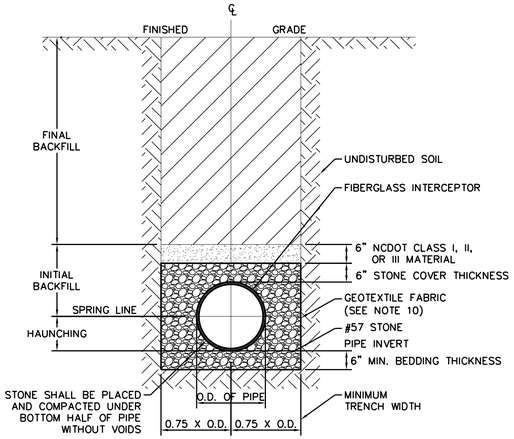
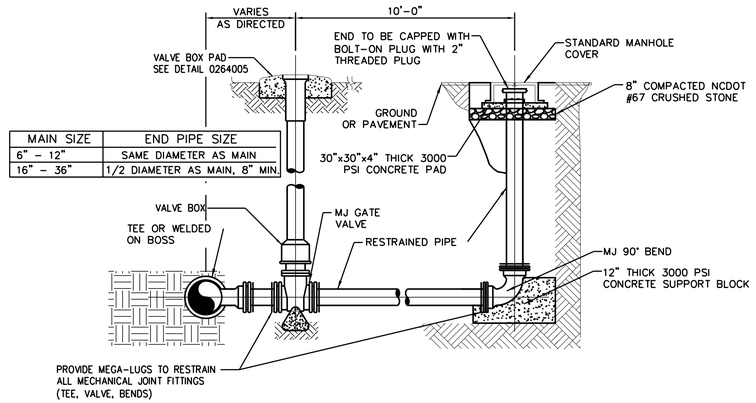
PROJECT TYPICAL DETAILS



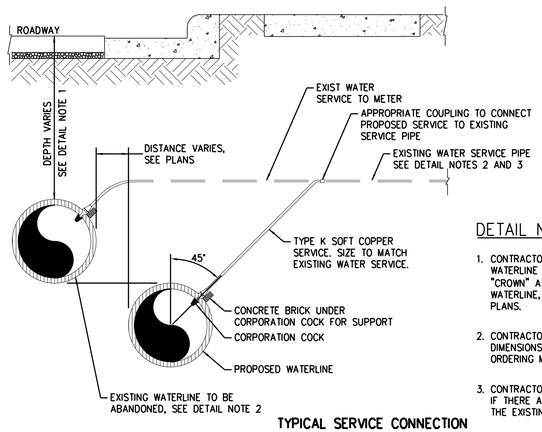
NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 2" OR LARGER TO BE USED IN INITIAL BACKFILL AND NONE 6" OR LARGER IN FINAL BACKFILL.
3. FINAL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
5. TOTAL TRENCH WIDTH SHALL BE A MINIMUM OF 1.5X O.D. OF PIPE.
6. ACHIEVE 90% COMPACTION IN BEDDING, HAUNCHING AND INITIAL BACKFILL. SEE TECHNICAL SPECIFICATION SECTION 02315 FOR COMPACTION REQUIREMENTS IN FINAL BACKFILL.
7. IF IN EASEMENT 4" TOPSOIL, AND 12" CLEAN SELECT FILL MAY BE REQUIRED AT THE TOP OF TRENCH BACKFILL.
8. CONTRACTOR SHALL UTILIZE METHODS NECESSARY TO MAINTAIN A FULL 6" OF STONE OVER THE PIPE FOLLOWING EXTRACTION OF TRENCH BOX AND/OR SHEETING.
9. CONTRACTOR SHALL ENSURE PIPE COUPLINGS/JOINTS ARE NOT DEFLECTED WHEN TWO PIPES ARE JOINED.
10. THE STONE BEDDING SHALL BE FULLY ENCLOSED IN A GEOTEXTILE FABRIC WRAP. THE INTERCEPTOR ALIGNMENT SHALL BE ASSUMED TO REQUIRE GEOTEXTILE FABRIC FOR THE LENGTH OF THE PROPOSED INTERCEPTOR. FABRIC SHALL MEET OR EXCEED REQUIREMENTS FOR NCDOT GEOTEXTILE TYPE 4.

FIBERGLASS REINFORCED PIPE TRENCH DETAIL
0222132



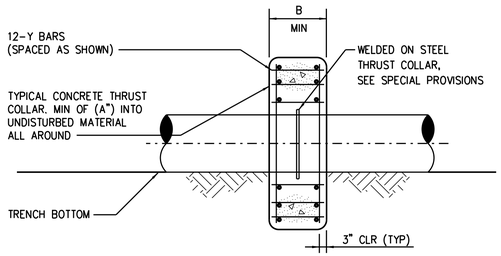
MAIN SIZE	END PIPE SIZE
6" – 12"	SAME DIAMETER AS MAIN
16" – 36"	1/2 DIAMETER AS MAIN, 8" MIN.

TEMPORARY WATERLINE BLOW OFF ASSEMBLY
0271304

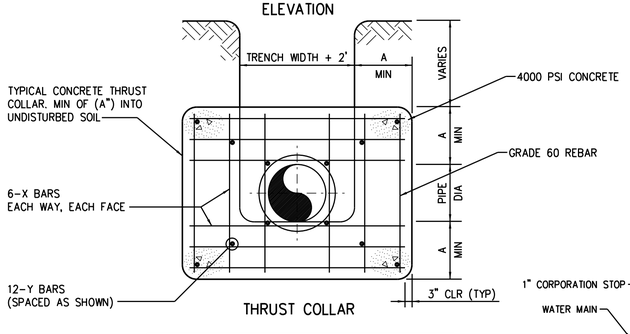


TYPICAL SERVICE CONNECTION
0260121

DETAIL NOTES:
1. CONTRACTOR SHALL VERIFY DEPTH OF EXISTING WATERLINE AND LOCATE PROPOSED WATERLINE "CROWN" AT THE "INVERT" OF THE EXISTING WATERLINE, UNLESS OTHERWISE SHOWN ON THE PLANS.
2. CONTRACTOR SHALL VERIFY EXACT MATERIALS AND DIMENSIONS OF EXISTING WATER SERVICES PRIOR TO ORDERING MATERIALS.
3. CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER IF THERE ARE COMPLICATIONS WITH CONNECTING TO THE EXISTING WATERLINE.



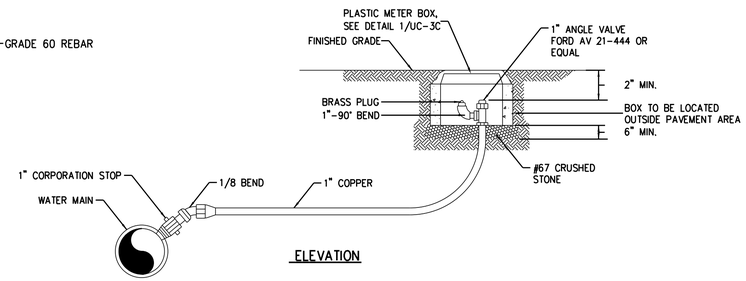
ELEVATION



THRUST COLLAR

PIPE SIZE	X BARS	Y BARS	A	B
4"–36"	#5	#5	1'-4"	1'-7"
42"& >	#6	#6	1'-8"	1'-9"

0222119R



ELEVATION

DISINFECTION AND SAMPLING POINT
0271303R

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

CITY OF RALEIGH

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES _____

PUBLIC UTILITIES _____

STORMWATER _____

PLANNING _____

FIRE _____

URBAN FORESTRY _____

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P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

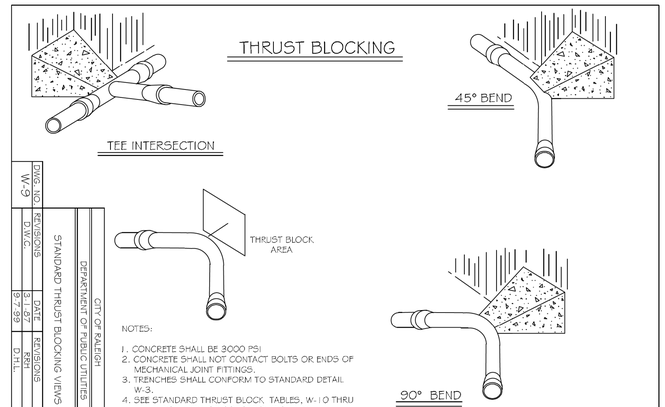
NOTE: ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-3A
DESIGNED BY: DGB	
DRAWN BY: JGB	
CHECKED BY: JRP	
APPROVED BY: JAR	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SECTION
PHONE: (919)707-6690
FAX: (919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER JEREMY A. RIVENBARK
DocuSigned by: Jeremy Rivenbark 2/2/2016
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 200 P.S.I.
ALL AREAS GIVEN IN SQUARE FEET.

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	UNCONSOLIDATED DRY CLAY-4000 LBS/FT²	SOFT CLAY-2000 LBS/FT²	LOOSE DRY SAND OR COARSE SAND	LOOSE DRY GRAVEL OR DRY CLAY-3000 LBS/FT²	SAND, COMPACT FIRM 4000 LBS/FT²	SAND, CLAY OR DRY GRAVEL 4000 LBS/FT²	SOFT ROCK 10,000 LBS/FT² SHATTERED, VERY POOR	ROCK, FOOR 15,000 LBS/FT²
6"									
11 1/4°	1,108	1	1	1	1	1	1	2	1
22 1/2°	2,207	1	2	2	1	1	1	3	1
45°	4,328	2	3	3	1	1	2	5	1
90°	7,996	2	4	5	1	1	2	8	1
PLUG	5,655	2	3	4	1	1	2	6	1
8"									
11 1/4°	1,970	1	1	2	1	1	1	2	1
22 1/2°	3,922	1	2	3	1	1	1	4	1
45°	7,694	2	4	5	1	1	2	8	1
90°	14,215	4	8	9	2	2	4	15	2
PLUG	10,053	3	5	6	2	2	3	10	1
12"									
11 1/4°	4,433	2	3	3	1	1	2	5	1
22 1/2°	8,826	3	5	6	2	2	3	9	1
45°	17,312	5	9	11	3	3	5	18	2
90°	31,983	8	16	19	4	4	8	32	4
PLUG	22,619	6	12	14	3	3	6	23	3
16"									
11 1/4°	7,881	2	4	5	1	1	2	8	1
22 1/2°	15,691	4	8	10	2	2	4	16	2
45°	30,779	8	16	19	4	4	8	31	4
90°	56,861	15	29	35	8	8	15	57	6
PLUG	40,213	10	21	25	5	5	10	41	5

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 6° - 90. BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN QUANTITY TABLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-10	D.W.C.	6-23-99		

REVISIONS

2/1/2016 K:\RAL_Roadway\0110362\56 - Capital Boulevard\Utilities\Engineering\UC\Pro\B5121_B5317_ut_dtl_uc03a_pshdgn