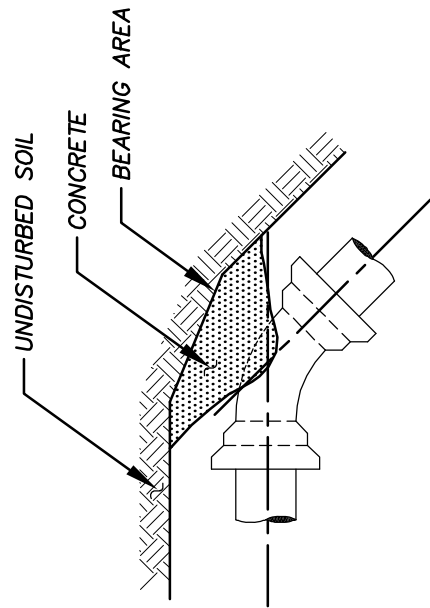
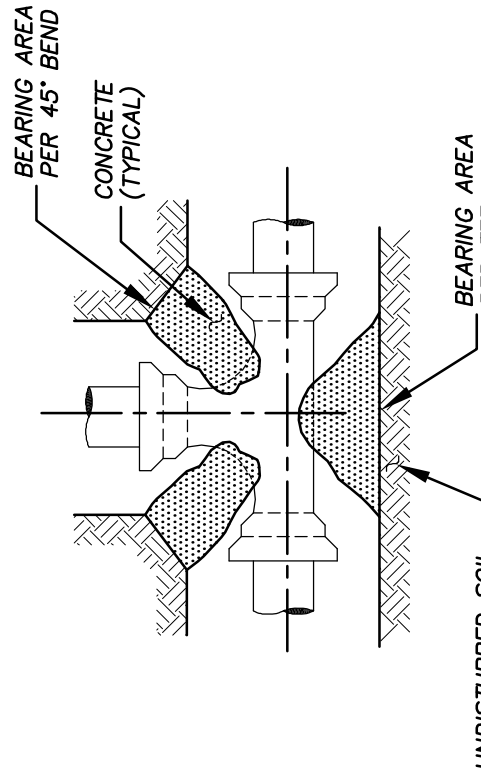


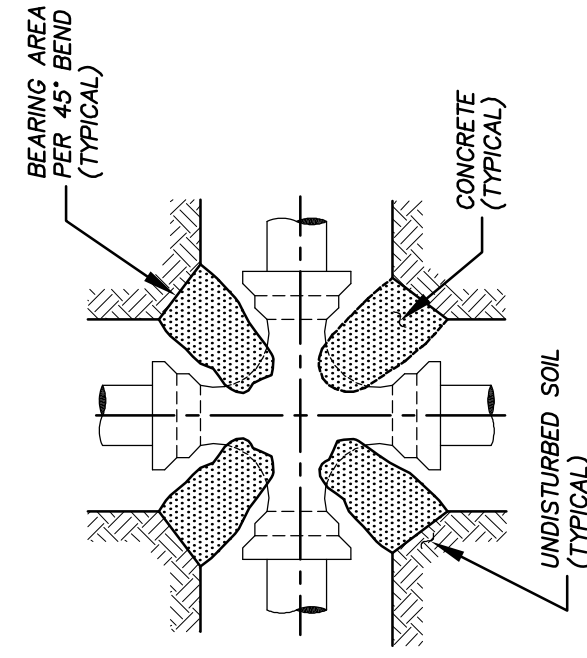
90° BEND



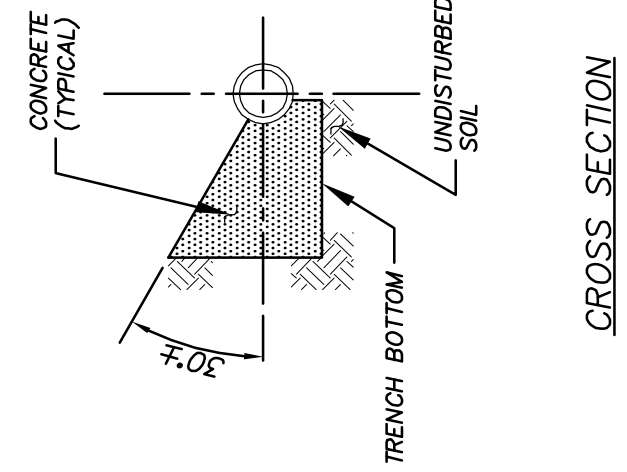
45° BEND



11 1/4° & 22 1/2° BEND



CROSS



CROSS SECTION

THRUST BLOCKING DETAILS

NTS

- NOTES:**
- SEE SPECIFICATIONS FOR CONCRETE.
 - PLACE CONCRETE AGAINST UNDISTURBED SOIL AND FITTING ONLY. CLEAR THE JOINT.
 - ALL IRON FITTINGS SHALL BE WRAPPED WITH 2 LIFTS OF 1/2" GALV. STEEL STRAP (ANSI Z15 (AWA C100)) WITH ALL EDGES AND LAPS TAPED SECURELY TO PROVIDE A CONTINUOUS AND WATERTIGHT WRAP.
 - DIMENSIONS ARE BASED ON 150 PSI TEST PRESSURE AND SAFE SOIL BEARING LOAD OF 1100 PSI.

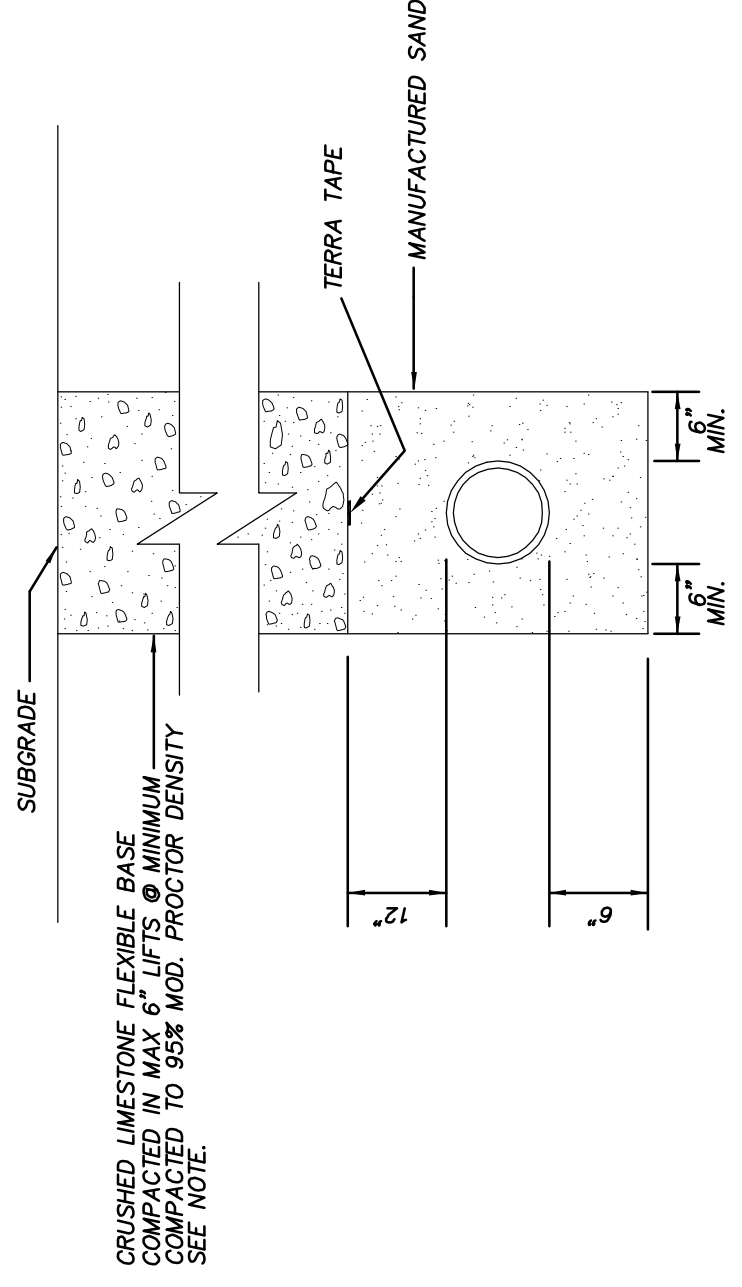
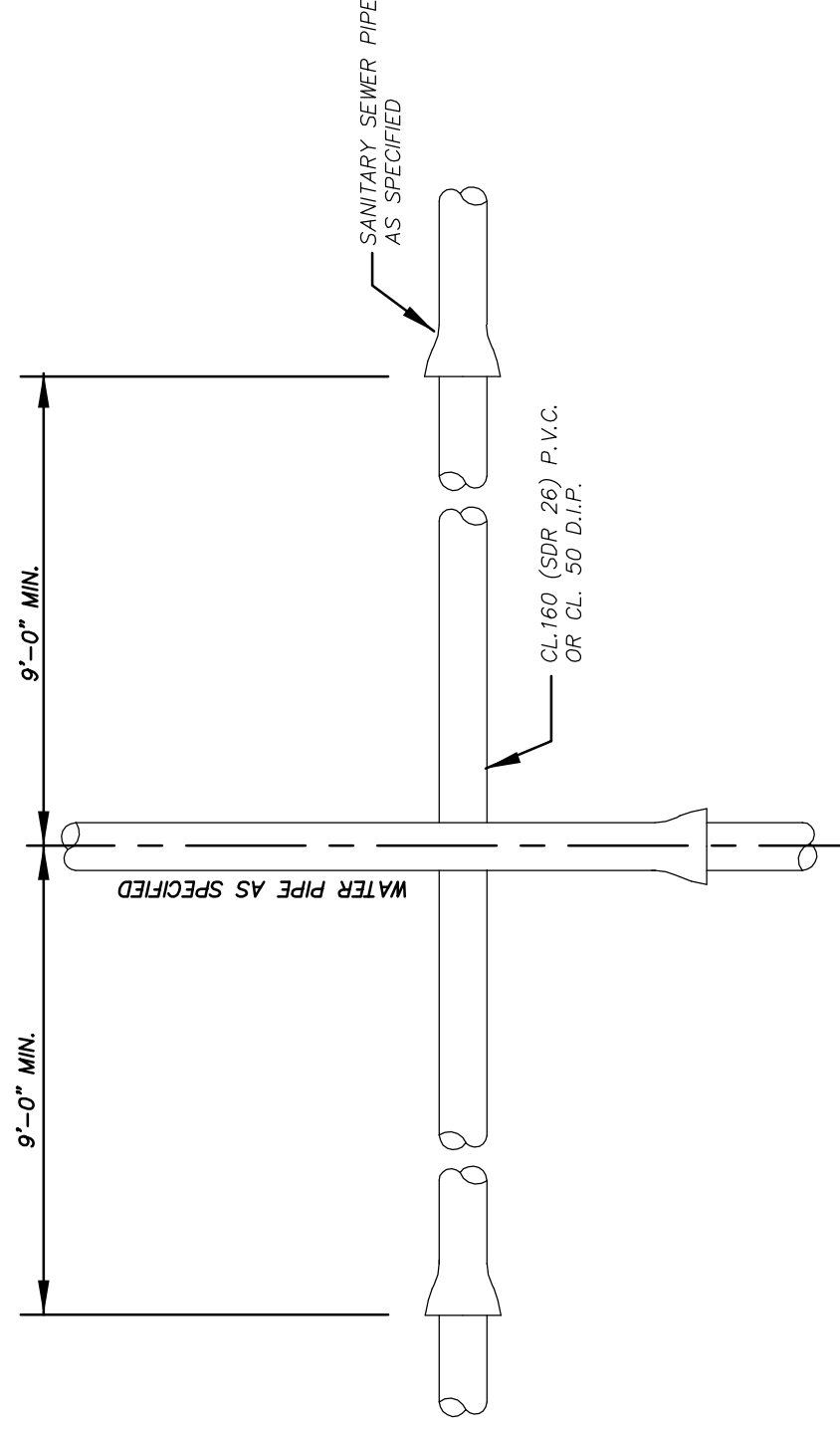
90° BEND		45° BEND	
PIPE SIZE	BEARING AREA	PIPE SIZE	BEARING AREA
4"	2 S.F.	4"	1 S.F.
6"	4 S.F.	6"	3 S.F.
8"	8 S.F.	8"	4 S.F.
10"	12 S.F.	10"	6 S.F.
12"	16 S.F.	12"	9 S.F.
14"	22 S.F.	14"	12 S.F.
16"	29 S.F.	16"	16 S.F.
18"	36 S.F.	18"	20 S.F.
20"	44 S.F.	20"	24 S.F.
24"	64 S.F.	24"	36 S.F.
30"	100 S.F.	30"	54 S.F.
36"	163 S.F.	36"	84 S.F.

22 1/2° BEND		11 1/4° BEND	
PIPE SIZE	BEARING AREA	PIPE SIZE	BEARING AREA
4"	1 S.F.	4"	1 S.F.
6"	1 S.F.	6"	1 S.F.
8"	2 S.F.	8"	1 S.F.
10"	3 S.F.	10"	2 S.F.
12"	5 S.F.	12"	2 S.F.
14"	6 S.F.	14"	3 S.F.
16"	8 S.F.	16"	4 S.F.
18"	10 S.F.	18"	5 S.F.
20"	12 S.F.	20"	6 S.F.
24"	18 S.F.	24"	9 S.F.
30"	28 S.F.	30"	12 S.F.
36"	38 S.F.	36"	15 S.F.

TEE		PLUG	
PIPE SIZE	BEARING AREA	PIPE SIZE	BEARING AREA
4"	2 S.F.	4"	2 S.F.
6"	3 S.F.	6"	3 S.F.
8"	5 S.F.	8"	5 S.F.
10"	8 S.F.	10"	8 S.F.
12"	12 S.F.	12"	12 S.F.
14"	15 S.F.	14"	15 S.F.
16"	20 S.F.	16"	20 S.F.
18"	26 S.F.	18"	26 S.F.
20"	32 S.F.	20"	32 S.F.
24"	45 S.F.	24"	45 S.F.
30"	71 S.F.	30"	71 S.F.
36"	77 S.F.	36"	77 S.F.

SANITARY SEWER - WATER LINE CROSSING DETAIL

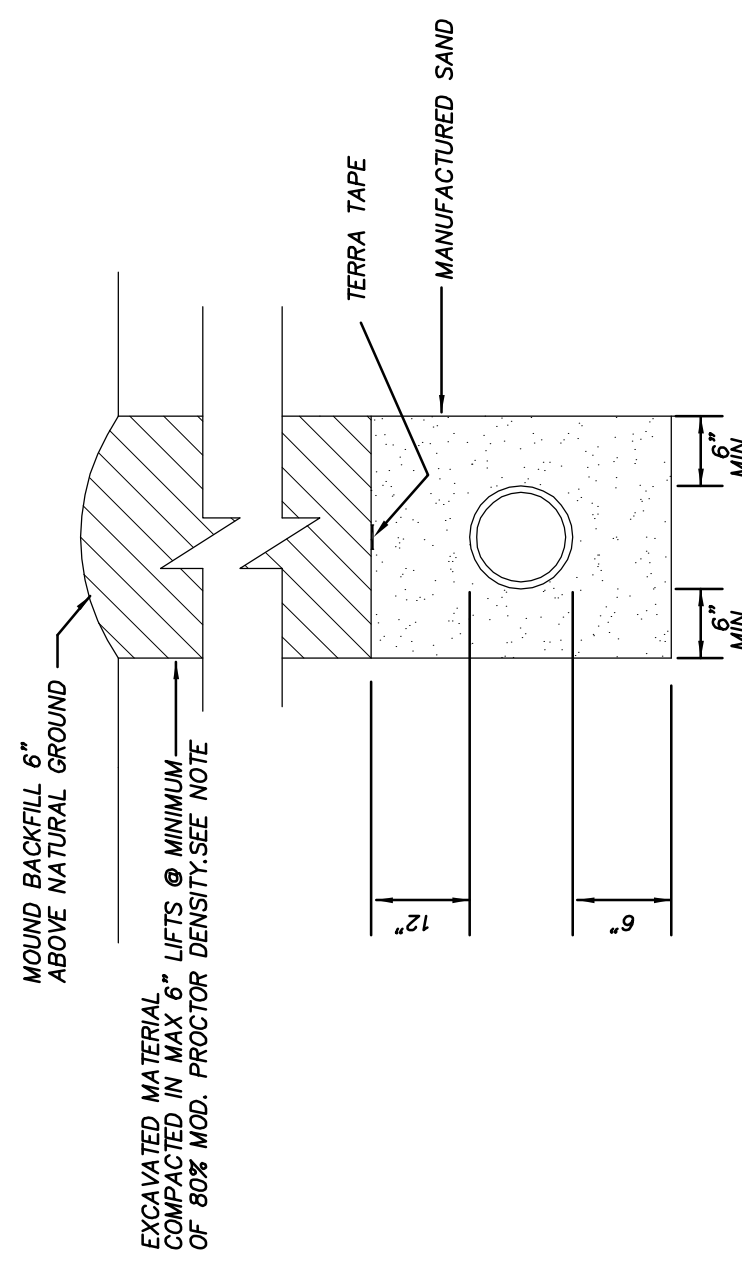
NTS



EMBEDMENT & BACKFILL WITHIN PAVED AREAS OR STREETS

PIPE EMBEDMENT & BACKFILL DETAILS

NTS



EMBEDMENT & BACKFILL OUTSIDE PAVED AREAS OR STREETS

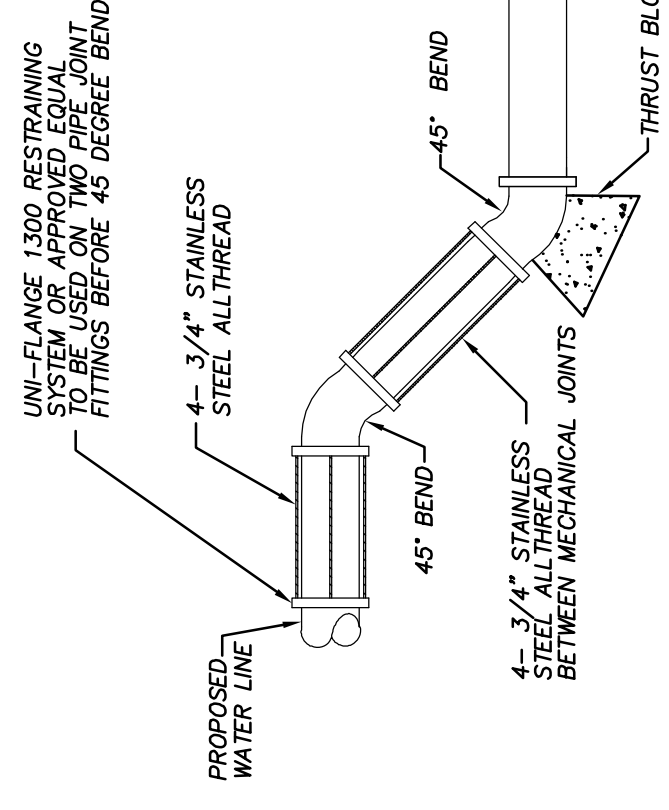
PIPE EMBEDMENT & BACKFILL DETAILS

NTS

- NOTES:**
- ALL WATER AND SEWER LINE CONSTRUCTION RUNNING PARALLEL WITH EACH OTHER SHALL MAINTAIN A 9" HORIZONTAL SEPARATION, PIPE WALL TO PIPE WALL.
 - SEPARATION REQUIREMENTS SHOWN HERE DO NOT APPLY TO SERVICE CONNECTIONS - REFER TO PLUMBING CODE FOR APPLICABLE REQUIREMENTS.
 - ALL SEWER AND WATER LINE CROSSINGS SHALL COMPLY WITH SUBSECTION 296.44 WATER DISTRIBUTION SUB SECTION B, NEW WATERLINE INSTALLATION - CROSSING LINES, PARAGRAPHS (I) THROUGH (V) AND ALL SUB PARAGRAPHS THEREIN.

PIPE SEPERATION DETAILS

NTS



NOTES:

- WATER LINE LINGERING SHALL BE REQUIRED WHEN CROSSING UNDER WASTEWATER LINES, STORM SEWER PIPES, ETC., OR AS SHOWN ON PLANS, OR AS DIRECTED BY THE CITY ENGINEER AND WHEN NECESSARY TO MEET EXISTING FIELD CONDITIONS.
- D.I. ENGAGEMENT REQUIRED UNDER ALL STRUCTURES.
- LOWER 45° BEND SHALL HAVE CONCRETE BLOCKING.
- ALL ALL-THREADS, NUTS, BOLTS TO BE WRAPPED IN HEAVY MIL PLASTIC.

VERTICAL 45° RESTRAINED JOINT DETAIL

NTS

GENERAL NOTES:

- THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND ELEVATION OF ALL UTILITIES BEFORE EXCAVATION BEGINS. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE TO UTILITIES.
- THE CONTRACTOR SHALL CONTACT ALL LOCAL UTILITIES AND TEXAS ONE CALL SYSTEM BEFORE COMMENCING ANY EXCAVATION OR DIGGING OPERATIONS.
- BRACE UTILITY POLES AS REQUIRED TO MAINTAIN STABILITY OF THE POLES DURING CONSTRUCTION.
- BLOCK ALL BENDS, TEES, WYES, PLUGS, AND ALL HORIZONTAL OR VERTICAL POINTS OF INTERSECTION GREATER THAN 5' USING SHORT-BODIED FITTINGS PER STANDARD WATER DETAILS.
- CONCRETE SHALL NOT BE IN CONTACT WITH BOLTS OR NUTS.
- ALL FITTINGS SHALL BE WRAPPED IN PLASTIC WHERE CONCRETE IS PLACED.
- ALL MATERIALS SHALL BE DOMESTIC / USA.
- CRUSHED LIMESTONE BASE MATERIAL SHALL BE TADOT ITEM 248, TYPE A, GRADE 2 AND SHALL BE COMPACTED TO A MINIMUM OF 95% A.S.T.M. D1557, METHOD D @ + OR - 2% OPTIMAL MOISTURE AND LIFTS NOT TO EXCEED 6 INCHES.
- ALL INFRASTRUCTURE SHALL MEET MINIMUM CURRENT EFFECTIVE TCEO STANDARDS.



DEPARTMENT OF PUBLIC WORKS

WATER DETAILS (II)

ENGINEER:

SCALE: N.T.S.

DATE: 3/14/11

SHEET #

DRAWN BY:

CHECKED BY:

OF

