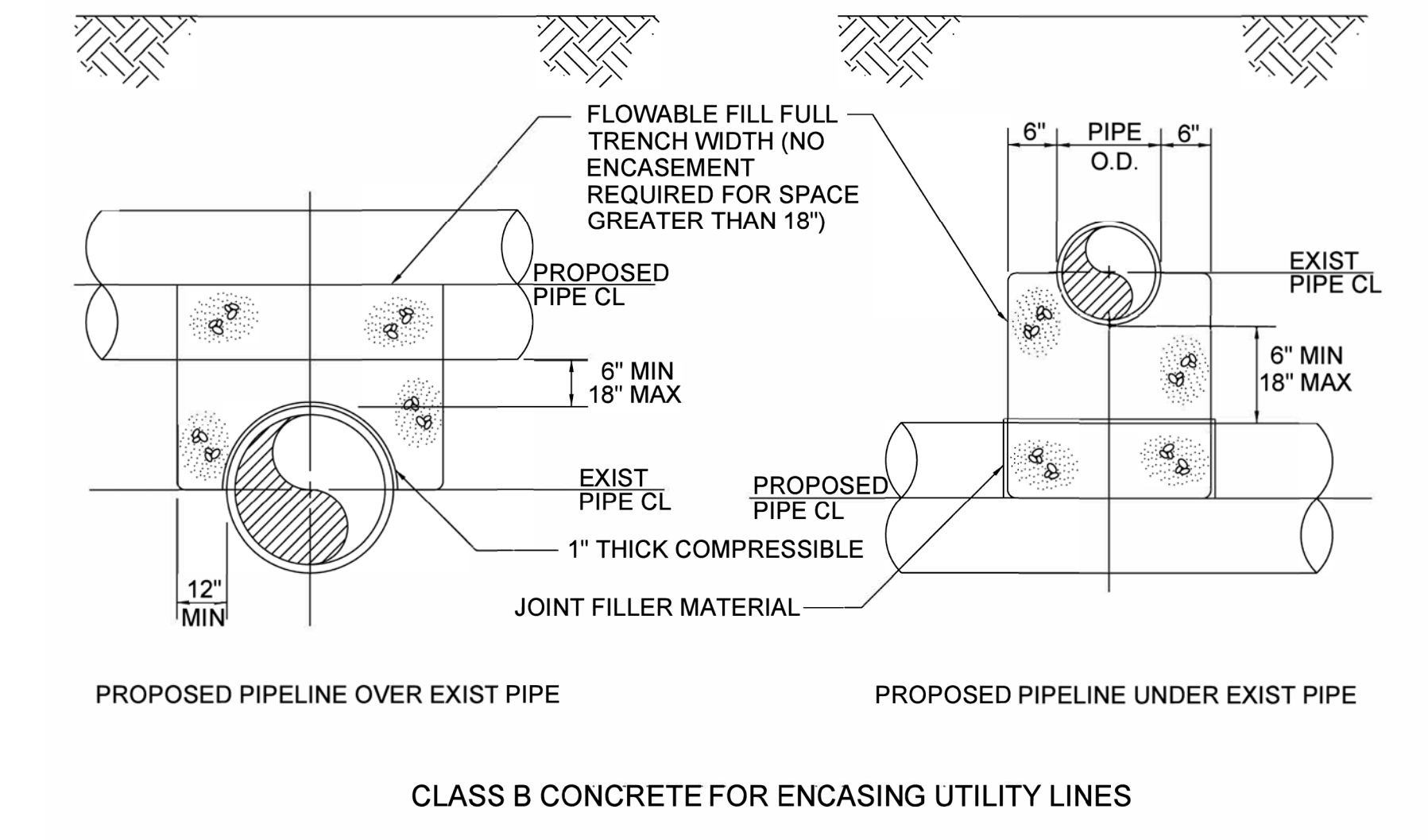
**ASSUMPTIONS**  
LAYING CONDITION = TYPE 4  
SOIL DESIGNATION = COHESIVE-GRANULAR  
DESIGN PRESSURE = 200 PSI (TEST PRESSURE)  
SAFETY FACTOR = 1.5

**NOTES**  
1. RESTRAINED LENGTH IS MEASURED AS FOLLOWS:  
A. HORIZONTAL/VERTICAL BENDS - ALONG EACH SIDE OF BEND.  
B. HORIZONTAL/VERTICAL BENDS - OFFSET - ALONG THE OUTER SIDE OF EACH BEND.  
ALL PIPE BETWEEN THE TWO BENDS SHALL BE RESTRAINED JOINT.  
2. WHEN IT IS NOT POSSIBLE TO INSTALL THE RESTRAINED LENGTHS AS NOTED BY THIS TABLE, CONTRACTOR SHALL INSTALL THE APPROPRIATE CONCRETE THRUST RESTRAINTS AS PER THE DETAILS HEREIN.



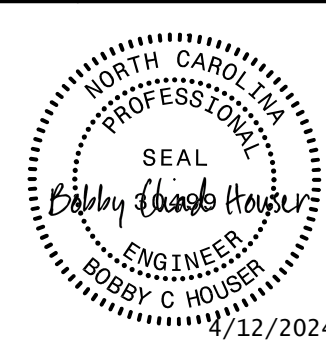
**MAXIMUM TRENCH WIDTH AT TOP OF PIPE**

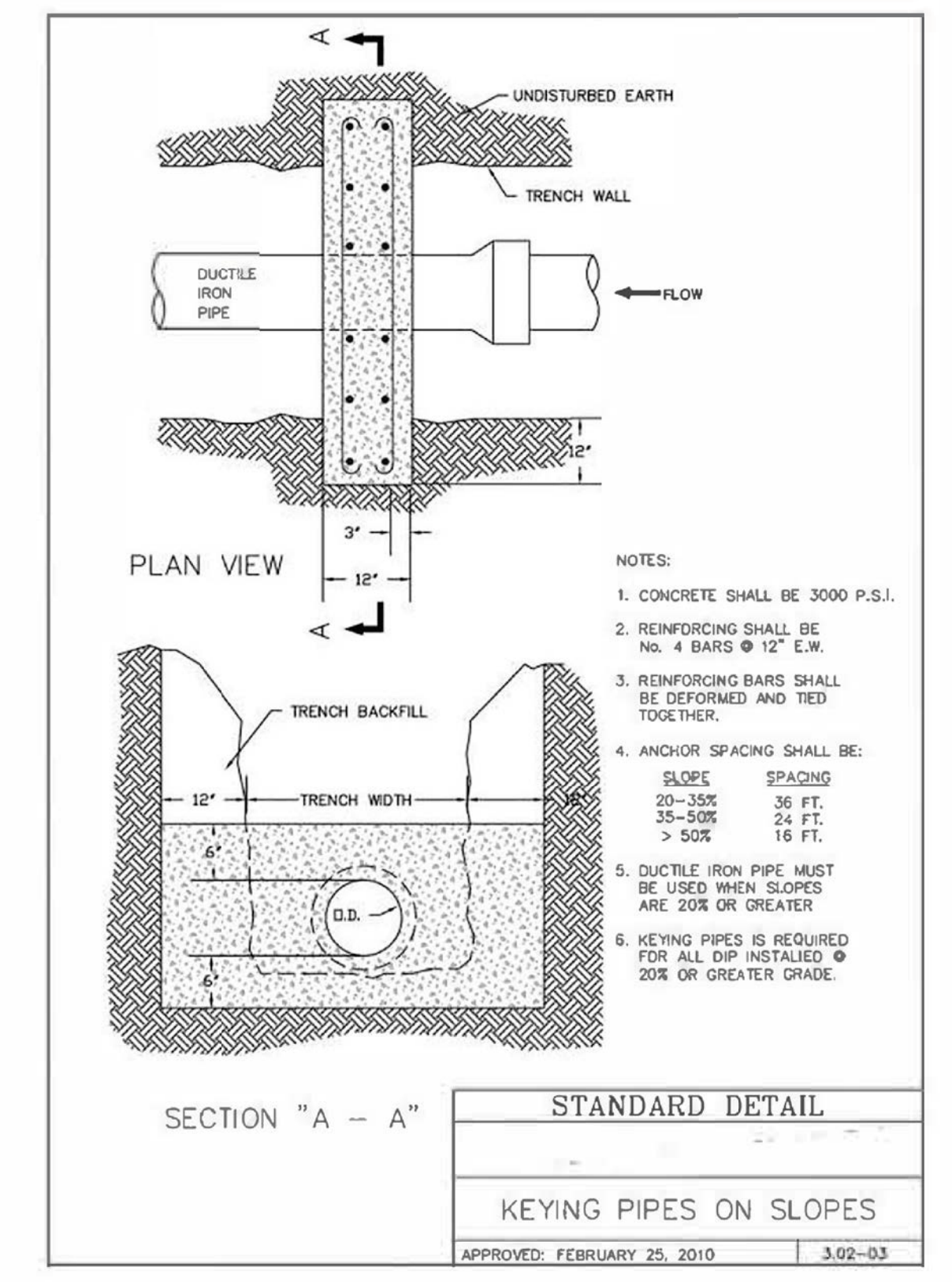
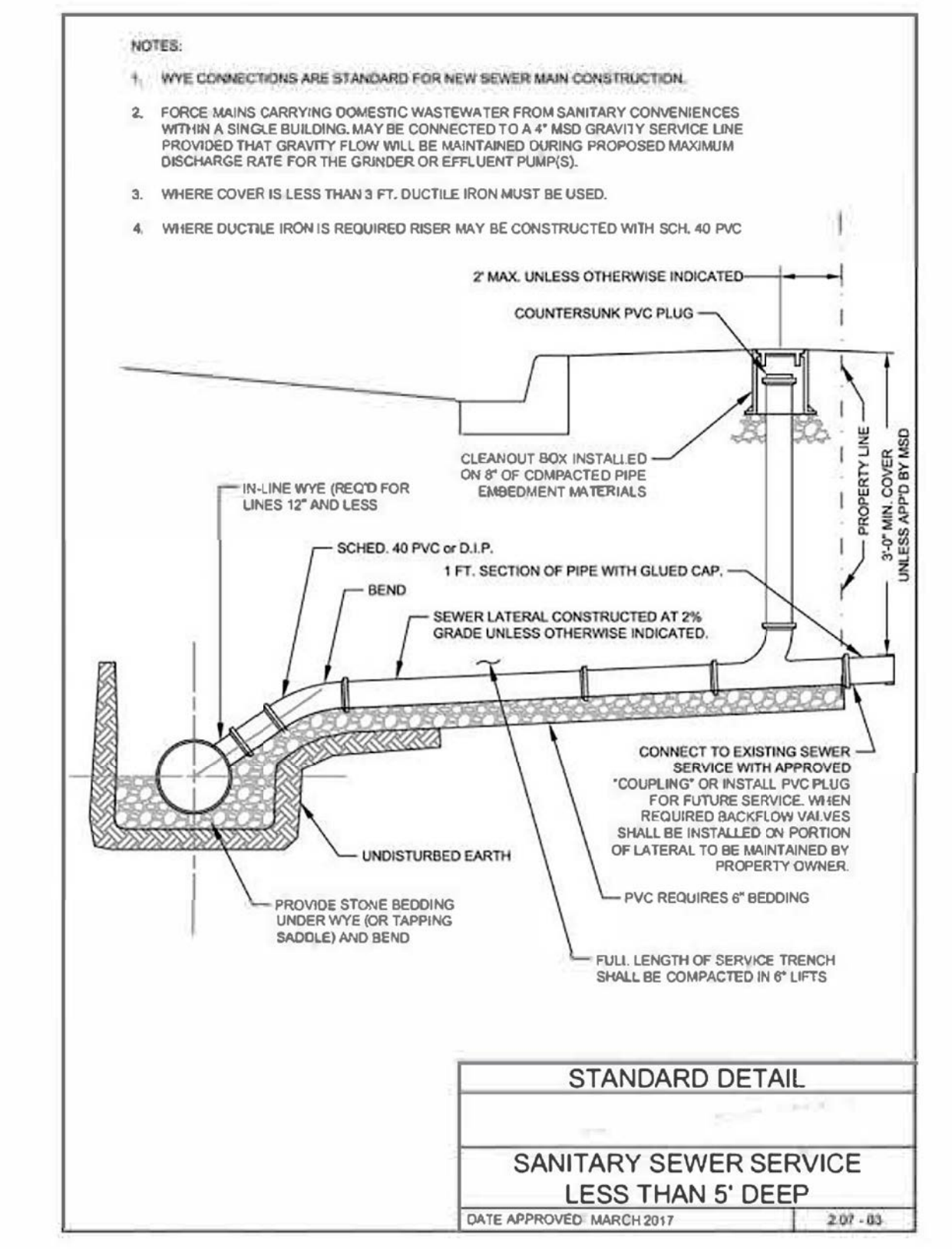
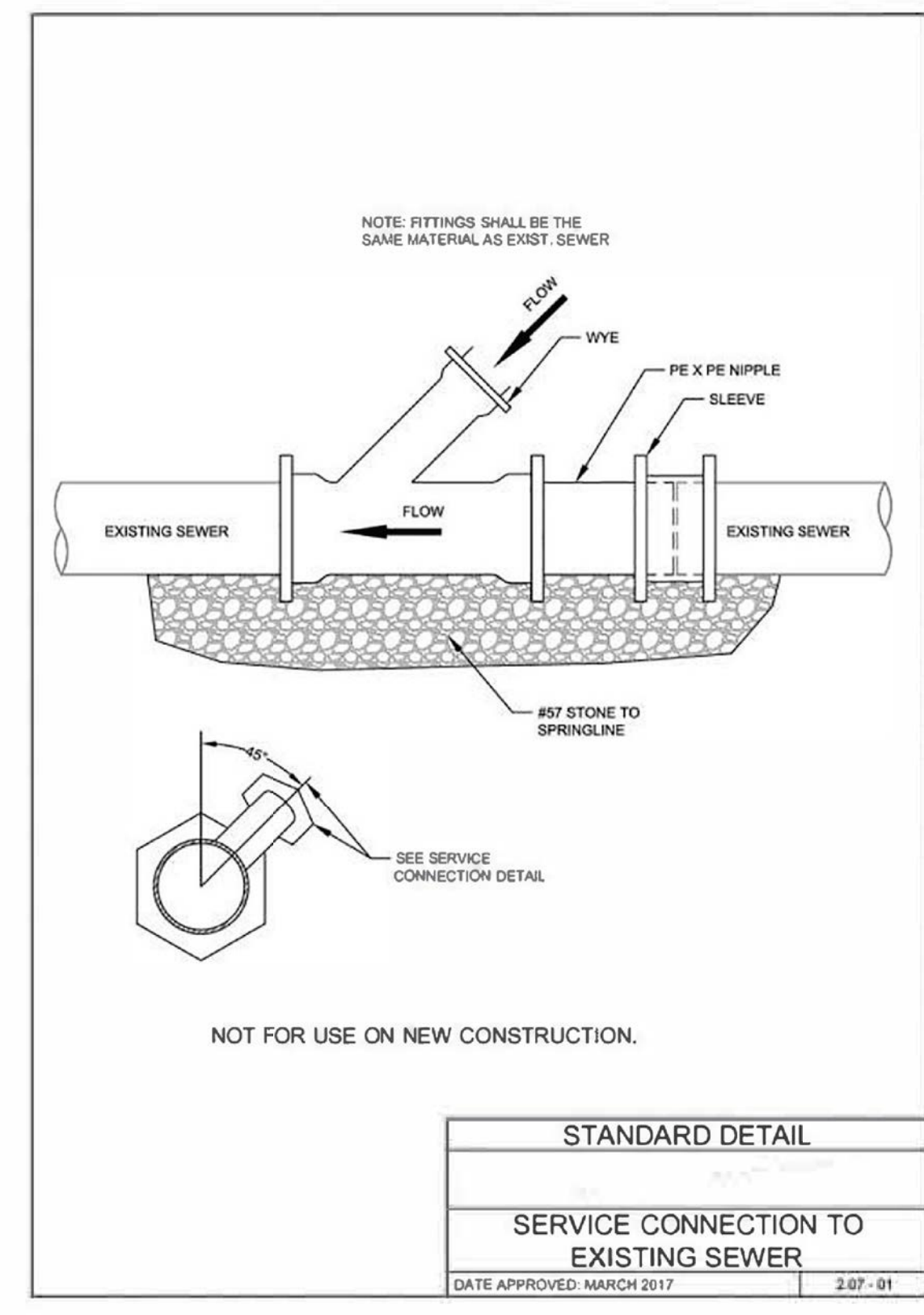
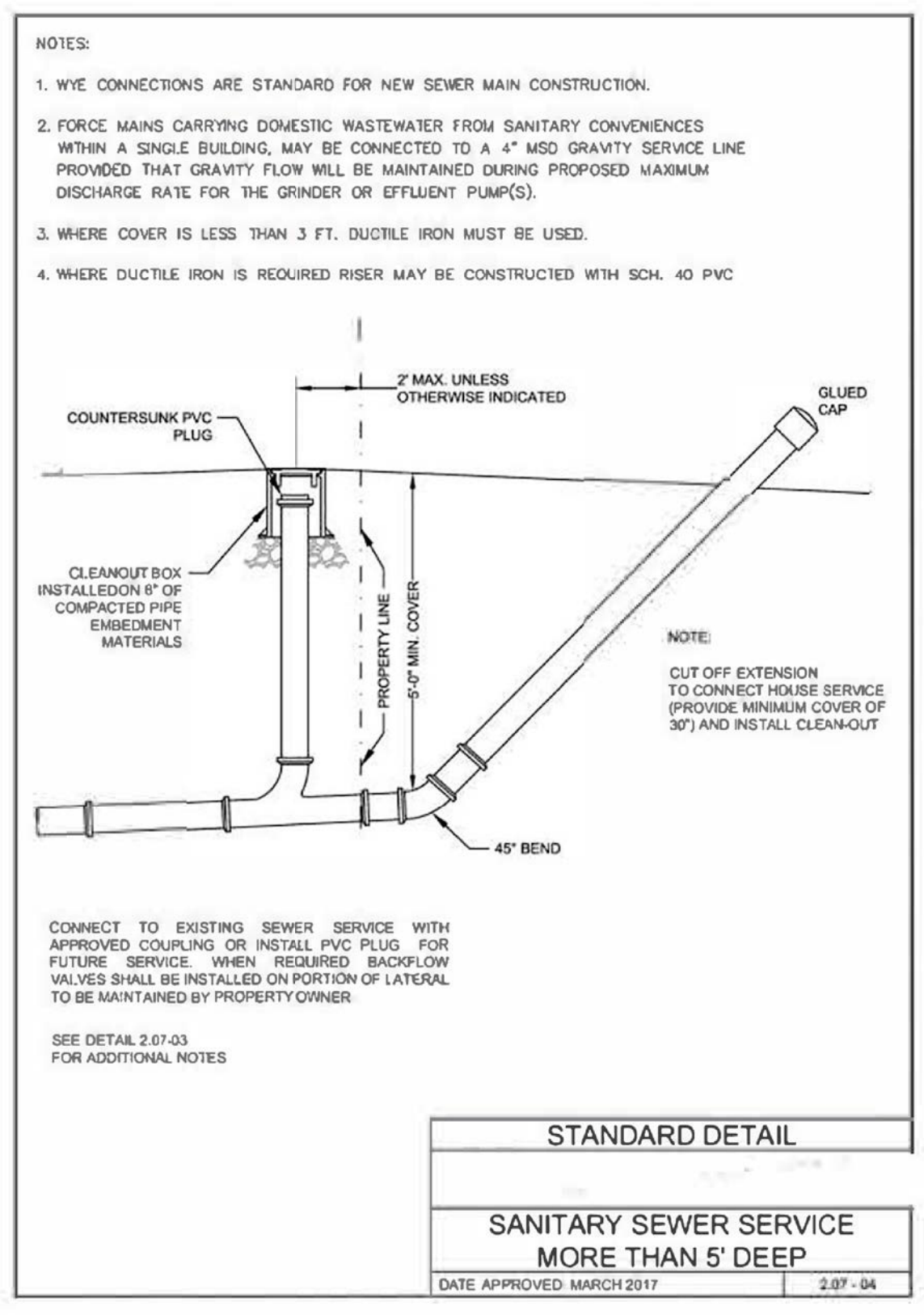
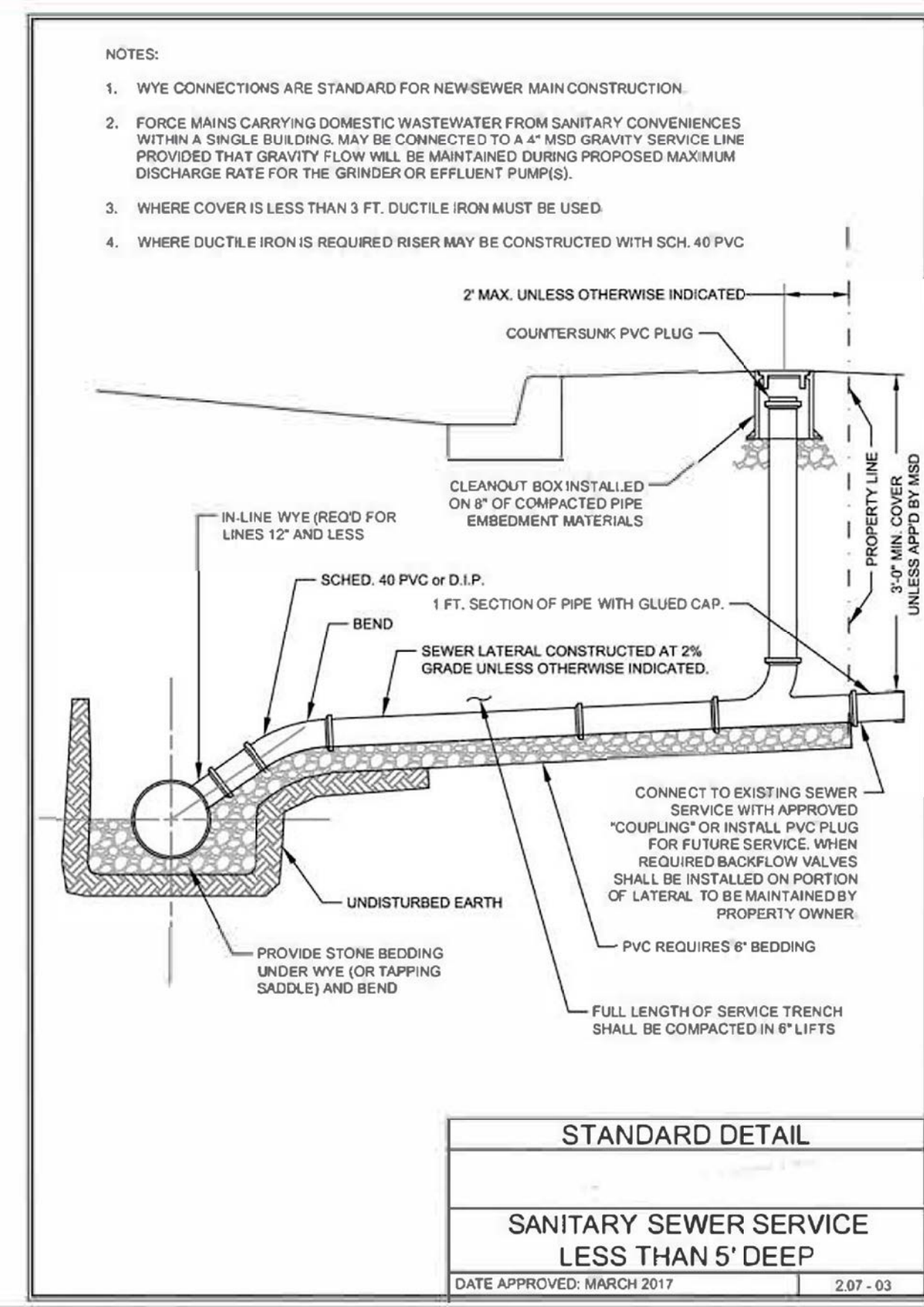
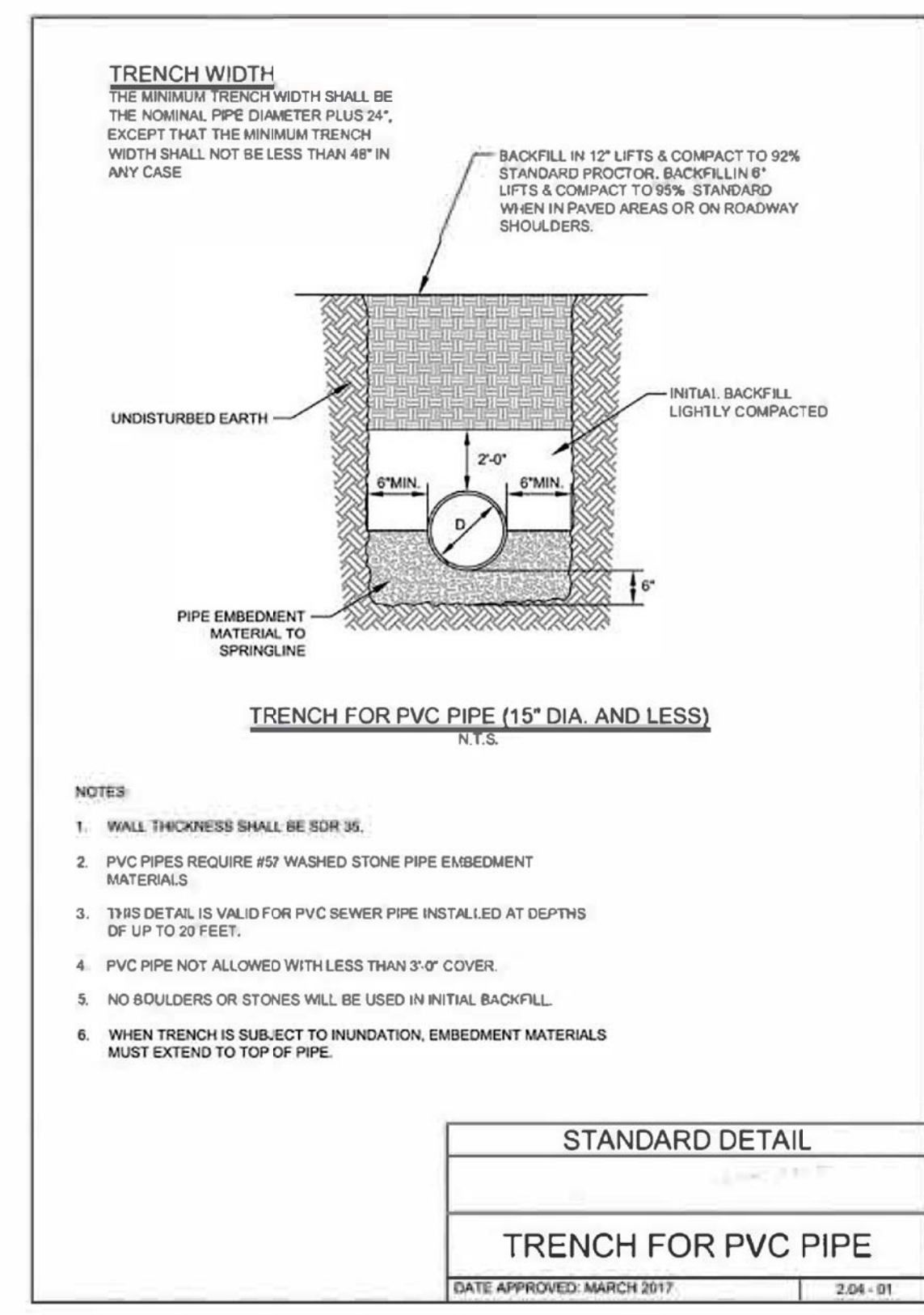
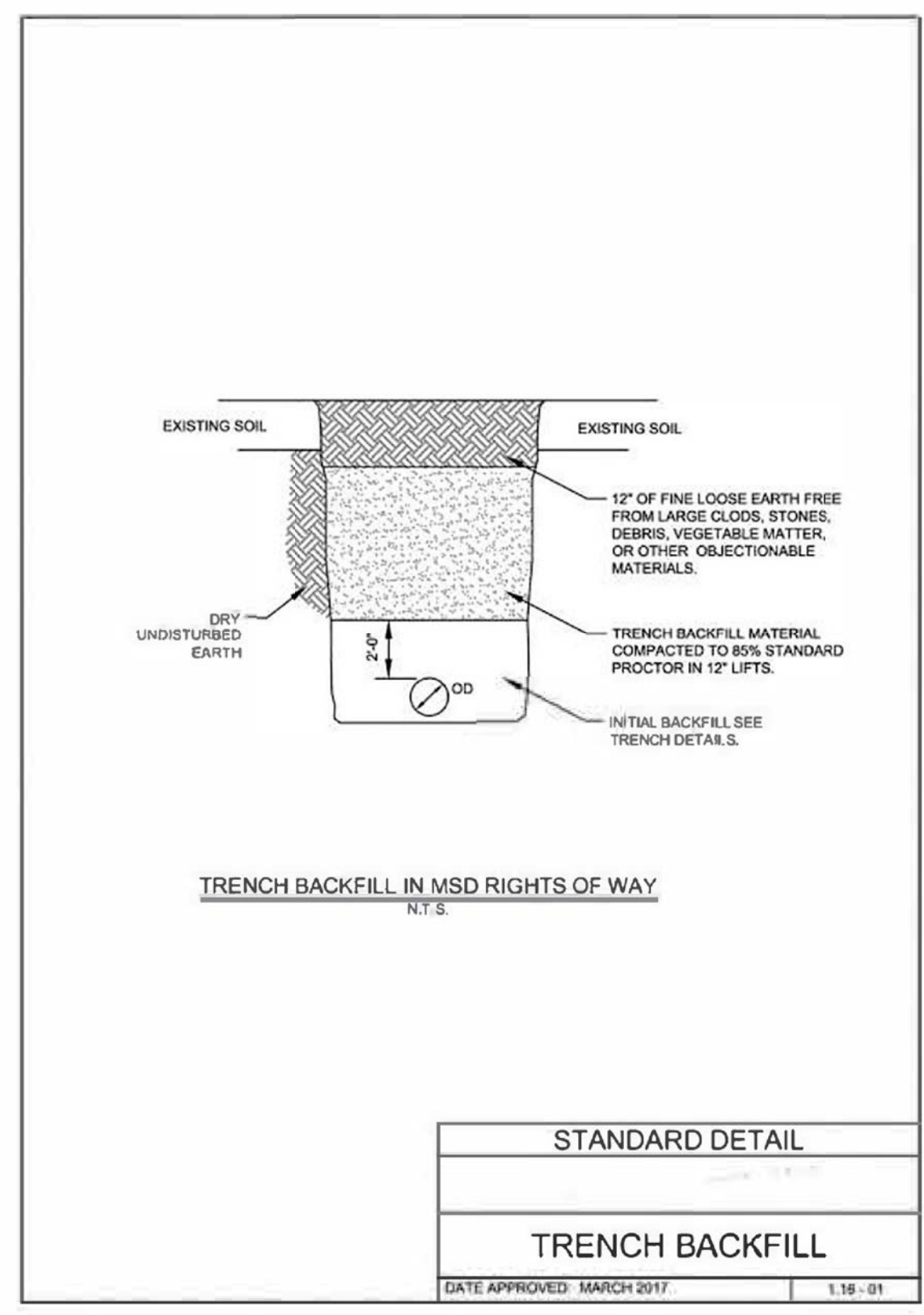
NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28
6	30
8	32
10	34
12	36
14	38
16	40
18	42
20	44
24	48
30	54
36	60
42	66
48	72
54	78





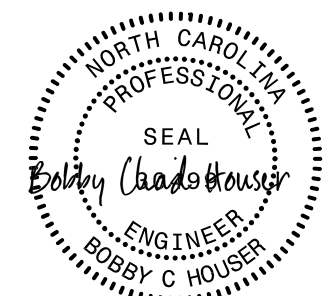
# TOWN OF MAGGIE VALLEY SEWER TYPICAL DETAILS

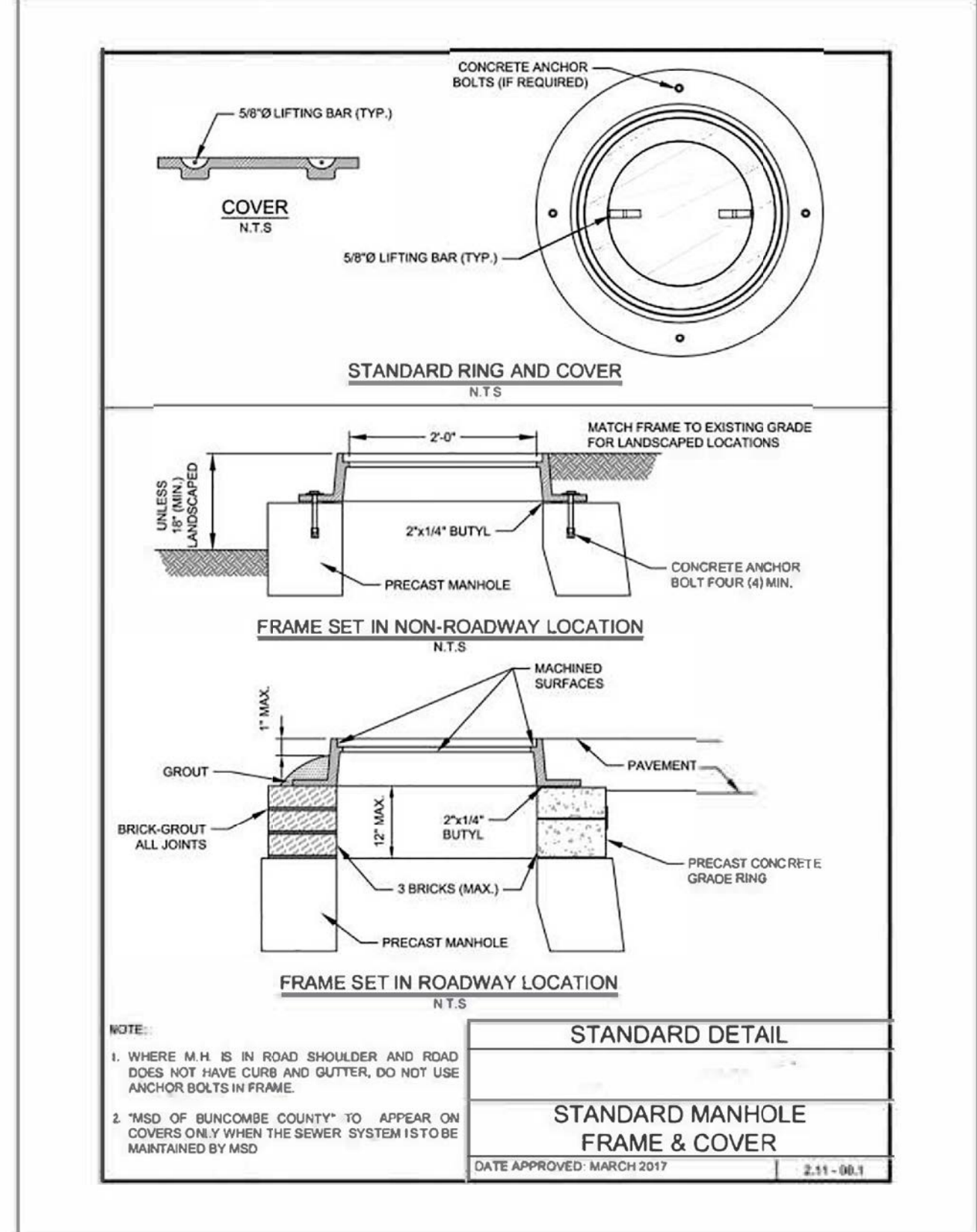
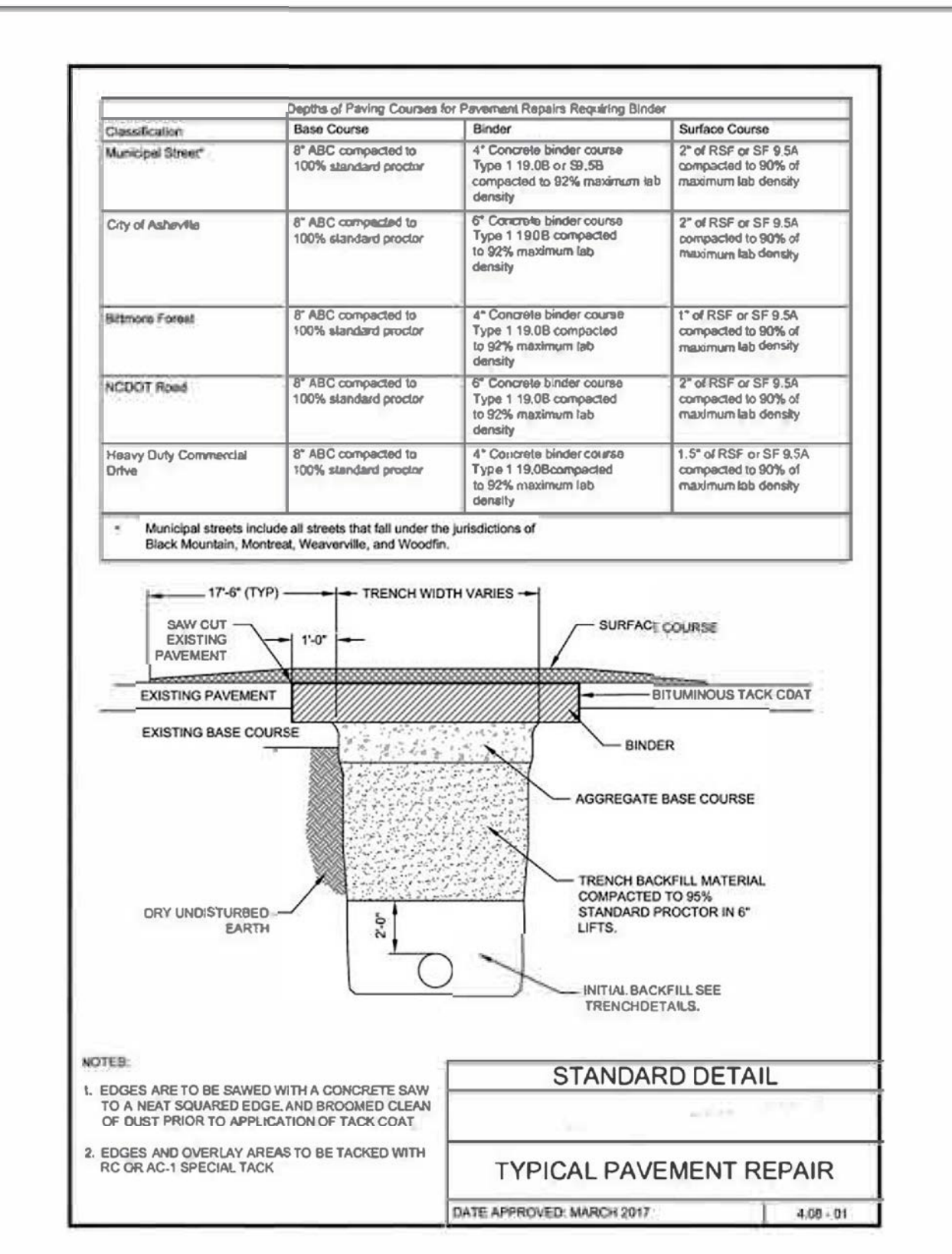
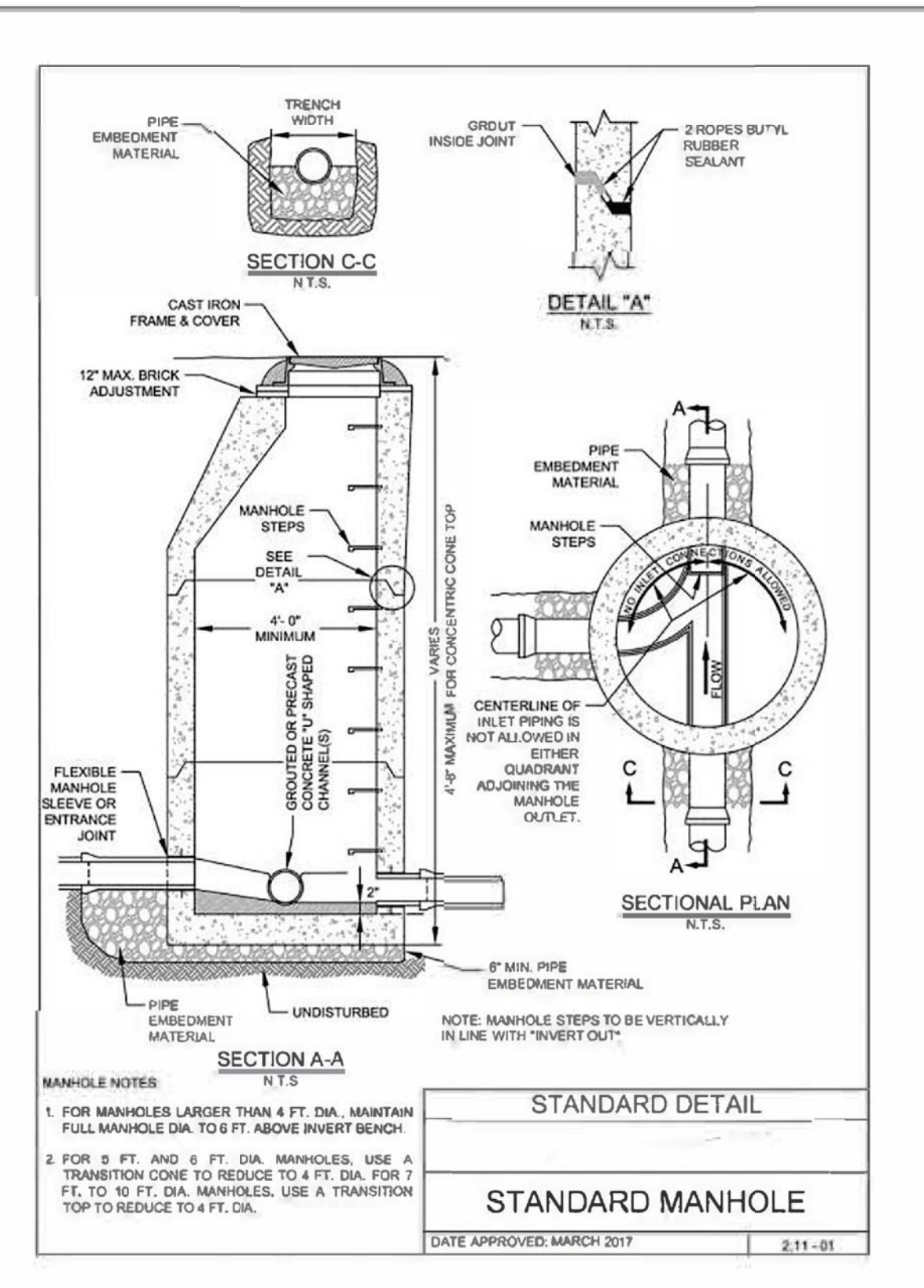
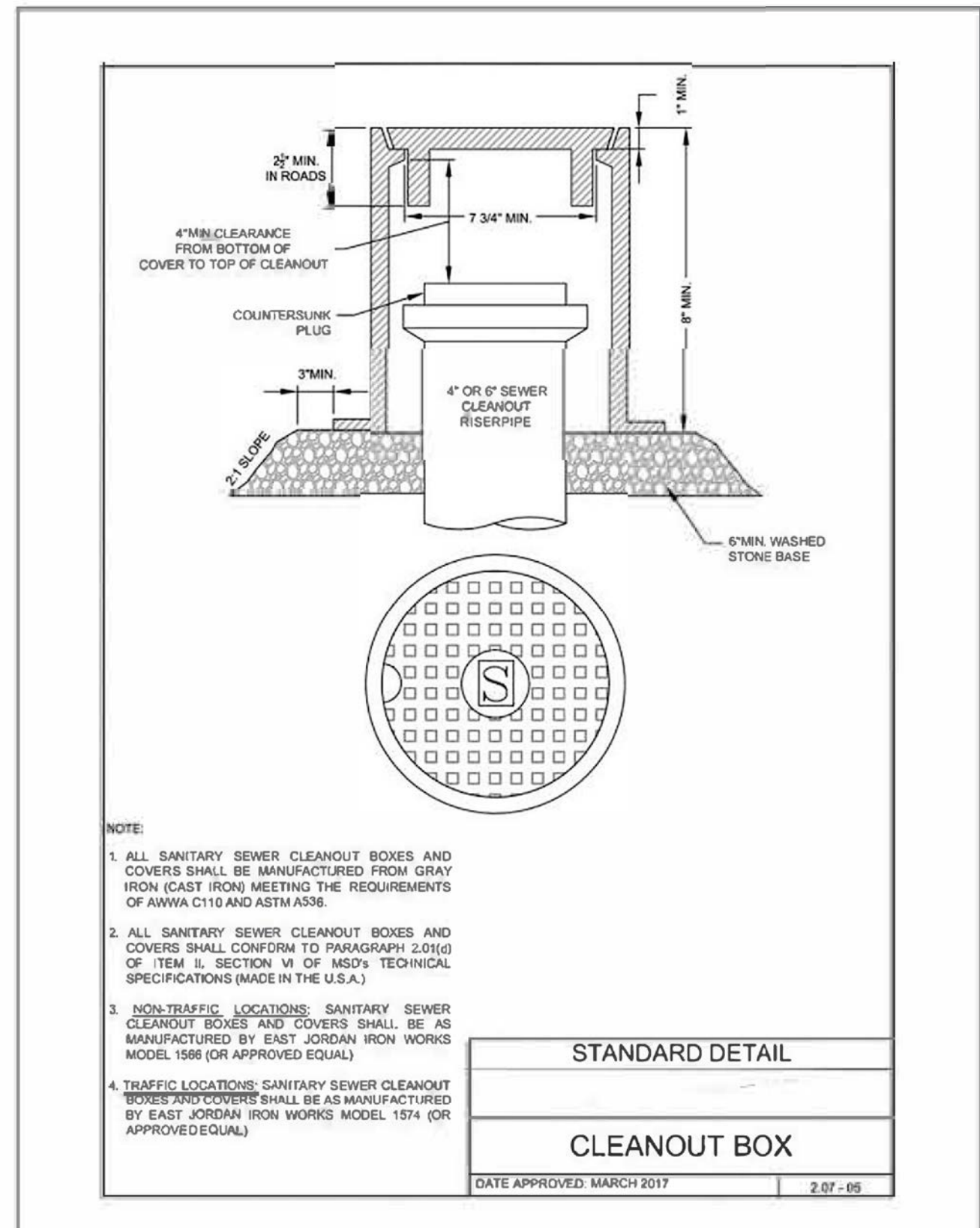
PROJECT REFERENCE NO.	SHEET NO.
U-5921	UC-3B
DESIGNED BY: BCH	
DRAWN BY: KSA	
CHECKED BY:	
APPROVED BY:	
REVISER:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	





# TOWN OF MAGGIE VALLEY SEWER TYPICAL DETAILS

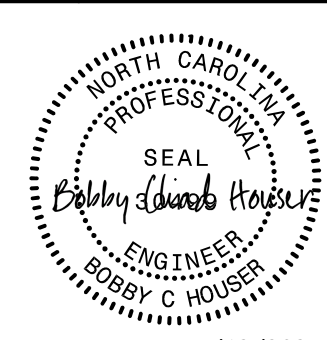
PROJECT REFERENCE NO. <b>U-5921</b>	SHEET NO. <b>UC-3C</b>
DESIGNED BY: <b>BCH</b>	
DRAWN BY: <b>KSA</b>	
CHECKED BY:	
APPROVED BY:	
REVISER:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
<b>UTILITY CONSTRUCTION</b>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	









PROJECT REFERENCE NO.	SHEET NO.
R-5921	UC-5
DESIGNED BY: BCH	
DRAWN BY: KSA	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	4/12/2024 UTILITY CONSTRUCTION PLANS ONLY
<b>UTILITY CONSTRUCTION</b>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

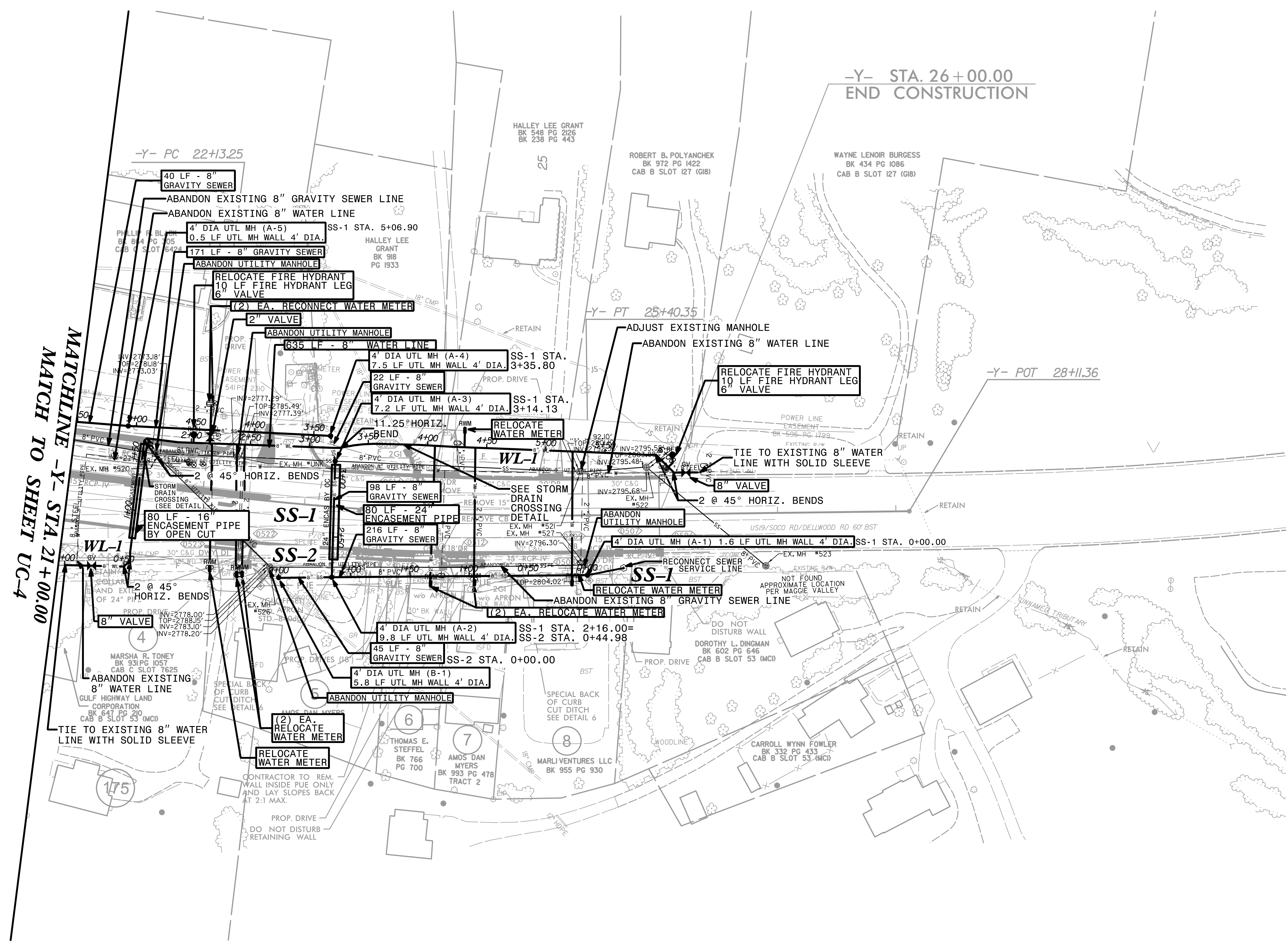


The estimated quantity of Ductile Iron Water Pipe Fitting on this plan sheet is 940 pounds. The actual quantity and type of fittings will vary based on field conditions.

The estimated quantity of "Water Service Line" on this plan sheet is 20 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.

The estimated quantity of "Sewer Service Line" on this plan sheet is 30 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.

The estimated quantity of "2" Water Service Line" on this plan sheet is 720 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.



MATCHLINE -Y- STA. 21+00.00  
MATCH TO SHEET UC-4

-Y- STA. 26+00.00  
END CONSTRUCTION

-Y- POT 28+11.36

-Y- PC 22+13.25

-Y- PT 25+40.35

175

6

7

8

CARROLL WYNN FOWLER  
BK 332 PG 433  
CAB B SLOT 53 (MCD)

DO NOT DISTURB WALL  
DOROTHY L. DINGMAN  
BK 602 PG 646  
CAB B SLOT 53 (MCD)

POWER LINE  
ENCASEMENT  
BK 508-PC 429Q

WAYNE LENOIR BURGESS  
BK 434 PG 1086  
CAB B SLOT 127 (GIB)

ROBERT B. POLYANCHEK  
BK 972 PG 1422  
CAB B SLOT 127 (GIB)

HALLEY LEE GRANT  
BK 548 PG 2126  
BK 238 PG 443

HALLEY LEE GRANT  
BK 918 PG 1933

PHILIP F. BLANK  
BK 844 PG 905  
CAB B SLOT 692A

MARSHA R. TONEY  
BK 531 PG 1057  
CAB C SLOT 7625

CONTRACTOR TO REM.  
WALL INSIDE PUE ONLY  
AND LAY SLOPES BACK  
AT 2:1 MAX.

SPECIAL BACK  
OF CURB  
CUT DITCH  
SEE DETAIL 6

NOT FOUND  
APPROXIMATE LOCATION  
PER MAGGIE VALLEY

US19/SOCCO RD/DELLWOOD RD 60' BST

WOODLINE

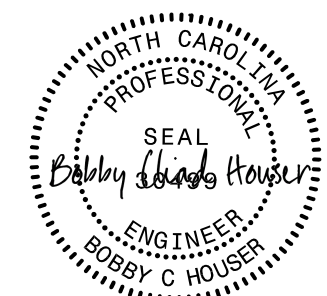
WOODLINE

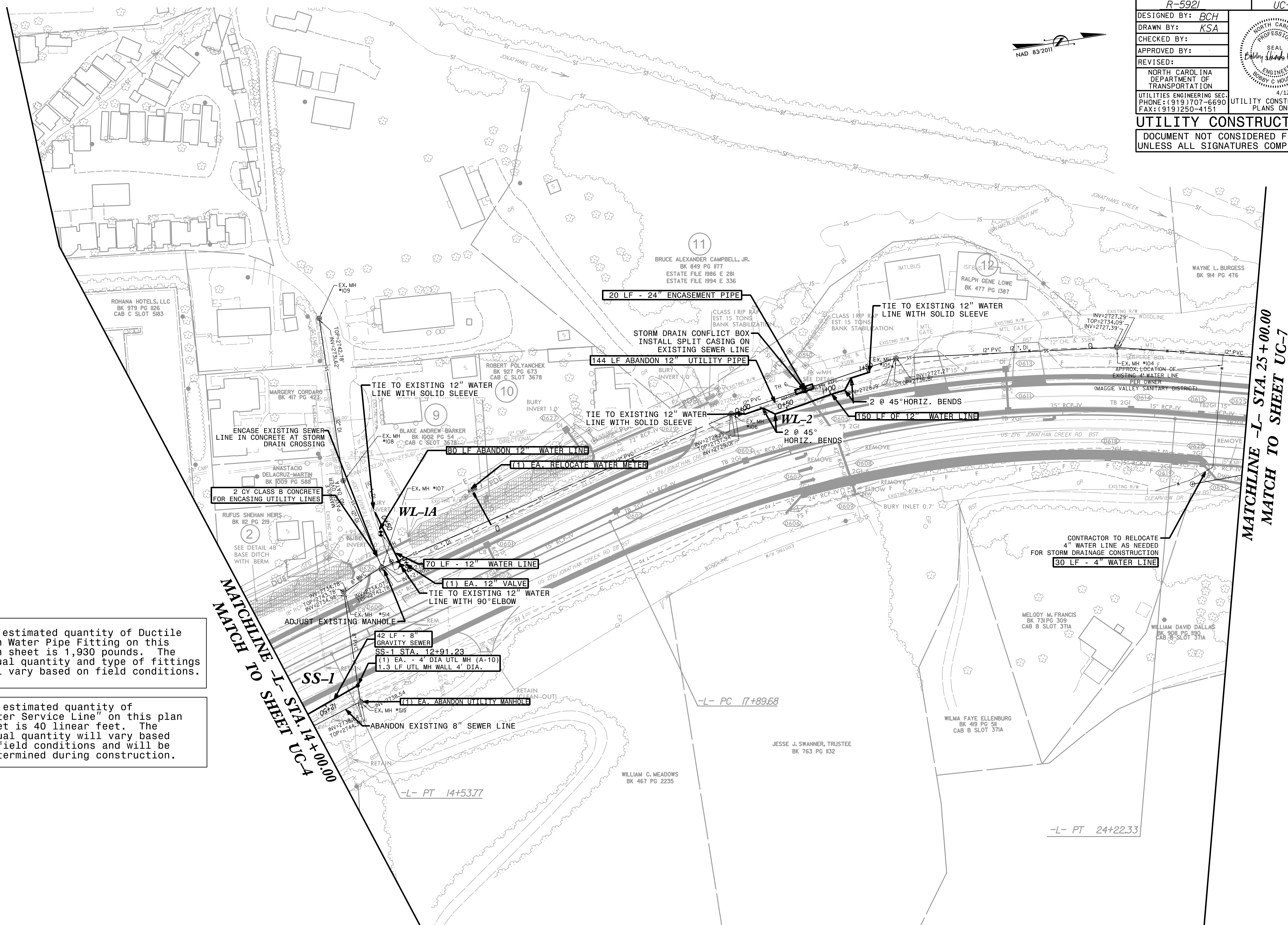
WOODLINE

WOODLINE

WOODLINE



PROJECT REFERENCE NO. <b>R-5921</b>	SHEET NO. <b>UC-6</b>
DESIGNED BY: <b>BCH</b>	
DRAWN BY: <b>KSA</b>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY <b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	




The estimated quantity of Ductile Iron Water Pipe Fitting on this plan sheet is 1,930 pounds. The actual quantity and type of fittings will vary based on field conditions.

The estimated quantity of "Water Service Line" on this plan sheet is 40 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.

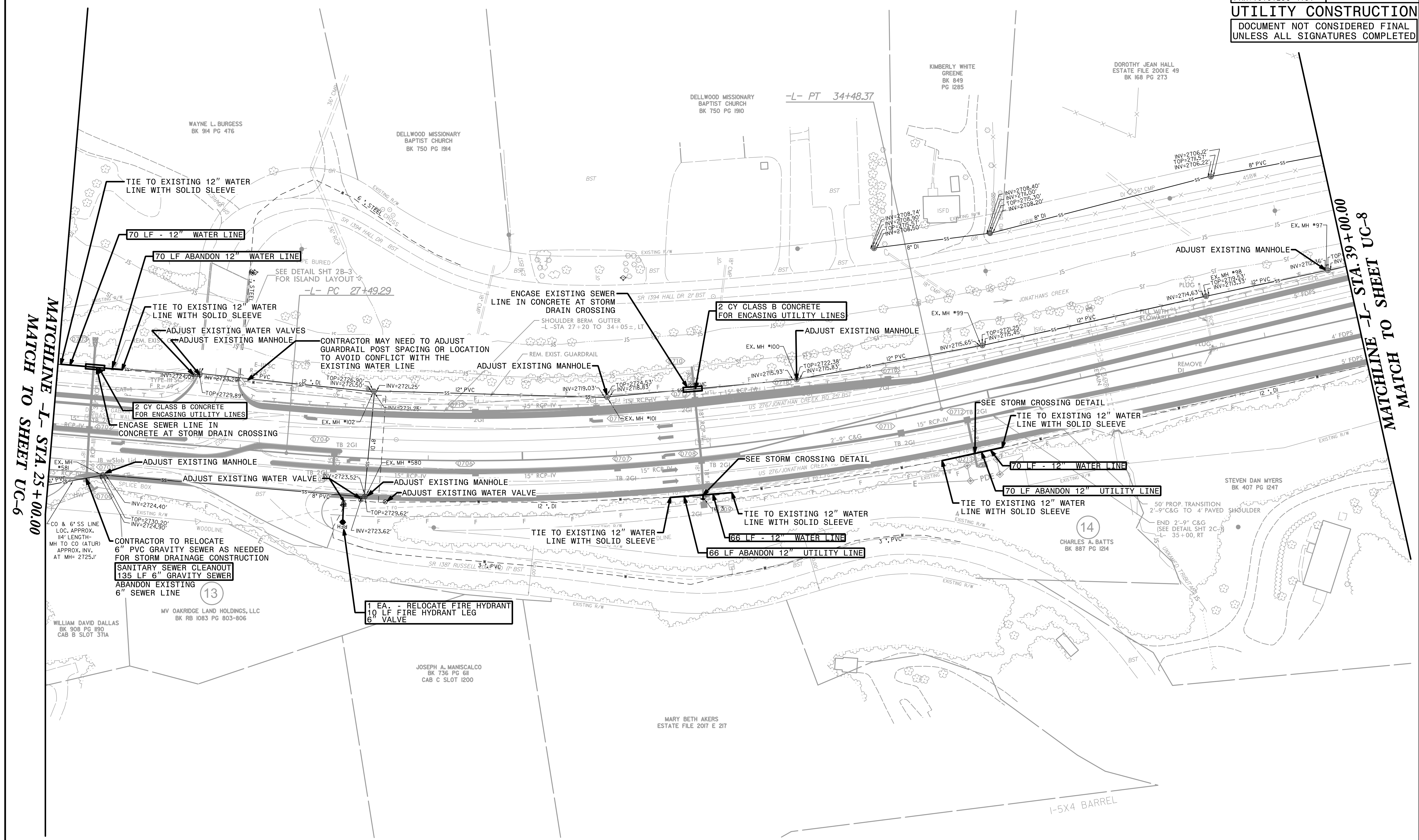
MATCHLINE J- STA. 14+00.00  
 MATCH TO SHEET UC-4

MATCHLINE -L- STA. 25+00.00  
 MATCH TO SHEET UC-7



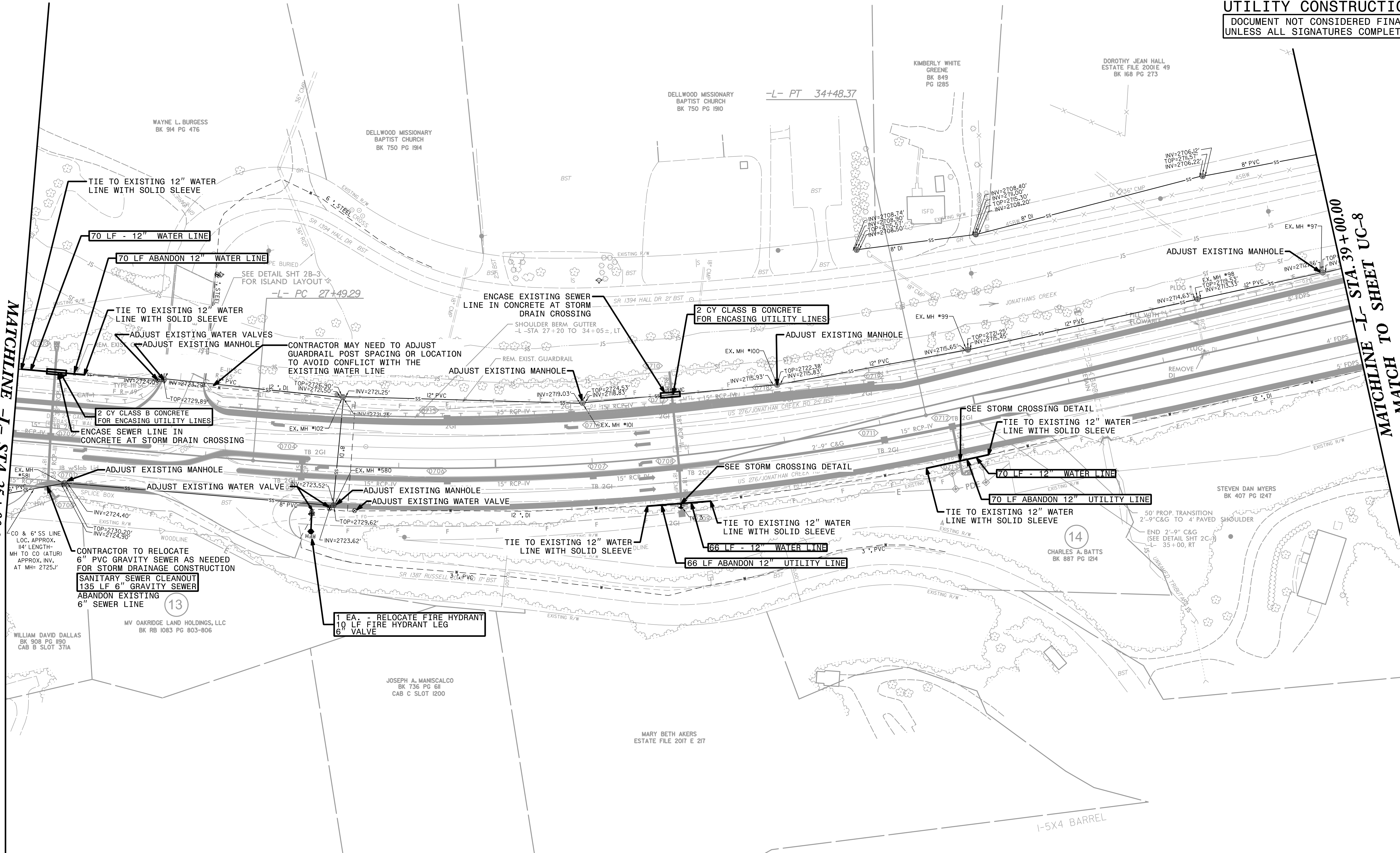
PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-7</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

The estimated quantity of Ductile Iron Water Pipe Fitting on this plan sheet is 3,450 pounds. The actual quantity and type of fittings will vary based on field conditions.



MATCHLINE -L- STA. 25+00.00  
MATCH TO SHEET UC-6

MATCHLINE -L- STA. 39+00.00  
MATCH TO SHEET UC-8



MATCHLINE -L- STA. 25+00.00  
MATCH TO SHEET UC-6

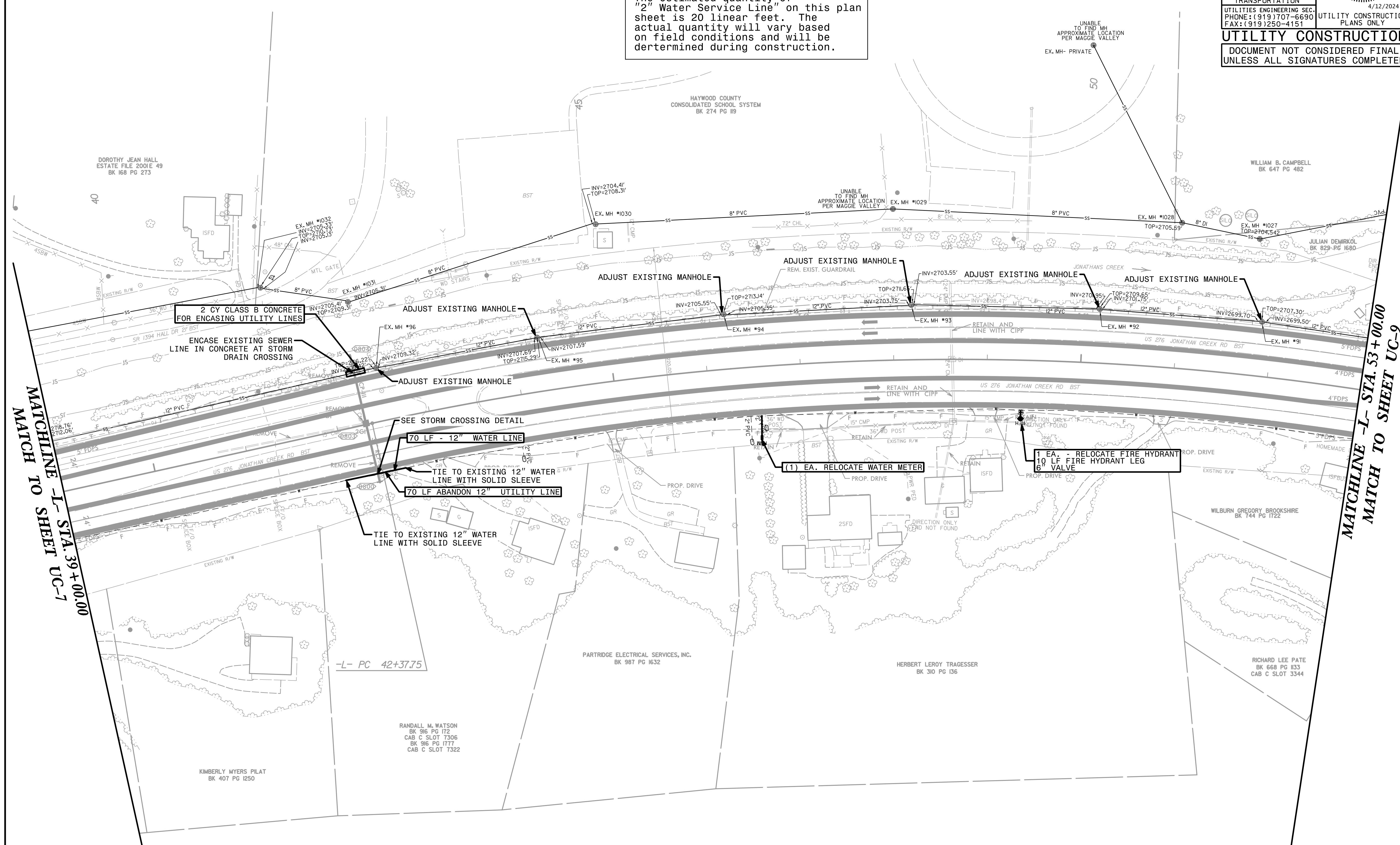
MATCHLINE -L- STA. 39+00.00  
MATCH TO SHEET UC-8



PROJECT REFERENCE NO.	SHEET NO.
R-5921	UC-8
DESIGNED BY: BCH	
DRAWN BY: KSA	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

The estimated quantity of Ductile Iron Water Pipe Fitting on this plan sheet is 1,150 pounds. The actual quantity and type of fittings will vary based on field conditions.

The estimated quantity of "2" Water Service Line" on this plan sheet is 20 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.



MATCHLINE -L- STA. 39 + 00.00  
MATCH TO SHEET UC-7

MATCHLINE -L- STA. 53 + 00.00  
MATCH TO SHEET UC-9

2 CY CLASS B CONCRETE FOR ENCASING UTILITY LINES

ENCASE EXISTING SEWER LINE IN CONCRETE AT STORM DRAIN CROSSING

SEE STORM CROSSING DETAIL

70 LF - 12" WATER LINE

TIE TO EXISTING 12" WATER LINE WITH SOLID SLEEVE

70 LF ABANDON 12" UTILITY LINE

TIE TO EXISTING 12" WATER LINE WITH SOLID SLEEVE

(1) EA. RELOCATE WATER METER

(1) EA. - RELOCATE FIRE HYDRANT  
10 LF FIRE HYDRANT LEG  
6" VALVE

DOROTHY JEAN HALL  
ESTATE FILE 2001E 49  
BK 168 PG 273

HAYWOOD COUNTY  
CONSOLIDATED SCHOOL SYSTEM  
BK 274 PG 119

WILLIAM B. CAMPBELL  
BK 647 PG 482

JULIAN DEMIRKOL  
BK 829-PG 1680

WILBURN GREGORY BROOKSHIRE  
BK 744 PG 1722

PARTRIDGE ELECTRICAL SERVICES, INC.  
BK 987 PG 1632

HERBERT LEROY TRAGESSER  
BK 310 PG 136

RICHARD LEE PATE  
BK 668 PG 133  
CAB C SLOT 3344

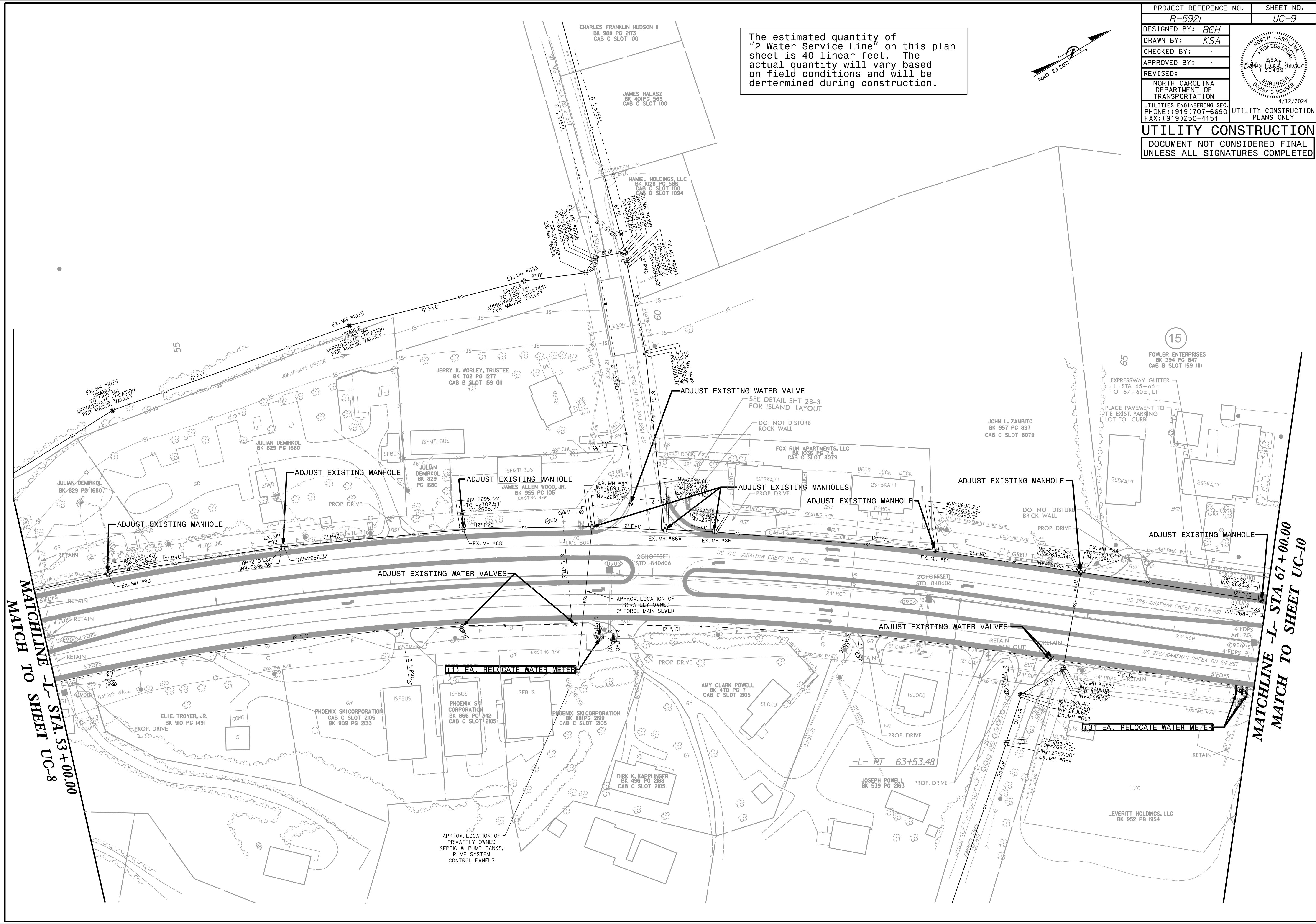
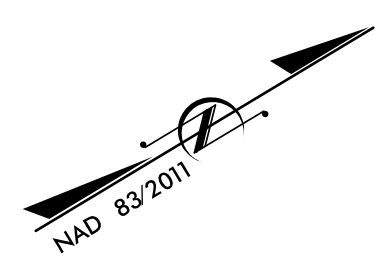
RANDALL M. WATSON  
BK 916 PG 172  
CAB C SLOT 7306  
BK 916 PG 1777  
CAB C SLOT 7322

KIMBERLY MYERS PILAT  
BK 407 PG 1250



PROJECT REFERENCE NO.	SHEET NO.
R-5921	UC-9
DESIGNED BY: BCH	
DRAWN BY: KSA	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

The estimated quantity of "2 Water Service Line" on this plan sheet is 40 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.



MATCHLINE -L- STA. 53+00.00  
MATCH TO SHEET UC-8

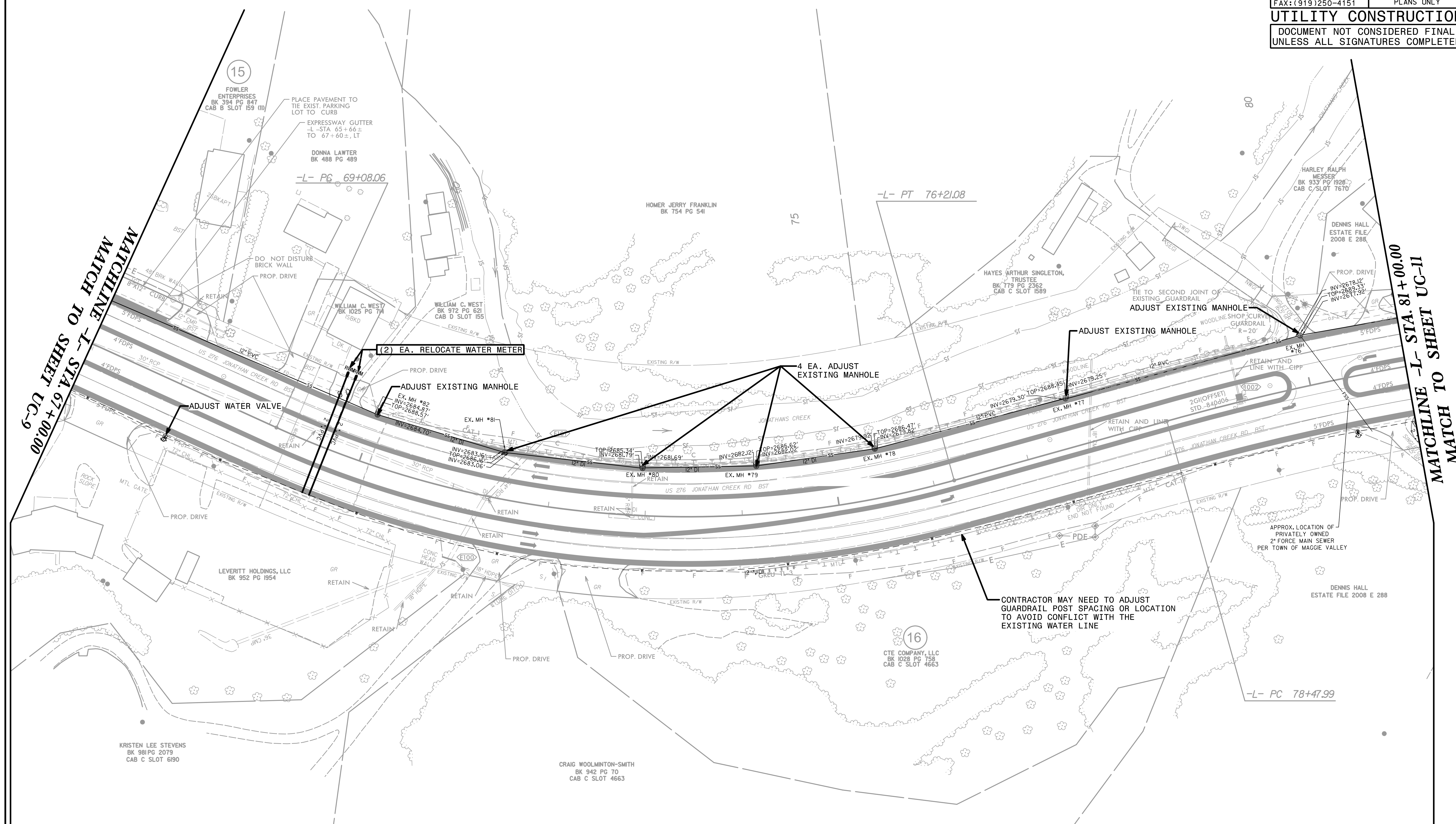
MATCHLINE -L- STA. 67+00.00  
MATCH TO SHEET UC-10



The estimated quantity of "2" Water Service Line" on this plan sheet is 260 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.



PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-10</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY
<b>UTILITY CONSTRUCTION</b>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE -L- STA. 67+00.00  
MATCH TO SHEET UC-9

MATCHLINE -L- STA. 81+00.00  
MATCH TO SHEET UC-11

(2) EA. RELOCATE WATER METER

4 EA. ADJUST EXISTING MANHOLE

ADJUST EXISTING MANHOLE

ADJUST EXISTING MANHOLE

ADJUST WATER VALVE

ADJUST EXISTING MANHOLE

CONTRACTOR MAY NEED TO ADJUST GUARDRAIL POST SPACING OR LOCATION TO AVOID CONFLICT WITH THE EXISTING WATER LINE

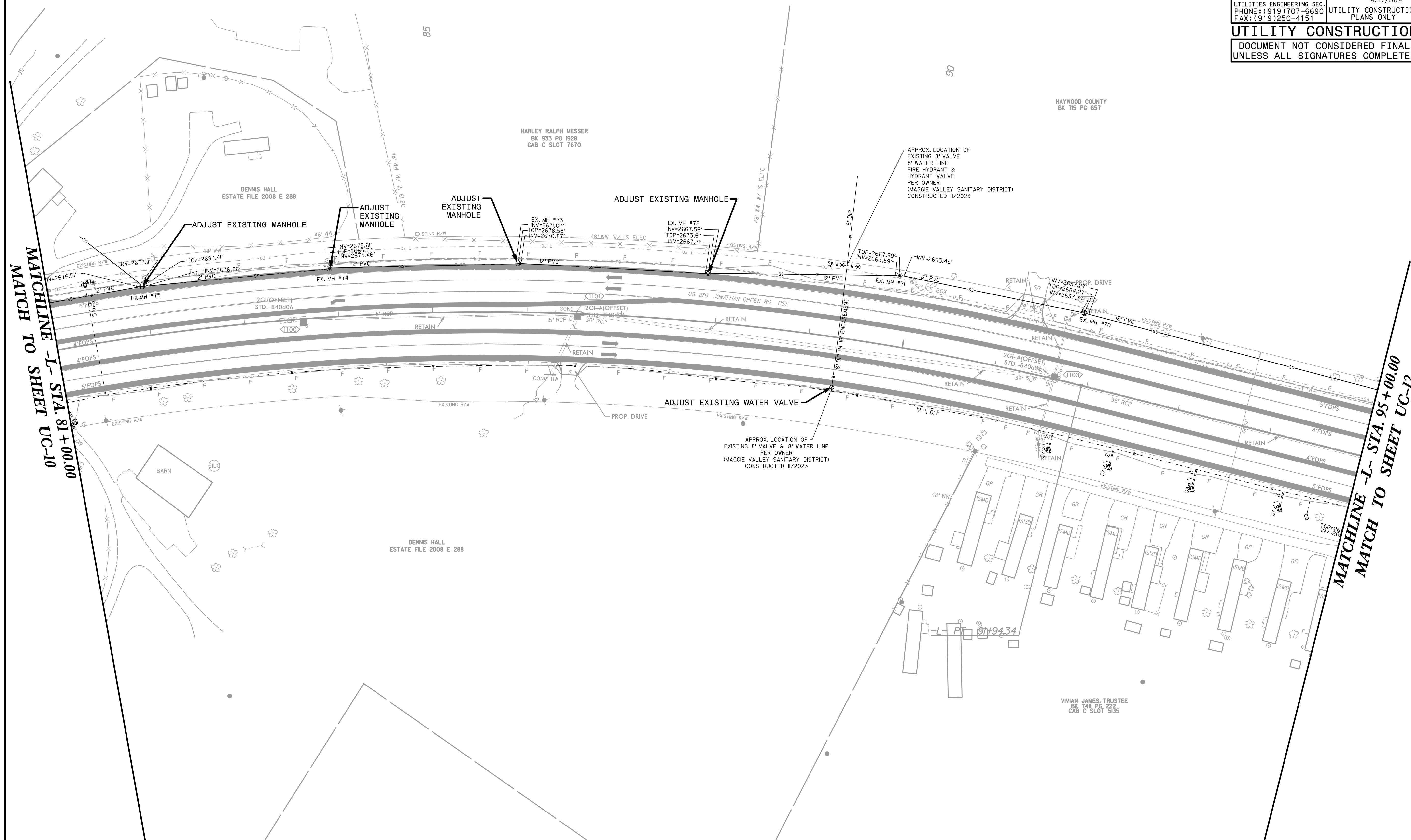
APPROX. LOCATION OF PRIVATELY OWNED 2" FORCE MAIN SEWER PER TOWN OF MAGGIE VALLEY





PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-11</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY: <i>LAK</i>	
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



MATCHLINE -L- STA. 81+00.00  
MATCH TO SHEET UC-10

MATCHLINE -L- STA. 95+00.00  
MATCH TO SHEET UC-12

HARLEY RALPH MESSER  
BK 933 PG 1928  
CAB C SLOT 7670

DENNIS HALL  
ESTATE FILE 2008 E 288

DENNIS HALL  
ESTATE FILE 2008 E 288

HAYWOOD COUNTY  
BK 715 PG 657

VIVIAN JAMES, TRUSTEE  
BK 748 PG 222  
CAB C SLOT 5135

APPROX. LOCATION OF EXISTING 8\"/>

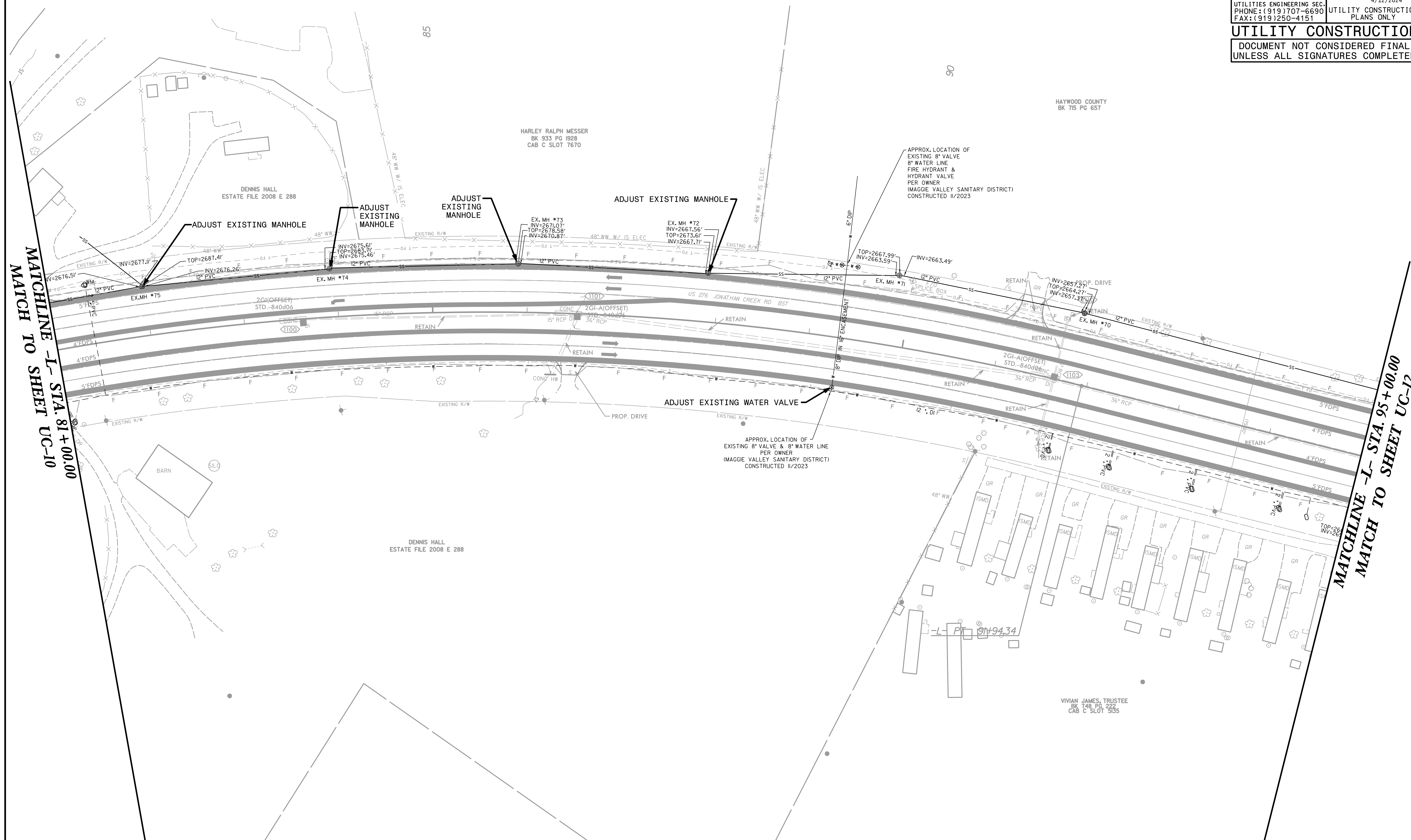
APPROX. LOCATION OF EXISTING 8\"/>

ADJUST EXISTING MANHOLE

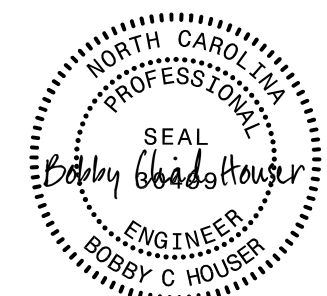
ADJUST EXISTING MANHOLE

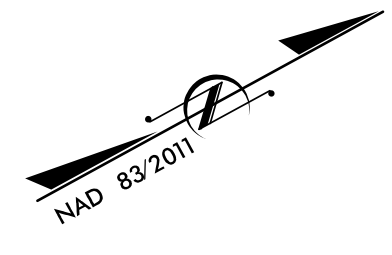
ADJUST EXISTING MANHOLE

ADJUST EXISTING WATER VALVE



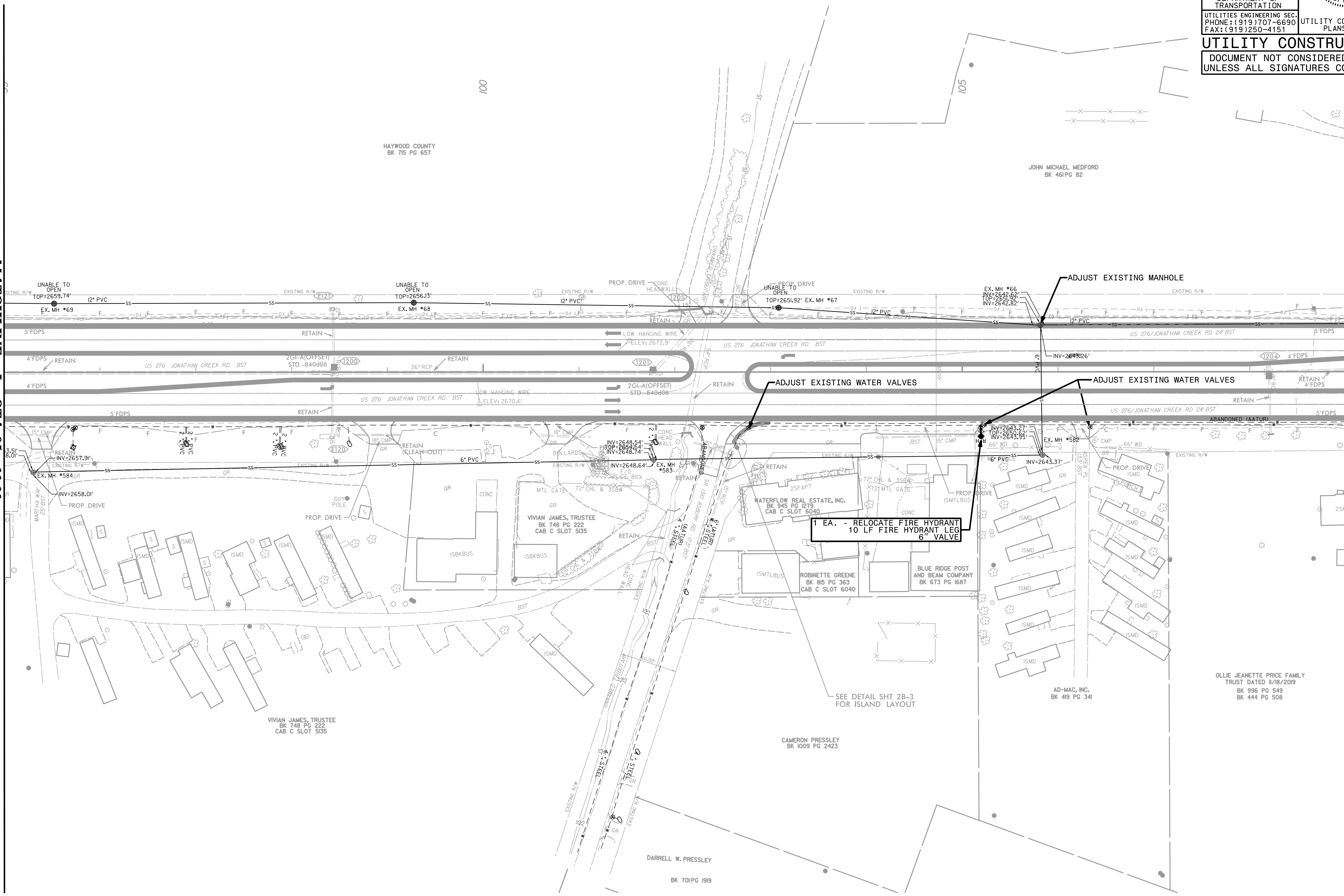


PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-12</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	4/12/2024
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
<b>UTILITY CONSTRUCTION</b>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE -L- STA. 95+00.00  
MATCH TO SHEET UC-12

MATCHLINE -L- STA. 109+00.00  
MATCH TO SHEET UC-13



100

105

HAYWOOD COUNTY  
BK 715 PG 657

JOHN MICHAEL MEDFORD  
BK 461 PG 82

UNABLE TO OPEN  
TOP=2659.74'  
EX. MH #69

UNABLE TO OPEN  
TOP=2656.13'  
EX. MH #68

UNABLE TO OPEN  
TOP=2651.92' EX. MH #67

EX. MH #66  
INV=2642.62'  
TOP=2643.96'  
INV=2642.82'

EX. MH #584  
INV=2657.91'

EX. MH #583  
INV=2648.64'

EX. MH #582  
INV=2643.37'

VIVIAN JAMES, TRUSTEE  
BK 748 PG 222  
CAB C SLOT 535

VIVIAN JAMES, TRUSTEE  
BK 748 PG 222  
CAB C SLOT 535

1 EA. - RELOCATE FIRE HYDRANT  
10 LF FIRE HYDRANT LEG  
6" VALVE

ROBINETTE GREENE  
BK 85 PG 363  
CAB C SLOT 6040

BLUE RIDGE POST AND BEAM COMPANY  
BK 673 PG 1687

AD-MAC, INC.  
BK 419 PG 341

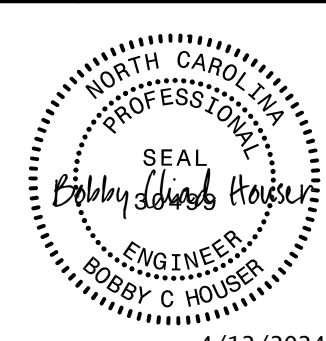
OLLIE JEANETTE PRICE FAMILY  
TRUST DATED 11/18/2019  
BK 996 PG 549  
BK 444 PG 508

CAMERON PRESSLEY  
BK 1009 PG 2423

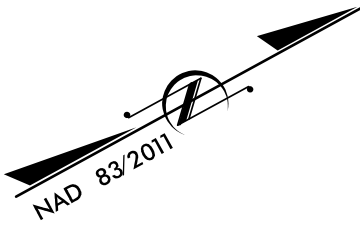
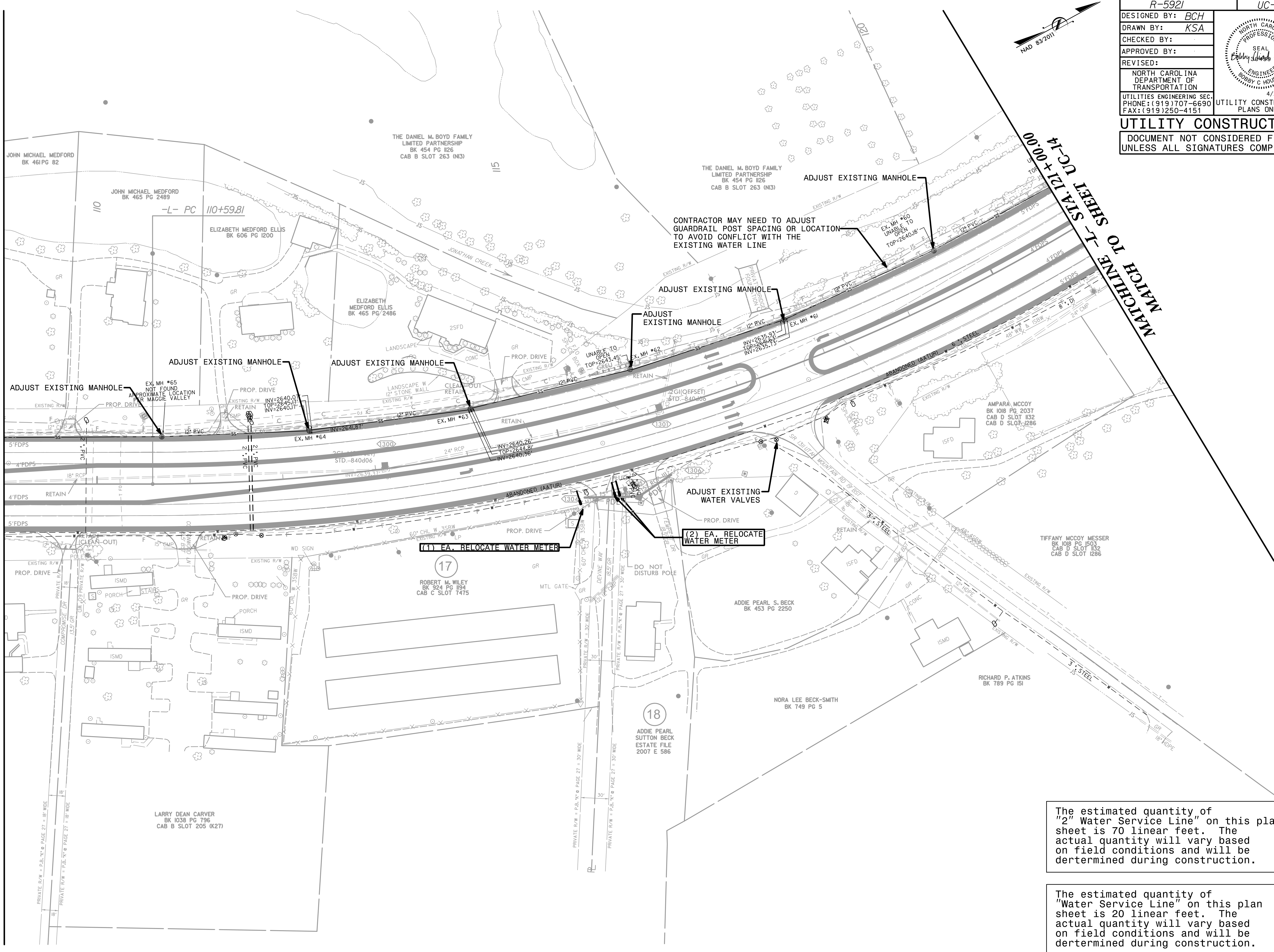
DARRELL W. PRESSLEY  
BK 701 PG 1919

SEE DETAIL SHT 2B-3  
FOR ISLAND LAYOUT



PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-13</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	4/12/2024
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE -L- STA. 109 + 00.00  
MATCH TO SHEET UC-12



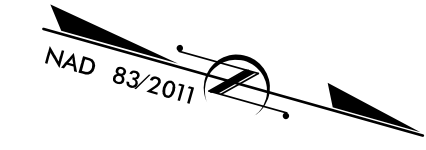
MATCHLINE -L- STA 121 + 00.00  
MATCH TO SHEET UC-14

The estimated quantity of "2\" Water Service Line" on this plan sheet is 70 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.

The estimated quantity of "Water Service Line" on this plan sheet is 20 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.



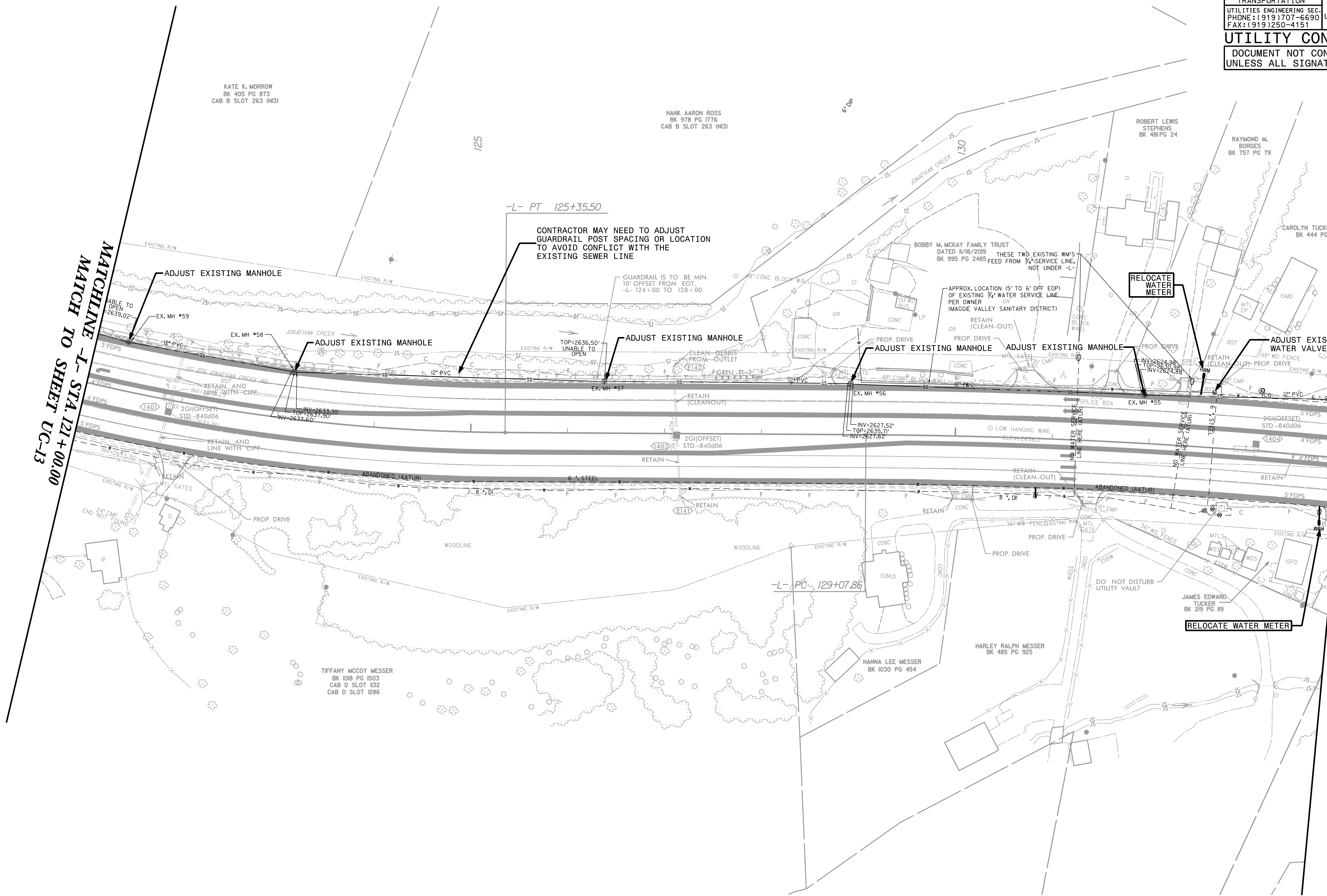
The estimated quantity of "Water Service Line" on this plan sheet is 40 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.



PROJECT REFERENCE NO. R-5921	SHEET NO. UC-14
DESIGNED BY: BCH	
DRAWN BY: KSA	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE -L- STA. 121+00.00  
MATCH TO SHEET UC-13

MATCHLINE -L- STA. 134+00.00  
MATCH TO SHEET UC-15



KATE K. MORROW  
BK 405 PG 873  
CAB B SLOT 263 (N13)

HANK AARON ROSS  
BK 978 PG 1776  
CAB B SLOT 263 (N13)

ROBERT LEWIS STEPHENS  
BK 481 PG 24

RAYMOND M. BORGES  
BK 757 PG 79

CAROLYN TUCKER NORMAN  
BK 444 PG 1755

BOBBY M. MCKAY FAMILY TRUST  
DATED 11/18/2019  
BK 995 PG 2485

TIFFANY MCCOY MESSER  
BK 1018 PG 1503  
CAB D SLOT 132  
CAB D SLOT 1286

HANNA LEE MESSER  
BK 1030 PG 454

HARLEY RALPH MESSER  
BK 485 PG 925

JAMES EDWARD TUCKER  
BK 219 PG 119

CONTRACTOR MAY NEED TO ADJUST  
GUARDRAIL POST SPACING OR LOCATION  
TO AVOID CONFLICT WITH THE  
EXISTING SEWER LINE

GUARDRAIL IS TO BE MIN.  
10' OFFSET FROM EOT.  
-L- 124+00 TO 128+00

APPROX. LOCATION (5' TO 6' OFF EOP)  
OF EXISTING 3/4" WATER SERVICE LINE  
PER OWNER (MAGGIE VALLEY SANITARY DISTRICT)


ADJUST EXISTING MANHOLE

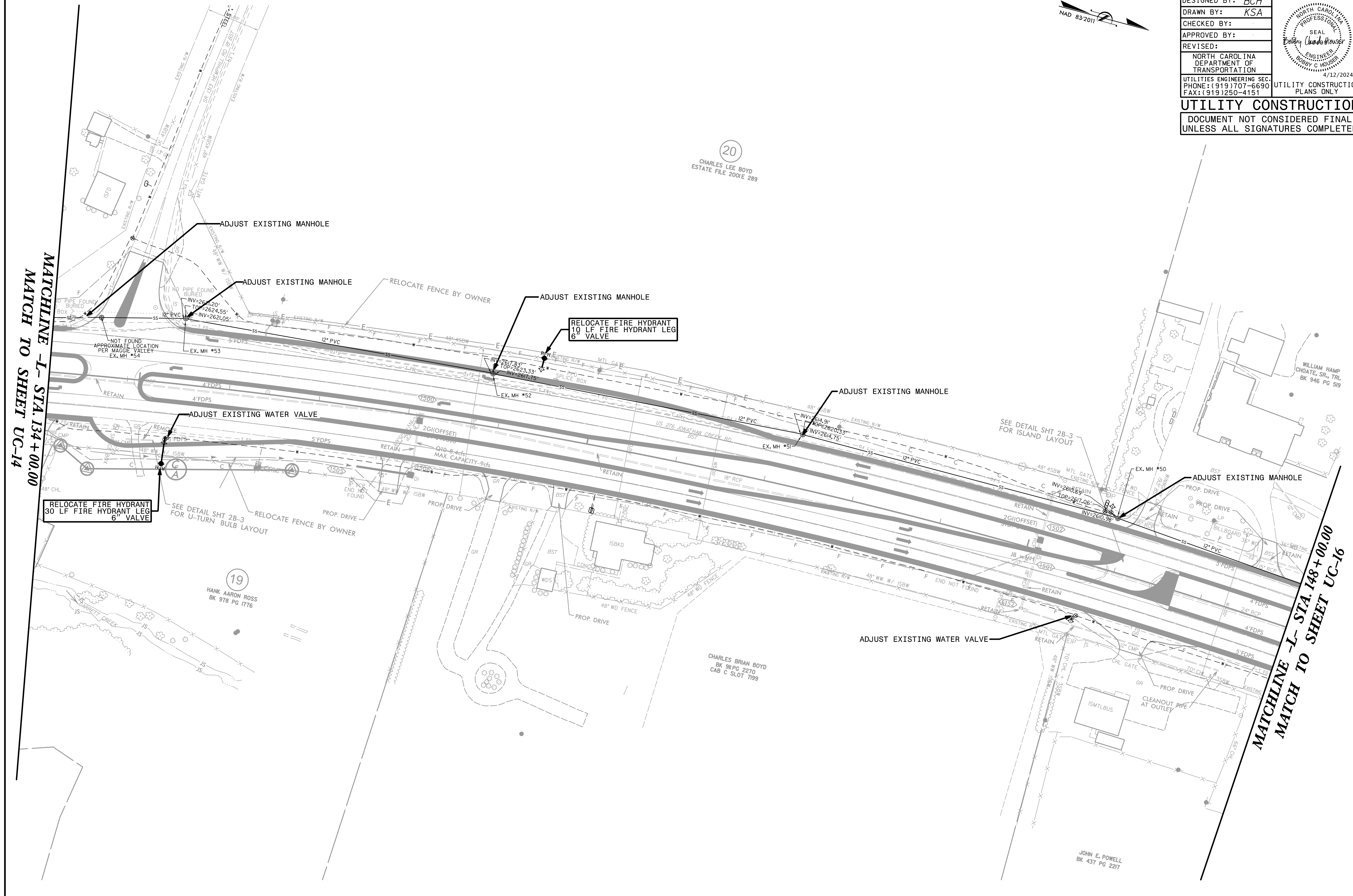
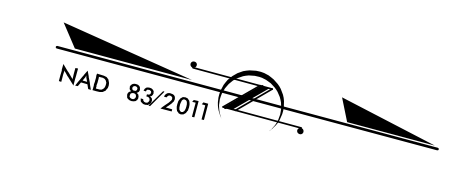
RELOCATE WATER METER

ADJUST EXISTING WATER VALVE

RELOCATE WATER METER



PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-15</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



20  
 CHARLES LEE BOYD  
 ESTATE FILE 2001E 289

19  
 HANK AARON ROSS  
 BK 978 PG 1776


CHARLES BRIAN BOYD  
 BK 911 PG 2270  
 CAB C SLOT 7199

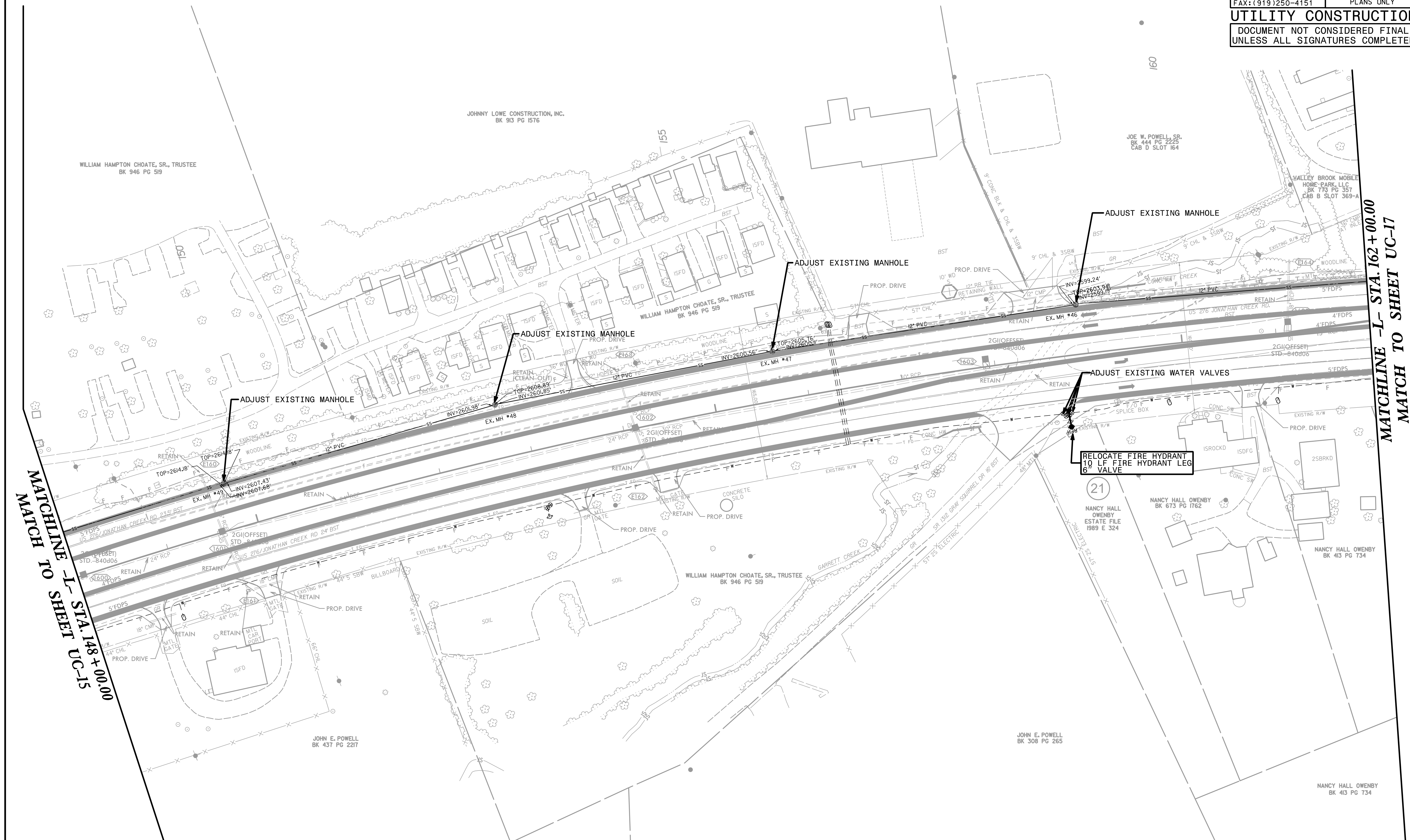
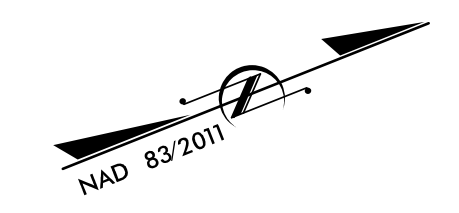
JOHN E. POWELL  
 BK 437 PG 2217

MATCHLINE - I - STA. 134 + 00.00  
 MATCH TO SHEET UC-14

MATCHLINE - I - STA. 148 + 00.00  
 MATCH TO SHEET UC-16



PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-16</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	4/12/2024
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE -L- STA. 148 + 00.00  
 MATCH TO SHEET UC-15

MATCHLINE -L- STA. 162 + 00.00  
 MATCH TO SHEET UC-17

WILLIAM HAMPTON CHOATE, SR., TRUSTEE  
BK 946 PG 519

JOHNNY LOWE CONSTRUCTION, INC.  
BK 913 PG 1576

WILLIAM HAMPTON CHOATE, SR., TRUSTEE  
BK 946 PG 519

JOE W. POWELL, SR.  
BK 444 PG 2225  
CAB D SLOT 164

VALLEY BROOK MOBILE HOME-PARK, LLC  
BK 773 PG 357  
CAB B SLOT 369-A

21  
NANCY HALL OWENBY  
ESTATE FILE  
1989 E 324

NANCY HALL OWENBY  
BK 673 PG 1762

NANCY HALL OWENBY  
BK 413 PG 734

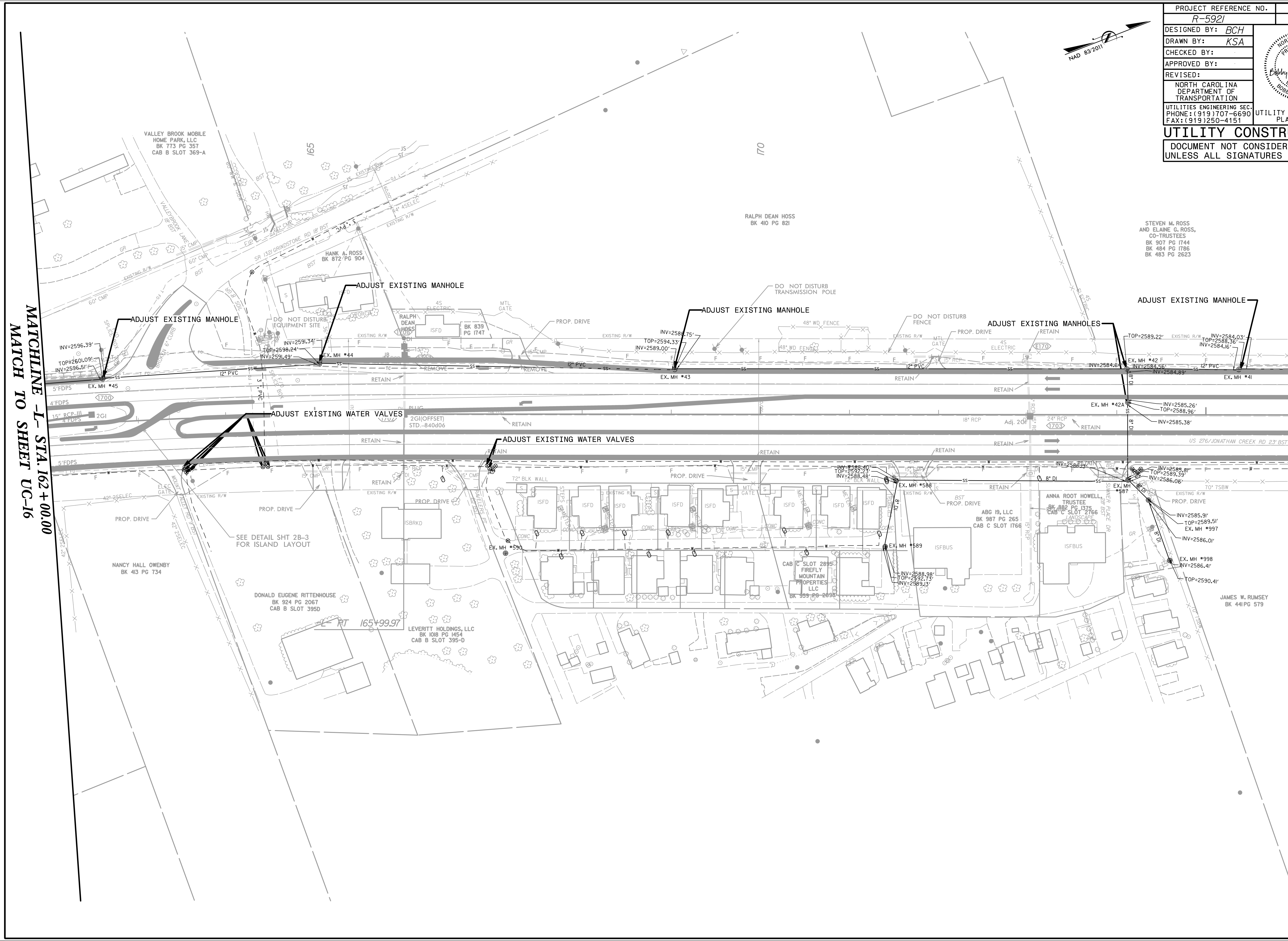
JOHN E. POWELL  
BK 437 PG 2217

JOHN E. POWELL  
BK 308 PG 265

NANCY HALL OWENBY  
BK 413 PG 734

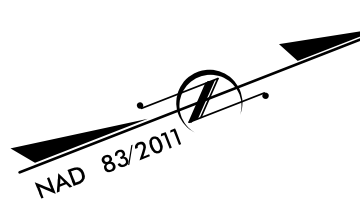


PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-17</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	




MATCHLINE -L- STA. 162+00.00  
 MATCH TO SHEET UC-16

MATCHLINE -L- STA. 176+00.00  
 MATCH TO SHEET UC-18



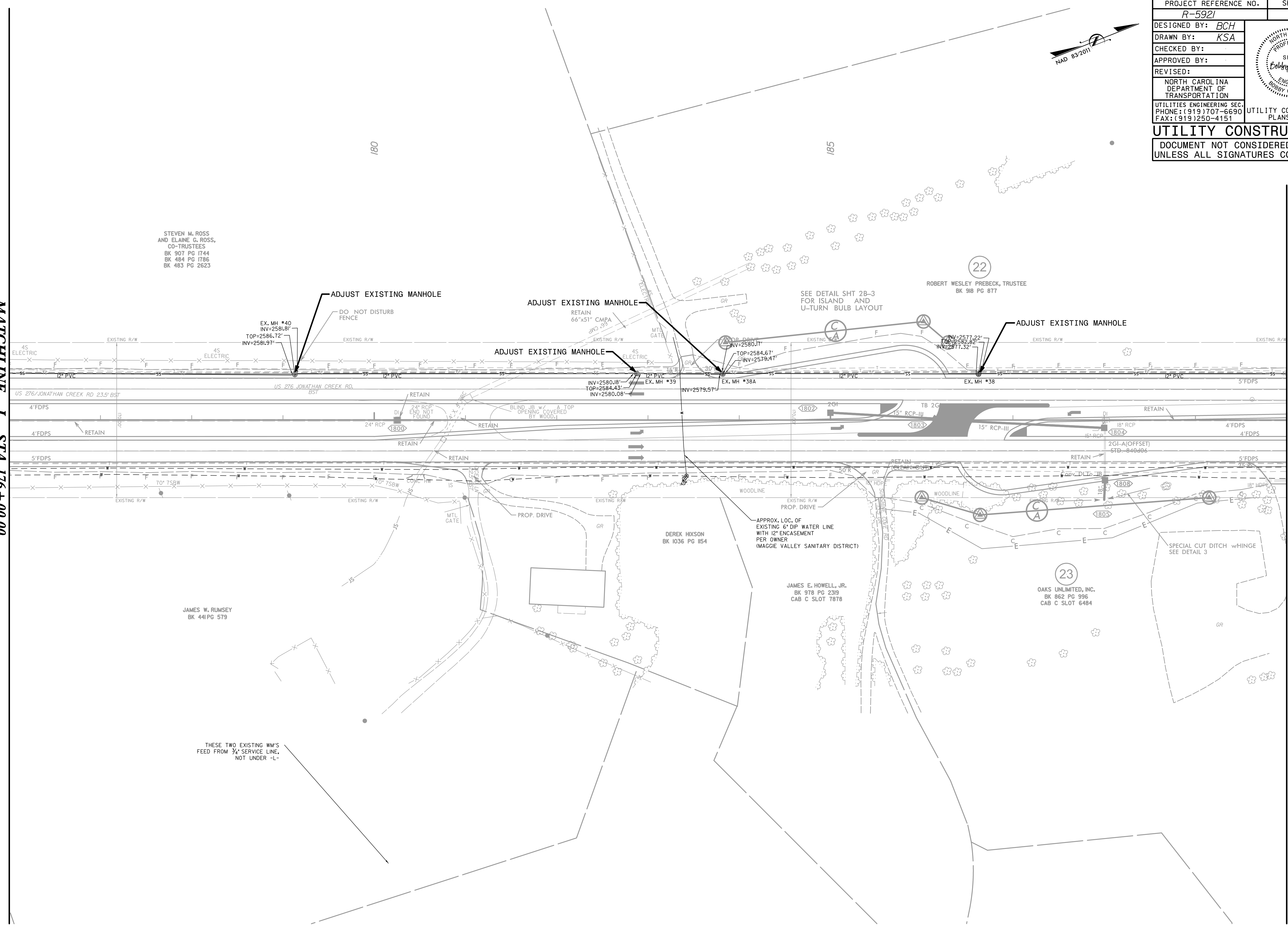
VALLEY BROOK MOBILE HOME PARK, LLC BK 773 PG 357 CAB B SLOT 369-A  
 HANK A. ROSS BK 872/PG 904  
 RALPH DEAN HOSS BK 410 PG 821  
 STEVEN M. ROSS AND ELAINE G. ROSS, CO-TRUSTEES BK 907 PG 1744 BK 484 PG 1786 BK 483 PG 2623  
 NANCY HALL OWENBY BK 413 PG T34  
 DONALD EUGENE RITTENHOUSE BK 924 PG 2067 CAB B SLOT 395D  
 LEVERITT HOLDINGS, LLC BK 108 PG 1454 CAB B SLOT 395-D  
 ABG 19, LLC BK 987 PG 265 CAB C SLOT 1766  
 ANNA ROOT HOWELL TRUSTEE BK 882 PG 1375 CAB C SLOT 2766  
 JAMES W. RUMSEY BK 441 PG 579



PROJECT REFERENCE NO.	SHEET NO.
R-5921	UC-18
DESIGNED BY: BCH	
DRAWN BY: KSA	
CHECKED BY:	
APPROVED BY:	
REVISED:	4/12/2024
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE -L- STA. 176 + 00.00  
MATCH TO SHEET UC-17

MATCHLINE -L- STA. 190 + 00.00  
MATCH TO SHEET UC-19



STEVEN M. ROSS  
AND ELAINE G. ROSS,  
CO-TRUSTEES  
BK 907 PG 1744  
BK 484 PG 1786  
BK 483 PG 2623

22  
ROBERT WESLEY PREBECK, TRUSTEE  
BK 918 PG 877

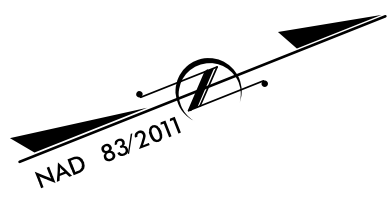
DEREK HIXSON  
BK 1036 PG 1154

JAMES E. HOWELL, JR.  
BK 978 PG 2319  
CAB C SLOT 7878


23  
OAKS UNLIMITED, INC.  
BK 862 PG 996  
CAB C SLOT 6484

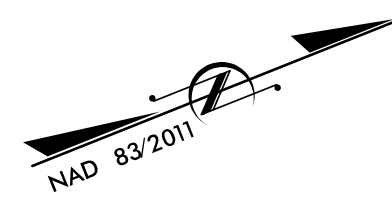
JAMES W. RUMSEY  
BK 441 PG 579

THESE TWO EXISTING WM'S  
FEED FROM 3/4\"/>

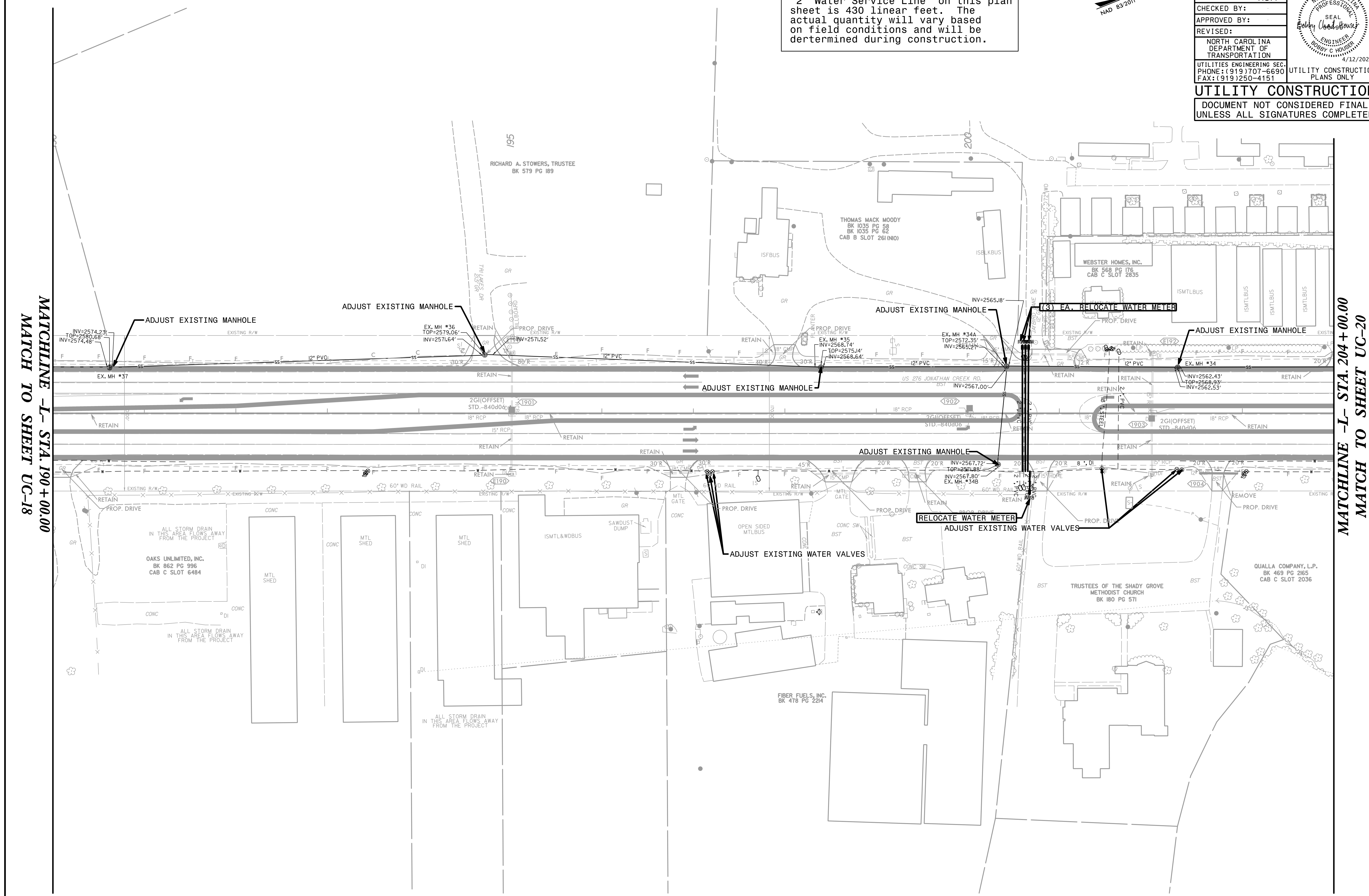




PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-19</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISD:	1/12/2024
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



The estimated quantity of "2" Water Service Line" on this plan sheet is 430 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.

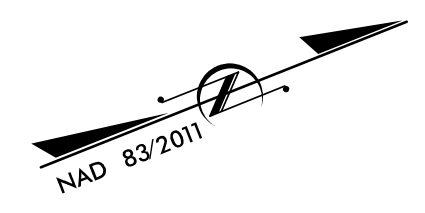


MATCHLINE -L- STA. 190 + 00.00  
MATCH TO SHEET UC-18

MATCHLINE -L- STA. 204 + 00.00  
MATCH TO SHEET UC-20



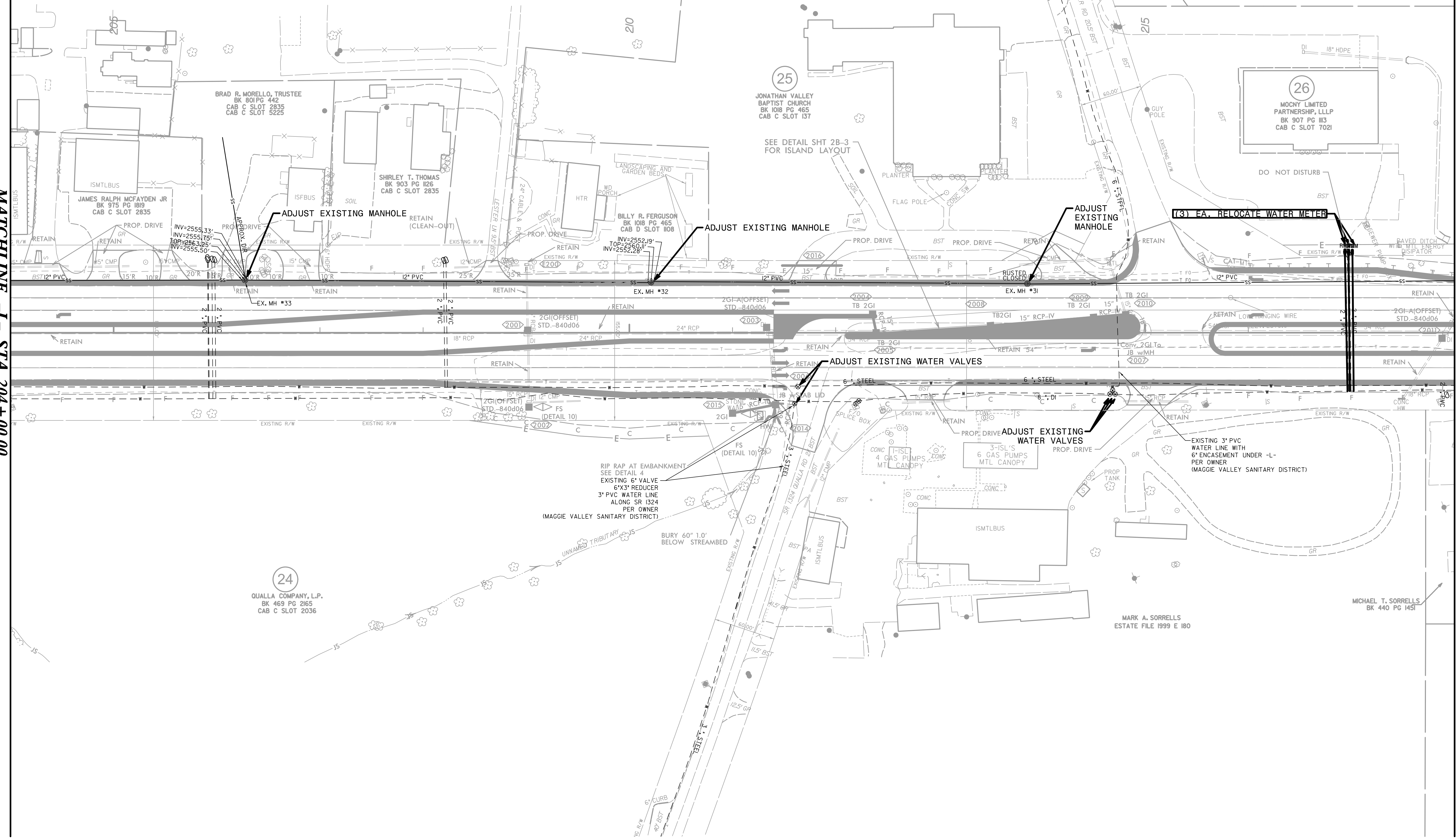
The estimated quantity of "2" Water Service Line" on this plan sheet is 410 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.



PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-20</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE -L- STA. 204 + 00.00  
MATCH TO SHEET UC-19

MATCHLINE -L- STA. 218 + 00.00  
MATCH TO SHEET UC-21



BRAD R. MORELLO, TRUSTEE  
BK 801 PG 442  
CAB C SLOT 2835  
CAB C SLOT 5225

ISMTLBUS  
JAMES RALPH MCFAYDEN JR  
BK 975 PG 1819  
CAB C SLOT 2835

SHIRLEY T. THOMAS  
BK 903 PG 1126  
CAB C SLOT 2835

BILLY R. FERGUSON  
BK 1018 PG 465  
CAB D SLOT 1108

25  
JONATHAN VALLEY  
BAPTIST CHURCH  
BK 1018 PG 465  
CAB C SLOT 137

26  
MOONY LIMITED  
PARTNERSHIP, LLLP  
BK 907 PG 113  
CAB C SLOT 7021

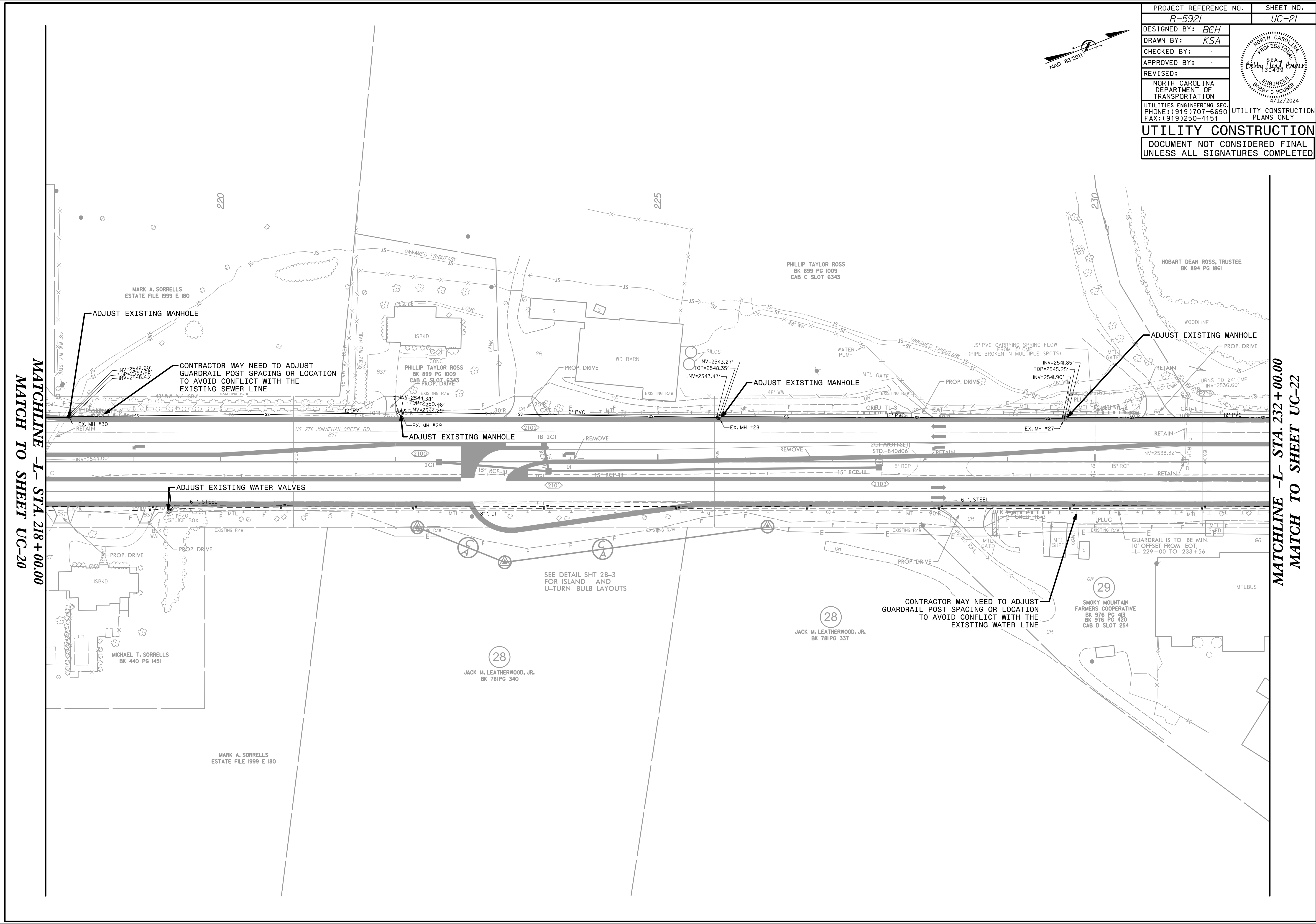
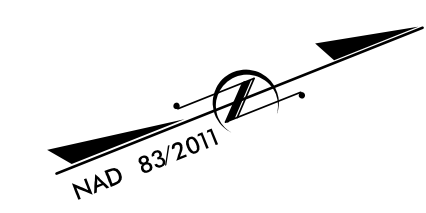
24  
QUALLA COMPANY, L.P.  
BK 469 PG 2165  
CAB C SLOT 2036

MARK A. SORRELLS  
ESTATE FILE 1999 E 180

MICHAEL T. SORRELLS  
BK 440 PG 1451



PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-21</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISER:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE -L- STA 218 + 00.00  
MATCH TO SHEET UC-20

MATCHLINE -L- STA. 232 + 00.00  
MATCH TO SHEET UC-22

CONTRACTOR MAY NEED TO ADJUST  
GUARDRAIL POST SPACING OR LOCATION  
TO AVOID CONFLICT WITH THE  
EXISTING SEWER LINE

ADJUST EXISTING MANHOLE

ADJUST EXISTING MANHOLE

ADJUST EXISTING WATER VALVES

CONTRACTOR MAY NEED TO ADJUST  
GUARDRAIL POST SPACING OR LOCATION  
TO AVOID CONFLICT WITH THE  
EXISTING WATER LINE

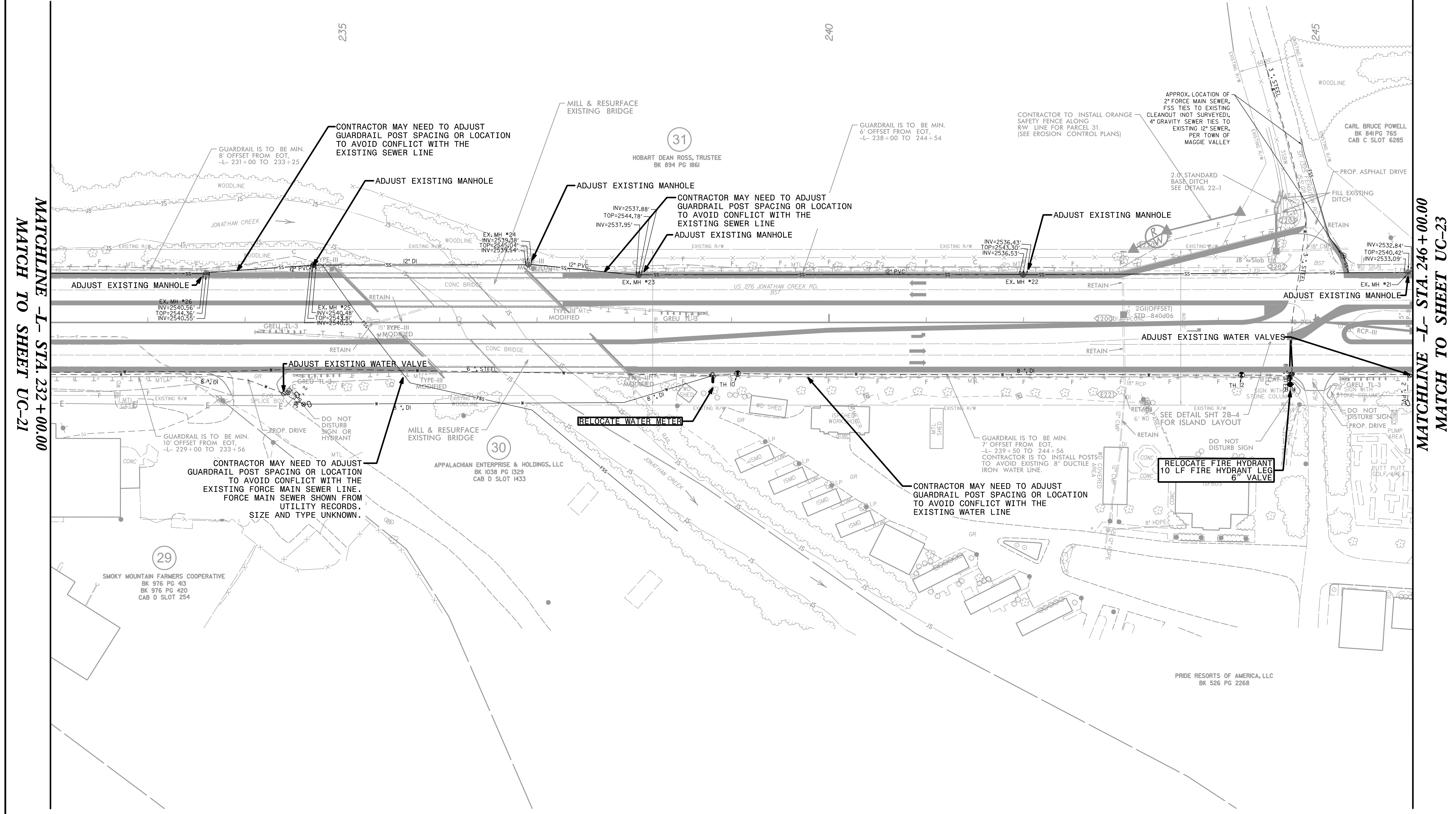
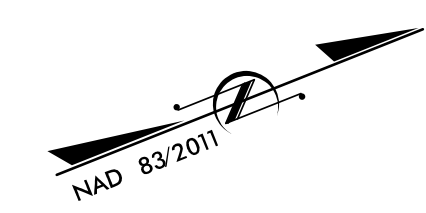
SEE DETAIL SHT 2B-3  
FOR ISLAND AND  
U-TURN BULB LAYOUTS

GUARDRAIL IS TO BE MIN.  
10' OFFSET FROM EOT,  
-L- 229+00 TO 233+56



PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-22</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

The estimated quantity of "Water Service Line" on this plan sheet is 5 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.



MATCHLINE -L- STA. 232+00.00  
MATCH TO SHEET UC-21

MATCHLINE -L- STA. 246+00.00  
MATCH TO SHEET UC-23

29  
SMOKY MOUNTAIN FARMERS COOPERATIVE  
BK 976 PG 413  
BK 976 PG 420  
CAB D SLOT 254


30  
APPALACHIAN ENTERPRISE & HOLDINGS, LLC  
BK 1038 PG 1329  
CAB D SLOT 1433

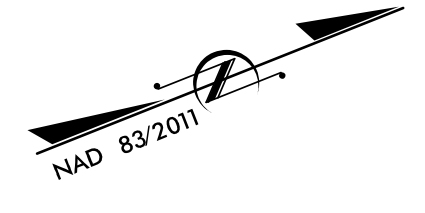
31  
HOBART DEAN ROSS, TRUSTEE  
BK 894 PG 1861

PRIDE RESORTS OF AMERICA, LLC  
BK 526 PG 2268

245  
CARL BRUCE POWELL  
BK 841 PG 765  
CAB C SLOT 6285  
PROP. ASPHALT DRIVE  
FILL EXISTING DITCH  
RETAIN  
EX. MH #21  
INV=2532.84'  
TOP=2540.42'  
INV=2533.09'



PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-23</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

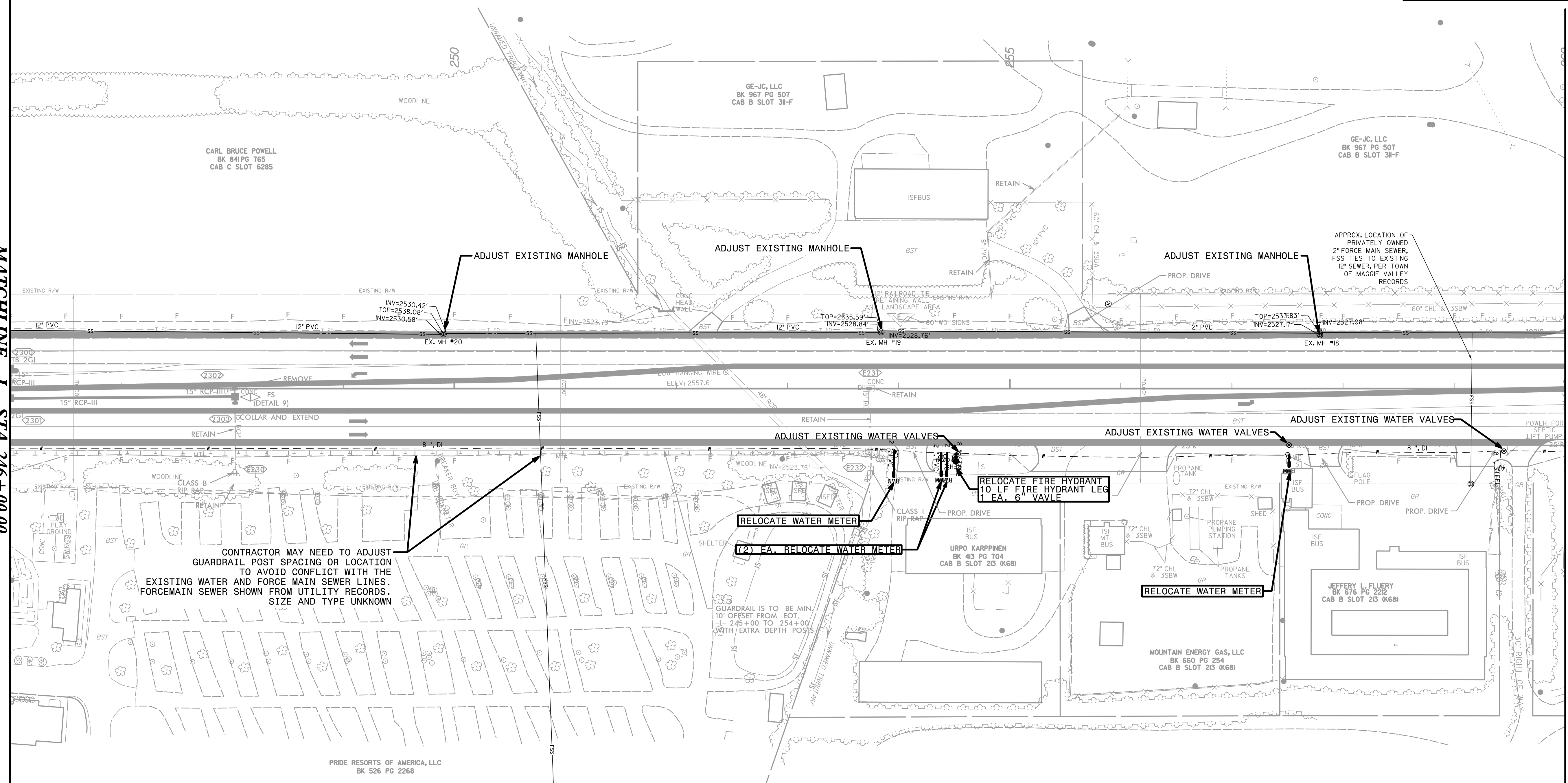


The estimated quantity of "Water Service Line" on this plan sheet is 10 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.

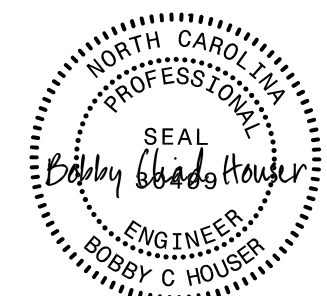
The estimated quantity of "2" Water Service Line" on this plan sheet is 60 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.

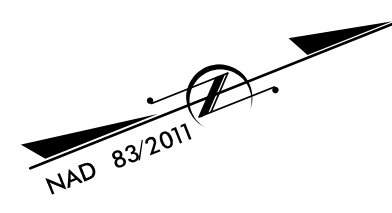
MATCHLINE -L- STA. 246+00.00  
MATCH TO SHEET UC-22

MATCHLINE -L- STA. 260+00.00  
MATCH TO SHEET UC-24



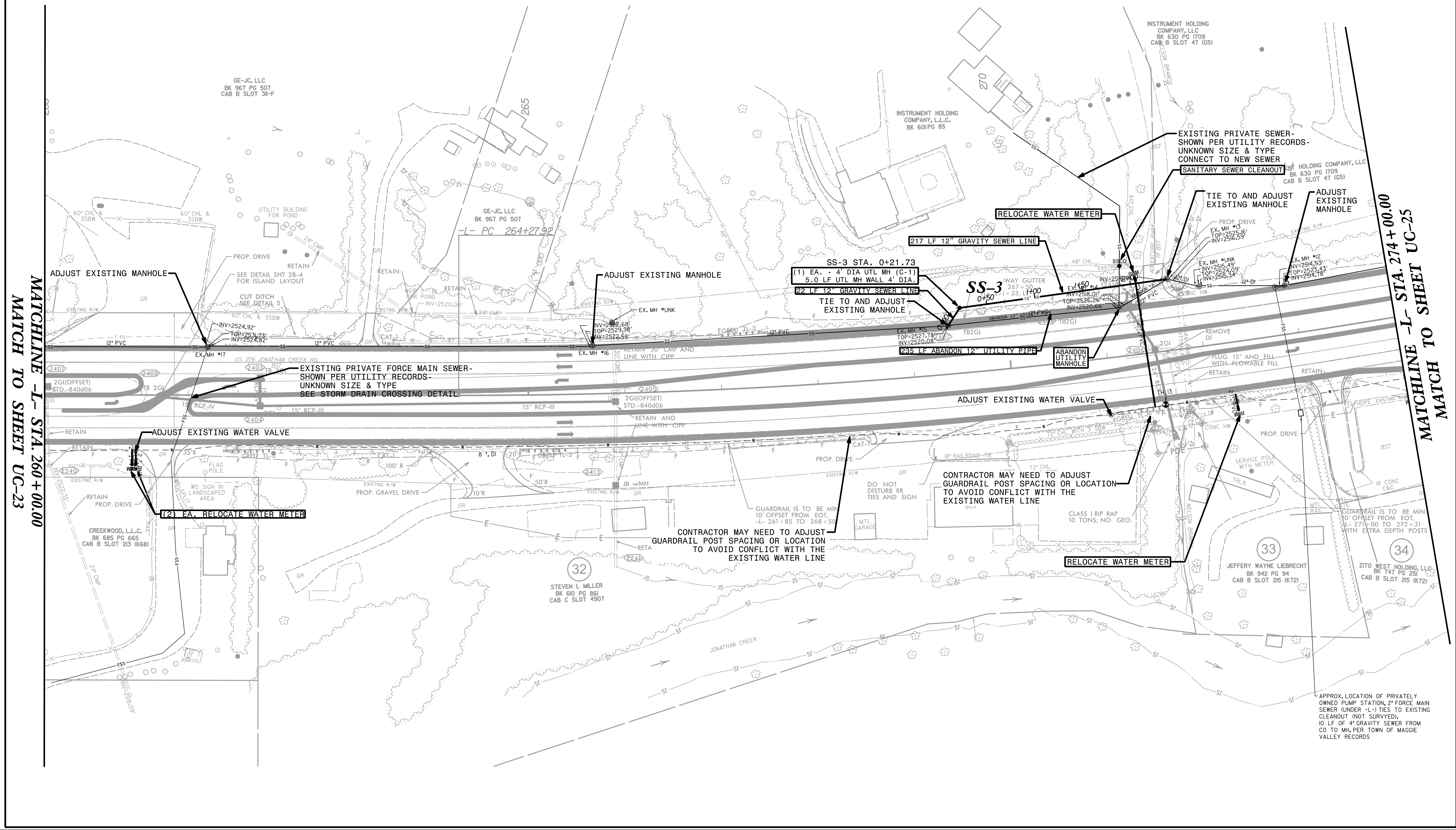


PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-24</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 4/12/2024 UTILITY CONSTRUCTION PLANS ONLY	
<b>UTILITY CONSTRUCTION</b>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



The estimated quantity of "2" Water Service Line" on this plan sheet is 190 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.

The estimated quantity of "Sewer Service Line" on this plan sheet is 30 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.

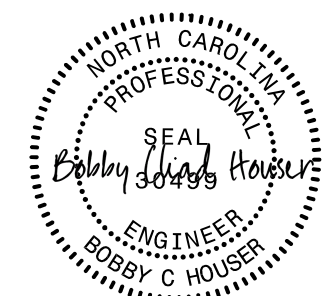


MATCHLINE -L- STA. 260 + 00.00 MATCH TO SHEET UC-23

MATCHLINE -L- STA. 274 + 00.00 MATCH TO SHEET UC-25

APPROX. LOCATION OF PRIVATELY OWNED PUMP STATION, 2" FORCE MAIN SEWER (UNDER -L-) TIES TO EXISTING CLEANOUT (NOT SURVEYED), 10 LF OF 4" GRAVITY SEWER FROM CO TO MH, PER TOWN OF MAGGIE VALLEY RECORDS



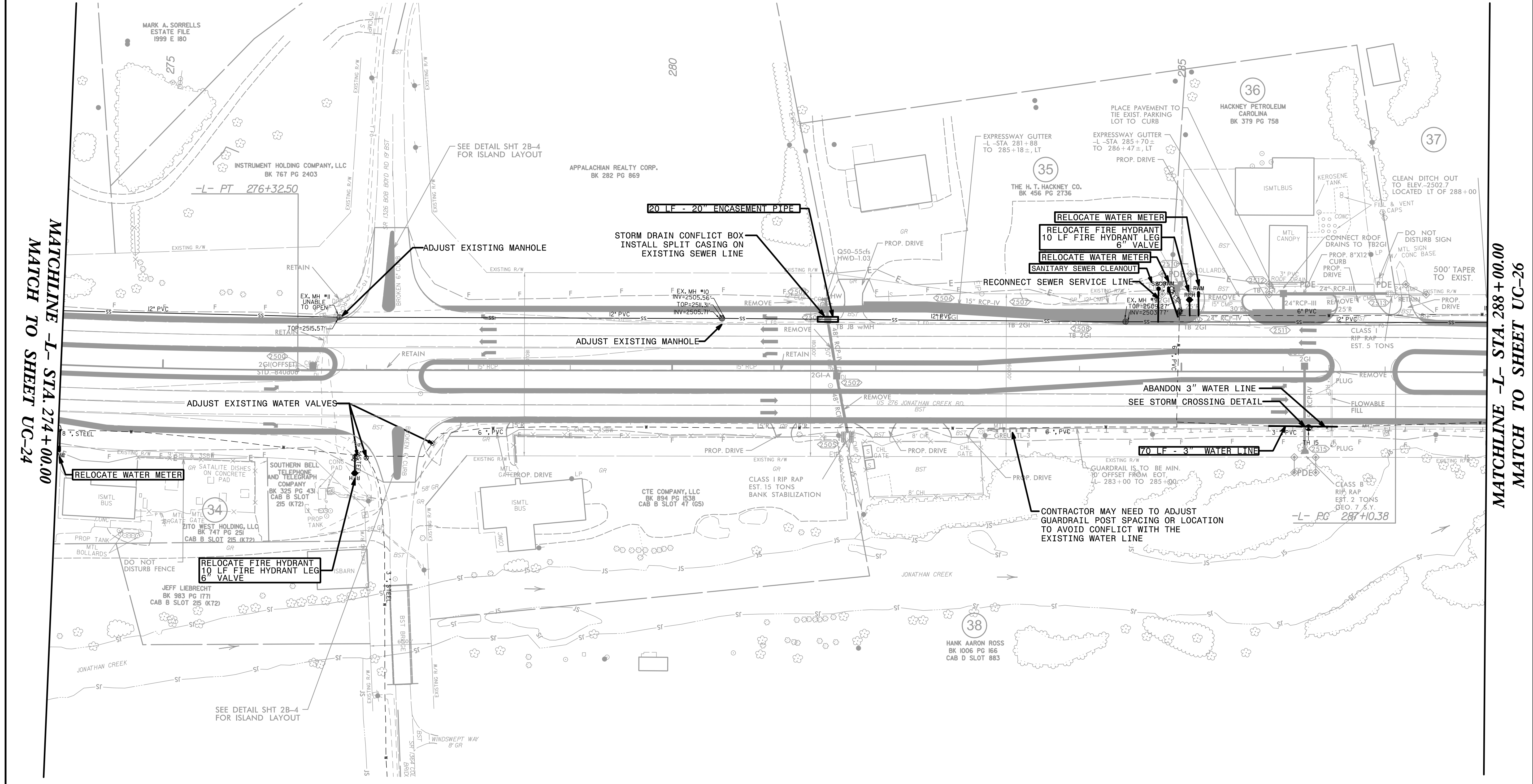
PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-25</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISD:	7/17/2024
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



The estimated quantity of Ductile Iron Water Pipe Fitting on this plan sheet is 430 pounds. The actual quantity and type of fittings will vary based on field conditions.

The estimated quantity of "Sewer Service Line" on this plan sheet is 30 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.

The estimated quantity of "Water Service Line" on this plan sheet is 69 linear feet. The actual quantity will vary based on field conditions and will be determined during construction.



MATCHLINE -L- STA. 274 + 00.00  
MATCH TO SHEET UC-24

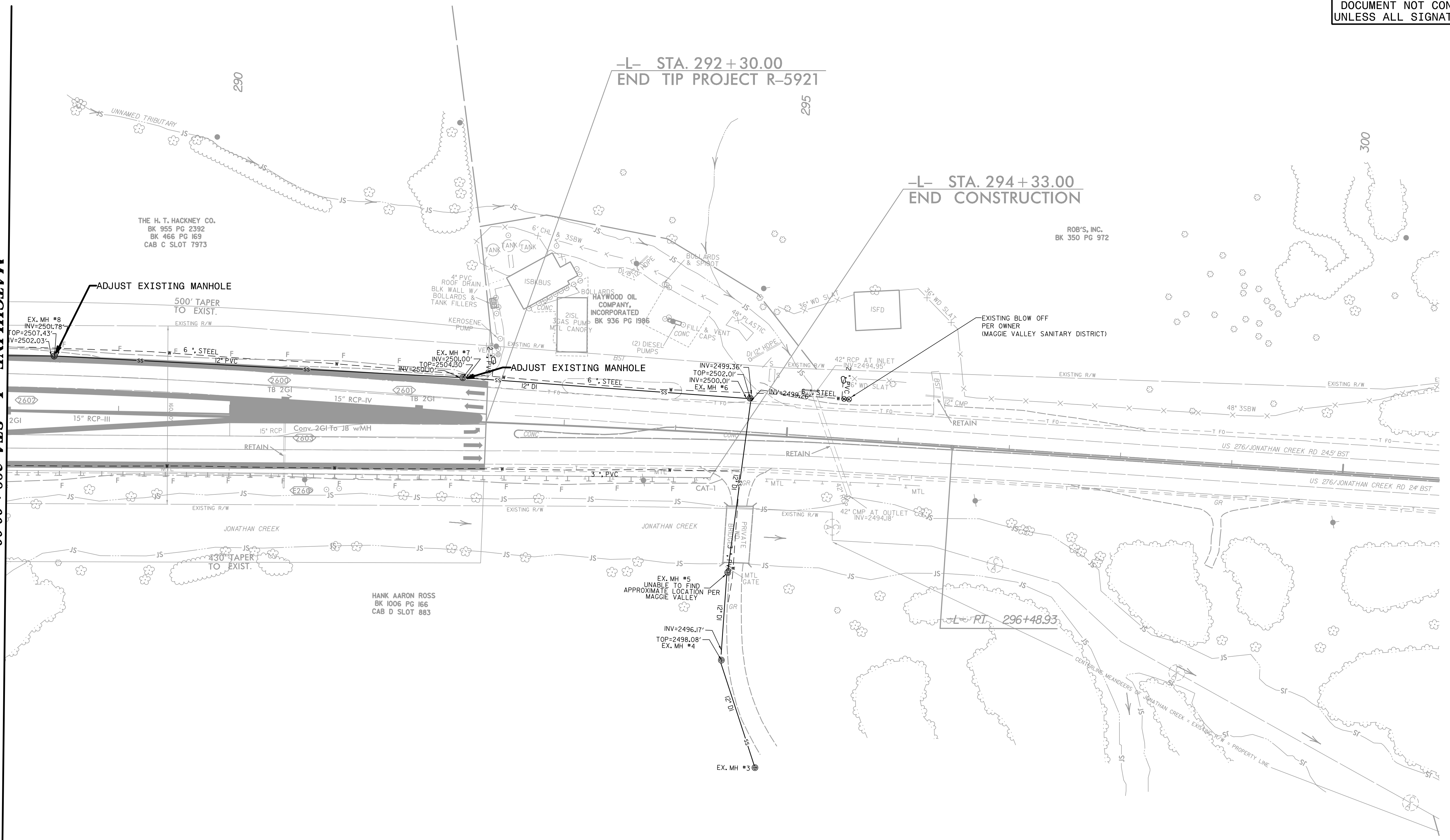
MATCHLINE -L- STA. 288 + 00.00  
MATCH TO SHEET UC-26



PROJECT REFERENCE NO. <i>R-5921</i>	SHEET NO. <i>UC-26</i>
DESIGNED BY: <i>BCH</i>	
DRAWN BY: <i>KSA</i>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
<b>UTILITY CONSTRUCTION</b> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE -L- STA. 288 + 00.00  
 MATCH TO SHEET UC-25



-L- STA. 292 + 30.00  
END TIP PROJECT R-5921

-L- STA. 294 + 33.00  
END CONSTRUCTION

THE H. T. HACKNEY CO.  
BK 955 PG 2392  
BK 466 PG 169  
CAB C SLOT 7973

ROB'S, INC.  
BK 350 PG 972

HAYWOOD OIL COMPANY, INCORPORATED  
BK 936 PG 1986

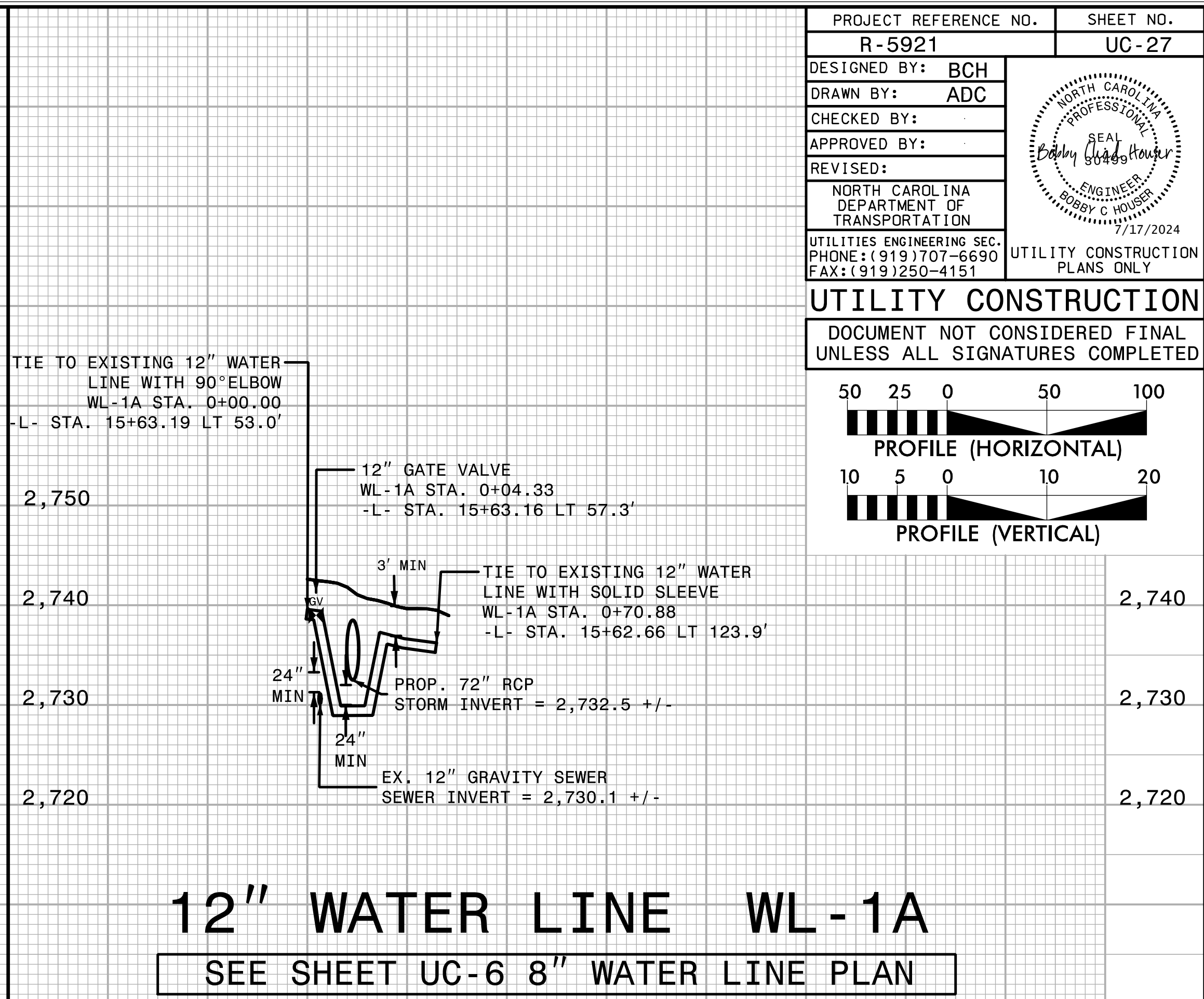
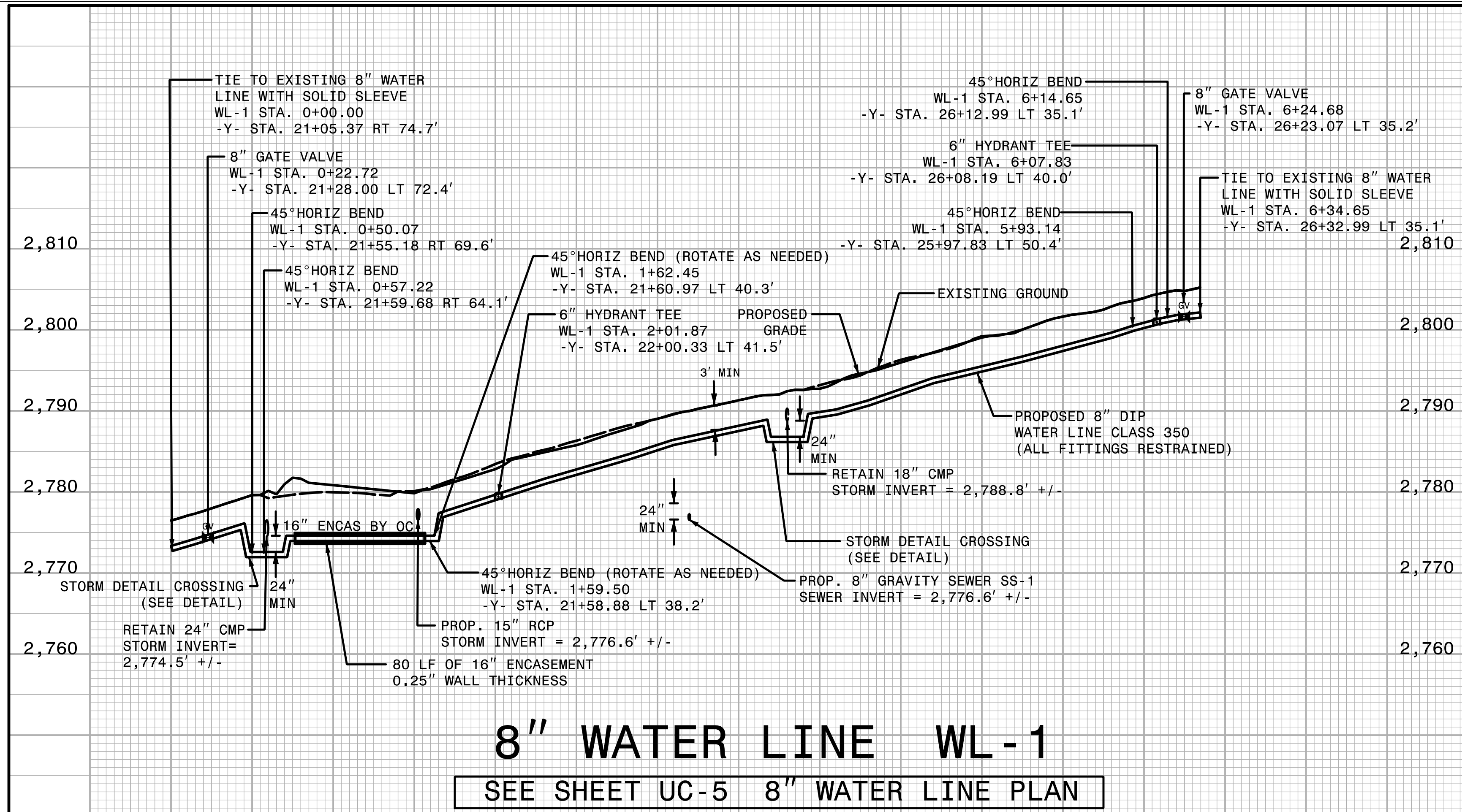
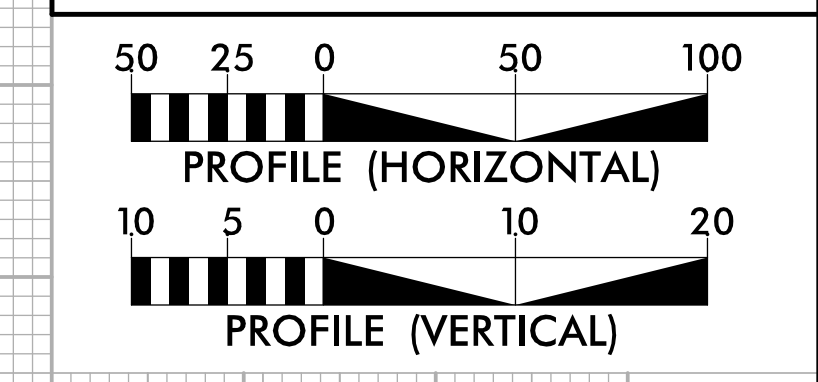
HANK AARON ROSS  
BK 1006 PG 166  
CAB D SLOT 883

296+48.93

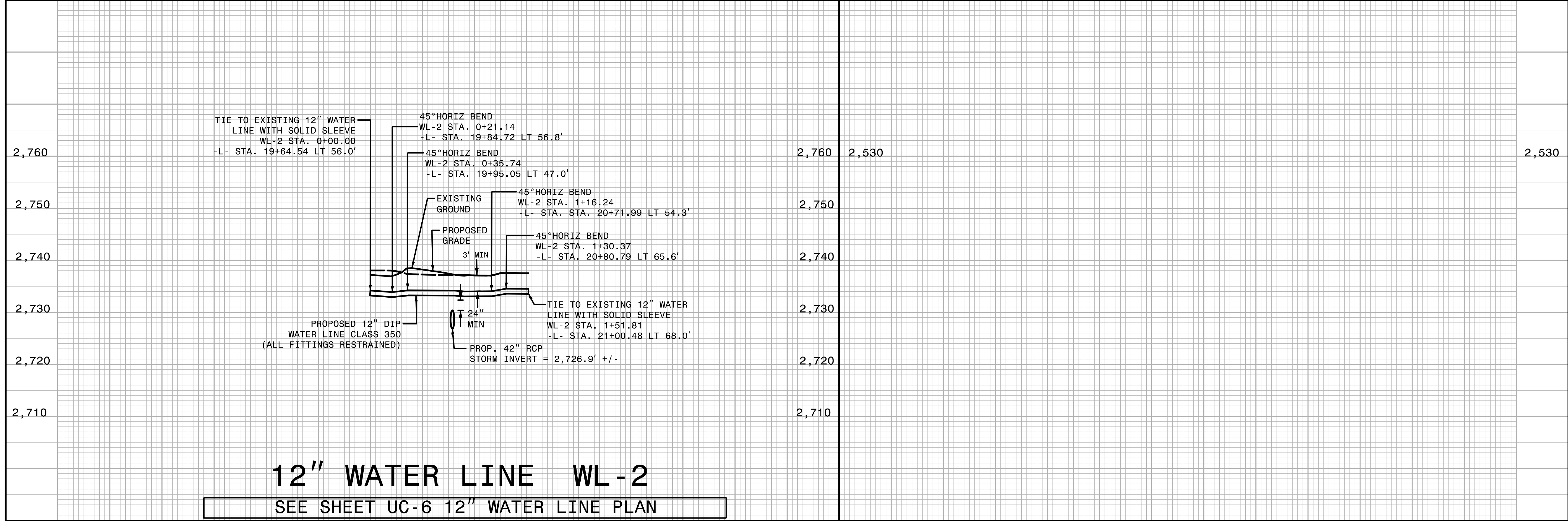


PROJECT REFERENCE NO. <b>R-5921</b>	SHEET NO. <b>UC-27</b>
DESIGNED BY: <b>BCH</b>	
DRAWN BY: <b>ADC</b>	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	UTILITY CONSTRUCTION PLANS ONLY
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**UTILITY CONSTRUCTION**  
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-+00 0+50 1+00 1+50 2+00 2+50 3+00 3+50 4+00 4+50 5+00 5+50 6+00 6+50      -+00 0+50 1+00

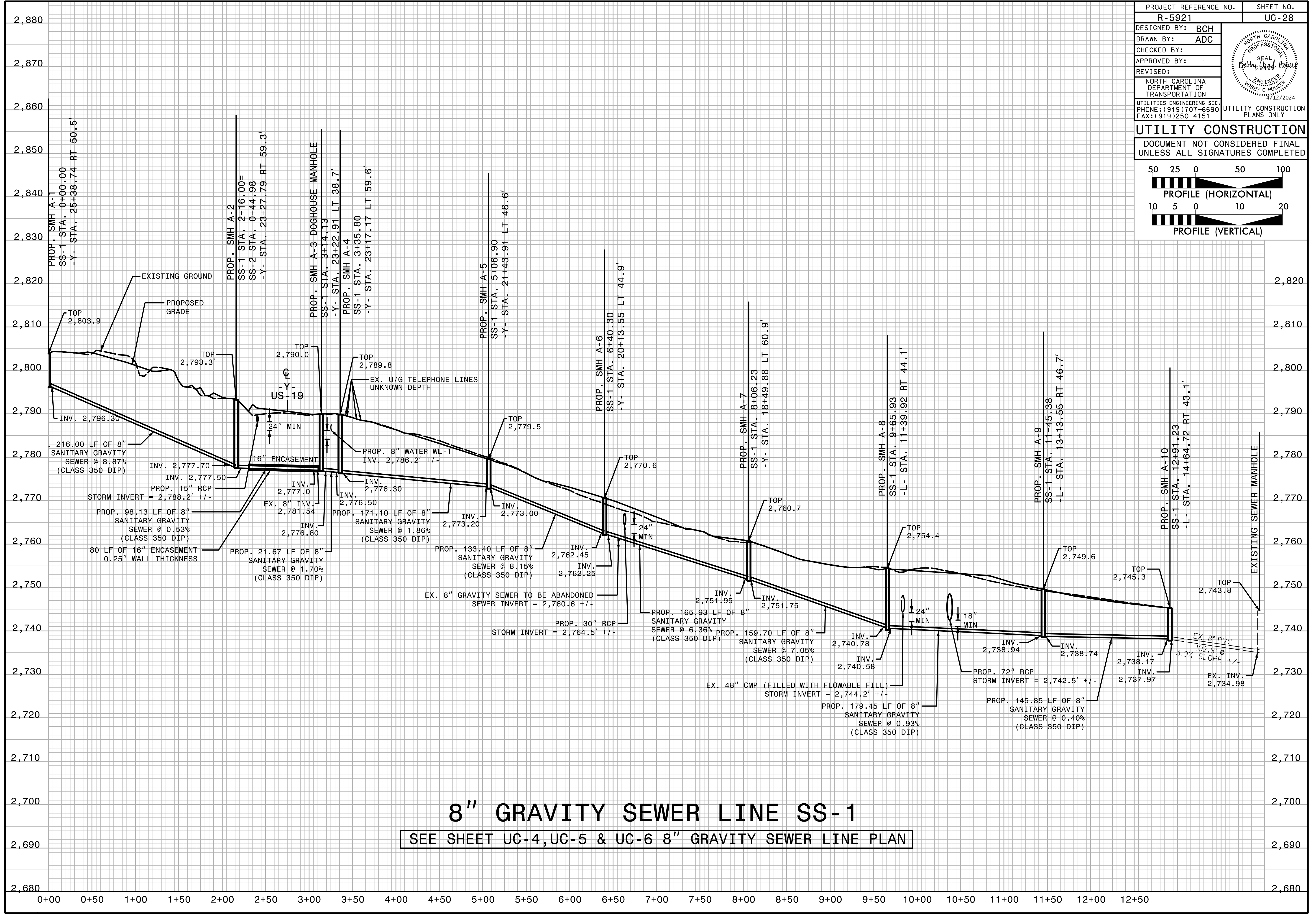
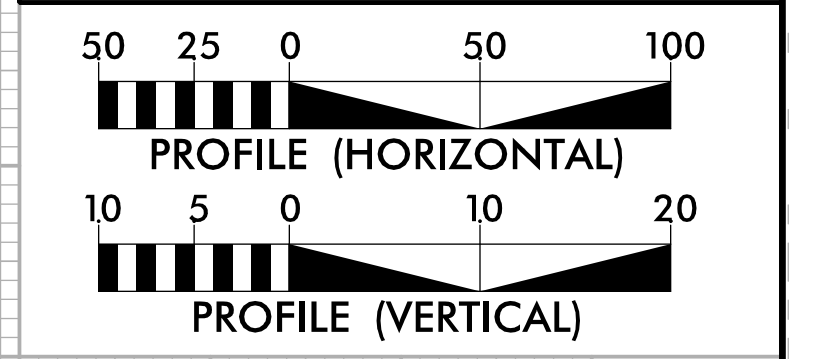


0+00 0+50 1+00 1+50




PROJECT REFERENCE NO.	SHEET NO.
R-5921	UC-28
DESIGNED BY: BCH	
DRAWN BY: ADC	
CHECKED BY:	
APPROVED BY:	
REVISER:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

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**8" GRAVITY SEWER LINE SS-1**  
SEE SHEET UC-4, UC-5 & UC-6 8" GRAVITY SEWER LINE PLAN



PROJECT REFERENCE NO.	SHEET NO.
R-5921	UC-29
DESIGNED BY: BCH	
DRAWN BY: ADC	
CHECKED BY:	
APPROVED BY:	
REVISED:	
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