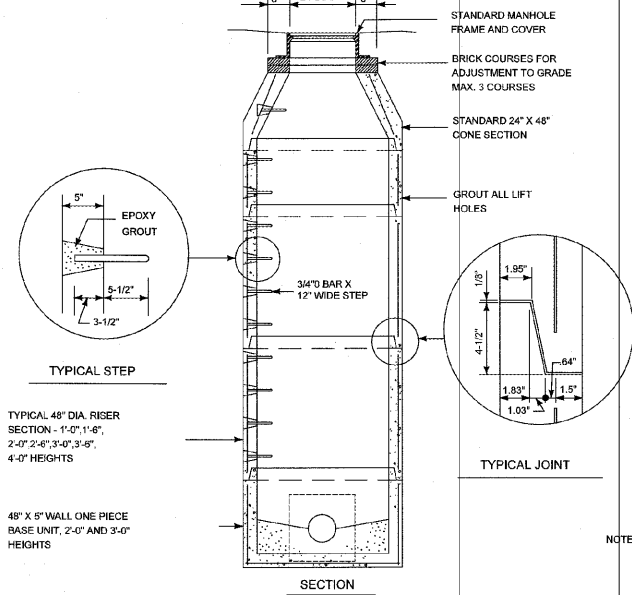


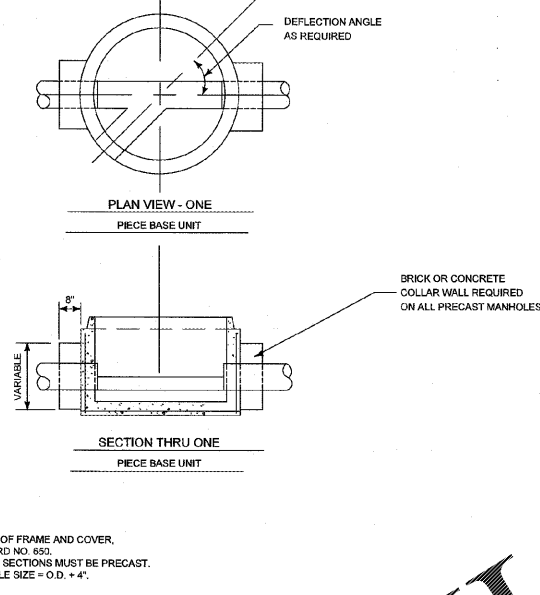
**FIRE HYDRANT DETAIL**  
NOT TO SCALE

7



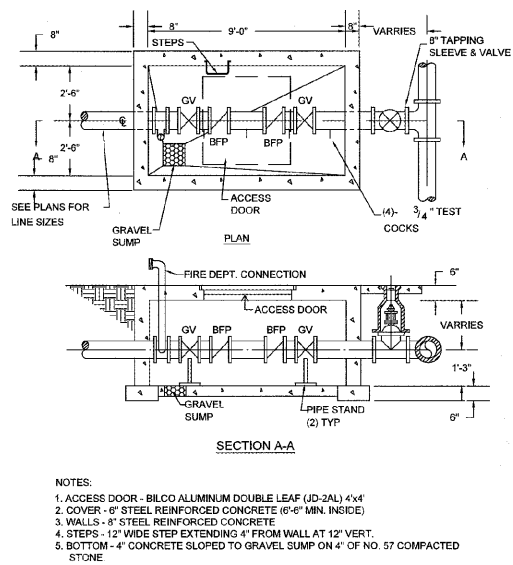
**PRECAST MANHOLE DETAIL**  
NOT TO SCALE

3



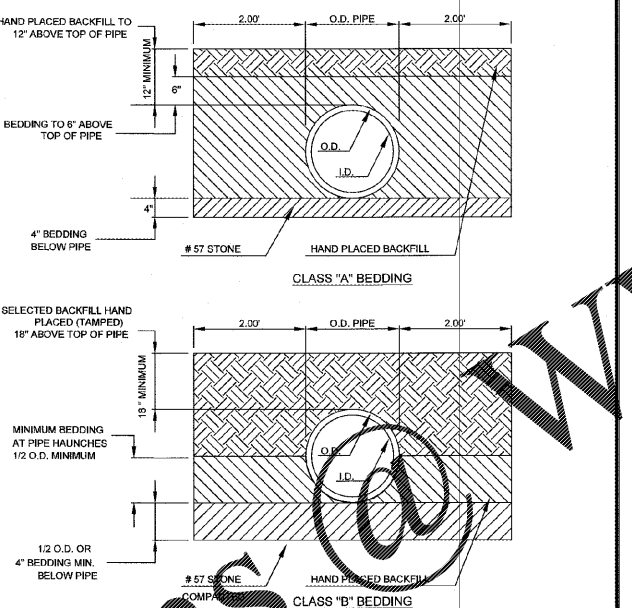
**SANITARY CLEANOUT DETAIL**  
NOT TO SCALE

2



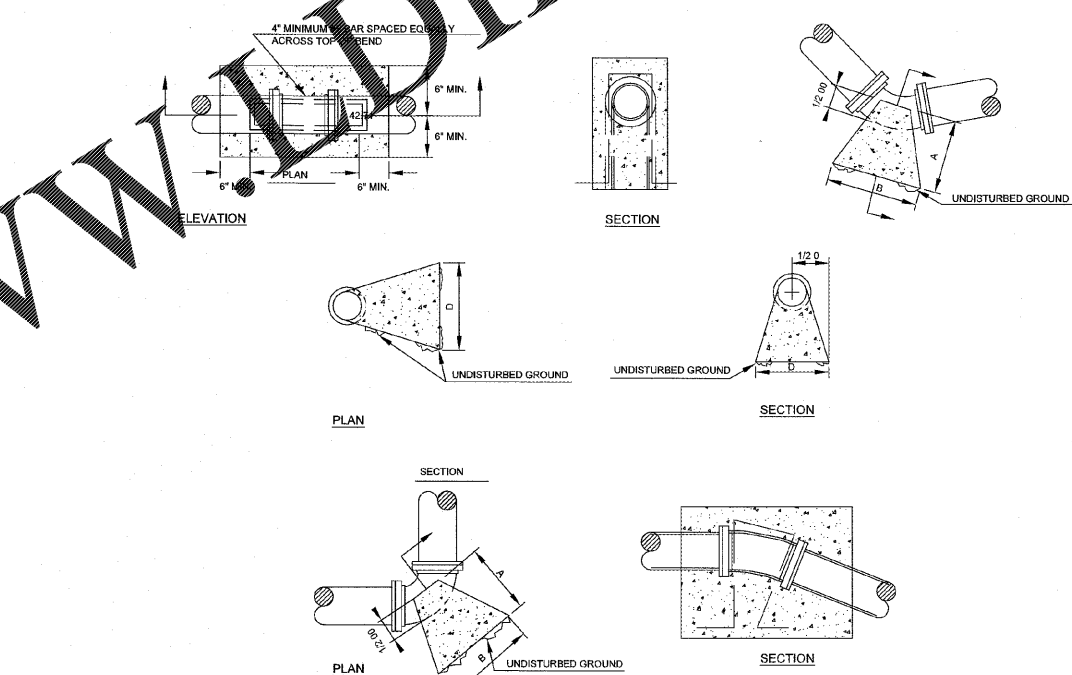
**DOUBLE CHECK BACKFLOW PREVENTER DETAIL**  
NOT TO SCALE

6



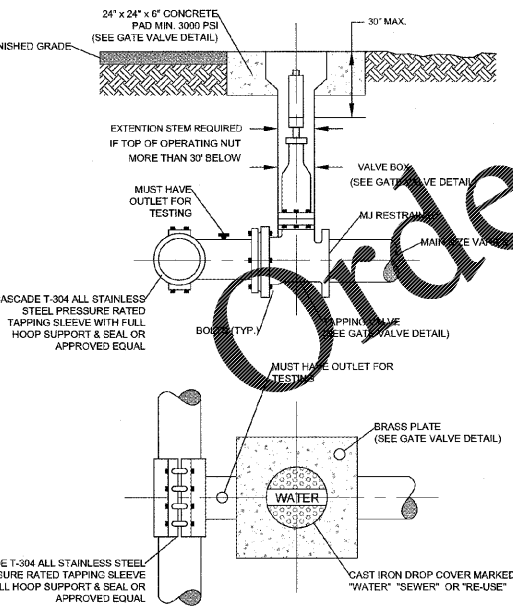
**PIPE BEDDING DETAIL**  
NOT TO SCALE

4



**THRUST BLOCK DETAIL**  
NOT TO SCALE

1



**TAPPING SLEEVE & VALVE DETAIL**  
NOT TO SCALE

5

BEND	SIZE (FT.)	HORIZONTAL THRUST				VOLUME (CU.YD.)
		A (FT.)	B (FT.)	C (IN.)	D (IN.)	
11 1/4	6"	1.0	1.0	7"	1.0	0.03
	8"	1.0	1.25	7"	1.0	0.04
	12"	1.0	2.0	11"	2.0	0.1
	16"	2.0	3.0	15"	2.0	0.3
22 1/2	6"	1.0	1.5	7"	1.0	0.04
	8"	1.0	2.0	7"	2.0	0.1
	12"	2.0	4.0	11"	3.0	0.7
	16"	3.0	6.0	15"	3.0	1.0
45	6"	1.5	2.0	7"	1.5	0.11
	8"	2.0	3.0	7"	2.0	0.3
	12"	2.0	4.0	11"	3.0	0.7
	16"	3.0	5.0	15"	4.0	1.4
90	6"	1.75	2.5	7"	2.0	0.2
	8"	2.0	3.0	7"	3.0	0.4
	12"	4.0	6.0	11"	4.0	2.1
	16"	4.0	7.0	15"	5.0	3.1
TEE BRANCHES PLUGS @ CAPS	6"	1.8	2.0	7"	1.75	0.13
	8"	2.0	3.0	7"	2.0	0.3
	12"	3.0	4.0	11"	4.0	0.8
	16"	3.0	5.0	15"	5.0	1.2
	6"	4.0	7.0	19"	6.0	3.8

BEND	SIZE (FT.)	VOLUME (CU.YD.)	NO. OF VERT. BARS REQ'D	
			UPWARD THRUST	DOWNWARD THRUST
11 1/4	6"	1.0	1.0	1.0
	8"	1.3	1.25	1.25
	12"	2.0	2.0	2.0
	16"	3.0	3.0	3.0
22 1/2	6"	1.0	1.5	1.5
	8"	1.0	2.0	2.0
	12"	2.0	3.0	3.0
	16"	2.0	4.0	4.0
45	6"	1.5	2.0	2.0
	8"	2.0	3.0	3.0
	12"	2.0	4.0	4.0
	16"	3.0	5.0	5.0
90	6"	1.75	2.5	2.5
	8"	2.0	3.0	3.0
	12"	4.0	6.0	6.0
	16"	4.0	7.0	7.0
	6"	4.0	7.0	7.0

BEND	SIZE (FT.)	HORIZONTAL THRUST				VOLUME (CU.YD.)
		A (FT.)	B (FT.)	C (IN.)	D (IN.)	
11 1/4	6"	1.0	1.0	7"	1.0	0.03
	8"	1.0	1.25	7"	1.0	0.04
	12"	1.0	2.0	11"	2.0	0.1
	16"	2.0	3.0	15"	2.0	0.3
22 1/2	6"	1.0	1.5	7"	1.0	0.04
	8"	1.0	2.0	7"	2.0	0.1
	12"	2.0	4.0	11"	3.0	0.7
	16"	3.0	6.0	15"	3.0	1.0
45	6"	1.5	2.0	7"	1.5	0.11
	8"	2.0	3.0	7"	2.0	0.3
	12"	2.0	4.0	11"	3.0	0.7
	16"	3.0	5.0	15"	4.0	1.4
90	6"	1.75	2.5	7"	2.0	0.2
	8"	2.0	3.0	7"	3.0	0.4
	12"	4.0	6.0	11"	4.0	2.1
	16"	4.0	7.0	15"	5.0	3.1
	6"	4.0	7.0	19"	6.0	3.8

- IF DEEMED NECESSARY BY THE CONTRACTOR, INSTALL A Dewatering system capable of maintaining a groundwater level at least 2 feet below bottom of pipe level.
- AFTER EXCAVATION TO DESIGN INVERTS, THE IN-SITU BEDDING SOILS SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THE MODIFIED PROCTOR TEST MAXIMUM DRY DENSITY (ASTM D1557) TO A DEPTH OF 12 INCHES BELOW THE BEDDING LEVEL. COMPACTOR IN CONFINED AREAS CAN PROBABLY BE ACHIEVED USING JUMPING JACKS OR LIGHT WEIGHT WALK BEHIND VIBRATORY SLEDS AND/OR ROLLERS.
- AFTER CONSTRUCTING THE UTILITY LINES, BACKFILL WITH SUITABLE SAND FILL PLACED IN 4 TO 6 INCH LOOSE LIFTS. EACH LIFT SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THE MODIFIED PROCTOR TEST MAXIMUM DRY DENSITY (ASTM D1557). BENEATH PAVEMENT AREAS, THE TOP 12 INCHES OF BACKFILL SHOULD BE COMPACTED TO AT LEAST 98 PERCENT. ADDITIONALLY, LOCAL JURISDICTIONAL COMPACTON REQUIREMENTS SHOULD BE FOLLOWED WHEN STRICTER THAN THE RECOMMENDATIONS HEREIN.
- IF DIFFICULT COMPACTON OPERATIONS ARE ENCOUNTERED BENEATH THE UTILITIES DUE TO EXCESSIVE PERCHED GROUNDWATER CONDITIONS, SATURATED SOILS COULD BE OVEREXCAVATED AND REPLACED WITH NO. 57 STONE.
- EXCAVATION WORK WILL BE REQUIRED TO MEET OSHA EXCAVATION STANDARD SUBPART P REGULATIONS. TYPE C SOILS, EITHER A TRENCH BOX, BRACED SHEET PILE STRUCTURE OR AN EXCAVATION WITH TEMPORARY SIDE SLOPES CUT BACK AT 1.5 HORIZONTAL TO 1.0 VERTICAL CAN BE IMPLEMENTED. THE SIDE SLOPE OF 1.5 HORIZONTAL TO 1.0 VERTICAL IS CONTINGENT UPON THE Dewatering SYSTEM ADEQUATELY CONTROLLING SLOPE SEEPAGE. SHEET PILING SHOULD BE DESIGNED ACCORDING TO OSHA SHEETING AND BRACING REQUIREMENTS. WE RECOMMEND A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF WORK DESIGN ANY REQUIRED SHEETING/BRACING SYSTEM.
- BACKFILL ABOVE AND AROUND THRUST BLOCKS SHOULD CONSIST OF CLEAN FINE SANDS (SP) COMPACTED AT LEAST 98 PERCENT OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D 1557). FOR A DESIGN CRITERIA WE RECOMMEND USING AN ALLOWABLE PASSIVE EARTH PRESSURE COEFFICIENT OF K(a)=3.0.

LECRAW ENGINEERING, INC.  
2016 LECRAW ENGINEERING, INC.  
3475 CORPORATE WAY  
SUITE A  
DULUTH, GA 30096  
PHONE: 770.668.8100  
WWW.LECRAWENGINEERING.COM  
COA-4400

REV.	DATE	BY	CHECKED	COMMENTS
1				

CAROLINA RE HOLDINGS, LLC  
300 GALLERIA PARKWAY - ATLANTA, GA 30339  
PROJECT  
BURGER KING - BEECH ISLAND, SC  
BEECH ISLAND AVENUE & ATOMIC DRIVE  
AIKEN COUNTY, SOUTH CAROLINA

LeCraw Engineering, Inc.  
No. 4400  
No. 29099  
8/20/19  
Mark S. LeCraw

DESIGN TEAM:  
DRAWN BY: MAT  
DESIGNED BY: MAT  
REVIEWED BY: MSL

811  
Know what's below.  
Call before you dig.

DETAILS ARE NOT DRAWN TO SCALE

JOB #: 259004  
DATE: JULY 18, 2019  
CONSTRUCTION DETAILS - 5

C-7.4

Drawing name: L259004 - Carolina RE Holdings, LLC - Burger King - Beech Island, SC\CAD\CONSTR\259004-110 - DETAILS.dwg CONSTRUCTION DETAILS - 5 - Aug 28, 2019 8:58am by: michael.boothaker