

5/14/19

GENERAL NOTES:

1. ALL NATURAL GAS PIPELINE CONSTRUCTION SHALL BE PER FRONTIER NATURAL GAS SPECIFICATIONS. CONTRACTOR SHALL REFER TO THE PROJECT SPECIAL PROVISIONS.
2. 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.
3. BLASTING NOT PERMITTED.
4. THE PLANS DEPICT SITE FEATURES AS ANTICIPATED TO BE UPON THE START OF CONSTRUCTION.
5. THE LOCATIONS OF UNDERGROUND UTILITIES AS INDICATED ON THE PLANS HAVE BEEN OBTAINED FROM EXISTING RECORDS AND A FIELD SURVEY AND ARE APPROXIMATE. THE ENGINEER AND OWNER DO NOT ASSUME ANY RESPONSIBILITY WHATSOEVER WITH THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF THE EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED DURING CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES.
6. CONTRACTOR SHALL CONTACT NC ONE CALL AT 811 A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION FOR OTHER UTILITY LOCATIONS.
7. IN THE EVENT THAT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE DESIGNATED REPRESENTATIVE FOR FRONTIER NATURAL GAS (FNG).
8. ANY SUCH MAINS AND/OR SERVICES DISTURBED OR DAMAGED BY THE CONTRACTOR SHALL BE IMMEDIATELY RESTORED AT HIS EXPENSE AND TO THE SATISFACTION OF FNG'S DESIGNATED REPRESENTATIVE.
9. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107 AND 1550 OF THE NCDOT STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS OR BUFFER ZONES.
10. CONTRACTOR SHALL LIMIT ALL EXCAVATIONS, SPOIL PILES, PIPE ASSEMBLY, WORK SPACE, EQUIPMENT SETUP, ETC. TO RESIDE WITHIN THE LIMITS OF THE NCDOT RIGHT OF WAY AND EXISTING/PROPOSED FNG EASEMENTS.
11. ANY CATHODIC PROTECTION MEASURES DEEMED NECESSARY TO PROTECT THE PIPE SHALL BE LOCATED OUTSIDE OF THE HIGHWAY R/W.
12. CATHODIC PROTECTION MEASURES SHALL BE DESIGNED AND INSTALLED BY OTHERS.
13. FRONTIER NATURAL GAS REPRESENTATIVE TO PROVIDE WATCH AND PROTECT OBSERVATION WHILE NCDOT ROADWAY CONTRACTOR IS PERFORMING REMOVAL AND/OR INSTALLATION OF DRAINAGE PIPES AROUND ALL FRONTIER NATURAL GAS MAIN THAT IS TO REMAIN IN PLACE.
14. TEMPORARY FENCING SHALL BE INSTALLED WHERE FARM LAND IS PRESENT TO SECURE CATTLE.
15. TRAFFIC CONTROL MEASURES SHALL BE PROVIDED FOR THE INSTALLATION OF THE GAS MAINS AS PART OF THE ROADWAY PROJECT AND IN ACCORDANCE WITH THE APPLICABLE NCDOT SPECIFICATIONS AND STANDARD DRAWINGS.
16. HOLIDAY DETECTION (JEEPING) SHALL BE CONDUCTED ON THE ENTIRE LENGTH OF THE PROPOSED PIPELINE PRIOR TO INSTALLATION.
17. TYPICAL OPEN TRENCH COVER FOR GAS PIPE SHALL BE 3.0 FEET. CONTRACTOR SHALL MAINTAIN 2.0 FEET OF VERTICAL SEPARATION BETWEEN GAS MAIN AND OTHER UTILITY LINES OR STRUCTURES. GAS LINE INSTALLED UNDER DRAINAGE PIPES SHALL MAINTAIN 4.0 FEET OF VERTICAL SEPARATION. CONTRACTOR SHALL MAINTAIN 1.0 FOOT OF SEPARATION FROM BOTTOM OF PROPOSED GAS PIPE TO TOP OF DRAINAGE PIPE/BOX CULVERT. CONTRACTOR SHALL MAINTAIN 5.0 FEET MINIMUM COVER FROM BOTTOM OF DITCH/STREAM TO TOP OF PROPOSED GAS PIPE.
18. CONTRACTOR SHALL ENSURE THAT ALL EXCAVATIONS ARE PROPERLY SUPPORTED AND ADHERE TO CURRENT OSHA SAFETY STANDARDS.
19. ALL PROPOSED GAS LINE NEEDS TO BE PIGGABLE, AND AS SUCH ALL PROPOSED FITTINGS SHALL BE 5R FITTINGS IN ACCORDANCE WITH FNG REQUIREMENTS.





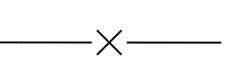
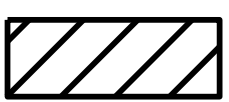

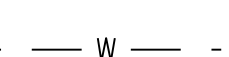
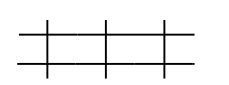
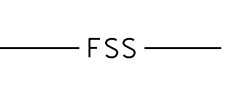
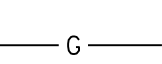


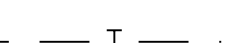
HORIZONTAL DIRECTIONAL DRILL (HDD) NOTES:

1. ALL BEND RADII SHALL BE EQUAL TO OR GREATER THAN THOSE LISTED IN THE PROJECT PLANS.
2. THE CONTRACTOR, SUBJECT TO THE REQUIREMENTS OF THESE PLANS, WILL DETERMINE THE EXACT METHOD AND TECHNIQUES FOR COMPLETING THE HDD CROSSING. EXCAVATED MUD PITS CONSTRUCTED IN THE ENTRY AND EXIT AREAS WILL BE LIMITED TO THE PIPE DRILL HOLE AREA ONLY.
3. AFTER COMPLETION OF THE DIRECTIONAL DRILLING WORK, THE ENTRY AND EXIT PIT LOCATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS.
4. AFTER THE PILOT DRILL HOLE IS ACCEPTED, THE CONTRACTOR SHALL PERFORM A REAM 1.5 TIMES THE O.D. OF THE CARRIER PIPE AHEAD OF THE PRODUCT PIPE PULL.
5. THE MAXIMUM PREREAMING SHALL BE 1.5 TIMES THE CARRIER PIPE O.D. UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. ENTRY AND EXIT PITS SHOULD BE SUFFICIENT SIZE TO CONTAIN THE DRILLING MUD AND SPOILS.
7. ALL STEEL PIPE USED FOR DIRECTIONAL DRILLS SHALL BE COATED WITH AN ABRASION RESISTANT OVERCOAT. PIPE COATED WITH ONLY FBE MAY BE USED FOR OPEN TRENCH PIPE INSTALLATIONS.
8. PIPE ROLLERS, SKATES, OR OTHER PROTECTIVE DEVICES SHALL BE USED TO PREVENT DAMAGE TO THE PIPE FROM THE EDGES OF THE PIT OR SUB-STRUCTURES DURING PULL-IN. ROLLERS SHALL BE USED UNDER PIPE TO PROTECT THE PIPE FROM GOUGES, ELIMINATE GROUND DRAG, AND REDUCE THE PULL-IN FORCE.
9. AN ADDITIONAL LENGTH OF PIPE SHALL BE PULLED THROUGH THE ENTRY PIT, EXPOSED, AND EXAMINED FOR DAMAGE INCLUDING A BUTT WELD JOINT AND A MINIMUM OF FIFTEEN FEET (15') OF PIPE.
10. INSTALLATION OF THE PIPE SHOULD BE PLANNED SO BOTH THE FINAL BACKREAM AND THE PULL BACK CAN BE COMPLETED IN THE SAME DAY.
11. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DRILL MUD.

JACK AND BORE NOTES:

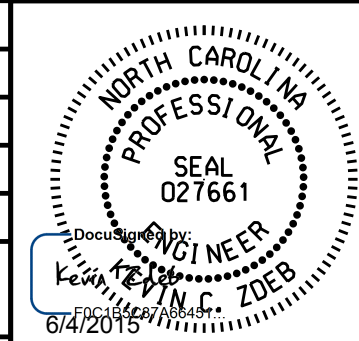
1. THE FRONT OF THE BORE PIPE SHALL BE PROVIDED WITH MECHANICAL ARRANGEMENTS OR DEVICES THAT WILL POSITIVELY PREVENT THE AUGER FROM LEADING THE PIPE SO THAT NO UNSUPPORTED EXCAVATION IS AHEAD OF THE PIPE.
2. THE AUGER AND CUTTING HEAD ARRANGEMENT SHALL BE REMOVABLE FROM WITHIN THE PIPE IN THE EVENT THAT AN OBSTRUCTION IS ENCOUNTERED.
3. THE OVER-CUT BY THE CUTTING HEAD SHALL NOT EXCEED THE OUTSIDE DIAMETER OF THE BORE PIPE BY MORE THAN 1/2 INCH. IF VOIDS SHOULD DEVELOP OR IF THE BORED HOLE DIAMETER IS GREATER THAN THE OUTSIDE DIAMETER OF THE PIPE BY MORE THAN 1 INCH, GROUTING OR OTHER METHODS APPROVED BY CSX SHALL BE EMPLOYED TO FILL SUCH VOIDS.
4. THE FACE OF THE CUTTING HEAD SHALL BE ARRANGED TO PROVIDE A REASONABLE OBSTRUCTION TO THE FREE FLOW OF SOFT OR POOR MATERIAL.

SYMBOLS LEGEND:

	TREE		MISC. STRUCTURE		TEST STATION
	UTILITY POLE		CHAIN LINK FENCE		DRILL PIT / WORK SPACE
	WOODS LINE		EX. WATER LINE		
	RAILROAD TRACK		EX. FORCE MAIN		
	EXISTING U/G GAS LINE		EX. TV LINE		
	PROPOSED U/G GAS LINE		EX. TELEPHONE LINE		

ABBREVIATIONS:

API	AMERICAN PETROLEUM INSTITUTE
APPROX.	APPROXIMATE
CL	CENTERLINE
ESMT	EASEMENT
EX.	EXISTING
FBE	FUSION BONDED EPOXY
MAX.	MAXIMUM
MIN.	MINIMUM
M.P.	MILE POST
N/A	NOT APPLICABLE
NC	NORTH CAROLINA
NCDOT	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
NTS	NOT TO SCALE
O.D.	OUTSIDE DIAMETER
PROP.	PROPOSED
PSIG	POUNDS PER SQUARE INCH GAGE
FNG	FRONTIER NATURAL GAS
RR	RAILROAD
R/W	RIGHT-OF-WAY
S.R.	STATE ROUTE
W.T.	WALL THICKNESS
E.O.P.	EDGE OF PAVEMENT
E.O.S.	EDGE OF SHOULDER
E.O.P.S.	EDGE OF PAVED SHOULDER

PROJECT REFERENCE NO. R-2915A	SHEET NO. UC-3
DESIGNED BY: SAG	
DRAWN BY: SAG	
CHECKED BY: KCZ	
APPROVED BY: KCZ	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION