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Kimley»Horn

PROJECT REFERENCE NO.	SHEET NO.
R-5843	UC-3A

DESIGNED BY: DGB
DRAWN BY: DGB
CHECKED BY: NDR
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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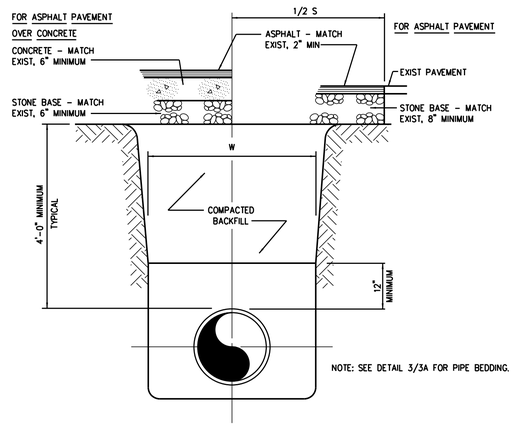
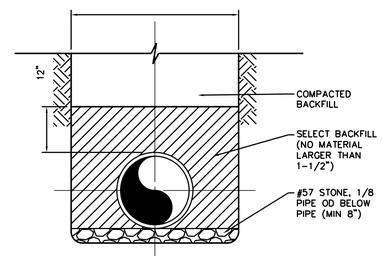
NORTH CAROLINA PROFESSIONAL SEAL ENGINEER DANIEL G. BULA
DocuSigned by: Daniel G. Bula
68070A1121DD4F5...
7/24/2019

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



1 TYPICAL TRENCH
Not to Scale

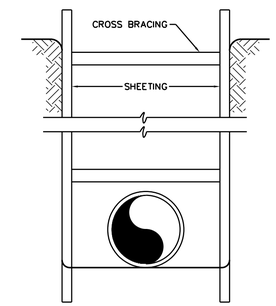


2 TYPE B BEDDING
Not to Scale

TRENCH EXCAVATION LIMITS		
INTERNAL DIAMETER OF PIPE	W WIDTH OF TRENCH MAX	W WIDTH OF TRENCH W=MIN
4"-6"	3'-9"	2'-0"
8"-10"	3'-9"	2'-2"
12"	3'-9"	O.D.+2'
14"-16"	4'-2"	O.D.+2'
18"	4'-4"	O.D.+2'
20",21"	4'-8"	O.D.+2'
24"	4'-11"	O.D.+2'
27"	5'-9"	O.D.+2'
30"	6'-7"	O.D.+2'
36"	7'-4"	O.D.+2'
42"	8'-2"	O.D.+2'
48"	8'-9"	O.D.+2'
54"	9'-4"	O.D.+2'
60"	9'-10"	O.D.+2'
72"	11'-0"	O.D.+2'
78"	11'-8"	O.D.+2'
84"	12'-0"	O.D.+2'
90"	12'-6"	O.D.+2'
96"	13'-0"	O.D.+2'
108"	14'-0"	O.D.+2'
DEPTH OF CUT	S MAXIMUM PAVEMENT REPLACEMENT WIDTH	
0-6'	S=W+4'	
>6-8'	S=W+8'	
>8-10'	S=W+12'	
>10-12'	S=W+16'	
>12-14'	S=W+20'	
>14-16'	S=W+24'	
>16-18'	S=W+28'	
>18'	S=W+32'	

W = TRENCH WIDTH AT BOTTOM OF PIPE. TRENCH SIDE SLOPES SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.

3 TRENCH EXCAVATION LIMITS
Not to Scale



4 TYPICAL SHEETING
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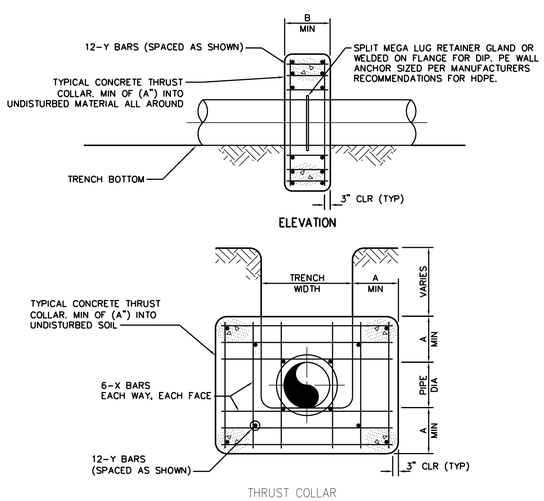
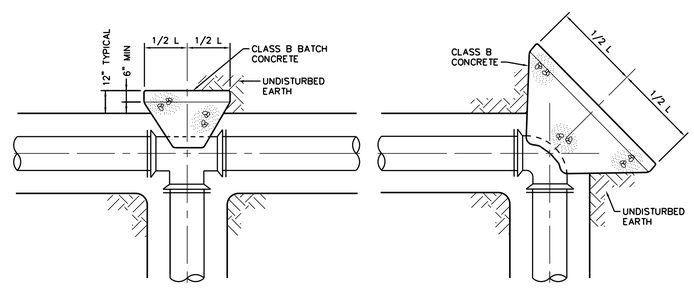


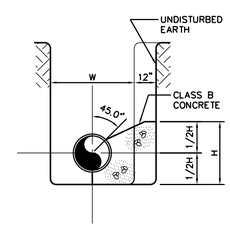
PIPE SIZE	X BARS	Y BARS	A	B
6"-36"	#5	#5	1'-4"	1'-7"
42"& >	#6	#6	1'-8"	1'-9"

5 THRUST COLLARS
Not to Scale



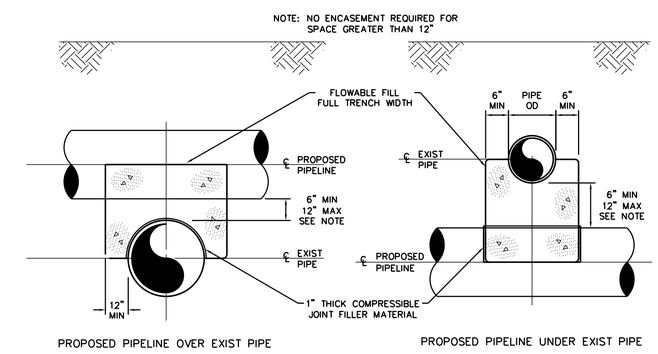
CONCRETE THRUST BLOCK SCHEDULE*										
PIPE SIZE	BEND									DESIGN PRESSURE
	90°/TEE		45°		22 1/2°		11 1/4° & 5 5/8°			
(IN)	H	L	H	L	H	L	H	L		(PSI)
6.0	2.6	5.3	1.9	3.9	1.4	2.8	1.0	2.0		350
8.0	3.5	7.0	2.5	5.1	1.8	3.7	1.3	2.6		350
10.0	4.2	8.5	3.1	6.3	2.2	4.5	1.6	3.2		350
12.0	5.0	10.1	3.7	7.5	2.6	5.3	1.9	3.8		350
14.0	5.8	11.7	4.3	8.6	3.1	6.2	2.2	4.4		350
16.0	6.6	13.3	4.9	9.8	3.5	7.0	2.5	5.0		350
18.0	7.4	14.9	5.5	11.0	3.9	7.9	2.8	5.6		350
20.0	8.2	16.5	6.1	12.2	4.3	8.7	3.1	6.2		350
24.0	9.9	19.8	7.2	14.5	5.2	10.4	3.7	7.4		350
30.0	12.2	24.5	9.0	18.0	6.4	12.9	4.5	9.1		350
36.0	14.6	29.3	10.8	21.6	7.7	15.4	5.4	10.9		350
42.0	17.0	34.0	12.5	25.0	8.9	17.9	6.3	12.7		350
48.0	19.4	38.8	14.3	28.6	10.2	20.4	7.2	14.5		350
54.0	22.0	44.0	16.2	32.4	11.5	23.1	8.2	16.4		350
60.0	23.5	47.1	17.3	34.7	12.4	24.8	8.8	17.6		350
64.0	25.1	50.2	18.4	36.9	13.2	26.4	9.3	18.7		350

* BASED ON AVERAGE SOIL PASSIVE BEARING STRENGTH OF 2000 PSF USING SF OF 1.5



TYPICAL SECTION TEE OR BEND

6 THRUST BLOCKING
Not to Scale



7 PROPOSED PIPE OVER/UNDER EXISTING PIPE
Not to Scale

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7/23/2019