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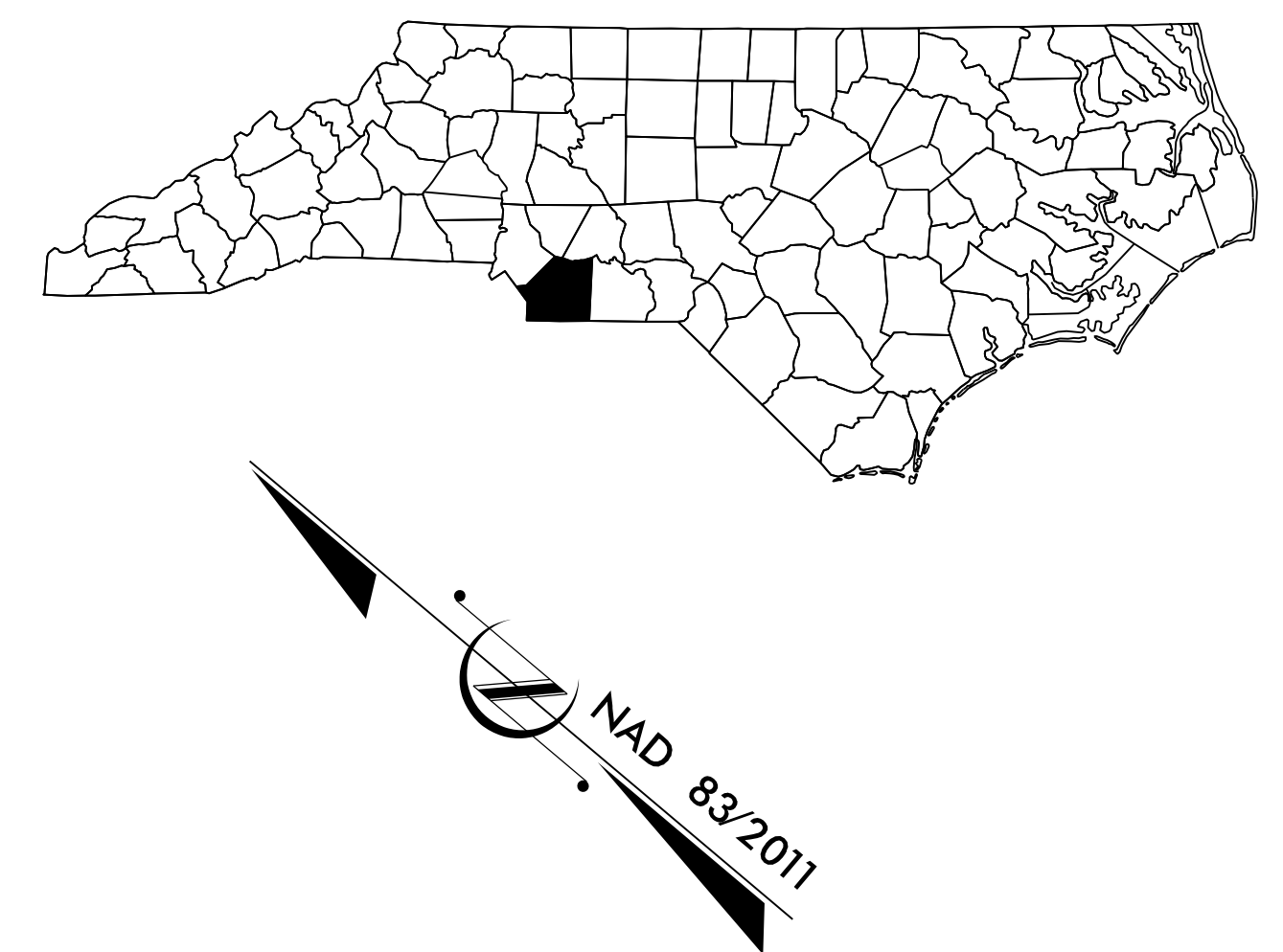
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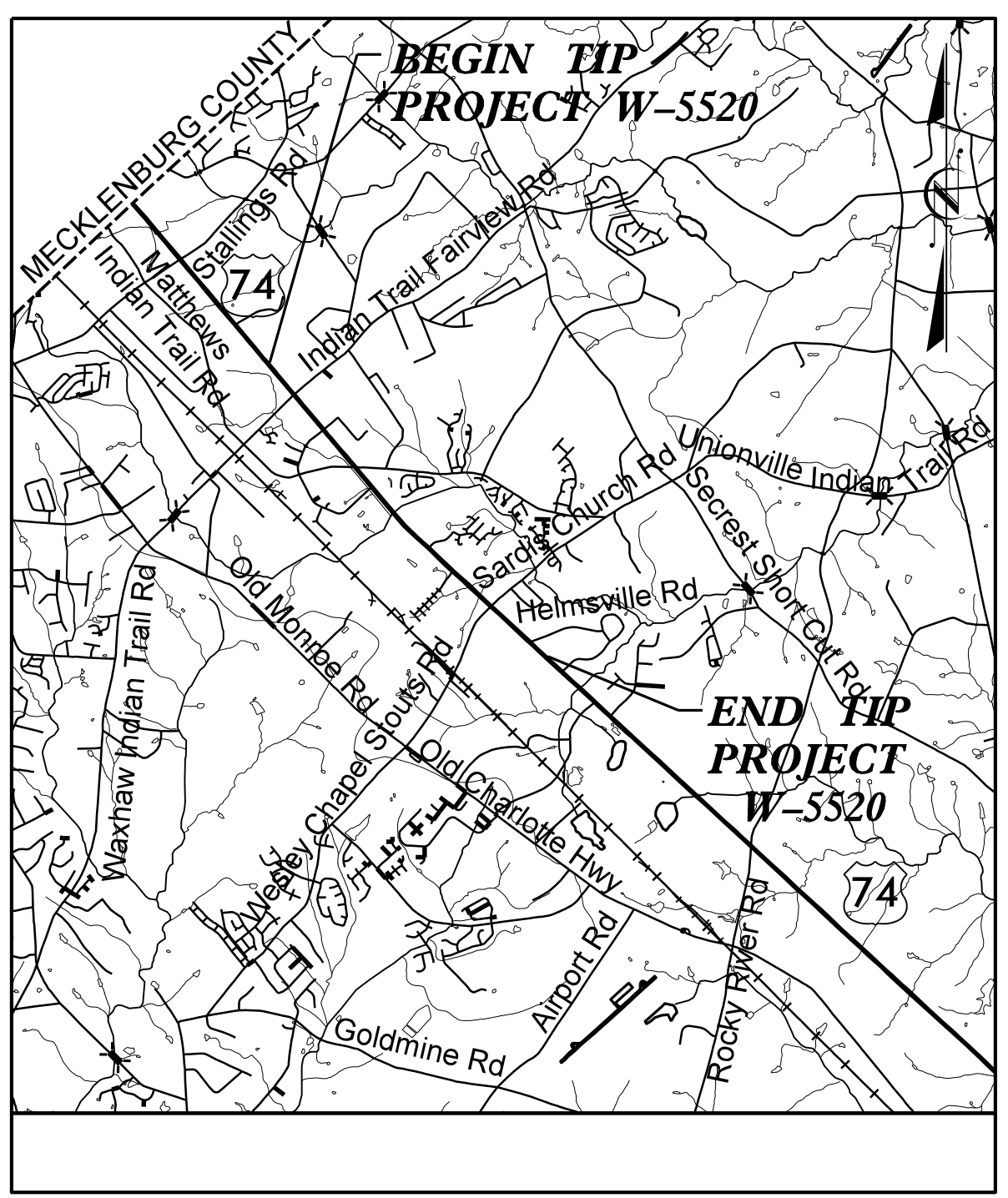
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS
UNION COUNTY**

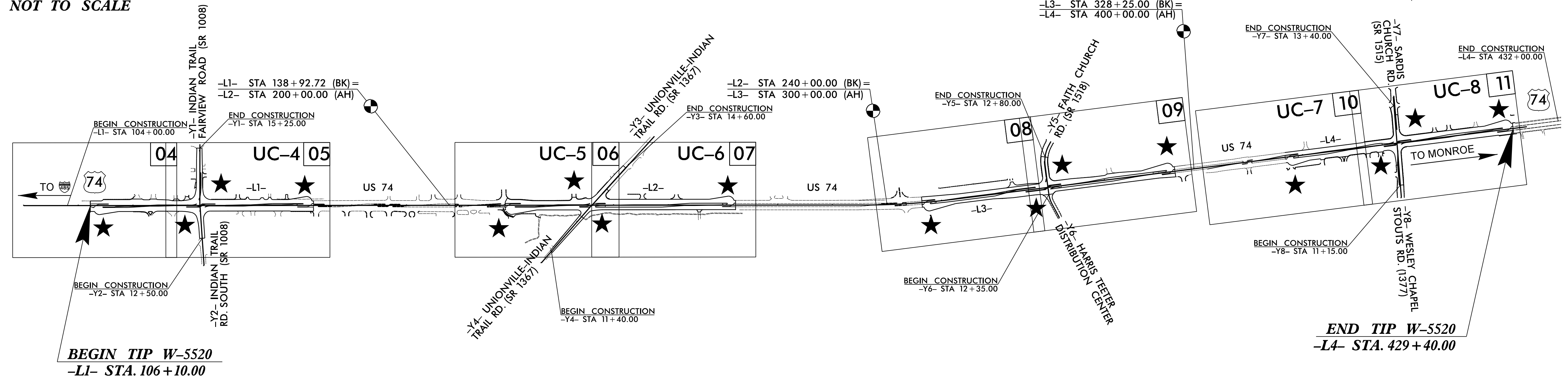
**LOCATION: US 74 SUPERSTREET CONVERSION
FROM 800 FEET WEST OF INDIAN TRAIL
FAIRVIEW ROAD TO 800 FEET EAST OF
SARDIS CHURCH ROAD
TYPE OF WORK: WATER LINE RELOCATIONS**



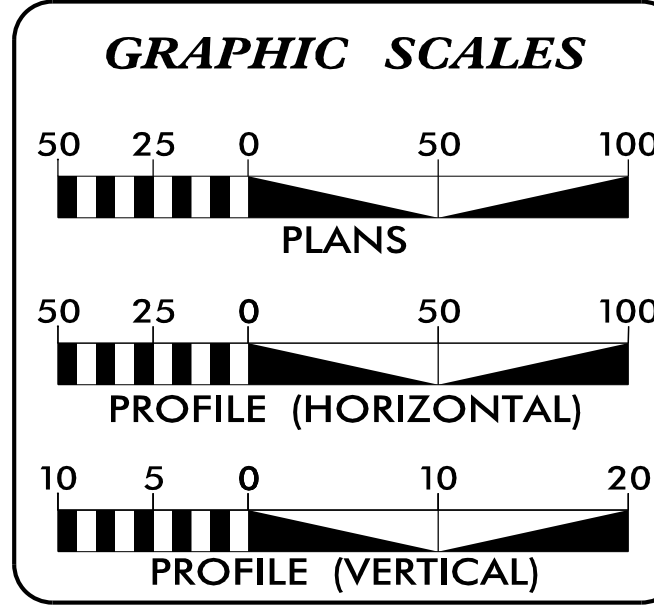
TIP PROJECT: W-5520



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CONTRACT: C203788



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A THRU UC-3C	DETAILS
UC-4 THRU UC-8	UTILITY CONSTRUCTION SHEETS
UC-9 THRU UC-11	PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

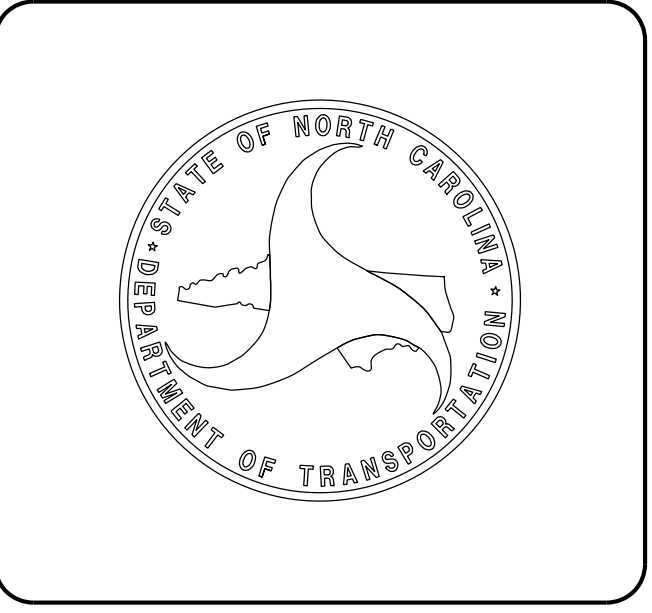
(A) WATER - UNION COUNTY PUBLIC WORKS

PREPARED IN THE OFFICE OF:

HINDE ENGINEERING
License No. C-2639
401 Harrison Oaks Blvd., Suite 145 Cary, NC 27513

Clint L. Stevens, P.E. UTILITIES PROJECT MANAGER
Corey D. Bousquet, P.E. UTILITIES PROJECT ENGINEER
James N. Arnold UTILITIES PROJECT DESIGNER

SEAL



I4-NOV-2016 16:52 S:\Server_Files\PROJECTS\2013\A2013114.00 DRMP - W-5520 IndianTrail-US 74\Design\Utilities\Engineering\UC\Proj\W5520_ut_tsh_UC01.psh.dgn \$\$\$USERNAME\$\$\$

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	REM FH
Water Meter	
Relocate Water Meter	
Remove Water Meter	REM WM
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

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

NOTE
PAY ITEM


EXISTING UTILITIES SYMBOLS

Power Pole		*Underground Power Line	
Telephone Pole		*Underground Telephone Cable	
Joint Use Pole		*Underground Telephone Conduit	
Utility Pole		*Underground Fiber Optics Telephone Cable	
Utility Pole with Base		*Underground TV Cable	
H-Frame Pole		*Underground Fiber Optics TV Cable	
Power Transmission Line Tower		*Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		*Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		*Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		*Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
CATV Pedestal		SUE Test Hole	
Gas Valve		Water Meter	
Gas Meter		Water Valve	
Located Miscellaneous Utility Object		Fire Hydrant	
Abandoned According to Utility Records	AATUR	Sanitary Sewer Cleanout	
End of Information	E.O.I.		

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

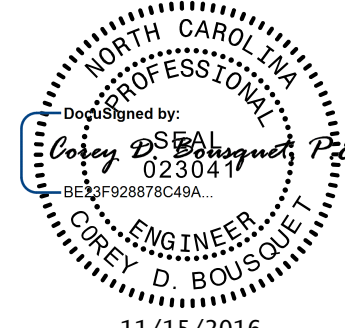
14-NV-2016 (6-53)
 W-5520-UC-2
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 REV: 2/1/2012

UTILITY CONSTRUCTION



License No. C-2639
401 Harrison Oaks Blvd., Suite 145 Cary, NC 27513

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PROJECT REFERENCE NO. W-5520	SHEET NO. UC-3
DESIGNED BY: CDB	
DRAWN BY: JNA	
CHECKED BY: CDB	
APPROVED BY: CLS	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	11/15/2016 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 2012.

2. THE EXISTING UTILITIES BELONG TO UNION COUNTY PUBLIC WORKS.

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

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

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

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

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

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

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

PROJECT SPECIFIC NOTES:

1. PROPOSED WATER LINE FROM LINE -L1- STATION 123+79 TO STATION 125+38, LINE -L2- STATION 206+82 TO STATION 208+97 AND LINE -L2- STATION 220+27 TO STATION 222+36 SHALL BE D.I.R.J. (DUCTILE IRON RESTRAINED JOINT) PIPE.

2. FOR TAPPING SADDLES, CORPORATION STOPS AND TRANSITIONS COUPLINGS REFER TO UNION COUNTY SPECIFICATIONS.

3. THE CONTRACTOR SHALL USE TWO CREWS TO INSTALL THE PROPOSED 6" WATER LINE ON SHEET UC-4. THE TIE-INS SHALL BE DONE SIMULTANEOUSLY ONE CREW PER TIE-IN. EXTENSIVE COORDINATION WITH NCDOT AND UNION COUNTY WILL BE REQUIRED TO LIMIT LANE CLOSURES AND THE 6" WATER LINE SHUTDOWN.

4. THE CONTRACTOR SHALL LIMIT THE LANE CLOSURES INSTALLING THE 16" WATER LINES ON SHEET UC-5 AND UC-6.

5. LENGTH OF TIME ALLOWED TO SHUTDOWN THE 6" WATER LINE WILL BE DETERMINED BY NCDOT AND UNION COUNTY.

6. THE 16" WATER LINE CANNOT BE SHUTDOWN USE LINE STOPS WITH BYPASS AS SHOWN ON SHEETS UC-5 AND UC-6.

LIST OF STANDARD DRAWINGS

USE UNION COUNTY AND NCDOT DETAILS ON SHEETS UC-3A THRU UC-3C

UTILITY CONSTRUCTION

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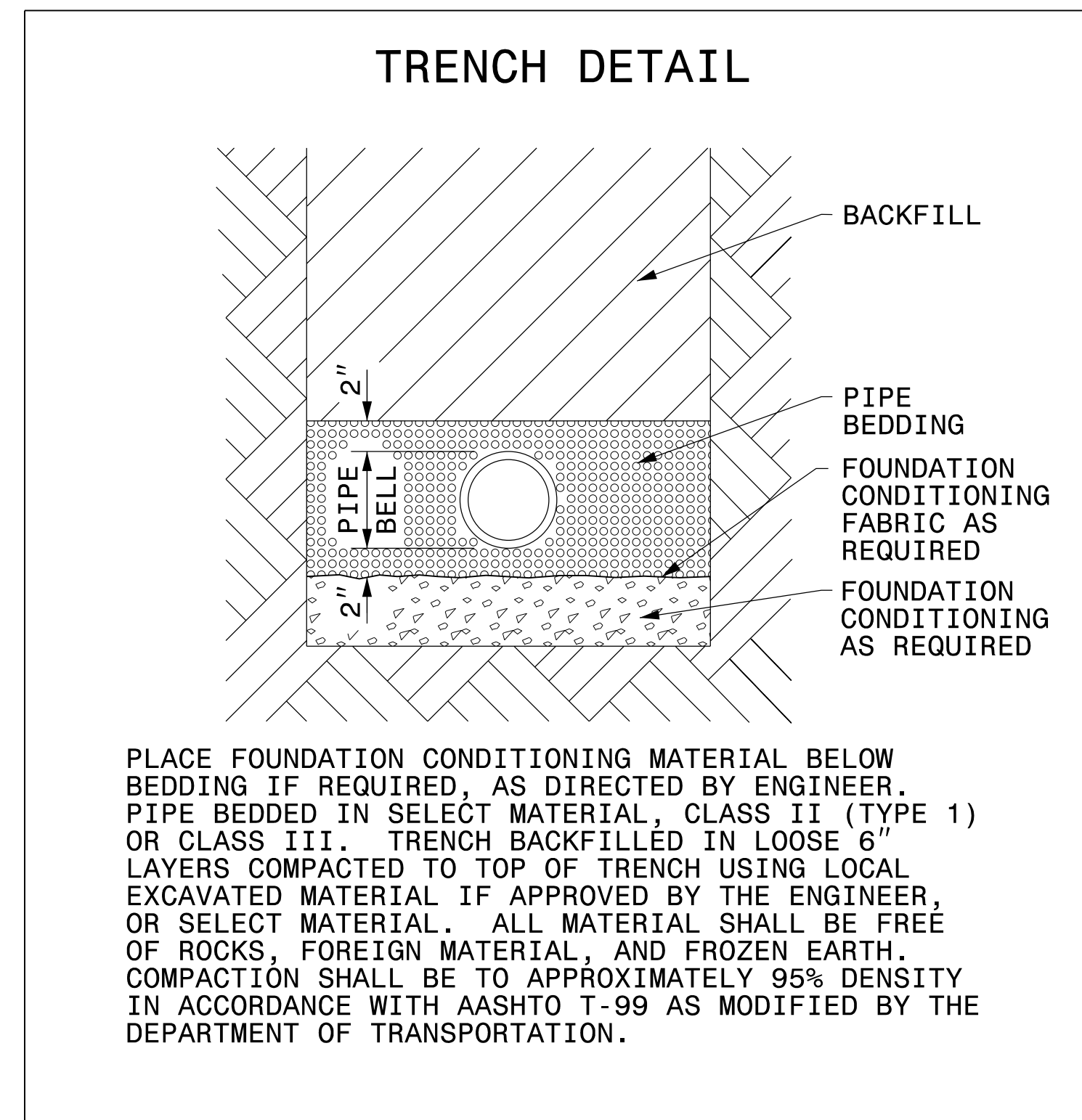


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PROJECT REFERENCE NO. W-5520	SHEET NO. UC-3A
DESIGNED BY: CDB	
DRAWN BY: JNA	
CHECKED BY: CDB	
APPROVED BY: CLS	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
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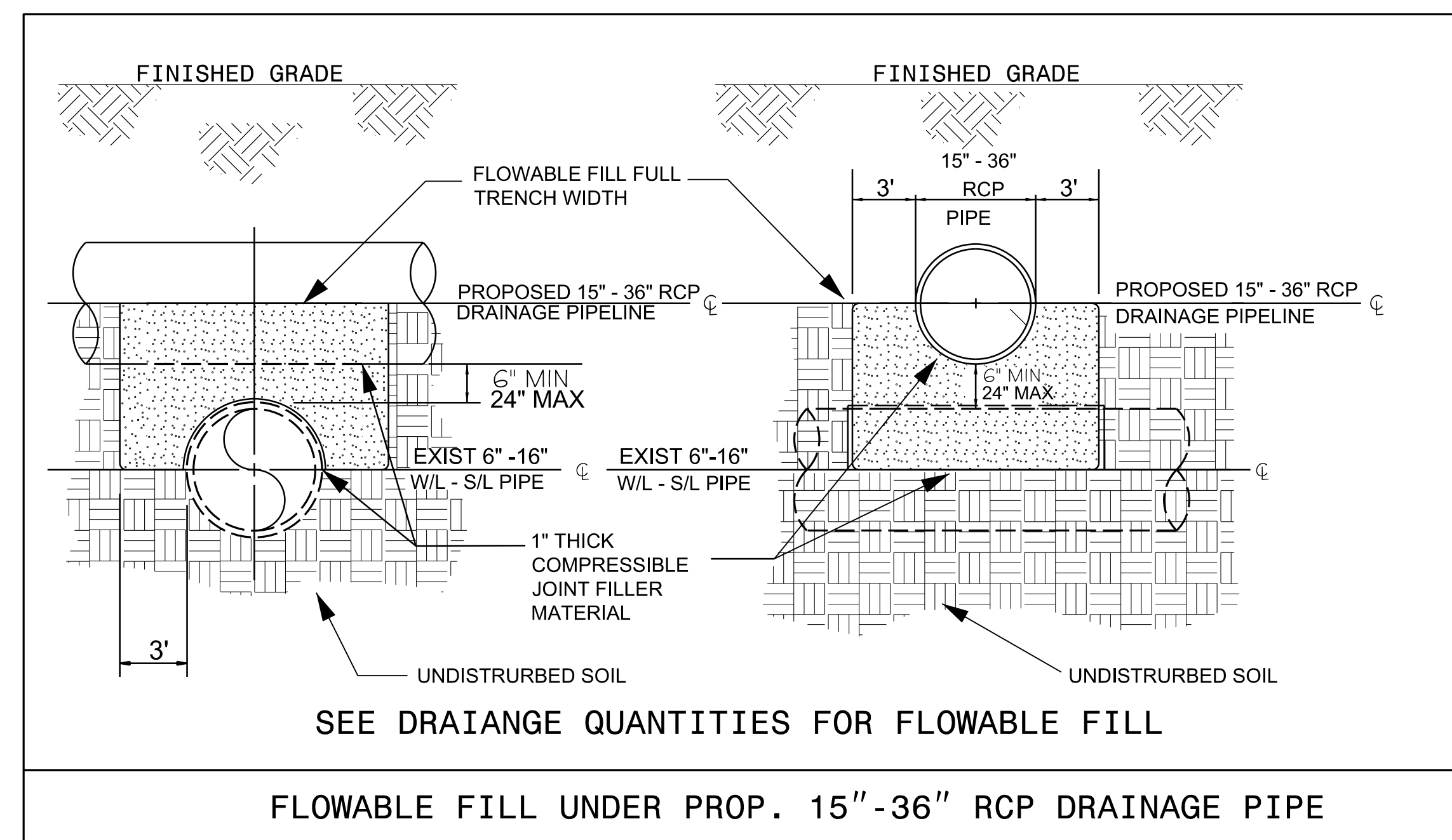
PROJECT TYPICAL DETAILS

UTILITY CONSTRUCTION



**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		



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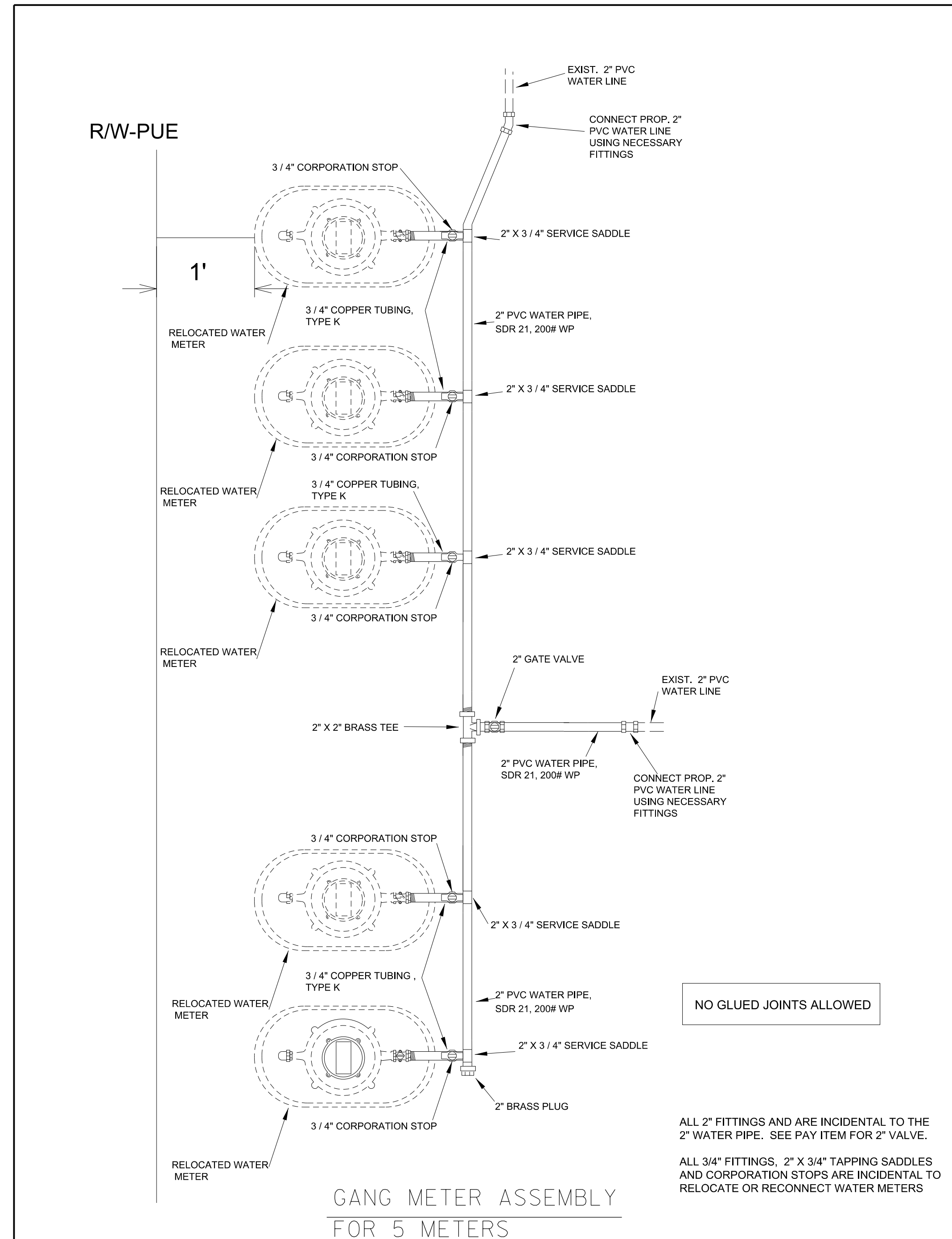


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PROJECT REFERENCE NO.	W-5520	SHEET NO.	UC-3B
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PROJECT TYPICAL DETAILS

UTILITY CONSTRUCTION



RELOCATION OF WATER METERS SHALL BE COORDINATED WITH THE PROPERTY OWNERS AND UNION COUNTY DEPARTMENT OF PUBLIC UTILITIES

NO GLUED JOINTS ALLOWED

ALL 2" FITTINGS AND ARE INCIDENTAL TO THE 2" WATER PIPE. SEE PAY ITEM FOR 2" VALVE.
ALL 3/4" FITTINGS, 2" X 3/4" TAPPING SADDLES AND CORPORATION STOPS ARE INCIDENTAL TO RELOCATE OR RECONNECT WATER METERS

GANG METER ASSEMBLY FOR 5 METERS

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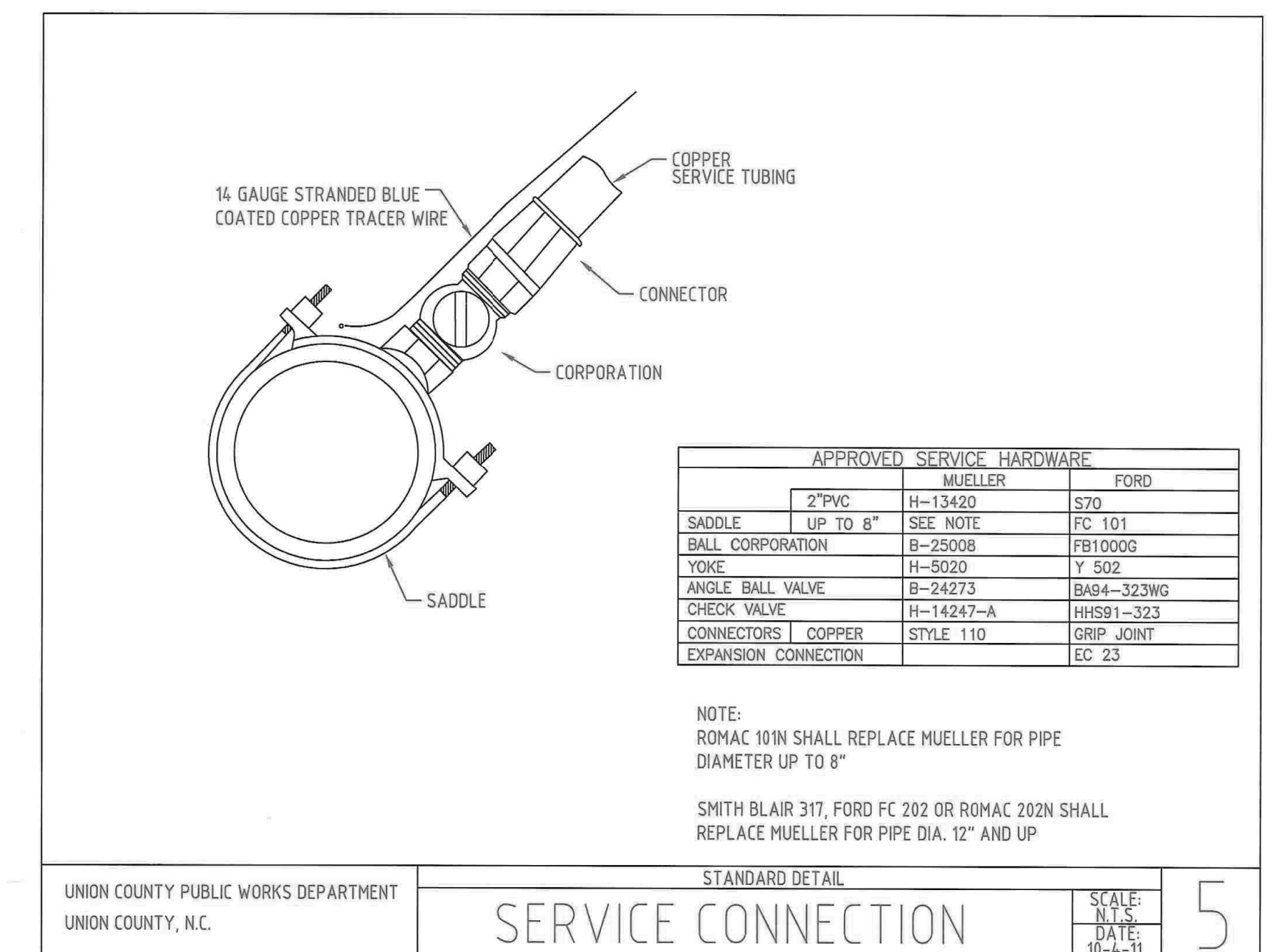
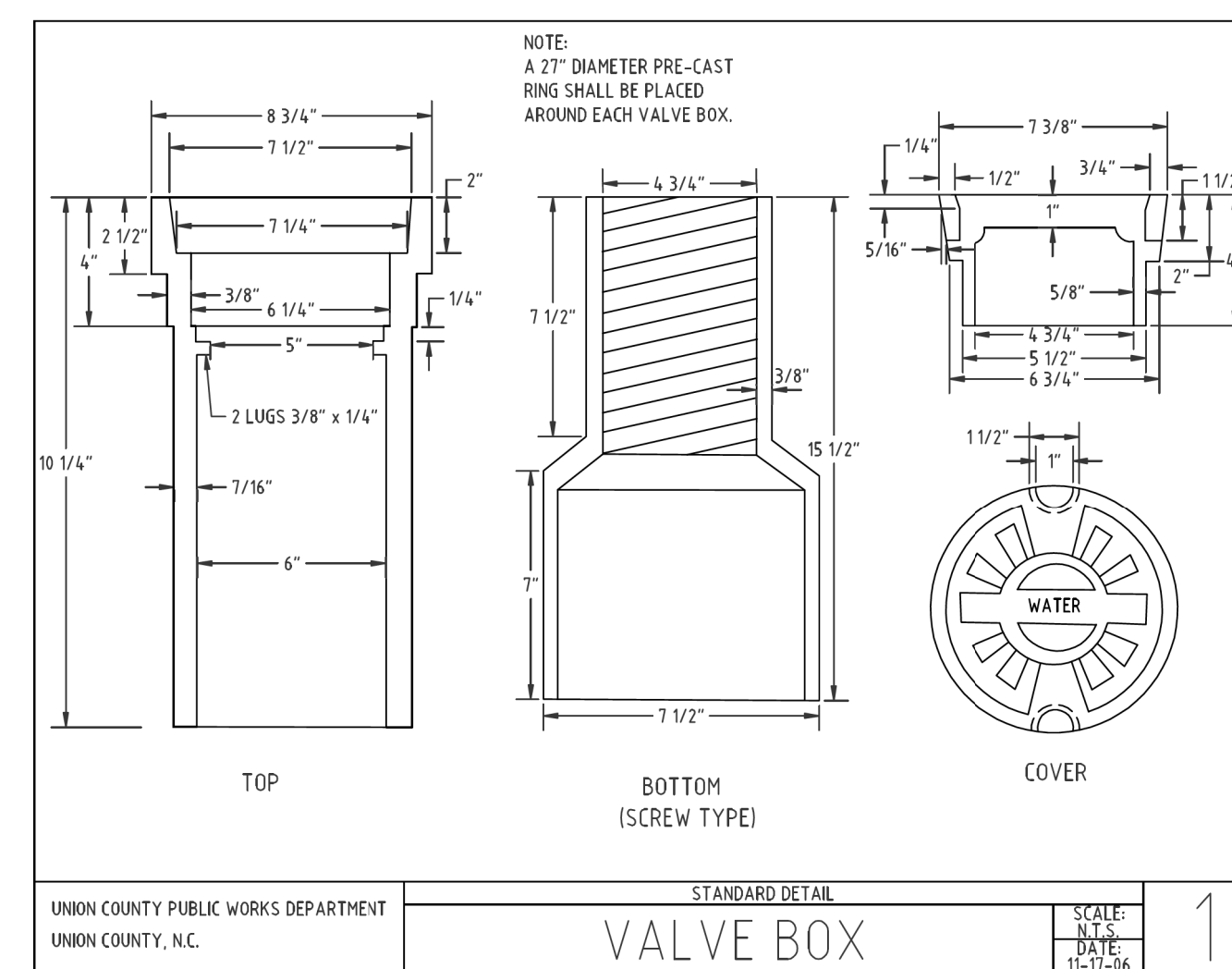
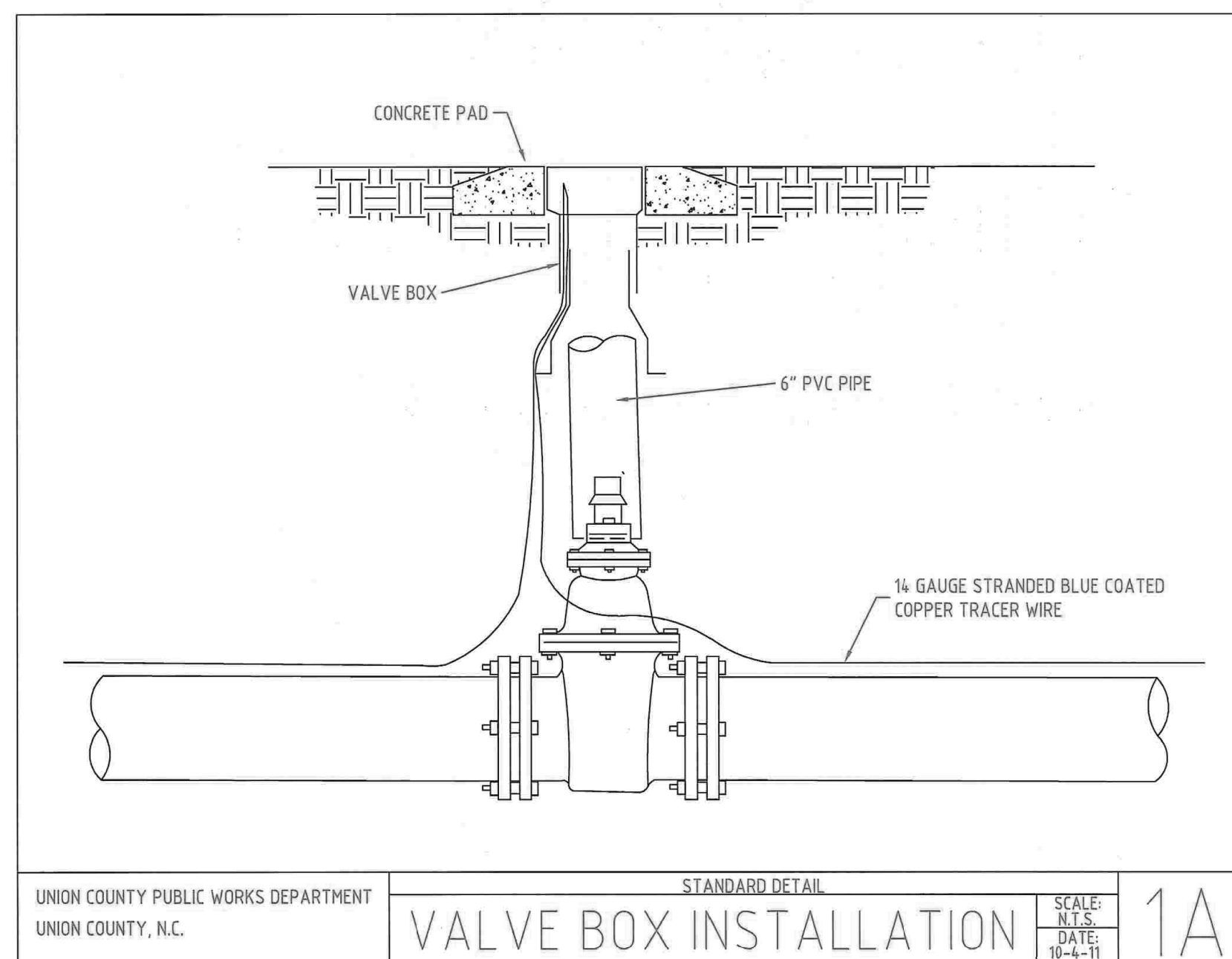
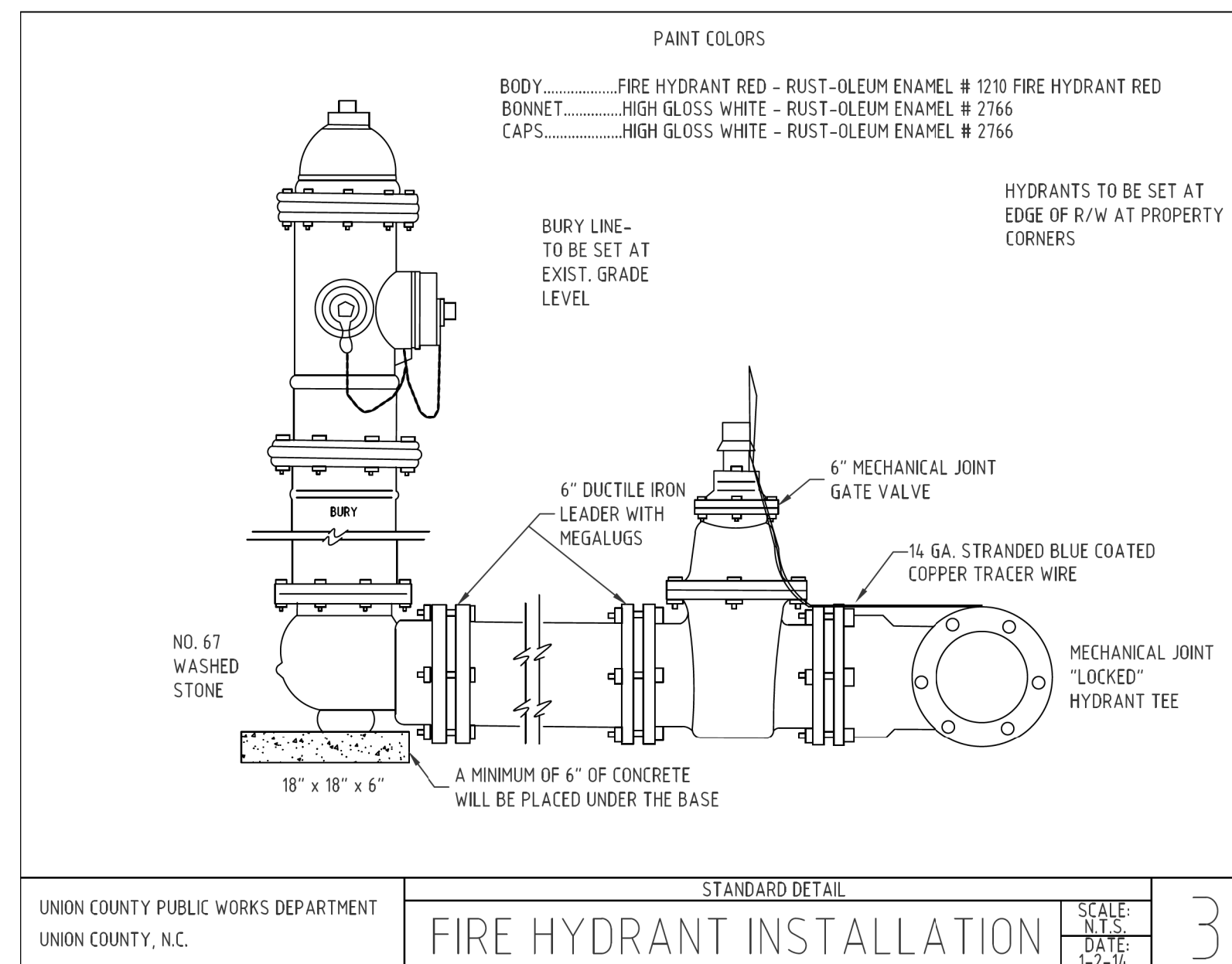
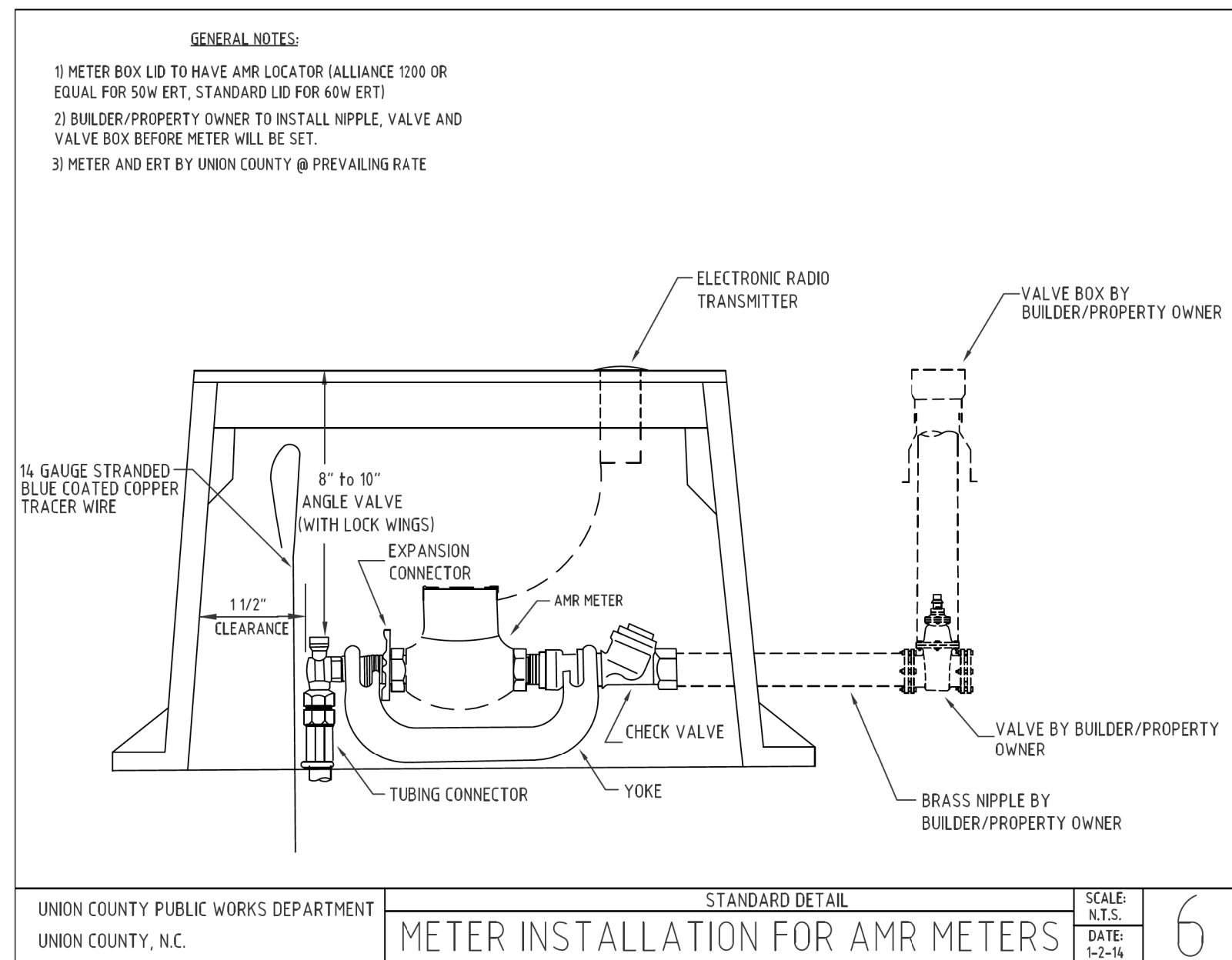
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APPROVED BY: CLS	
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PROJECT TYPICAL DETAILS



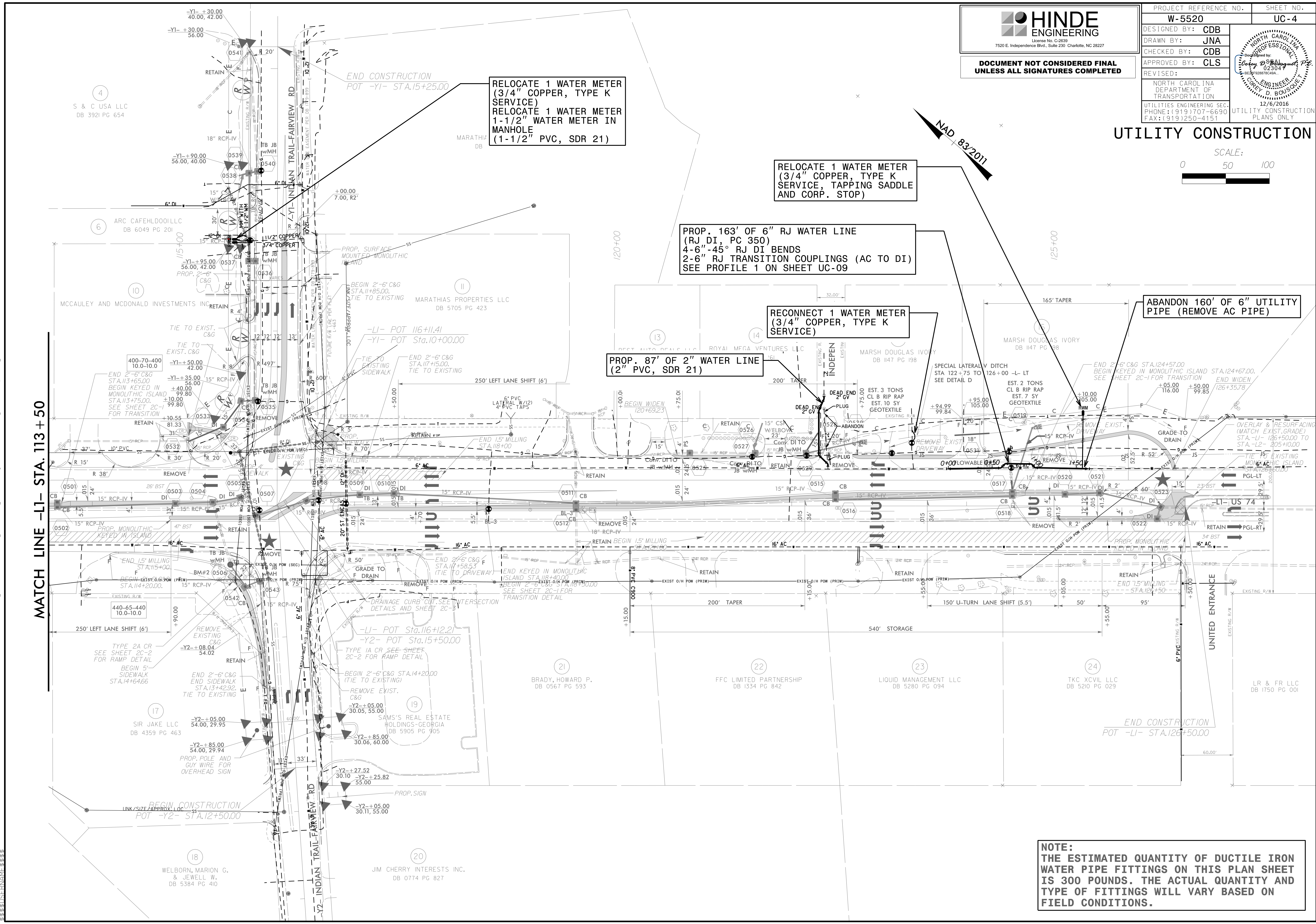
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PROJECT REFERENCE NO. W-5520	SHEET NO. UC-4
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UTILITY CONSTRUCTION



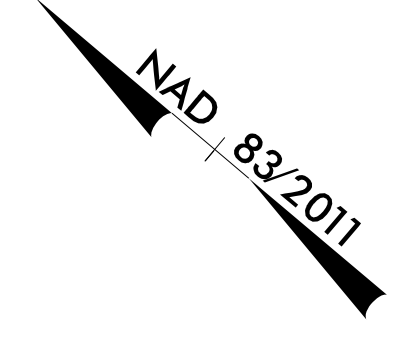
**NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 300 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.**

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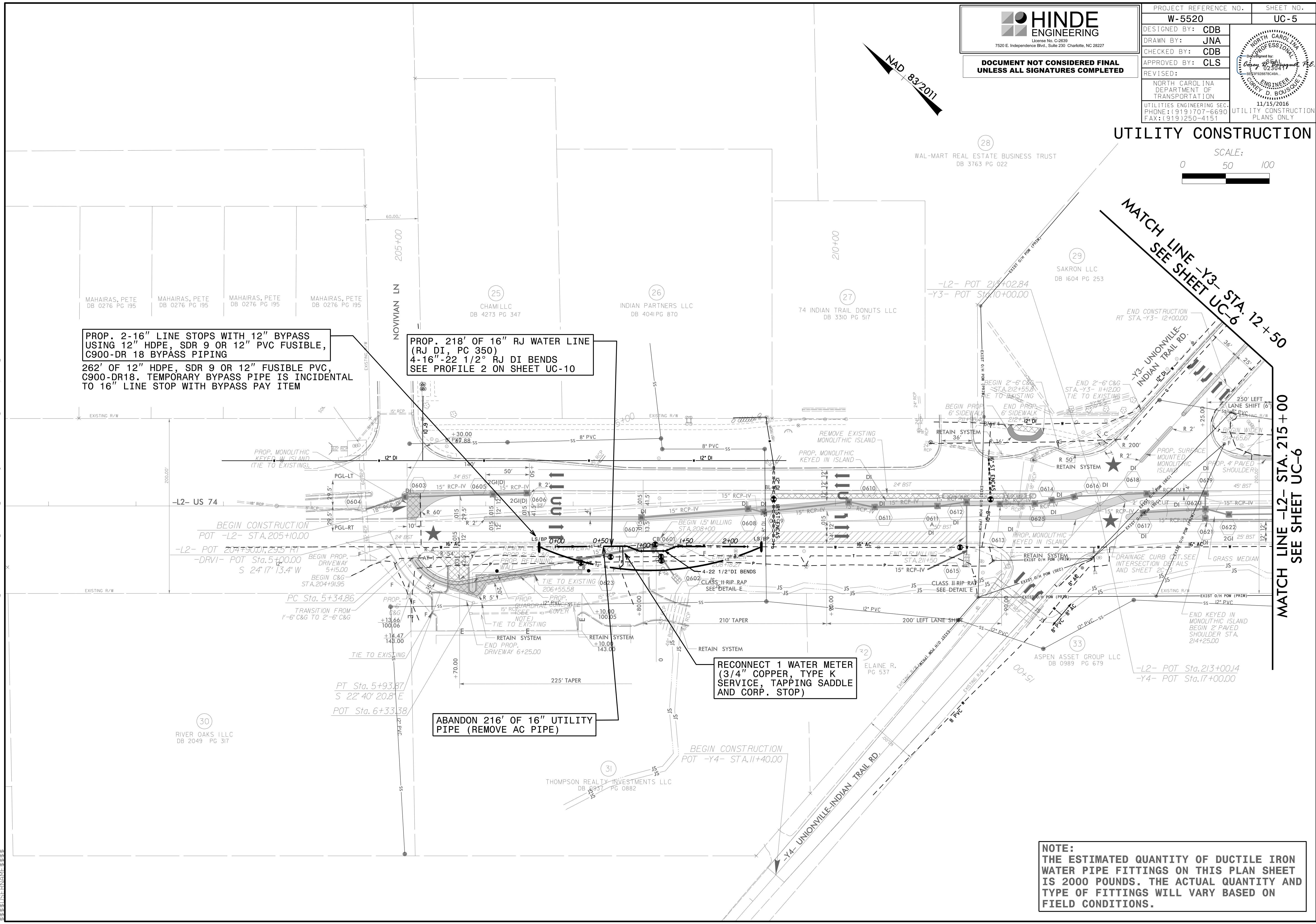
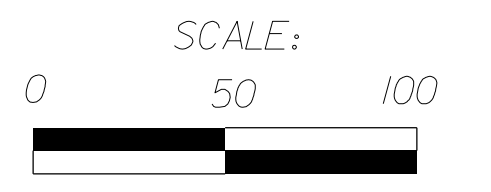
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PROJECT REFERENCE NO. W-5520	SHEET NO. UC-5
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APPROVED BY: CLS	
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UTILITY CONSTRUCTION



PROP. 2-16" LINE STOPS WITH 12" BYPASS USING 12" HDPE, SDR 9 OR 12" PVC FUSIBLE, C900-DR 18 BYPASS PIPING
 262' OF 12" HDPE, SDR 9 OR 12" FUSIBLE PVC, C900-DR18. TEMPORARY BYPASS PIPE IS INCIDENTAL TO 16" LINE STOP WITH BYPASS PAY ITEM

PROP. 218' OF 16" RJ WATER LINE (RJ DI, PC 350)
 4-16"-22 1/2° RJ DI BENDS
 SEE PROFILE 2 ON SHEET UC-10

RECONNECT 1 WATER METER (3/4" COPPER, TYPE K SERVICE, TAPPING SADDLE AND CORP. STOP)

ABANDON 216' OF 16" UTILITY PIPE (REMOVE AC PIPE)

NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2000 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

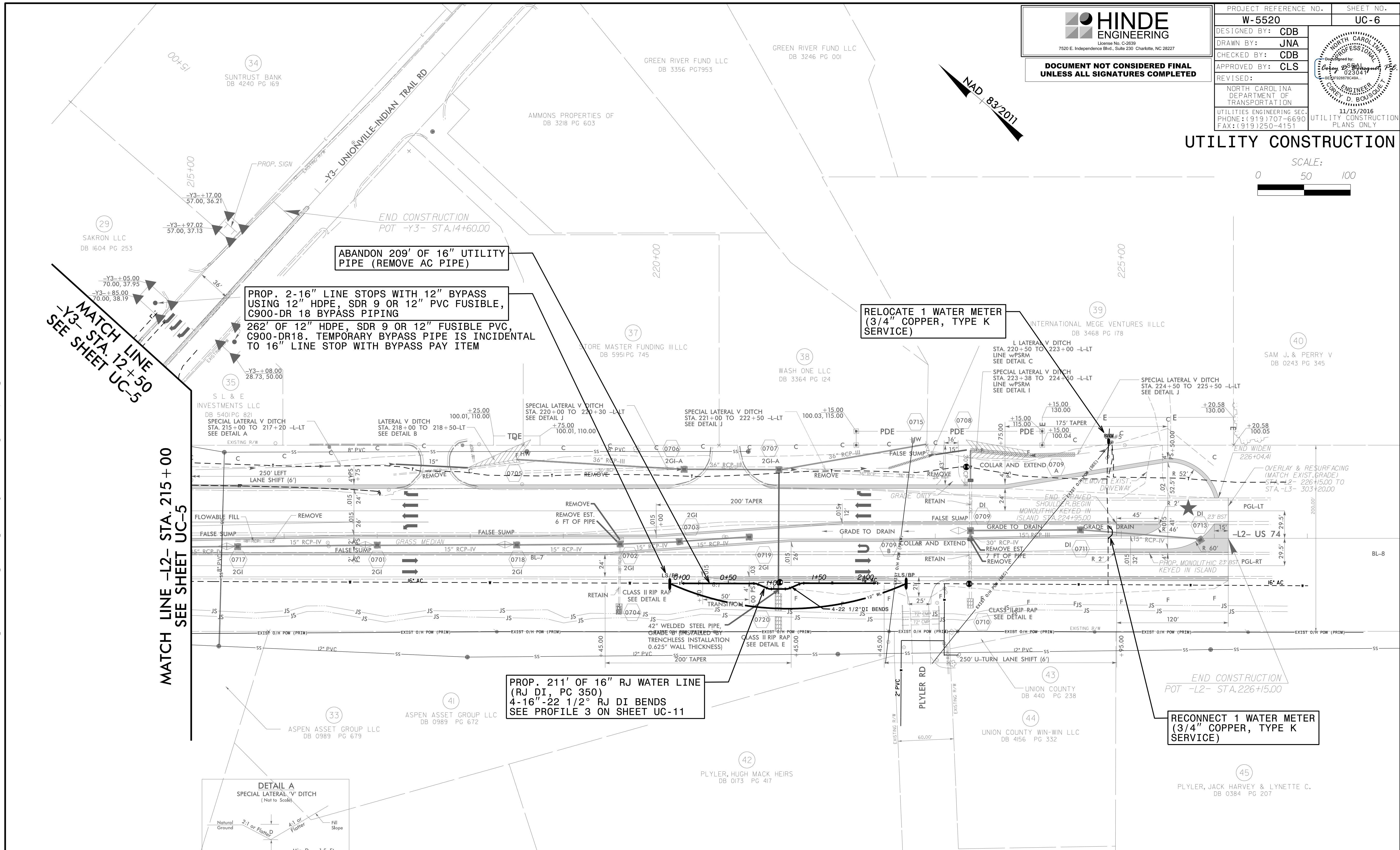
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PROJECT REFERENCE NO.	W-5520	SHEET NO.	UC-6
DESIGNED BY:	CDB		
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APPROVED BY:	CLS		
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		11/15/2016	UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC.		PHONE: (919) 707-6690	FAX: (919) 250-4151

UTILITY CONSTRUCTION



**MATCH LINE -Y3- STA. 12+50
SEE SHEET UC-5**

**MATCH LINE -L2- STA. 215+00
SEE SHEET UC-5**

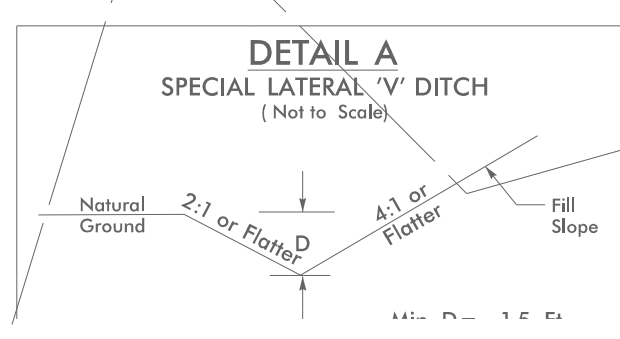
ABANDON 209' OF 16" UTILITY PIPE (REMOVE AC PIPE)

PROP. 2-16" LINE STOPS WITH 12" BYPASS USING 12" HDPE, SDR 9 OR 12" PVC FUSIBLE, C900-DR 18 BYPASS PIPING
262' OF 12" HDPE, SDR 9 OR 12" FUSIBLE PVC, C900-DR18. TEMPORARY BYPASS PIPE IS INCIDENTAL TO 16" LINE STOP WITH BYPASS PAY ITEM

RELOCATE 1 WATER METER (3/4" COPPER, TYPE K SERVICE)

PROP. 211' OF 16" RJ WATER LINE (RJ DI, PC 350)
4-16"-22 1/2° RJ DI BENDS
SEE PROFILE 3 ON SHEET UC-11

RECONNECT 1 WATER METER (3/4" COPPER, TYPE K SERVICE)

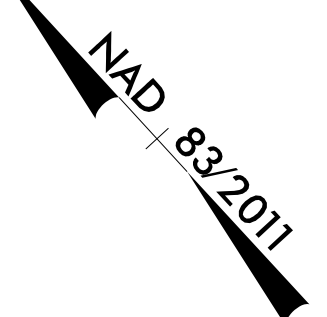


NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2000 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

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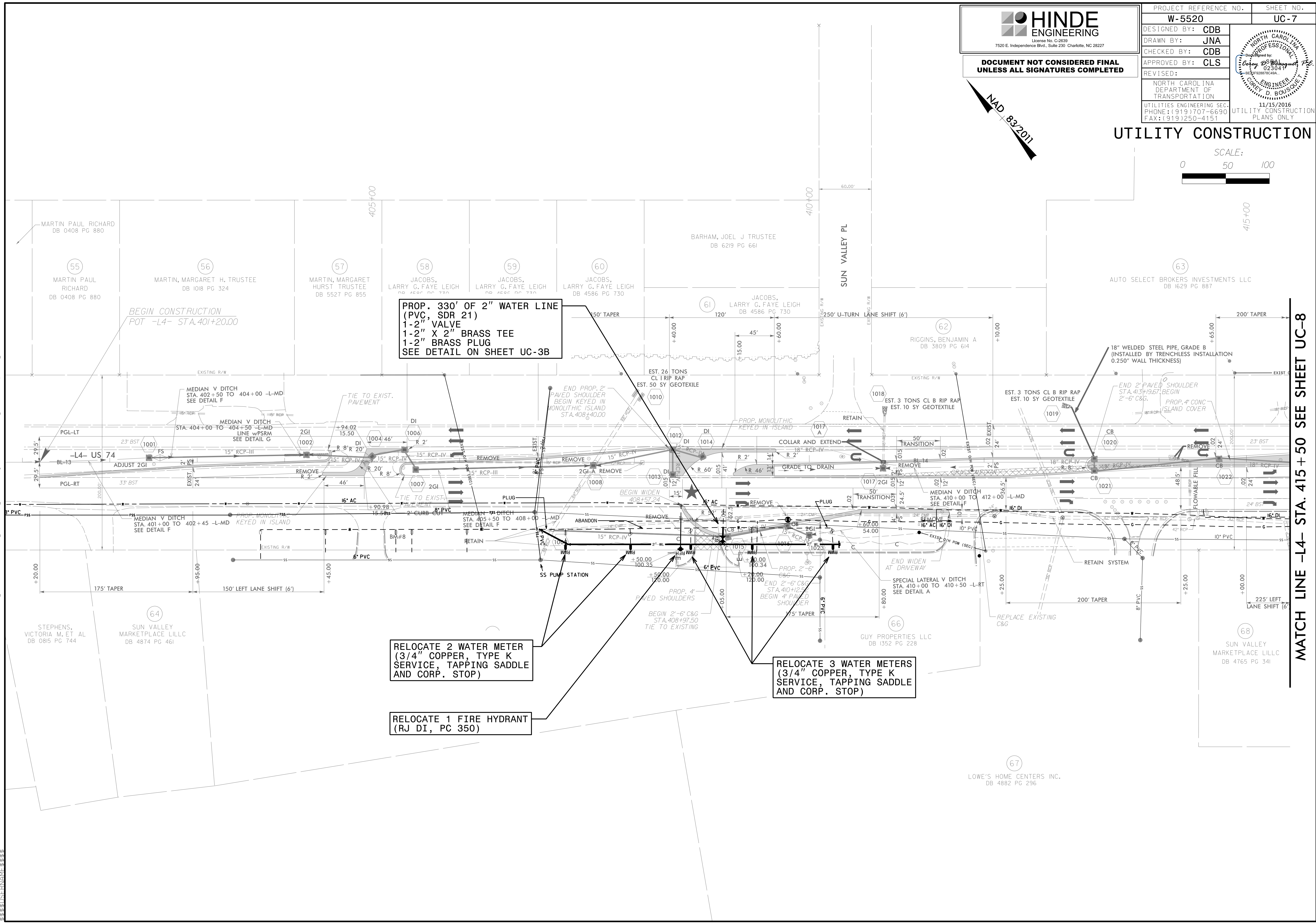


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PROJECT REFERENCE NO.	W-5520	SHEET NO.	UC-7
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UTILITIES ENGINEERING SEC.		PHONE: (919) 707-6690 FAX: (919) 250-4151	

UTILITY CONSTRUCTION



**PROP. 330' OF 2" WATER LINE
(PVC, SDR 21)
1-2" VALVE
1-2" X 2" BRASS TEE
1-2" BRASS PLUG
SEE DETAIL ON SHEET UC-3B**

**RELOCATE 2 WATER METER
(3/4" COPPER, TYPE K
SERVICE, TAPPING SADDLE
AND CORP. STOP)**

**RELOCATE 3 WATER METERS
(3/4" COPPER, TYPE K
SERVICE, TAPPING SADDLE
AND CORP. STOP)**

**RELOCATE 1 FIRE HYDRANT
(RJ DI, PC 350)**

MATCH LINE -L4- STA. 415 + 50 SEE SHEET UC-8

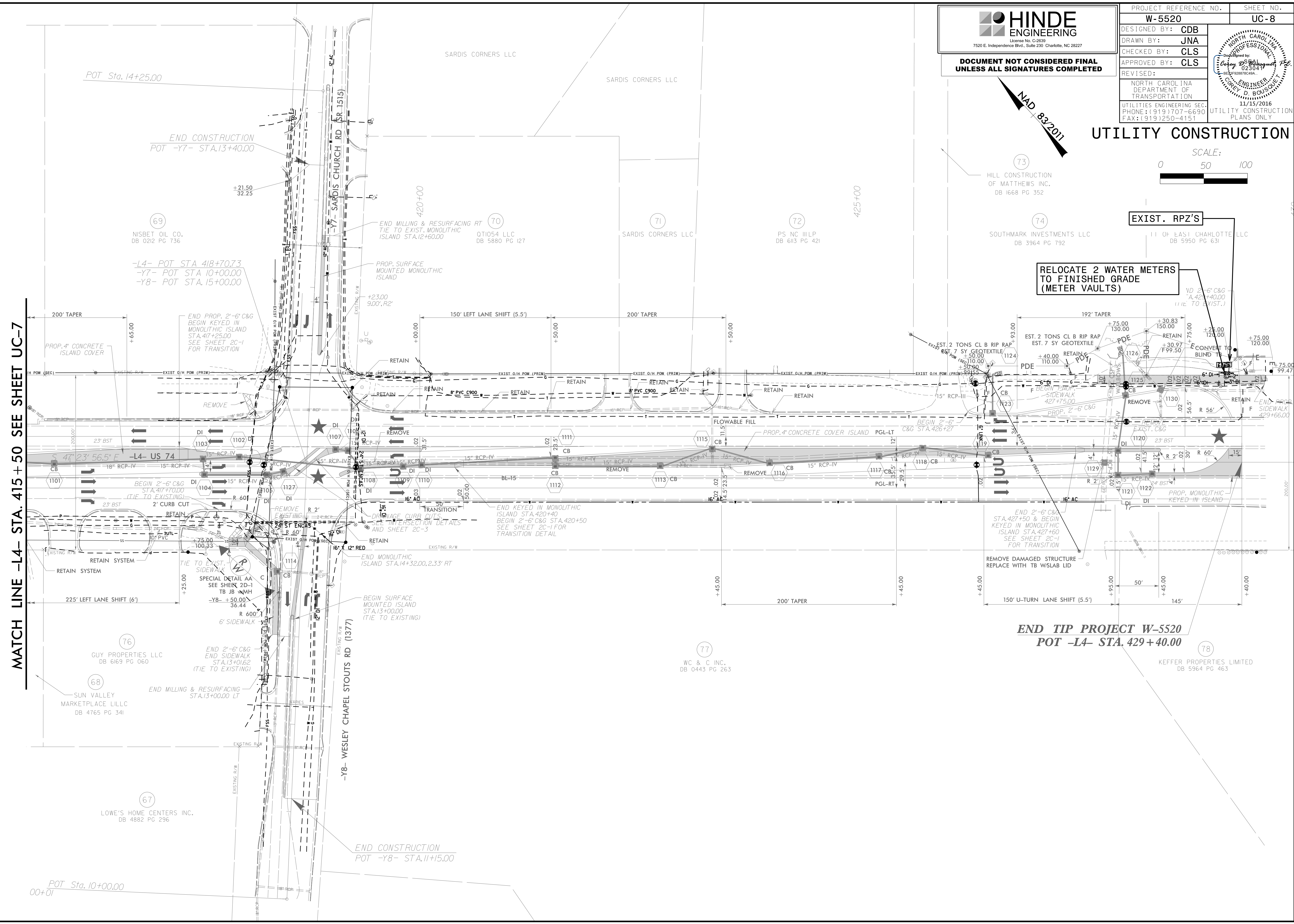
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DESIGNED BY: CDB	
DRAWN BY: JNA	
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UTILITY CONSTRUCTION



MATCH LINE -L4- STA. 415 + 50 SEE SHEET UC-7

RELOCATE 2 WATER METERS TO FINISHED GRADE (METER VAULTS)

**END TIP PROJECT W-5520
 POT -L4- STA. 429 + 40.00**

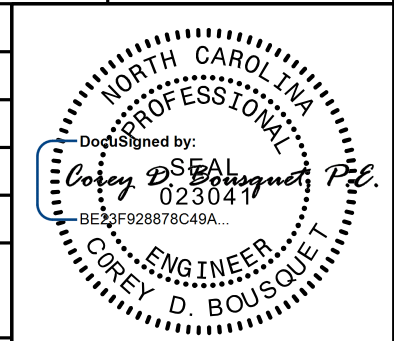
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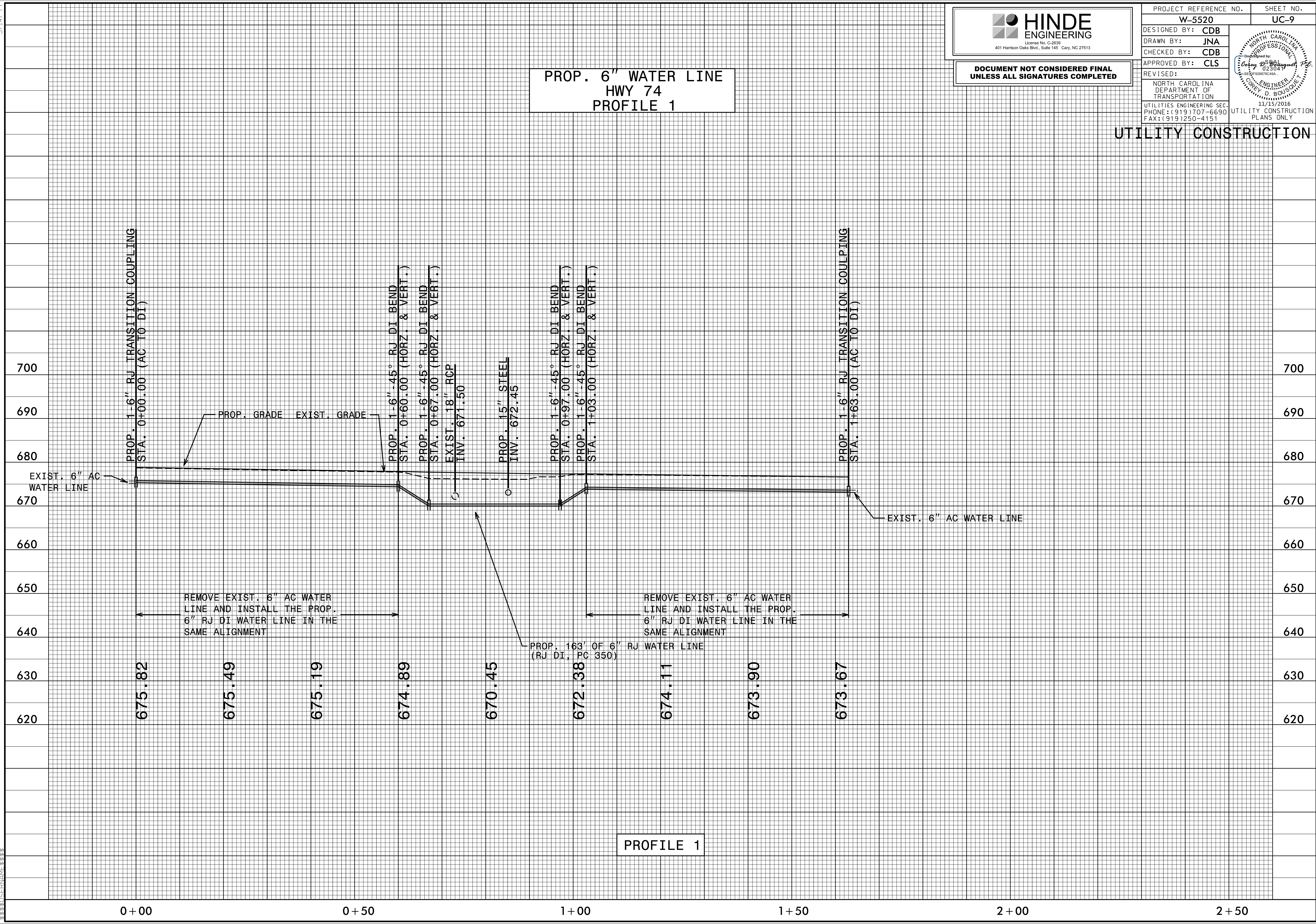
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DESIGNED BY:	CDB		
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CHECKED BY:	CDB		
APPROVED BY:	CLS		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		11/15/2016	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		UTILITY CONSTRUCTION PLANS ONLY	

PROP. 6" WATER LINE
HWY 74
PROFILE 1

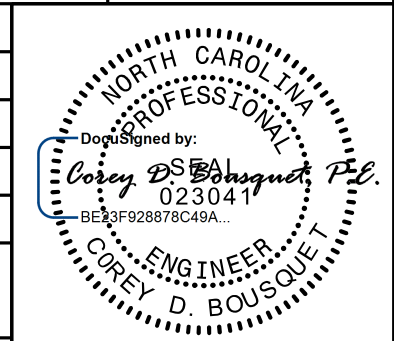
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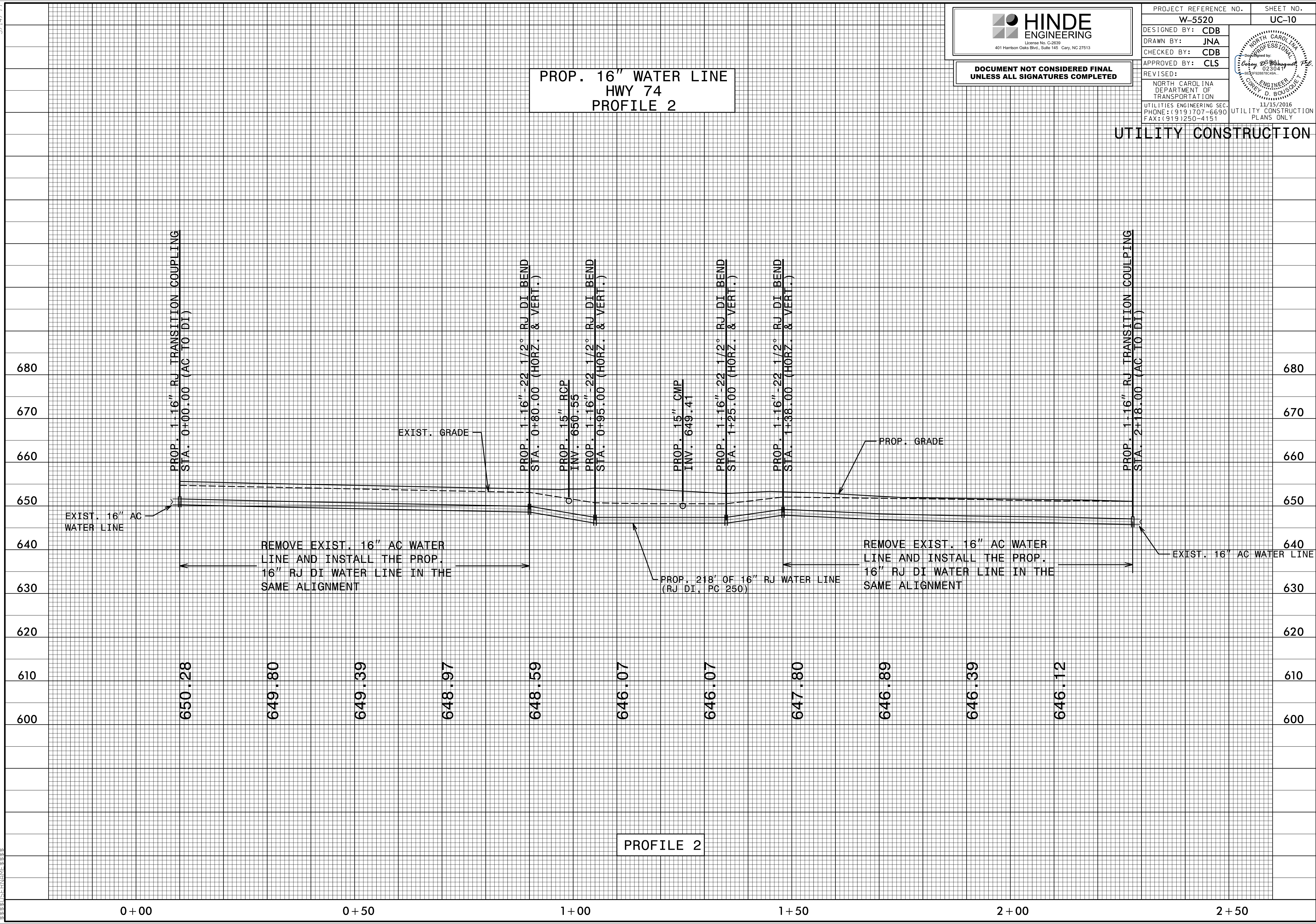
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**PROP. 16" WATER LINE
HWY 74
PROFILE 2**

UTILITY CONSTRUCTION

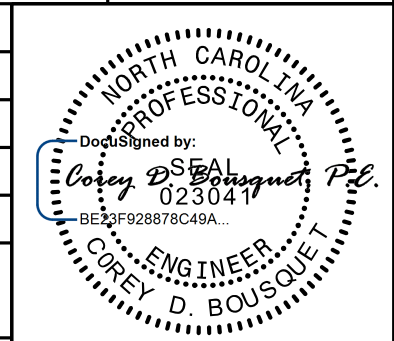


PROFILE 2

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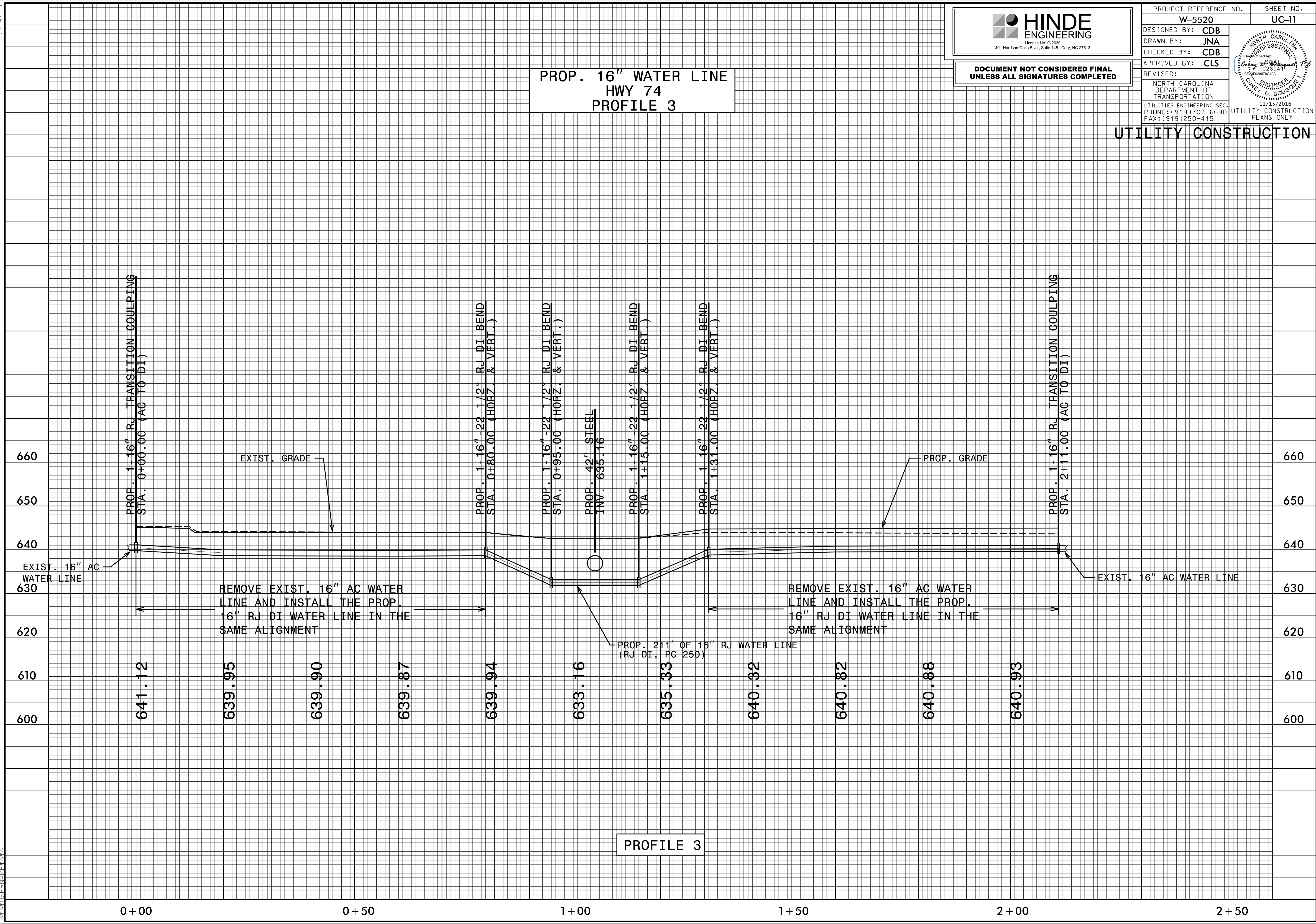

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**PROP. 16" WATER LINE
HWY 74
PROFILE 3**

UTILITY CONSTRUCTION



PROFILE 3