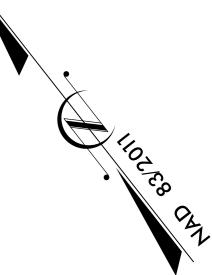


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BOUNDARIES AND PROPERTY:

BOUNDARIES AND TROPERTY	
State Line	
County Line	
Township Line	
City Line	
Reservation Line	· ·
Property Line	
Existing Iron Pin	
Computed Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	_
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary —	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Contaminated Site: Known or Potential	
BUILDINGS AND OTHER CULT	
Gas Pump Vent or U/G Tank Cap	
Sign Well	S
Small Mine	- 🛠
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	
HYDROLOGY:	
Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	—JS
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	- FLOW
False Sump	-

RAILROADS:

Standard Ga RR Signal Mi Switch —— RR Abandon **RR** Dismantled

Secondary Primary Hor Primary Hor Exist Permar New Permo Vertical Ben Existing Rig Existing Right New Right New Right New Right Concrete New Contr Concrete Existing Cor New Contr Existing Eas New Temp New Tempo New Perma New Permo New Permo New Tempo New Aerial

Existing Edg Existing Cu Proposed S Proposed S Proposed C Existing Me Proposed G Existing Ca Proposed C Equality Syı Pavement R VEGETA Single Tree Single Shru

STATE OF NORTH CAROLINA CONVENTIONAL PLA Note: Not to Scale

auge	CSX TRANSPORTATION	Hedge	
ilepost	 MILEPOST 35	Woods Line	
		Orchard	හි හි
ned		Vineyard	
led		EVICTING STRUCTURES.	

RIGHT OF WAY & PROJECT CONTROL:

Horiz and Vert Control Point ——	•
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oriz and Vert Control Point	۲
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ght of Way Marker	\bigtriangleup
ght of Way Line	
t of Way Line	— (R) W
t of Way Line with Pin and Cap —	
t of Way Line with te or Granite R/W Marker	
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trol of Access	
asement Line	E
porary Construction Easement –	E
porary Drainage Easement	TDE
nanent Drainage Easement	PDE
nanent Drainage / Utility Easement	DUE
nanent Utility Easement	PUE
porary Utility Easement	TUE
al Utility Easement	AUE

ROADS AND RELATED FEATURES:

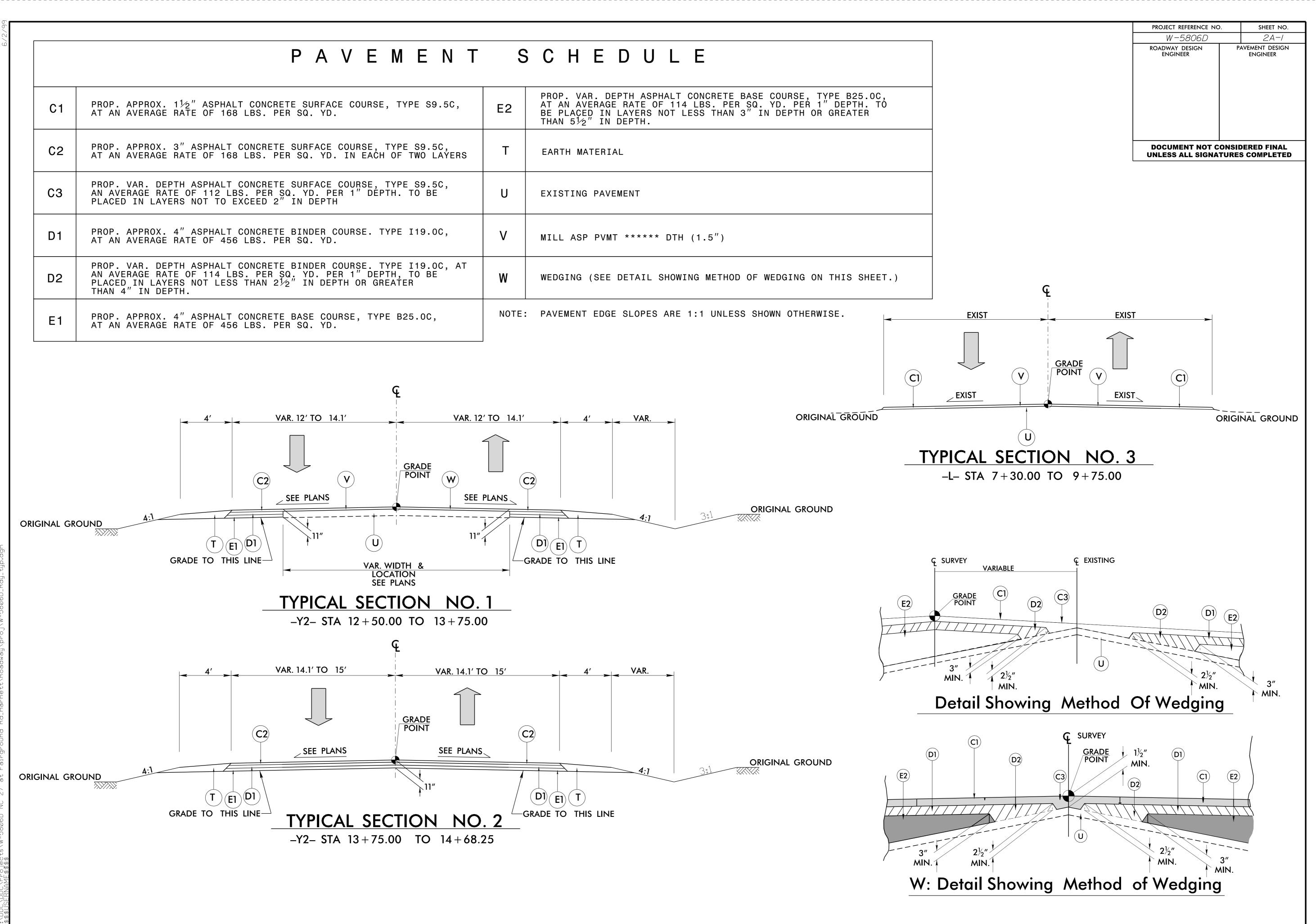
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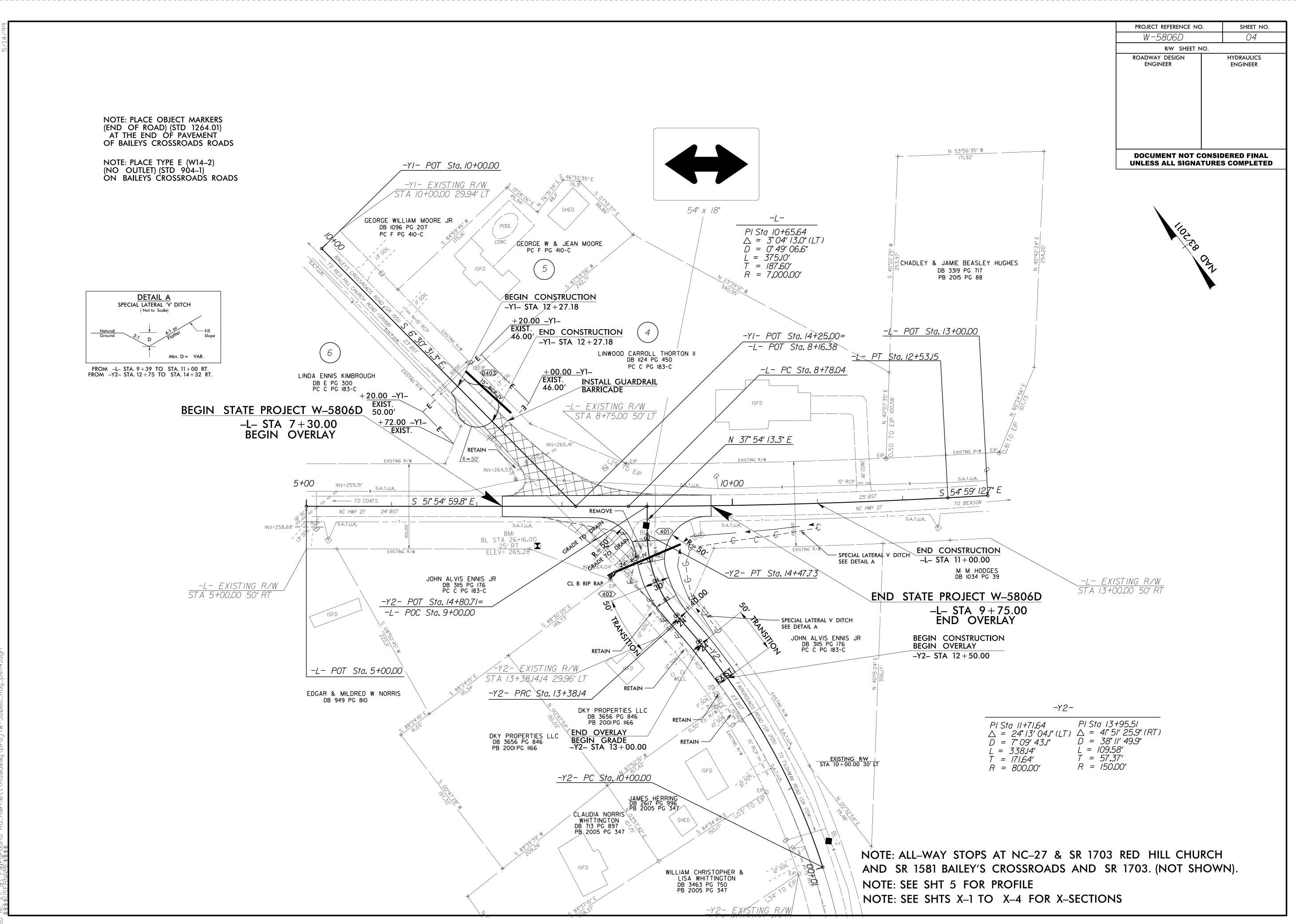
N SHEET SYMBC <i>J.E. = Subsurface Utility Engineering</i>		WATER:	
		Water Manhole	(W)
Hedge		Water Meter	O
Woods Line	<u>- سني- سني- سني- سني-</u>	Water Valve	&
Orchard	ති කි කි කි	Water Hydrant	
Vineyard	Vineyard	U/G Water Line LOS B (S.U.E*)	w
EXISTING STRUCTURES:		U/G Water Line LOS C (S.U.E*)	
MAJOR:		U/G Water Line LOS D (S.U.E*)	w
Bridge, Tunnel or Box Culvert	CONC	Above Ground Water Line	A/G Water
Bridge Wing Wall, Head Wall and End Wall –	CONC WW	Above Ground water Line	
MINOR:		TV:	
Head and End Wall	CONC HW	TV Pedestal	
Pipe Culvert		TV Tower	— 🛞
Footbridge	≻<	U/G TV Cable Hand Hole	——————————————————————————————————————
Drainage Box: Catch Basin, DI or JB ———	СВ	U/G TV Cable LOS B (S.U.E.*)	
Paved Ditch Gutter		U/G TV Cable LOS C (S.U.E.*)	
Storm Sewer Manhole	S	U/G TV Cable LOS D (S.U.E.*)	
Storm Sewer	s	U/G Fiber Optic Cable LOS B (S.U.E.*) -	
		U/G Fiber Optic Cable LOS C (S.U.E.*) –	
UTILITIES:		U/G Fiber Optic Cable LOS D (S.U.E.*)-	TV FO
POWER:	I	GAS:	
Existing Power Pole		Gas Valve	◊
Proposed Power Pole	\bigcirc	Gas Meter	◊
Existing Joint Use Pole		U/G Gas Line LOS B (S.U.E.*)	
Proposed Joint Use Pole	-0-	U/G Gas Line LOS C (S.U.E.*)	
Power Manhole	P	U/G Gas Line LOS D (S.U.E.*)	
Power Line Tower	\boxtimes	Above Ground Gas Line	
Power Transformer	\swarrow		
U/G Power Cable Hand Hole		SANITARY SEWER:	
H–Frame Pole	••	Sanitary Sewer Manhole	
U/G Power Line LOS B (S.U.E.*)	— — — P — — — —	Sanitary Sewer Cleanout	-
U/G Power Line LOS C (S.U.E.*)	P	U/G Sanitary Sewer Line	
U/G Power Line LOS D (S.U.E.*)	P	Above Ground Sanitary Sewer	
TELEPHONE:		SS Forced Main Line LOS B (S.U.E.*) —	FSS
		SS Forced Main Line LOS C (S.U.E.*) —	——————————————————————————————————————
Existing Telephone Pole		SS Forced Main Line LOS D (S.U.E.*)—	FSS
Proposed Telephone Pole	-0-		
Telephone Manhole	T		
Telephone Pedestal	T	Utility Pole	
Telephone Cell Tower	, v●,	Utility Pole with Base	
U/G Telephone Cable Hand Hole	H _H	Utility Located Object	
U/G Telephone Cable LOS B (S.U.E.*)	T	Utility Traffic Signal Box	
U/G Telephone Cable LOS C (S.U.E.*)	T	Utility Unknown U/G Line LOS B (S.U.E.	-
U/G Telephone Cable LOS D (S.U.E.*)	T	U/G Tank; Water, Gas, Oil	
U/G Telephone Conduit LOS B (S.U.E.*) ——	— — — TC— — — –	Underground Storage Tank, Approx. Loc.	(UST)
U/G Telephone Conduit LOS C (S.U.E.*)		A/G Tank; Water, Gas, Oil	
U/G Telephone Conduit LOS D (S.U.E.*)——		Geoenvironmental Boring	
U/G Fiber Optics Cable LOS B (S.U.E.*)		U/G Test Hole LOS A (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)		Abandoned According to Utility Records	AATUR

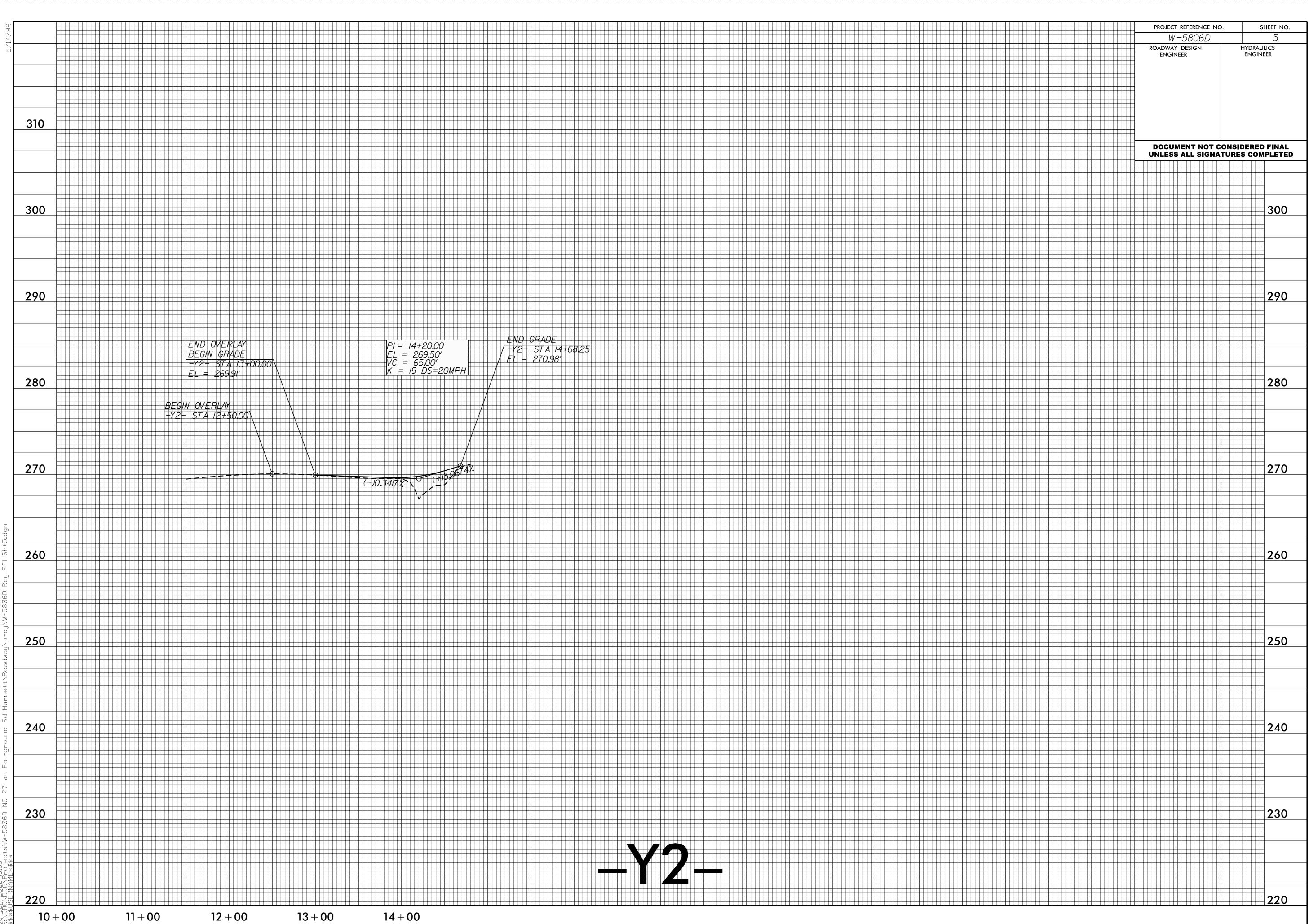
Drainage Box: Catch Basin, DI or JB —	C	3
Paved Ditch Gutter		
Storm Sewer Manhole	(S)	
Storm Sewer	s	

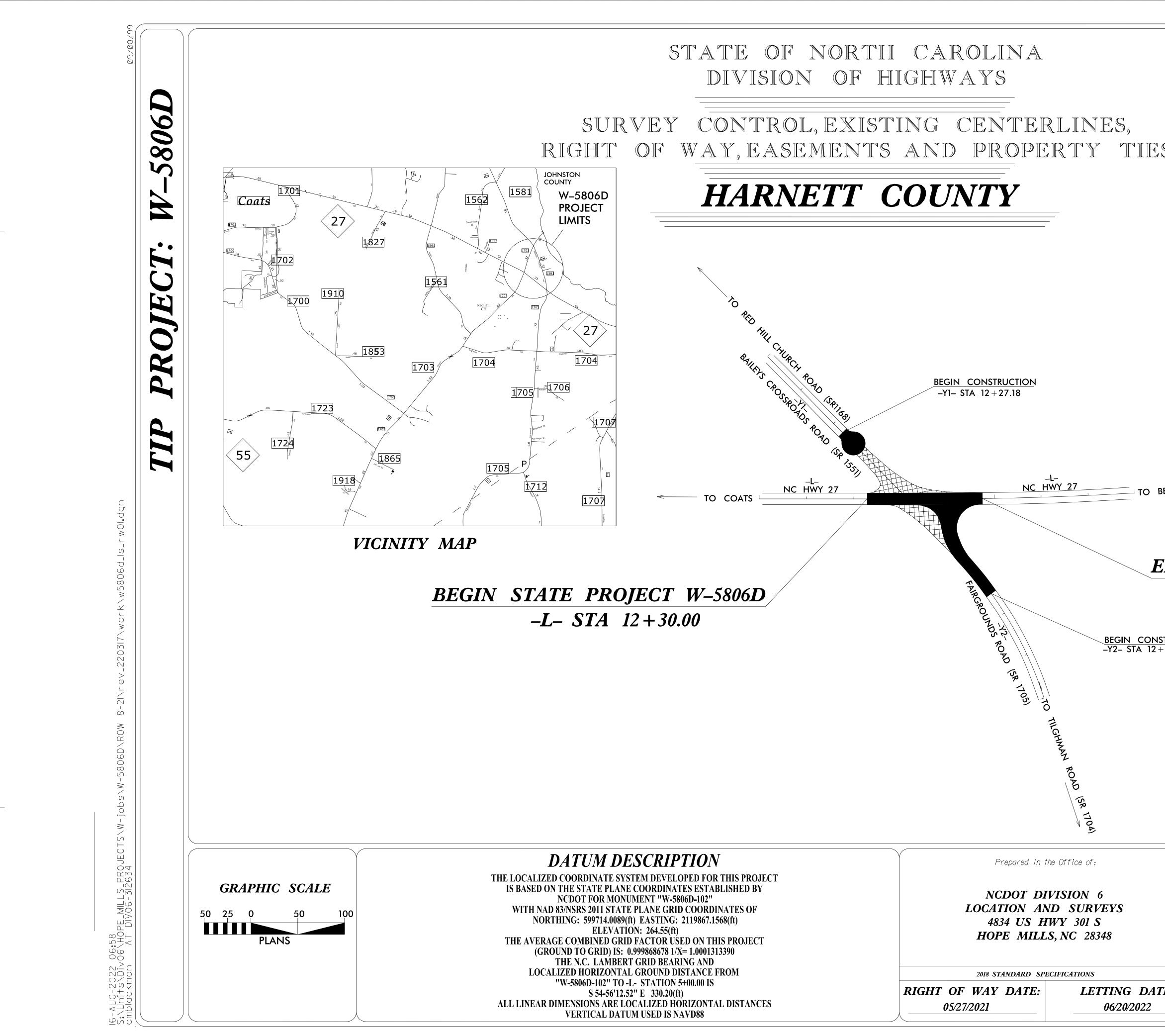
POWER:	
Existing Power Pole	\bullet
Proposed Power Pole	\bigcirc
Existing Joint Use Pole	
Proposed Joint Use Pole	-0
Power Manhole	P
Power Line Tower	\square
Power Transformer	\swarrow
U/G Power Cable Hand Hole	
H–Frame Pole	• •
U/G Power Line LOS B (S.U.E.*)	— — — P—
U/G Power Line LOS C (S.U.E.*)	——————————————————————————————————————
U/G Power Line LOS D (S.U.E.*)	P

Existing Telephone Pole			
Proposed Telephone Pole			
Telephone Manhole	\bigcirc		
Telephone Pedestal	T		
Telephone Cell Tower	, Ē,		
U/G Telephone Cable Hand Hole	HH		
U/G Telephone Cable LOS B (S.U.E.*)	— — — T — T		
U/G Telephone Cable LOS C (S.U.E.*)	T		
U/G Telephone Cable LOS D (S.U.E.*)	T		
U/G Telephone Conduit LOS B (S.U.E.*) ——	— — — — TC—		
U/G Telephone Conduit LOS C (S.U.E.*)	TC		
U/G Telephone Conduit LOS D (S.U.E.*)	TC		
U/G Fiber Optics Cable LOS B (S.U.E.*)	— — — T FO—		
U/G Fiber Optics Cable LOS C (S.U.E.*)	T FO		
U/G Fiber Optics Cable LOS D (S.U.E.*)	T F0 -		



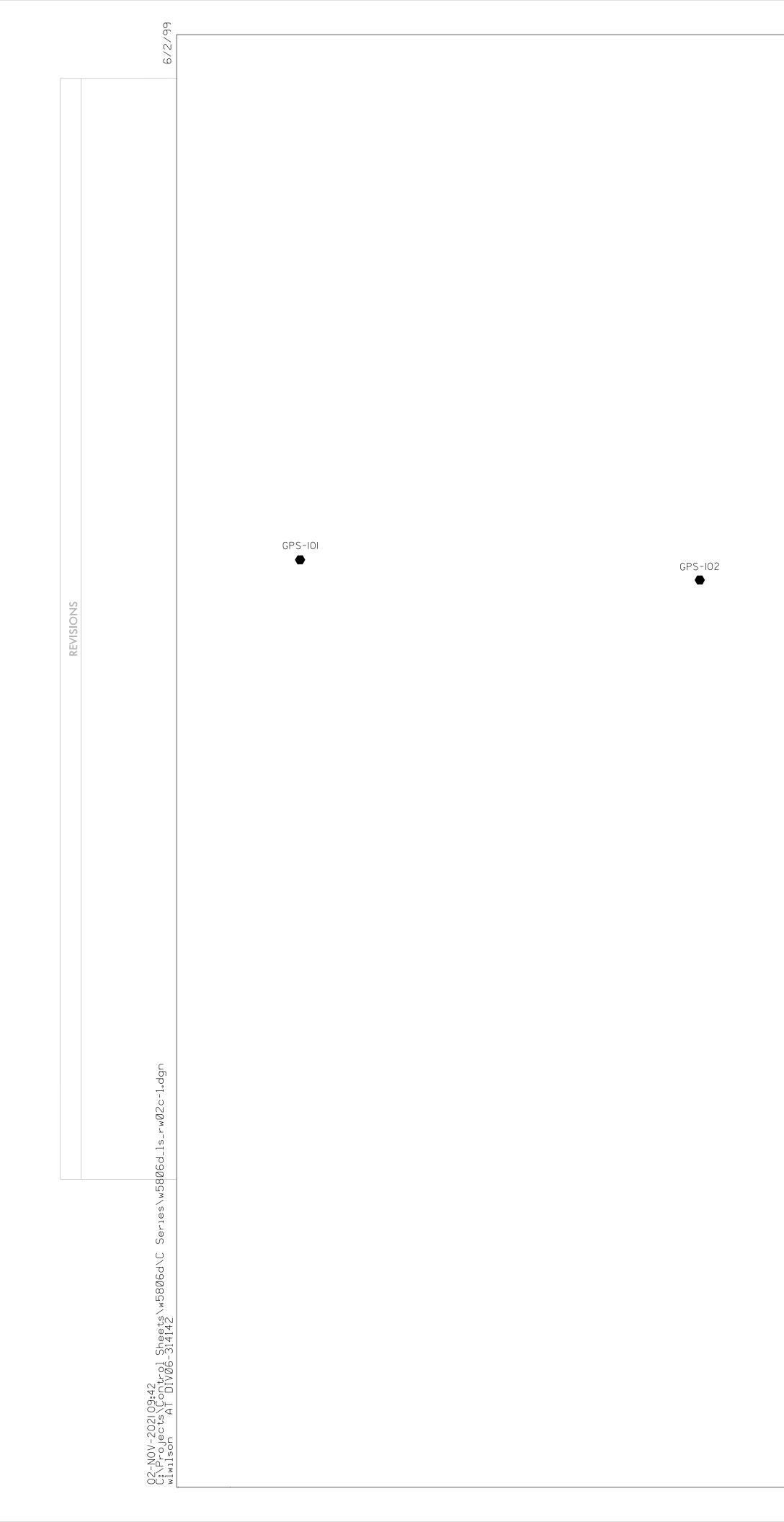






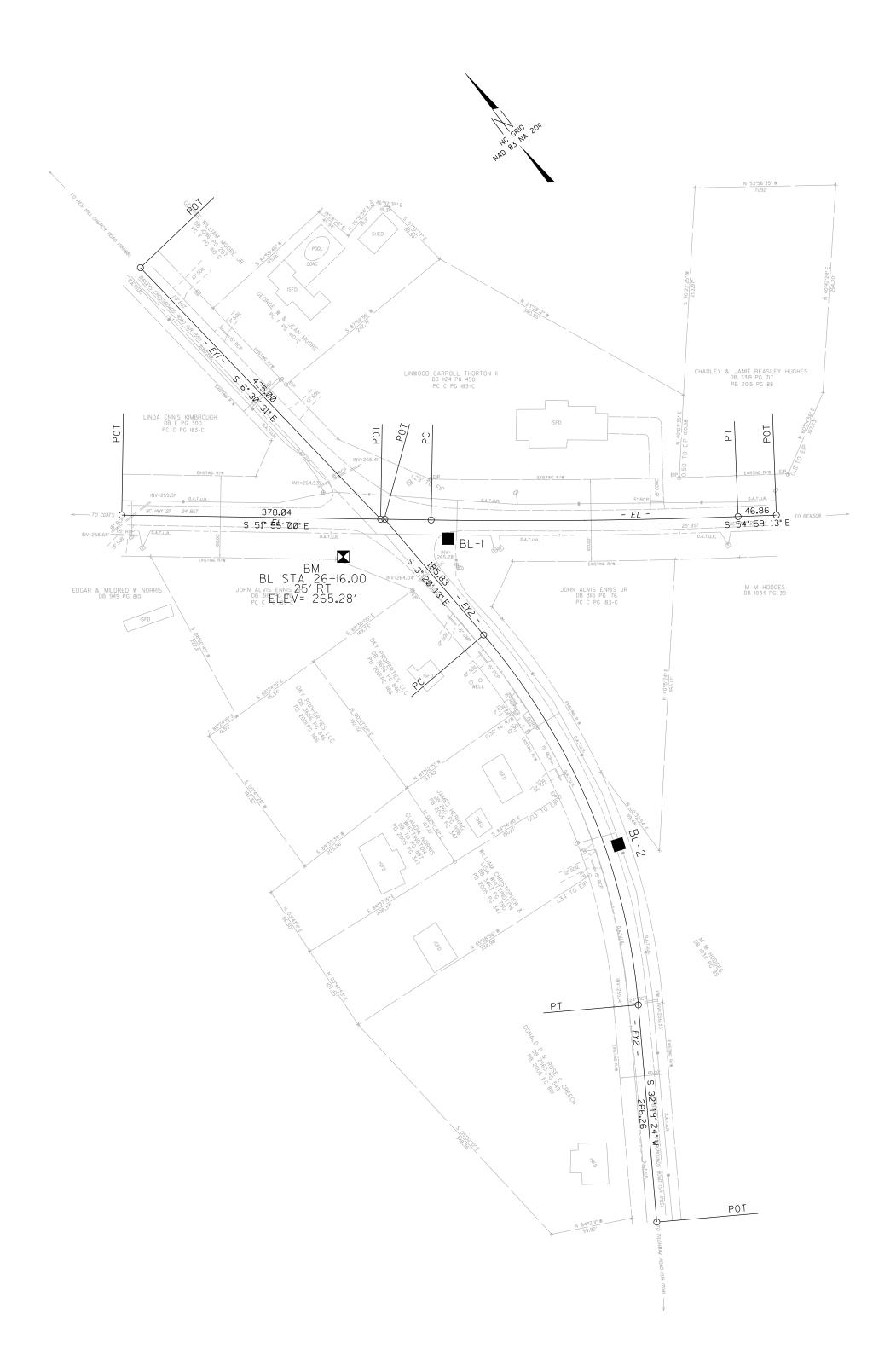
2018 STANDARD SP	ECIFICATIONS
RIGHT OF WAY DATE:	LETTING
05/27/2021	06/20/2

S S BENSON BENSON END STATE PROJECT W-5806D -L- STA 14 + 75.00 SURVEYOR PROFESSIONAL LAND SURVEYOR TF.	TOTAL SHEETS
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BENSON END STATE PROJECT W-5806D -L- STA 14+75.00 STRUCTION +30.00	
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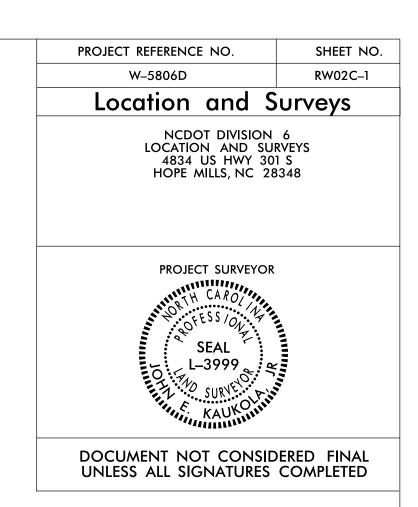
SURVEY CONTROL SHEET

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



NOTES:

AND SURVEYS UNIT.



I, John E. Kaukola Jr., PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: AA Type of GPS field procedure: Static Dates of survey: October 2020 Datum/Epoch: NAD83/NA 2011 Published/Fixed-control use: N/A Localized around: W-5806D-102 Northing: 599714.0089 Easting: 2119867.1568 Combined grid factor: 0.9998686782 Geoid model: G12BNC Units: US Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed in October 2020, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 2nd day of November, 2021.

Professional Land Surveyor L-3999



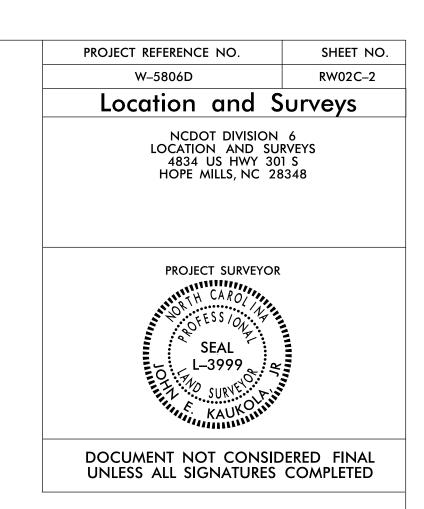
1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION

	SURVEY CONTROL SHEET W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION
	BL POINT DESC. NORTH EAST ELEVATION 101 W5806D GPS101 600369.1986 2119092.1968 257.64 102 W5806D GPS102 599714.0089 2119867.1568 264.55 1 W5806D BL-1 59260.5369 2120437.3842 269.39 2 W5806D BL-2 598836.8067 2120377.4615 267.04
REVISIONS	BM1 ELEVATION - 265.28 N 599321 E 2120322 SPIKE SET IN BASE OF PINE TREE
	POINT N E BEARING DIST DELTA D L T R POT 599524.315 2120137.433 - </td
	EY1 POINT N E BEARING DIST POT 599751.432 2120338.282
Series/w58@6d_ls_rw02c-2.dgn	EY2 POINT N E BEARING DIST DELTA D L T R POT 599326.020 2120390.478
heets/w5806d/C 14142	NOTES:
02-NOV-20210:20 C:\Projects\Control Sheets wlwilson AT DIV06-314142	 PROJECT CONTROL WAS ESTABLISHED USING THE SURVEY CONTROL DATA FOR THIS PROJECT FURTHER INFORMATION REGARDING PROJECT C AND SURVEYS UNIT.

BL P(DINT DES	6C.	NORTH	EAST	ELEVATION
1Ø1	W58Ø6D	GPS1Ø1	600369.1986	2119092.1968	257.64
1Ø2	W58Ø6D	GPS1Ø2	599714.0089	2119867.1568	264.55
1	W58Ø6	SD BL-1	599260.5369	2120437.3842	269.39
2	W58Ø6	SD BL-2	598836.8067	212Ø377.4615	267.Ø4

CT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION



I, John E. Kaukola, Jr., PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

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This 2nd day of November, 2021.

Professional Land Surveyor L-3999



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GINSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

022 14:28 SDD 061 DIV05-312634 AT DIV06-312634			6/2/99
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	VISIONS		
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N→T) 	2022 14:28 ts\D1vØ6\HOF ckmon AT

PROPOSED ALIGNMENT CONTROL SHEET

TYPE	STATION	NORTH	EAST
POT	5+00.00	599524.3148	212Ø137.4332
PC	8+78.04	599291.1347	212Ø434.9962
PT	12+53.15	599067.7873	2120736.3017
POT	13+00.00	599040.9033	2120774.6774

Y 1					
TYPE	STATION	NORTH	EAST		
POT	10+00.00	599751.4323	212Ø338.2817		
POT	14+25.00	599329.1716	212Ø386.4571		

Y2					
TYPE	STATION	NORTH	EAST		
PC	10+00.00	598816.8586	212Ø353.1354		
PRC	13+38.14	599149.0972	2120400.7477		
PT	14+47.73	599251.5896	2120432.0341		
POT	14+80.71	599277.6188	2120452.2999		

NOTES:

2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

PROJECT REFERENCE	NO.	SHEET NO.
W–5806D		RW02D-1
Location	and	Surveys
LOCATIC 4834	ot divis on and Us hwy Mills, No	SURVEYS (301 S

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

	6/2/99
SNC	
REVISIONS	
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	ev.220317\wo
	ROW 8-21/re
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	E_MILLS_PR0J1 1VØ6-312634
	-AUG-2022 14:30 ::\Units\Div@6\HOPE_MILLS_PR0JECTS\W-jobs\W-5806D\ROW :mblackmon AT DIV06-312634
	AUG-20; VUnits mblackm

RIGHT OF WAY CONTROL SHEET

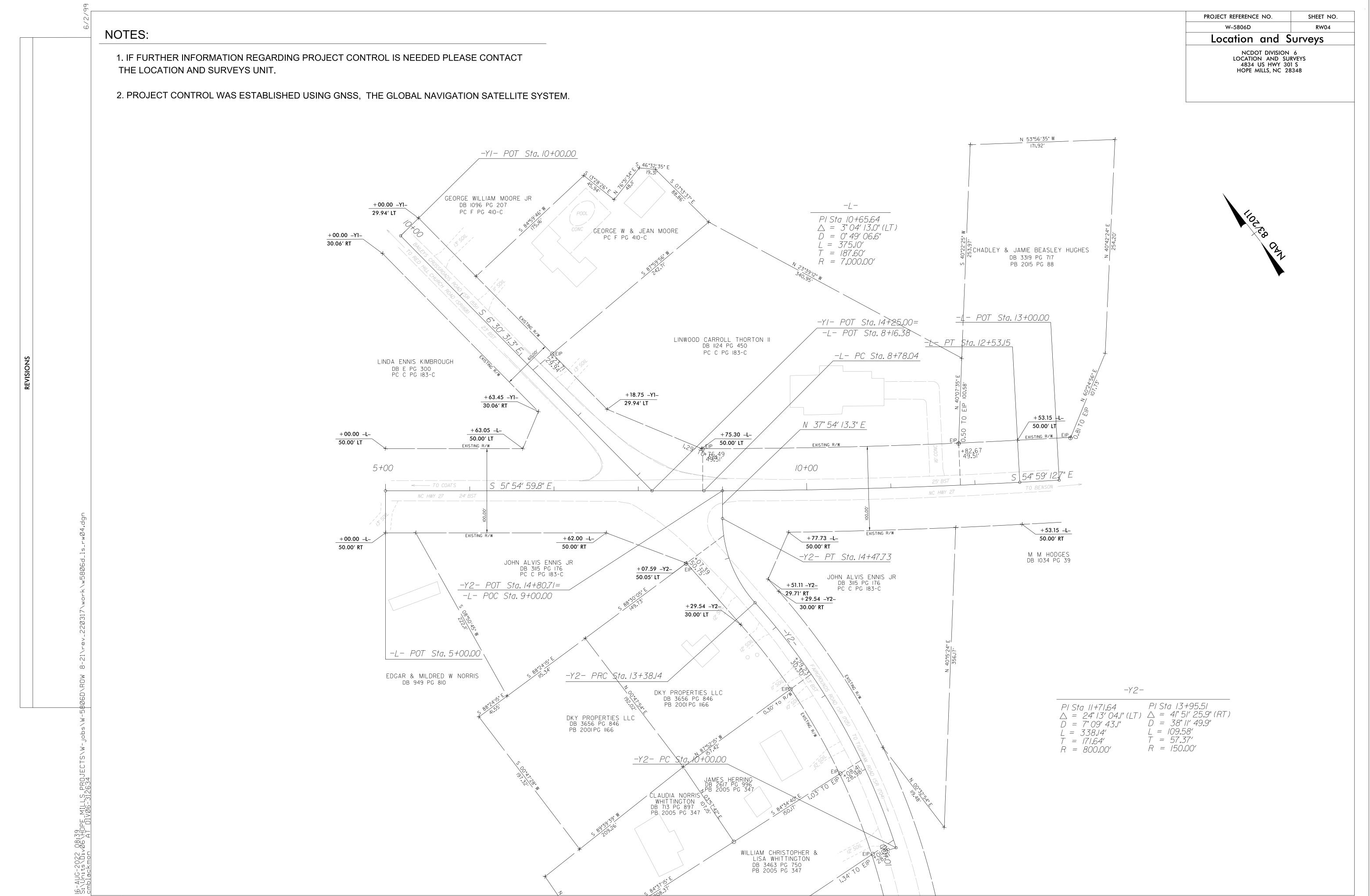
NO RIGHT OF WAY ACQUISTION WAS NECESSARY FOR THIS PROJECT.

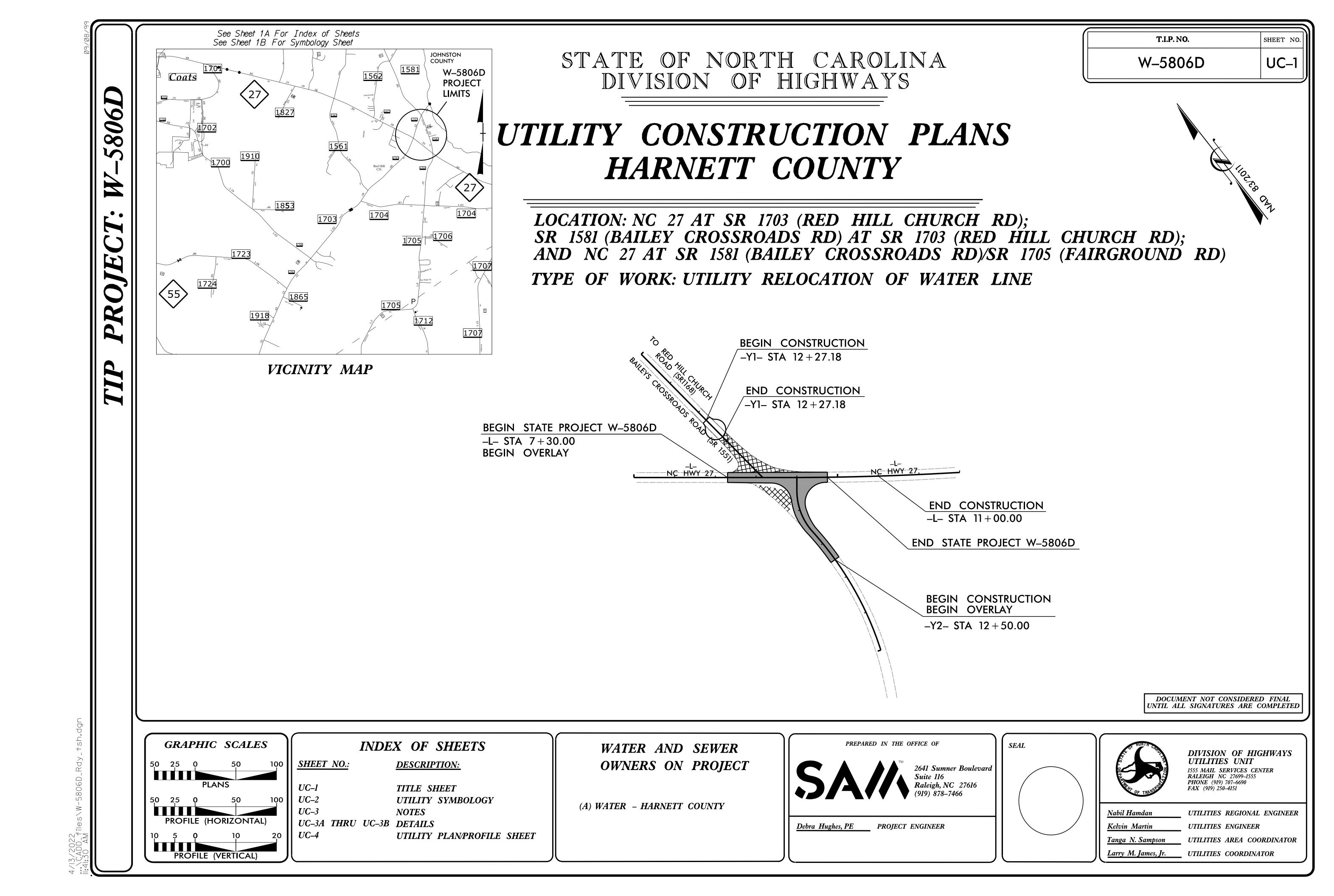
NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT. 2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

3. RIGHT OF WAY MONUMENTATION ESTABLISHED _____ TO _____.

PROJECT REFERENC	SHEET NO.	
W–5806D		RW03E–1
Location	and S	urveys
LOCATI 4834	OOT DIVISION ON AND SI US HWY 3 MILLS, NC 2	URVEYS 01 S





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 Per Average Street Relocate Fire Hydrant
Remove Fire Hydrant
Water Meter PWM
Relocate Water Meter PWM
Remove Water Meter
Water Pump StationPS(W)
RPZ Backflow Preventer
DCV Backflow Preventer
Relocate RPZ Backflow Preventer 🛣
Relocate DCV Backflow Preventer

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	12" SS
Force Main Sewer Line	12" FSS
Manhole (Sized per Note)	
Sewer Pump Station	

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

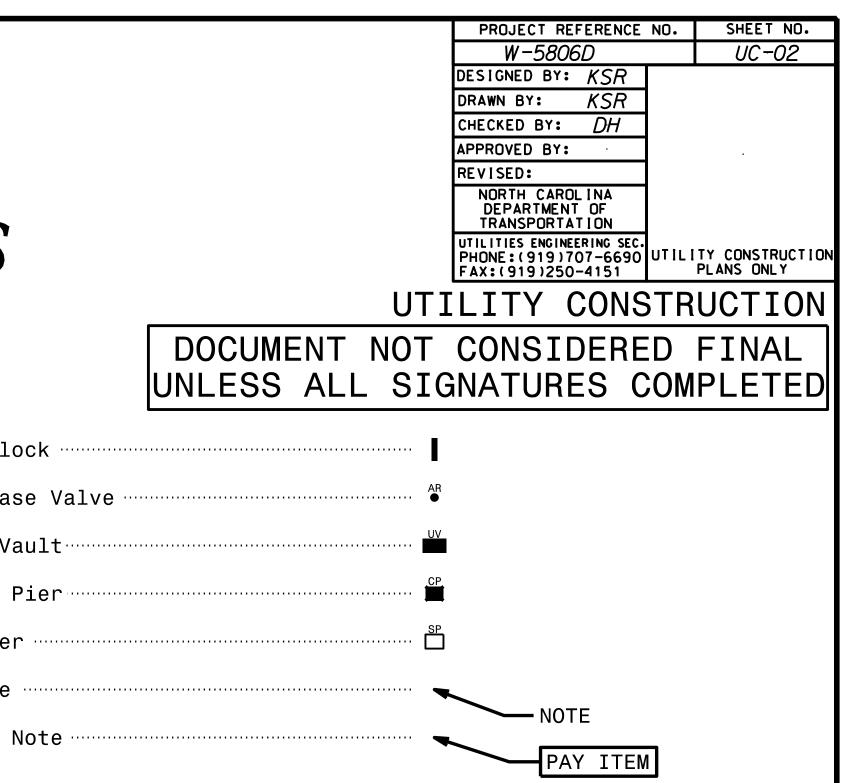
PROPOSED MISCELLANOUS UTILITIES SYMBOLS

Power Pole	Thrust Blo
Telephone Pole	Air Releas
Joint Use Pole	Utility Va
Telephone Pedestal	Concrete P.
Utility Line by Others	Steel Pier
Trenchless Installation	Plan Note
Encasement by Open Cut	Pay Item No
Encasement	

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 A/G Sanitary Sewer
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	

*For Exist: Utility L: (Type as S Designated (Type as S



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ed Utility Line Shown)	

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 OR HARNETT COUNTY PUBLIC UTILITY SPECIFICATIONS WHICHEVER IS MORE STRINGENT.

2. THE EXISTING UTILITIES BELONG TO HARNETT COUNTY PUBLIC UTILITIES.

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. 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.

7. 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.

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.

10. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SITE SAFETY ASSOCIATED WITH THE WORK UNDER THIS PROJECT AND FOR COMPLIANCE WITH ALL FEDERAL, STATE, AND LOCAL HEALTH AND SAFETY LAWS, CODES, REGULATIONS, AND ORDINANCES INCLUDING BUT NOT LIMITED TO THOSE CURRENTLY MANDATED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

11. ALL EROSION CONTROL DEVICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MOST CURRENT STANDARDS OF THE LAND QUALITY SECTION OF THE NCDEQ.

13. CROSS-CONNECTION CONTROL PROTECTION DEVICES NOZZLES AND ONE PUMPER NOZZLE) ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THERAFTER) IN ACCORDANCE WITH THE

MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS BE MONITORED BY THE HRW UTILITY CONSTRUCTION MORE STRINGENT

3. THE PROFESSIONAL ENGINEER (PE) SHALL OBTAIN AND PROVIDE THE NCDEQ "AUTHORIZATION TO CONSTRUCT" PERMIT TO THE UTILITY CONTRACTOR BEFORE THE CONSTRUCTION OF THE WATER LINE SHALL BEGIN. THE UTILITY CONTRACTOR MUST POST A COPY OF THE NCDEQ "AUTHORIZATION TO CONSTRUCT"PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ) ON SITE PRIOR TO THE START OF CONSTRUCTION. THE PERMIT MUST BE MAINTAINED ON SITE THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS OF THE PROPOSED WATER LINES THAT WILL SERVE THIS PROJECT.

4. THE UTILITY CONTRACTOR SHALL NOTIFY HARNETT REGIONAL WATER (HRW) AND THE PROFESSIONAL ENGINEER (PE) AT LEAST TWO DAYS PRIOR TO CONSTRUCTION COMMENCING. THE UTILITY CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH MR. ALAN MOSS. HRW UTILITY CONSTRUCTION INSPECTOR AT LEAST TWO (2) DAYS BEFORE CONSTRUCTION WILL BEGIN AND THE UTILITY CONTRACTOR MUST COORDINATE WITH HRW FOR **REGULAR INSPECTION VISITATIONS AND ACCEPTANCE** OF THE WATER SYSTEM(S). CONSTRUCTION WORK SHALL BE PERFORMED ONLY DURING THE NORMAL WORKING HOURS OF HRW WHICH IS 8:00 AM TO 5:00 PM MONDAY THROUGH FRIDAY. HOLIDAY AND WEEKEND WORK IS NOT PERMITTED BY HRW. 5. THE PROFESSIONAL ENGINEER (PE) SHALL PROVIDE

HRW AND THE UTILITY CONTRACTOR WITH A SET OF NCDEQ APPROVED PLANS MARKED "RELEASED FOR CONSTRUCTION" AT LEAST TWO DAYS PRIOR TO CONSTRUCTION COMMENCING. THE REGISTERED LAND SURVEYOR (RLS) SHOULD STAKE OUT ALL LOT CORNERS AND THE GRADE STAKES FOR THE PROPOSED FINISH GRADE FOR EACH STREET BEFORE THE UTILITY CONTRACTOR BEGINS CONSTRUCTION OF THE WATER LINE(S). THE GRADE STAKES SHOULD BE SET WITH A CONSISTENT OFFSET FROM THE STREET CENTERLINE SO AS NOT TO INTERFERE WITH THE STREET GRADING AND UTILITY CONSTRUCTION.

6. THE UTILITY CONTRACTOR SHALL PROVIDE THE HRW UTILITY CONSTRUCTION INSPECTOR WITH MATERIAL SUBMITTALS AND SHOP DRAWINGS FOR ALL PROJECT MATERIALS PRIOR TO THE CONSTRUCTION OF ANY WATER LINE EXTENSION(S), AND ASSOCIATED WATER SERVICES IN HARNETT COUNTY. THE MATERIALS TO BE USED ON THE PROJECT MUST MEET THE ESTABLISHED SPECIFICATIONS OF HRW AND BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION. ALL SUBSTANDARD MATERIALS OR MATERIALS NOT APPROVED FOR USE IN HARNETT COUNTY FOUND ON THE PROJECT SITE MUST BE REMOVED IMMEDIATELY WHEN NOTIFIED BY THE HRW UTILITY CONSTRUCTION INSPECTOR.

UTILITY CONSTRUCTION

PROJECT SPECIFIC NOTES: WATER

1. THE FIRE MARSHAL'S OFFICE SHALL APPROVE ALL HYDRANT TYPES AND LOCATIONS IN NEW SUBDIVISIONS. HOWEVER, HARNETT REGIONAL WATER (HRW) PREFERS THE CONTRACTORS TO INSTALL ONE OF THE FOLLOWING FIRE HYDRANTS:

A. MUELLER - SUPER CENTURION 250 A-423 MODEL WITH A 5¼"MAIN VALVE OPENING THREE WAY (TWO HOSE NOZZLES AND ONE PUMPER NOZZLE);

B. AMERICAN DARLING - MARK B-84-B MODEL WITH A 5¹/₄"MAIN VALVE OPENING THREE WAY (TWO HOSE

C. WATEROUS - PACER B-67-250 MODEL WITH A 51/4" MAIN VALVE OPENING THREE WAY (TWO HOSE NOZZLES AND ONE PUMPER NOZZLE) OR APPROVED EQUAL FOR STANDARDIZATION.

2. FIRE HYDRANTS ARE INSTALLED AT CERTAIN ELEVATIONS. ANY GRADE CHANGE NEAR ANY FIRE HYDRANT, WHICH IMPEDES ITS OPERATION, SHALL BECOME THE RESPONSIBILITY OF THE UTILITY CONTRACTOR FOR CORRECTION. CORRECTIONS WILL INSPECTOR AND THE HARNETT COUNTY FIRE MARSHAL 7. THE WATER MAIN(S), FIRE HYDRANTS, SERVICE LINES, METER SETTERS AND ALL ASSOCIATED APPURTENANCES SHALL BE CONSTRUCTED IN STRICT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE HARNETT REGIONAL WATER (HRW). THE UTILITY CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE THE NEWLY INSTALLED WATER MAIN(S), WATER SERVICE LINES AND ALL ASSOCIATED METER SETTERS AND METER BOXES FOR OTHER UTILITY COMPANIES AND THEIR CONTRACTORS UNTIL THE NEW WATER MAIN(S) HAVE BEEN APPROVED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF ENVIRONMENTAL HEALTH, PUBLIC WATER SUPPLY SECTION (NCDEQ, DEH, PWS) AND ACCEPTED BY HRW.

8. THE UTILITY CONTRACTOR SHALL PROVIDE THE PROFESSIONAL ENGINEER (PE) AND HRW UTILITY CONSTRUCTION INSPECTOR WITH A SET OF RED LINE DRAWINGS IDENTIFYING THE COMPLETE WATER SYSTEM INSTALLED FOR EACH PROJECT. THE RED LINE DRAWINGS SHOULD IDENTIFY THE MATERIALS, PIPE SIZES AND APPROXIMATE DEPTHS OF THE WATER LINES AS WELL AS THE GATE VALVES, FIRE HYDRANTS, METER SETTERS, BLOW OFF ASSEMBLIES AND ALL ASSOCIATED APPURTENANCES FOR ALL WATER LINE(S) CONSTRUCTED IN HARNETT COUNTY. THE RED LINE DRAWINGS SHOULD CLEARLY IDENTIFY ANY DEVIATIONS FROM THE NCDEQ APPROVED PLANS. ALL CHANGE ORDERS MUST BE APPROVED BY HRW AND THE PROFESSIONAL ENGINEER (PE) IN WRITING AND PROPERLY DOCUMENTED IN THE RED LINE FIELD DRAWINGS.

9. POTABLE WATER MAINS CROSSING OTHER UTILITIES AND NON-POTABLE WATER LINES (SANITARY SEWER, STORM SEWER, RCP, ETC.) SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF TWENTY-FOUR (24") INCHES BETWEEN THE POTABLE WATER MAIN AND ALL OTHER UTILITIES. NCDOT REQUIRES THE NEW WATER MAINS TO BE INSTALLED UNDER THE STORM WATER LINES. THE POTABLE WATER MAIN SHALL BE INSTALLED WITH TWENTY-FOUR (24") INCHES OF VERTICAL SEPARATION AND WITH DUCTILE IRON PIPE WHEN DESIGNED TO BE PLACED UNDER A NONPOTABLE WATER LINE SUCH AS SANITARY SEWER OR STORM SEWER LINES. IF THESE SEPARATIONS CANNOT BE MAINTAINED THEN THE WATER MAIN SHALL BE INSTALLED WITH DUCTILE IRON PIPE. BOTH THE POTABLE WATER MAIN AND THE NON-POTABLE WATER LINE MUST BE CAST IRON OR DUCTILE IRON PIPE (DIP) IF THE STATE MINIMUM SEPARATIONS CANNOT BE MAINTAINED. THE DUCTILE IRON PIPE MUST BE LAID SO THE MECHANICAL JOINTS ARE AT LEAST (10') FEET FROM THE POINT WHERE THE POTABLE WATER MAIN CROSSES THE NON-POTABLE WATER LINE.

10. POTABLE WATER MAINS INSTALLED PARALLEL TO NON-POTABLE WATER LINES (SANITARY SEWER, STORM SEWER, RCP, ETC.) SHALL BE LAID TO PROVIDE A MINIMUM HORIZONTAL DISTANCE OF TEN (10') FEET BETWEEN THE POTABLE WATER MAIN AND SANITARY SEWER MAINS, SEWER LATERALS AND SERVICES. THE HORIZONTAL SEPARATION BETWEEN THE POTABLE WATER MAIN AND ANY OTHER UTILITY OR STORM SEWER SHALL NOT BE LESS THAN FIVE (5') FEET. THE POTABLE WATER MAIN MUST BE DUCTILE IRON PIPE IF THIS HORIZONTAL SEPARATION OF TEN (10') FEET CANNOT BE MAINTAINED. THE DUCTILE IRON PIPE SHALL EXTEND AT LEAST TEN (10') FEET BEYOND THE POINT WHERE THE MINIMUM REQUIRED HORIZONTAL SEPARATION OF TEN (10') FEET CAN BE RE-ESTABLISHED.

11. THE WATER MAIN(S), FIRE HYDRANTS, GATE VALVES, SERVICE LINES, METER SETTERS AND ASSOCIATED APPURTENANCES MUST BE RATED FOR 200 PSI AND HYDROSTATICALLY PRESSURE TESTED TO 200 PSI. THE HYDROSTATIC PRESSURE TEST(S) MUST BE WITNESSED BY THE HRW UTILITY CONSTRUCTION INSPECTOR. THE UTILITY CONTRACTOR MUST NOTIFY HRW WHEN THEY ARE READY TO BEGIN FILLING IN LINES AND COORDINATE WITH HARNETT REGIONAL WATER TO WITNESS ALL PRESSURE TESTING.

12. THE UTILITY CONTRACTOR SHALL CONDUCT A PNEUMATIC PRESSURE TEST USING COMPRESSED AIR OR OTHER INERT GAS ON THE STAINLESS STEEL TAPPING SLEEVE(S) PRIOR TO MAKING THE TAP ON THE EXISTING WATER MAIN. THIS PNEUMATIC PRESSURE TEST MUST BE WITNESSED BY THE HRW UTILITY CONSTRUCTION INSPECTOR. THE UTILITY CONTRACTOR SHALL USE ROMAC BRAND STAINLESS STEEL TAPPING SLEEVE(S) OR APPROVED EQUAL FOR ALL TAPS MADE IN HARNETT COUNTY. ALL NEW WATER LINE EXTENSIONS MUST BEGIN WITH A RESILIENT WEDGE TYPE GATE VALVE SIZED EQUAL TO THE DIAMETER OF THE NEW WATER LINE EXTENSION IN ORDER TO PROVIDE A MEANS OF ISOLATION BETWEEN HARNETT REGIONAL WATER'S EXISTING WATER MAINS AND THE NEW WATER LINE EXTENSIONS UNDER CONSTRUCTION.

13. ALL WATER MAINS WILL BE CONSTRUCTED WITH SDR-21 PVC PIPE OR CLASS 50 DUCTILE IRON PIPE RATED FOR AT LEAST 200 PSI OR GREATER. ALL PIPES MUST BE PROTECTED DURING LOADING, TRANSPORT, UNLOADING, STAGING, AND INSTALLATION. PVC PIPE MUST BE PROTECTED FROM EXTENDED EXPOSURE TO SUNLIGHT PRIOR TO INSTALLATION.

14. ALL WATER MAINS WILL BE FLUSHED AND DISINFECTED IN STRICT ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE HARNETT REGIONAL WATER. ALL WATER SAMPLES COLLECTED FOR BACTERIA TESTING WILL BE COLLECTED BY THE HRW UTILITY CONSTRUCTION INSPECTOR AND TESTED IN THE HRW LABORATORY.

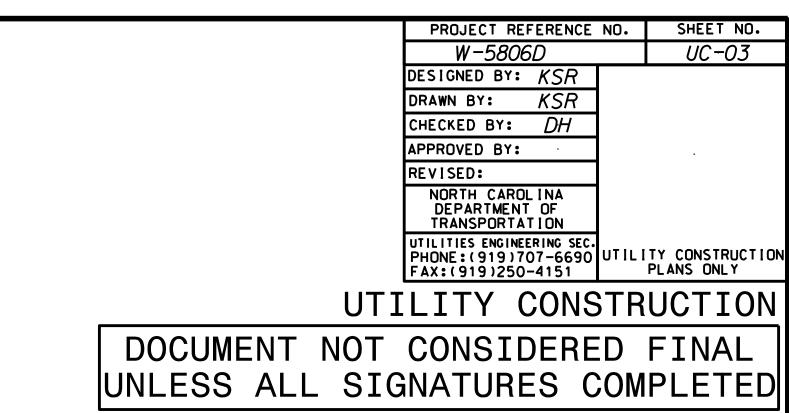
15. ALL FITTINGS LARGER THAN TWO (2") INCHES DIAMETER SHALL BE DUCTILE IRON. HRW REQUIRES THAT MECHANICAL JOINTS BE ASSEMBLED WITH GRIP RINGS AS "MEGALUG" FITTINGS ARE NOT APPROVED BY HARNETT REGIONAL WATER FOR PIPE SIZES SMALLER THAN TWELVE INCHES (12") DIAMETER. PVC PIPE USED FOR WATER MAINS SHALL BE CONNECTED BY SLIP JOINT OR MECHANICAL JOINT WITH GRIP RINGS. GLUED PIPE JOINTS ARE NOT ALLOWED ON PVC PIPE USED FOR WATER MAINS IN HARNETT COUNTY.

16. HRW REQUIRES THAT THE UTILITY CONTRACTOR INSTALL TRACER WIRE IN THE TRENCH WITH ALL WATER LINES. THE TRACER WIRE SHALL BE 12 GA. INSULATED, SOLID COPPER CONDUCTOR AND IT SHALL BE TERMINATED AT THE TOP OF THE VALVE BOXES OR MANHOLES. NO SPLICED WIRE CONNECTIONS SHALL BE MADE UNDERGROUND ON TRACER WIRE INSTALLED IN HARNETT COUNTY. THE TRACER WIRE MAY BE SECURED WITH DUCT TAPE TO THE TOP OF THE PIPE BEFORE BACKFILLING.

17. THE UTILITY CONTRACTOR WILL PROVIDE PROFESSIONAL ENGINEER (PE) AND THE HRW UTILITY CONSTRUCTION INSPECTOR WITH A SET OF RED LINE FIELD DRAWINGS TO IDENTIFY THE INSTALLED LOCATIONS OF THE WATER LINE(S) AND ALL ASSOCIATED SERVICES. ALL CHANGE ORDERS MUST BE PRE-APPROVED BY HRW AND THE PROFESSIONAL ENGINEER (PE) IN WRITING AND PROPERLY DOCUMENTED IN THE RED LINE FIELD DRAWINGS.

18. THE UTILITY CONTRACTOR SHALL SPOT DIG TO EXPOSE EACH UTILITY PIPE OR LINE WHICH MAY CONFLICT WITH CONSTRUCTION OF PROPOSED WATER LINE EXTENSIONS WELL IN ADVANCE TO VERIFY LOCATIONS OF THE EXISTING UTILITIES. THE UTILITY CONTRACTOR SHALL PROVIDE BOTH HORIZONTAL AND VERTICAL CLEARANCES TO THE PROFESSIONAL ENGINEER (PE) TO ALLOW THE PE TO ADJUST THE WATER LINE DESIGN IN ORDER TO AVOID CONFLICTS WITH EXISTING UNDERGROUND UTILITIES. THE UTILITY CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER AND BE RESPONSIBLE FOR TEMPORARY RELOCATION AND/OR SECURING EXISTING UTILITY POLES, PIPES, WIRES, CABLES, SIGNS AND/OR UTILITIES INCLUDING SERVICES IN ACCORDANCE WITH THE UTILITY OWNER REQUIREMENTS DURING WATER LINE INSTALLATION, GRADING AND STREET CONSTRUCTION.

19. PRIOR TO THE COMMENCEMENT OF ANY WORK WITHIN ESTABLISHED UTILITY EASEMENTS OR NCDOT RIGHT-OF-WAYS THE UTILITY CONTRACTOR IS **REQUIRED TO HAVE A SIGNED NCDOT** ENCROACHMENT AGREEMENT POSTED ON SITE AND NOTIFY ALL CONCERNED UTILITY COMPANIES IN ACCORDANCE WITH G.S. 87-102. THE UTILITY CONTRACTOR MUST CALL THE NC ONE CALL CENTER AT 811 OR (800) 632-4949 TO VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. EXISTING UTILITIES SHOWN IN THESE PLANS ARE TAKEN FROM MAPS FURNISHED BY VARIOUS UTILITY COMPANIES AND HAVE NOT BEEN PHYSICALLY LOCATED OR VERIFIED BY THE P.E. (I.E. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL GAS, ETC.). THE UTILITY CONTRACTOR WILL BE RESPONSIBLE TO REPAIR ANY AND ALL DAMAGES TO THE SATISFACTION OF THE RELATED UTILITY COMPANY. 20. THE UTILITY CONTRACTOR SHALL PROVIDE HRW WITH AT LEAST ONE (1) FIRE HYDRANT WRENCH AND



ONE (1) BREAK-AWAY FLANGE KIT FOR EVERY SUBDIVISION WITH FIRE HYDRANTS DEVELOPED IN HARNETT COUNTY. THESE ITEMS MUST BE PROVIDED TO HRW BEFORE THE FINAL INSPECTION WILL BE SCHEDULED BY THE HRW UTILITY CONSTRUCTION INSPECTOR. IN ADDITION, THE UTILITY CONTRACTOR SHALL INSTALL A 4"X 4" CONCRETE VALVE MARKER AT THE EDGE OF THE RIGHT-OF-WAY TO IDENTIFY THE LOCATION OF EACH GATE VALVE INSTALLED IN THE NEW WATER SYSTEM WITH THE EXCEPTION OF THE FIRE HYDRANT ISOLATION VALVES. THE CONTRACTOR SHALL MEASURE THE DISTANCE FROM THE CENTER OF THE CONCRETE MARKER TO THE CENTER OF THE VALVE BOX. THIS DISTANCE (IN LINEAR FEET) SHALL BE STAMPED ON THE BRASS PLATE LOCATED ON THE TOP OF THE CONCRETE VALVE MARKER. IN LIEU OF INSTALLING THE CONCRETE VALVE MARKERS, THE UTILITY CONTRACTOR MAY PROVIDE AT LEAST TWO MEASUREMENTS FROM TWO INDEPENDENT PERMANENT ABOVE GROUND STRUCTURES TO THE PROFESSIONAL ENGINEER (PE) IN THE RED LINE DRAWINGS TO IDENTIFY THE VALVE LOCATIONS. THE PROFESSIONAL ENGINEER (PE) MUST INCLUDE THESE MEASUREMENTS IN THE AS-BUILT RECORD DRAWINGS SUBMITTED TO HRW.

21. THE UTILITY CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL REPAIRS DUE TO LEAKAGE DAMAGE FROM POOR WORKMANSHIP DURING THE ONE (1) YEAR WARRANTY PERIOD ONCE THE WATER SYSTEM IMPROVEMENTS HAVE BEEN ACCEPTED BY HARNETT REGIONAL WATER. HARNETT REGIONAL WATER WILL PROVIDE MAINTENANCE AND REPAIRS WHEN REQUESTED AND BILL THE DEVELOPER AND/OR UTILITY CONTRACTOR IF NECESSARY DUE TO LACK OF RESPONSE WITHIN 48 HOURS OF NOTIFICATION OF WARRANTY WORK. THE UTILITY CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL REPAIRS DUE TO DAMAGES RESULTING FROM FAILURE TO LOCATE THE NEW WATER LINES AND ASSOCIATED

APPURTENANCES FOR OTHER UTILITIES AND THEIR CONTRACTORS UNTIL THE WATER LINES HAVE BEEN APPROVED BY NCDEQ AND ACCEPTED BY HRW. THE FINAL INSPECTION OF WATER SYSTEM

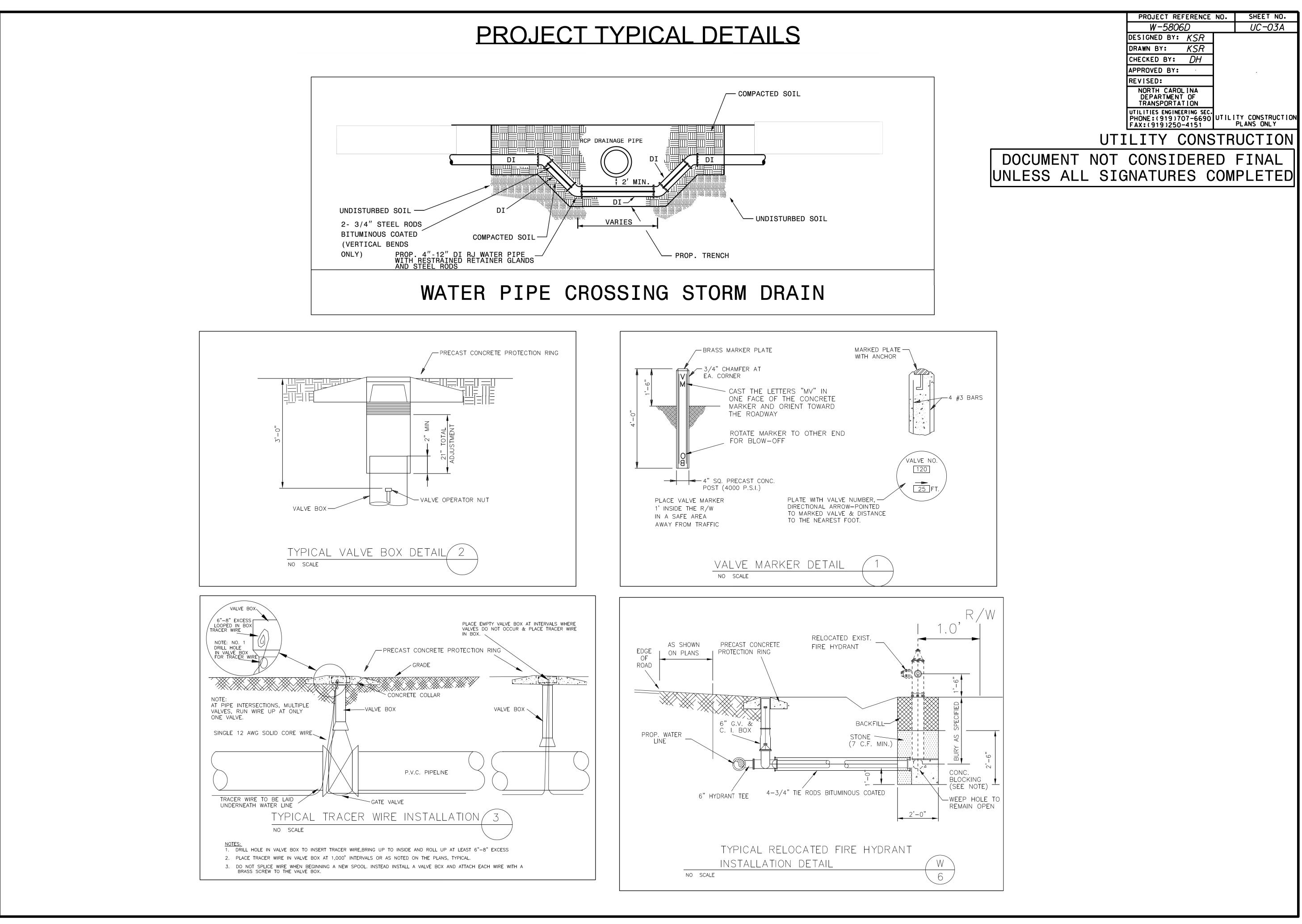
IMPROVEMENTS CANNOT BE SCHEDULED WITH HRW UNTIL THE STREETS HAVE BEEN PAVED; THE RIGHTS-OF-WAY AND UTILITY EASEMENTS HAVE BEEN SEEDED AND STABILIZED WITH AN ADEQUATE STAND OF GRASS IN PLACE TO PREVENT EROSION ISSUES ON SITE.

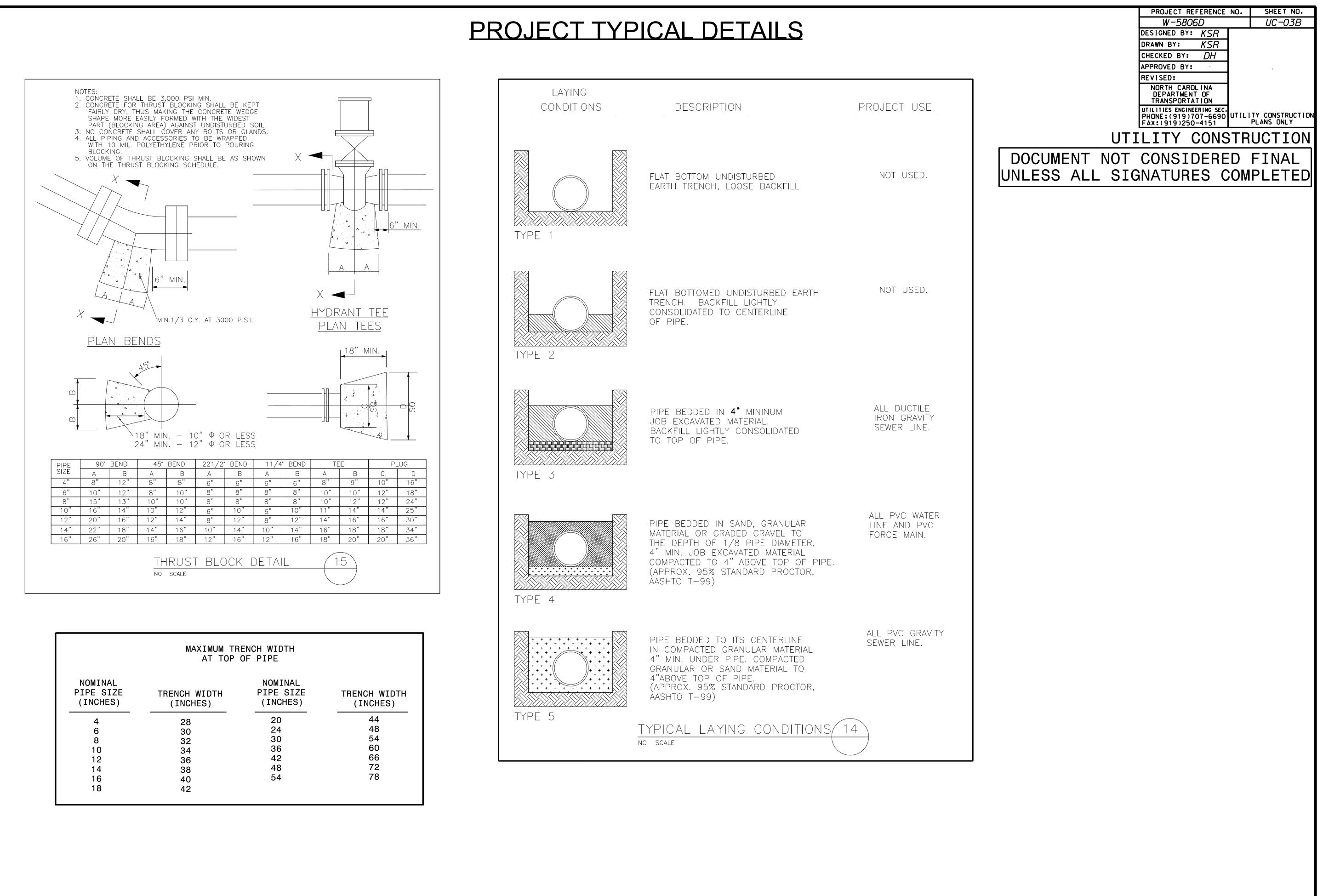
22. THE ENGINEER OF RECORD IS RESPONSIBLE TO INSURE THAT CONSTRUCTION IS, AT ALL TIMES, IN COMPLIANCE WITH ACCEPTED SANITARY ENGINEERING PRACTICES AND APPROVED PLANS AND SPECIFICATIONS, NO FIELD CHANGES TO THE APPROVED PLANS ARE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY HRW. A COPY OF EACH ENGINEER'S FIELD REPORT IS TO BE SUBMITTED TO HRW AS EACH SUCH INSPECTION IS MADE ON SYSTEM IMPROVEMENTS OR TESTING IS PERFORMED BY THE CONTRACTOR. WATER AND SEWER INFRASTRUCTURE MUST PASS ALL TESTS REQUIRED BY HRW SPECIFICATIONS AND THOSE OF ALL APPLICABLE REGULATORY AGENCIES. THESE TESTS INCLUDE, BUT ARE NOT LIMITED TO: AIR TEST, VACUUM TEST, MANDREL TEST, VISUAL TEST, PRESSURE TEST, BACTERIOLOGICAL TEST, ETC. A HRW INSPECTOR MUST BE PRESENT DURING TESTING AND ALL TEST RESULTS SHALL BE SUBMITTED TO HRW. ALL TESTS MUST BE SATISFIED BEFORE THE FINAL INSPECTION WILL BE SCHEDULED WITH THE HRW INSPECTOR. THE ENGINEER OF RECORD MUST REQUEST IN WRITING TO SCHEDULE THE FINAL INSPECTION ONCE ALL CONSTRUCTION IS COMPLETE. THE DEVELOPER'S ENGINEER OF RECORD AND THE HRW UTILITY CONSTRUCTION INSPECTOR SHALL PREPARE A WRITTEN PUNCH LIST OF ANY DEFECTS OR DEFICIENCIES NOTED DURING THE FINAL INSPECTION, SHOULD ANY EXIST. UPON COMPLETION OF THE PUNCH LIST, THE DEVELOPER'S ENGINEER OF RECORD WILL SCHEDULE ANOTHER INSPECTION. IN THE EVENT THE NUMBER OF INSPECTIONS PERFORMED BY THE HRW EXCEEDS TWO, ADDITIONAL FEES MAY BE ACCESSED TO THE DEVELOPER.

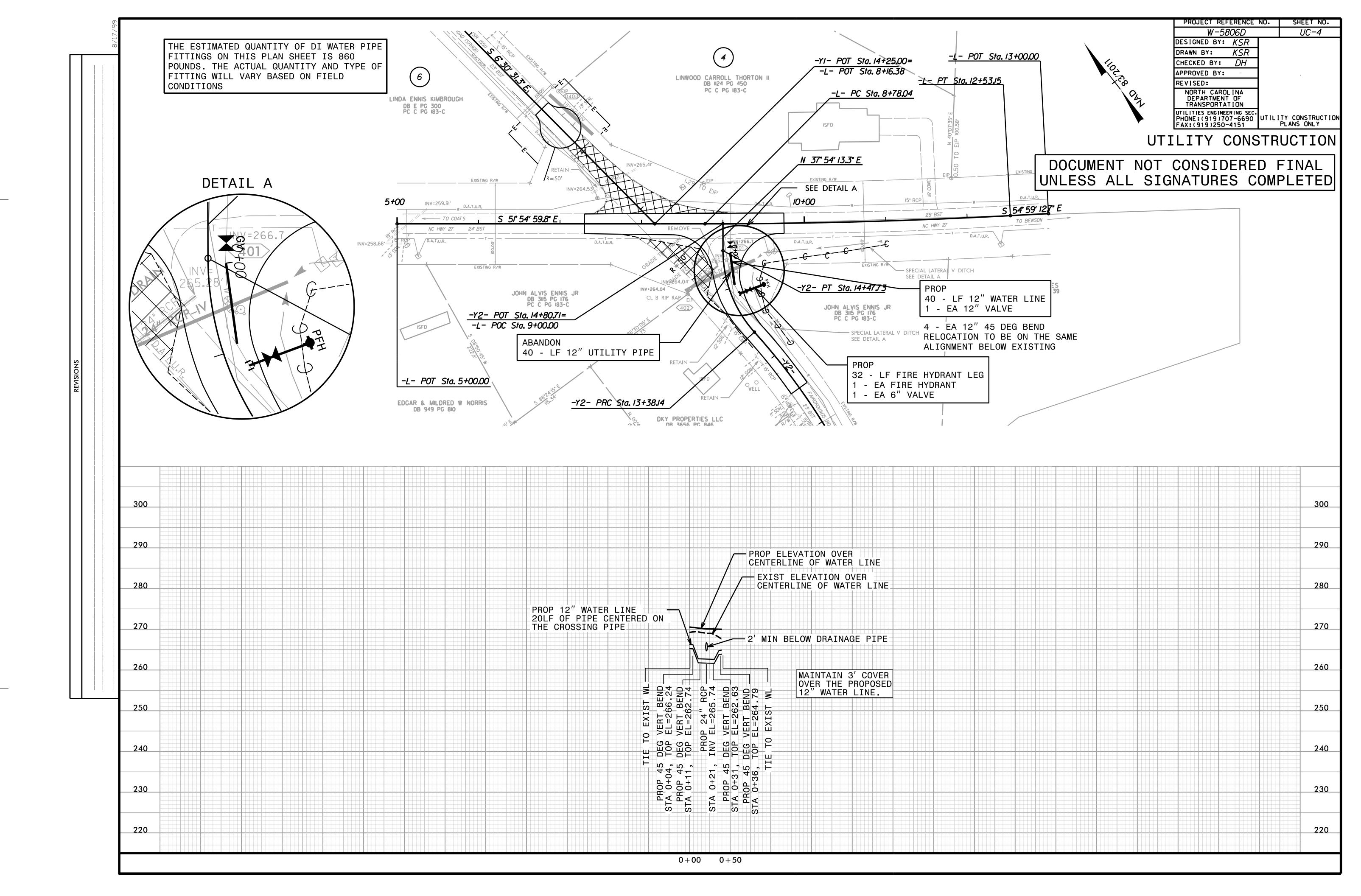
23. FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS. SUBMITTED SEPARATELY.

24. FOR TRAFFIC CONTROL PLANS, SEE TRANSPORTATION MANAGEMENT PLANS. SUBMITTED SEPARATELY.

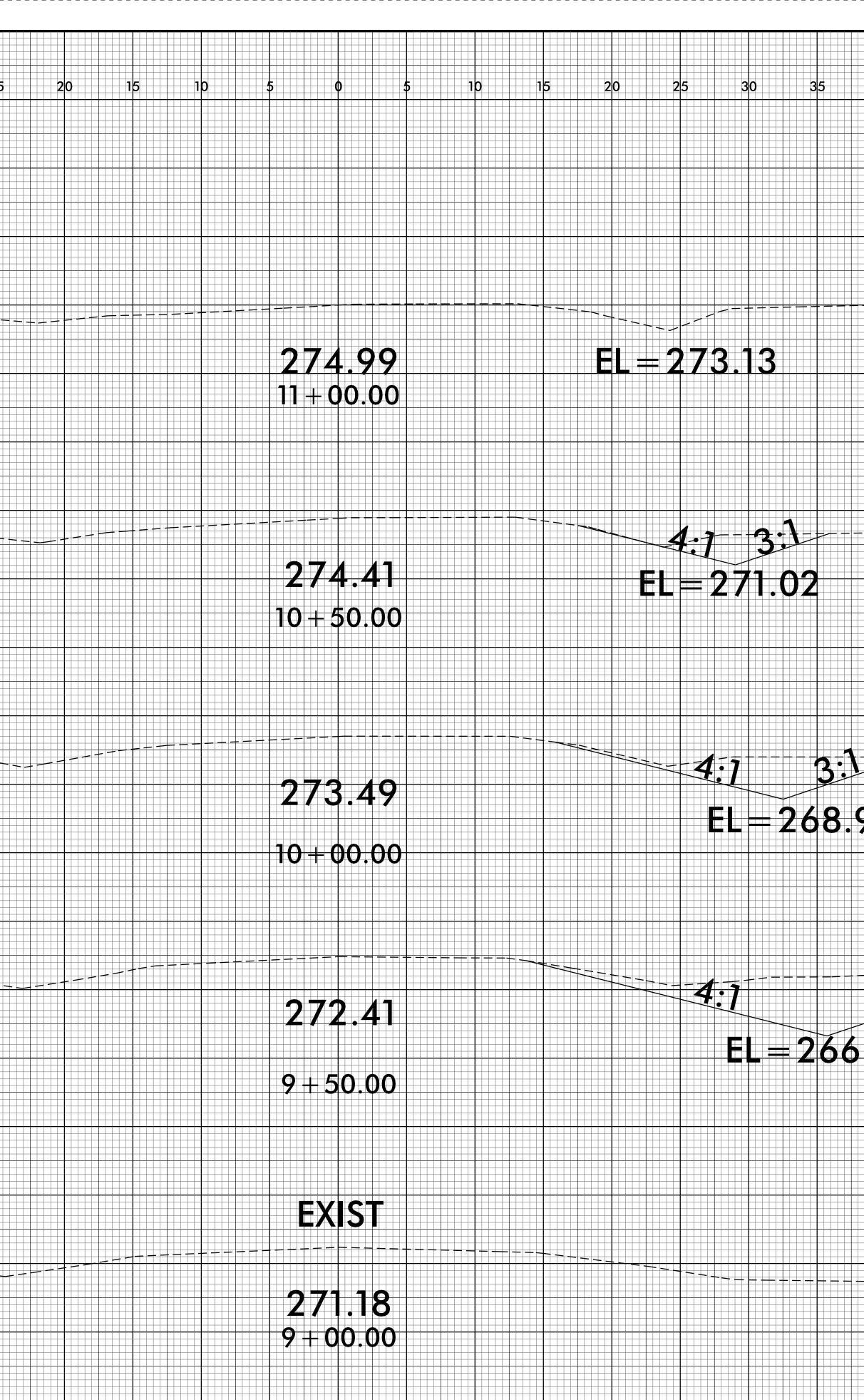
25. EXISTING WATER LINES SHOWN ARE QUALITY LEVEL C SUE INFOMATION. ELEVATION OF EXISTING 12" WATER LINE AT WATER LINE TIE IN LOCATIONS IS ASSUMED TO BE 3-FEET BELOW EXISTING GRADE. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE EXISTING WATER LINE PRIOR TO MAKING CONNECTION.







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