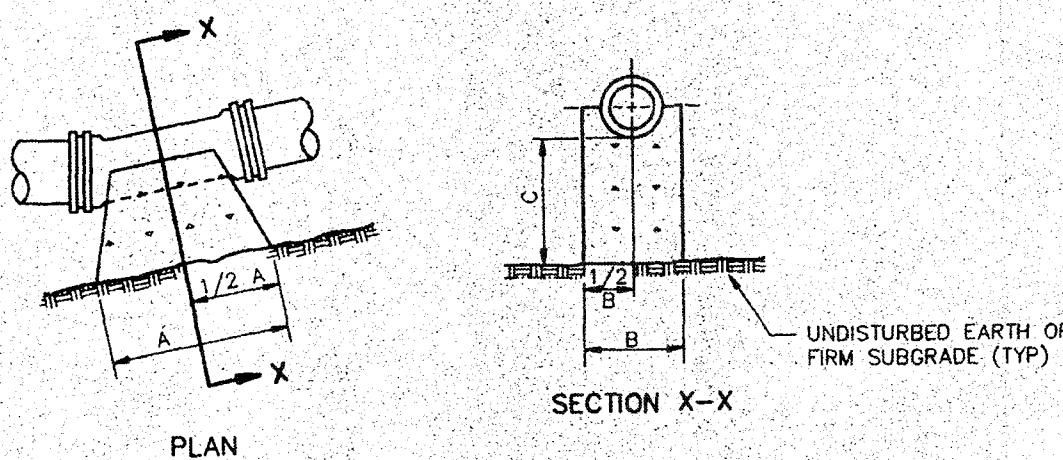


NOTES:
 1. EMBED REINFORCING BARS MINIMUM OF 3/8" DIAMETERS INCLUDING HOOK
 2. PAINT EXPOSED BARS WITH TWO COATS OF BITUMINOUS PAINT
 3. WHERE FOUR BARS ARE REQUIRED, PLACE TWO BARS SYMMETRICALLY AROUND FITTING
 4. INSTALL TWO LAYERS OF 15 LB BUILDER'S FELT OR TWO LAYERS OF 6 MIL POLYETHYLENE
 C = NUMBER AND SIZE OF REINFORCING BARS
 D = DIMENSION OF PIPE DIAMETER

BEND		PIPE DIAMETER									
		3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
11 1/4'	A	18"	18"	24"	24"	27"	30"	39"	48"	54"	60"
	B	18"	18"	18"	24"	24"	30"	30"	36"	36"	36"
	C	3 #5	3 #5	3 #5	3 #5	3 #5	3 #5	3 #5	3 #5	3 #5	3 #5
22 1/2'	A	18"	24"	30"	33"	42"	48"	54"	66"	72"	84"
	B	18"	18"	24"	27"	27"	30"	36"	42"	48"	54"
	C	3 #5	3 #5	3 #5	3 #5	3 #5	3 #5	4 #5	4 #5	4 #5	4 #5
45'	A	24"	30"	36"	42"	48"	54"	60"	90"	98"	120"
	B	18"	24"	24"	30"	33"	36"	42"	48"	54"	60"
	C	3 #5	3 #5	3 #5	3 #5	4 #5	4 #5	4 #5	4 #5	4 #5	4 #5

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

**THRUST BLOCK DETAIL
UPPER VERTICAL BENDS**
N.T.S.

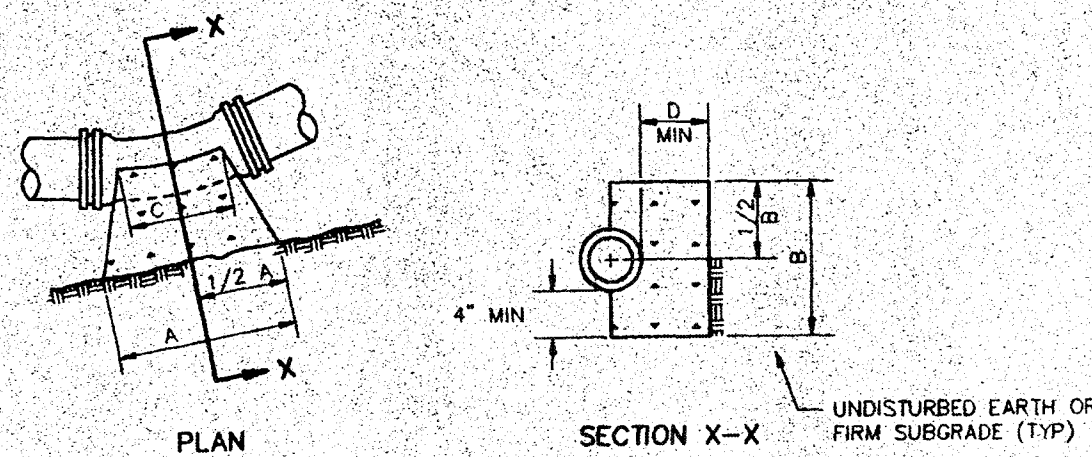


NOTE: INSTALL TWO LAYERS OF 15 LB BUILDER'S FELT OR TWO LAYERS OF 6 MIL POLYETHYLENE BETWEEN CONCRETE AND FITTING

BEND		PIPE DIAMETER									
		3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
11 1/4'	A	6"	6"	6"	8"	8"	13"	15"	22"	32"	40"
	B	12"	12"	14"	16"	18"	28"	32"	36"	40"	40"
	C	8"	8"	8"	8"	8"	9"	10"	12"	14"	14"
22 1/2'	A	6"	6"	10"	11"	15"	25"	33"	39"	43"	43"
	B	12"	12"	14"	16"	18"	28"	32"	36"	40"	40"
	C	8"	8"	8"	8"	9"	12"	14"	16"	18"	18"
45'	A	10"	12"	14"	21"	29"	48"	66"	72"	98"	98"
	B	12"	12"	14"	16"	18"	28"	32"	42"	48"	48"
	C	8"	8"	8"	8"	12"	18"	24"	30"	36"	36"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

**THRUST BLOCK DETAIL
LOWER VERTICAL BENDS**
N.T.S.



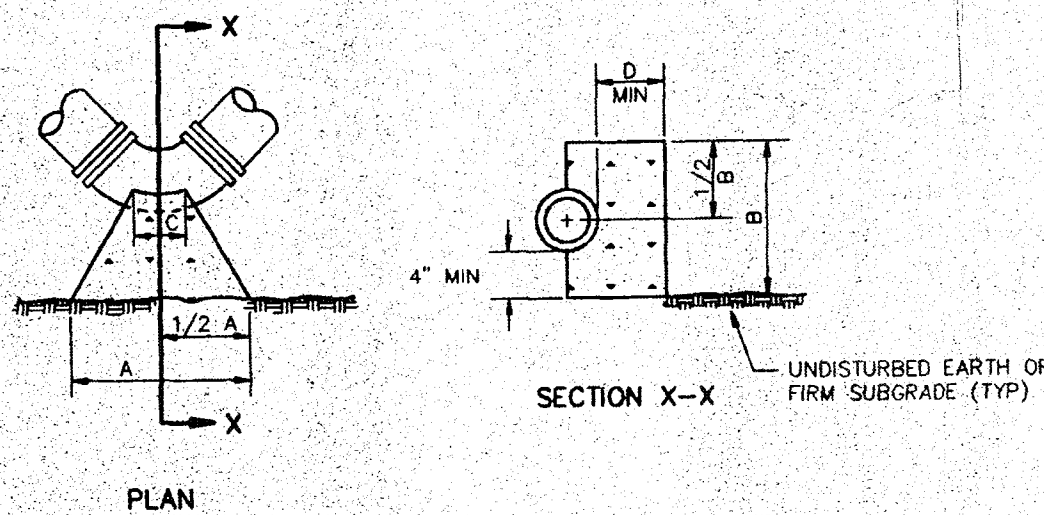
NOTE: INSTALL TWO LAYERS OF 15 LB BUILDER'S FELT OR TWO LAYERS OF 6 MIL POLYETHYLENE BETWEEN CONCRETE AND FITTING

PIPE DIA	11 1/4' BEND					22 1/2' BEND				
	A	B	C	D	E	A	B	C	D	E
3"	4"	12"	4"	6"	2"	6"	12"	6"	7"	2"
4"	4"	12"	4"	6"	2"	6"	12"	6"	7"	2"
6"	6"	14"	6"	7"	2"	8"	14"	6"	8"	4"
8"	8"	16"	8"	7"	2"	12"	16"	8"	8"	4"
10"	9"	18"	8"	8"	4"	15"	18"	8"	10"	4"
12"	10"	20"	9"	9"	4"	18"	20"	9"	12"	4"
16"	15"	24"	12"	9"	6"	24"	24"	12"	15"	6"
20"	30"	12"	10"	10"	6"	30"	30"	12"	18"	9"
24"	18"	36"	12"	12"	6"	36"	36"	12"	18"	9"
30"	24"	42"	16"	14"	9"	48"	42"	16"	21"	12"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

E = ADDITIONAL LENGTH TO BE ADDED TO DIMENSION A FOR EACH ADDITIONAL 50 PSI PRESSURE UP TO 300 PSI

**THRUST BLOCK DETAIL
11 1/4' - 22 1/2' BENDS**
N.T.S.



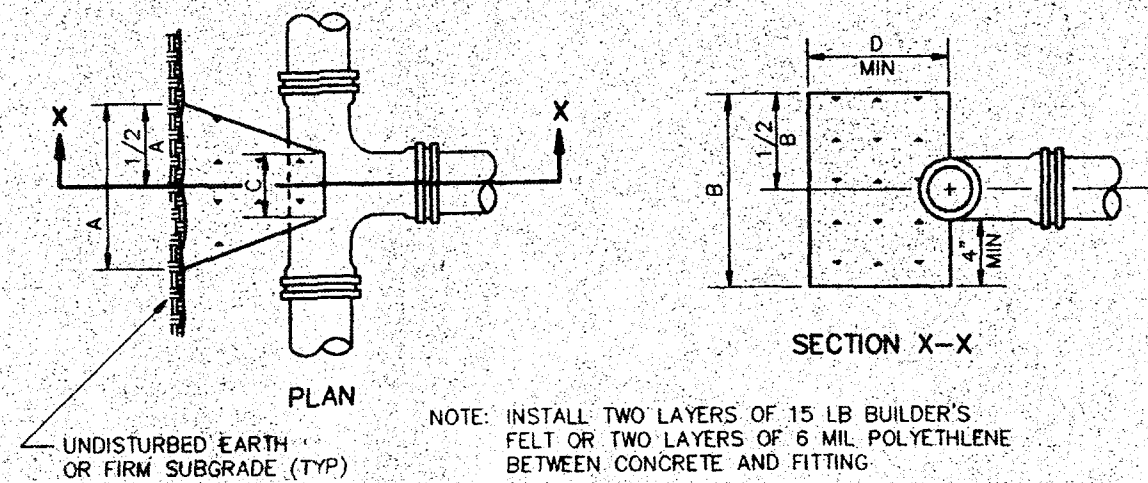
NOTE: INSTALL TWO LAYERS OF 15 LB BUILDER'S FELT OR TWO LAYERS OF 6 MIL POLYETHYLENE BETWEEN CONCRETE AND FITTING

PIPE DIA	45° BEND					90° BEND				
	A	B	C	D	E	A	B	C	D	E
3"	9"	12"	6"	6"	4"	12"	12"	6"	12"	6"
4"	9"	12"	6"	6"	4"	16"	12"	6"	12"	6"
6"	12"	14"	6"	8"	4"	21"	14"	6"	18"	6"
8"	18"	16"	8"	9"	6"	30"	16"	8"	18"	9"
10"	24"	16"	8"	10"	6"	36"	24"	10"	18"	9"
16"	42"	30"	12"	15"	9"	60"	30"	16"	21"	12"
20"	56"	30"	12"	16"	16"	72"	40"	20"	21"	24"
24"	60"	36"	12"	21"	24"	84"	48"	24"	24"	30"
30"	72"	48"	16"	27"	24"	108"	60"	30"	24"	36"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

E = ADDITIONAL LENGTH TO BE ADDED TO DIMENSION A FOR EACH ADDITIONAL 50 PSI PRESSURE UP TO 300 PSI

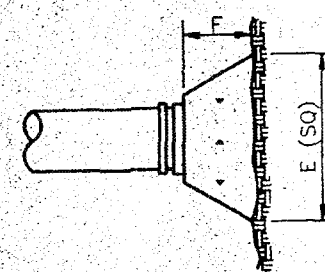
**THRUST BLOCK DETAIL
45° - 90° BENDS**
N.T.S.



NOTE: INSTALL TWO LAYERS OF 15 LB BUILDER'S FELT OR TWO LAYERS OF 6 MIL POLYETHYLENE BETWEEN CONCRETE AND FITTING

TEE	PIPE DIAMETER									
	3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
A	12"	12"	16"	18"	26"	30"	40"	48"	60"	80"
B	12"	16"	20"	30"	32"	32"	56"	72"	80"	96"
C	8"	8"	12"	12"	12"	12"	16"	24"	24"	24"
D	6"	6"	8"	9"	10"	10"	14"	18"	20"	24"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

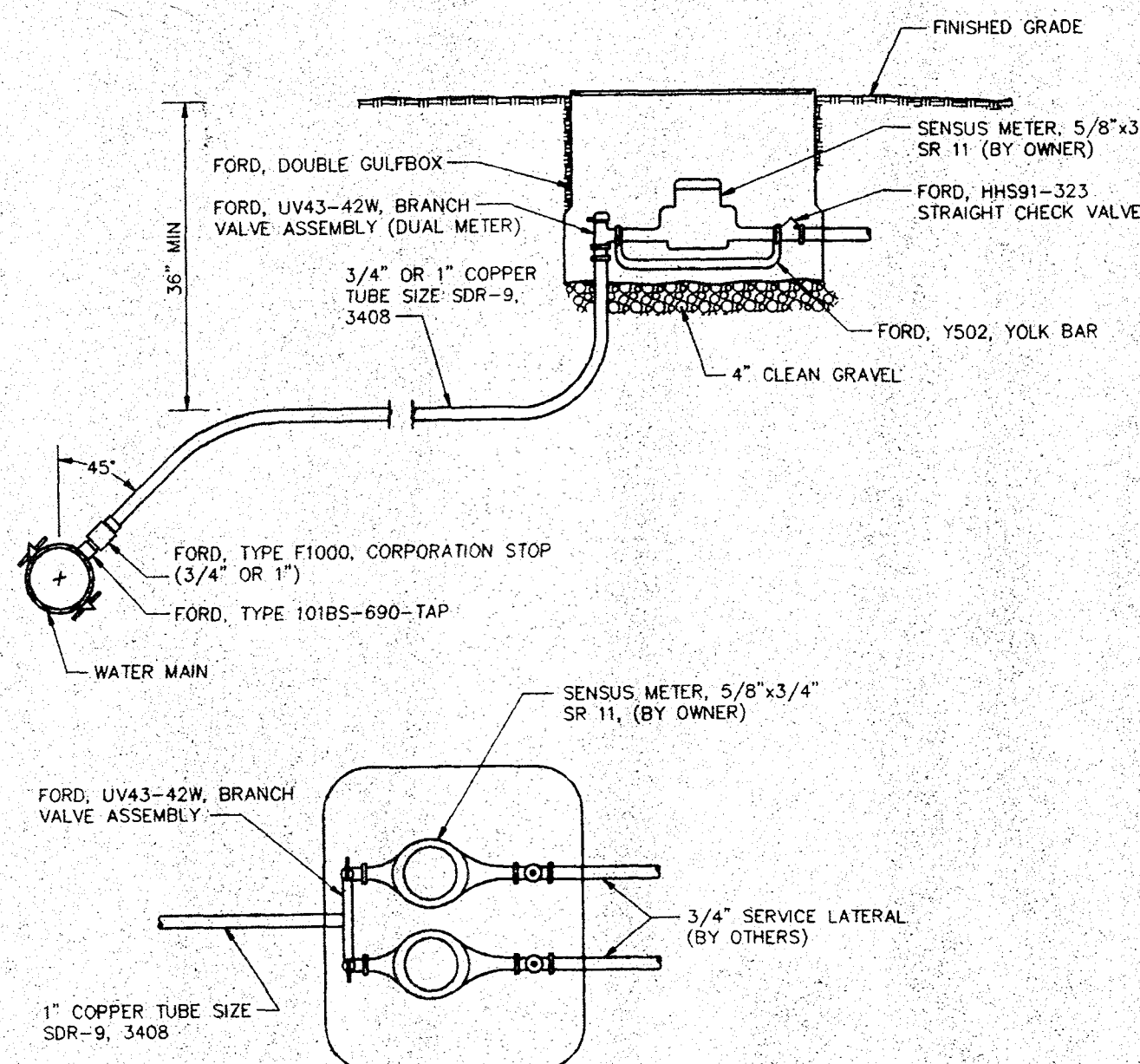


NOTE: INSTALL TWO LAYERS OF 15 LB BUILDER'S FELT OR TWO LAYERS OF 6 MIL POLYETHYLENE BETWEEN CONCRETE AND FITTING

PLUG	PIPE DIAMETER									
	3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
E	14"	16"	21"	29"	36"	41"	54"	64"	75"	88"
F	8"	8"	10"	10"	12"	12"	16"	18"	20"	24"

BASED ON NORMAL OPERATING PRESSURE UP TO 150 PSI

**THRUST BLOCK DETAIL
TEES, TAPPING SLEEVES, PLUGS, CAPS**
N.T.S.

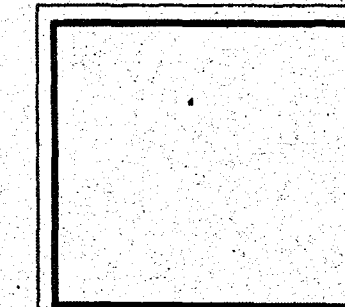


DUAL METER INSTALLATION
N.T.S.

DATE	
REVISIONS	
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1	

DATE: JUNE 19, 1996	SCALE: N.T.S.
JOB No.: 960210	DRAWN BY: MMB
ACAD #: 96021001	CHKD: RGL

-LANG-
engineering co.
Consulting Engineers Land Planners
P.O. BOX 7566 ROANOKE, VA. 24019 (540)366-4800



**WATERLINE EXTENSION
WATER SUPPLY PROJECT CIG95-32
TOWN OF BOONES MILL
FRANKLIN COUNTY, VIRGINIA**