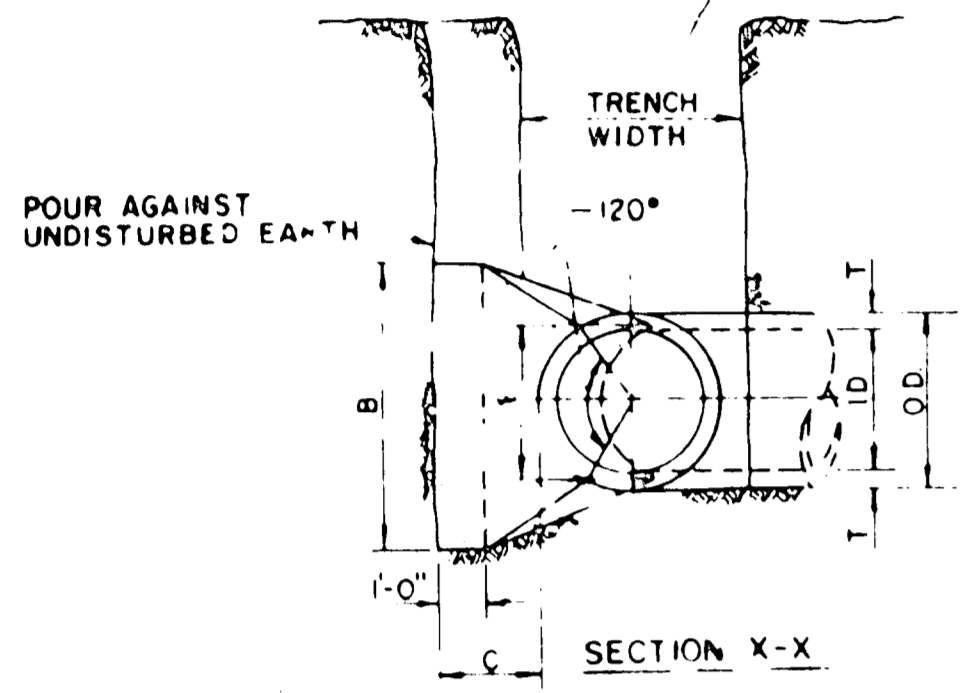
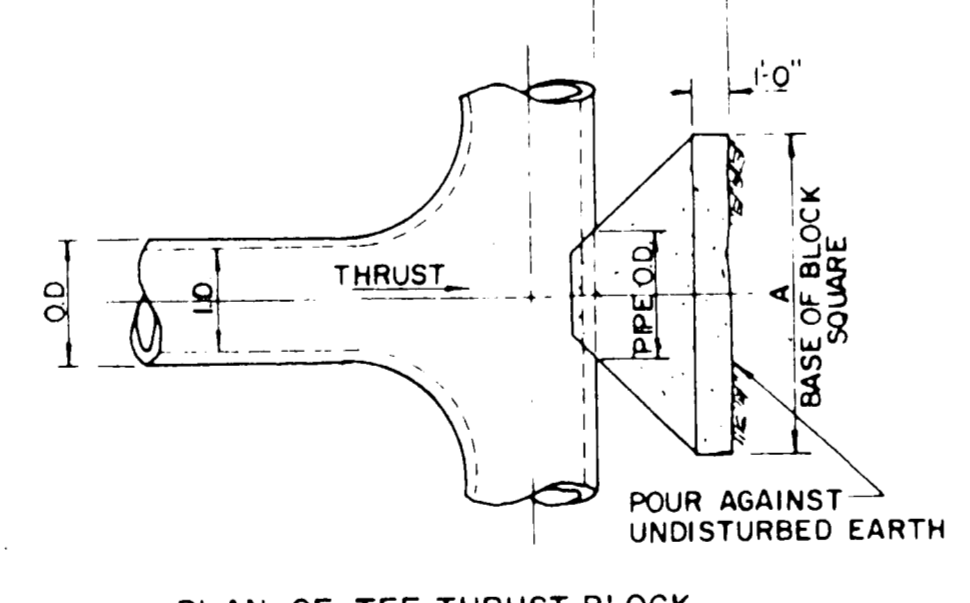
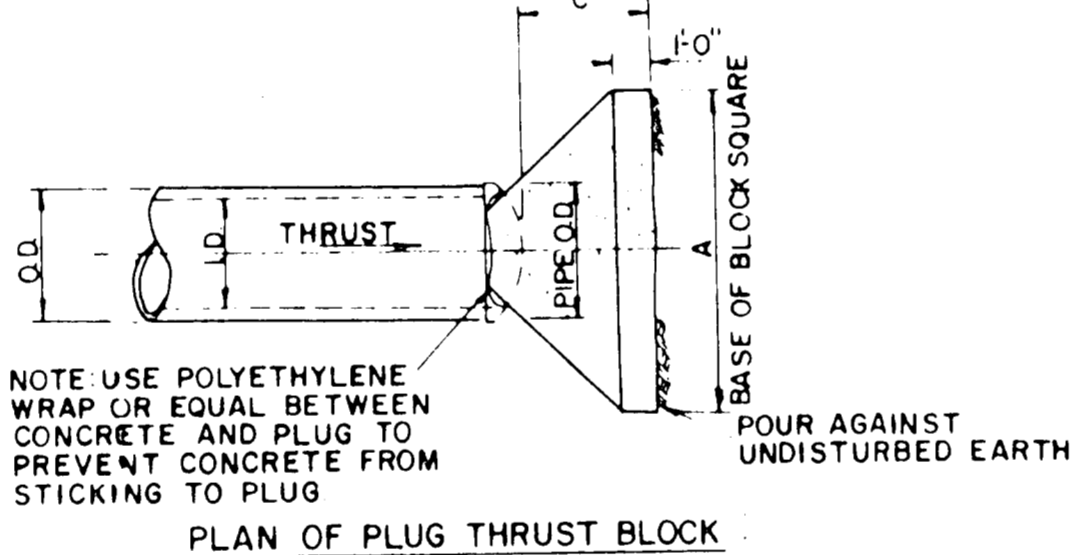
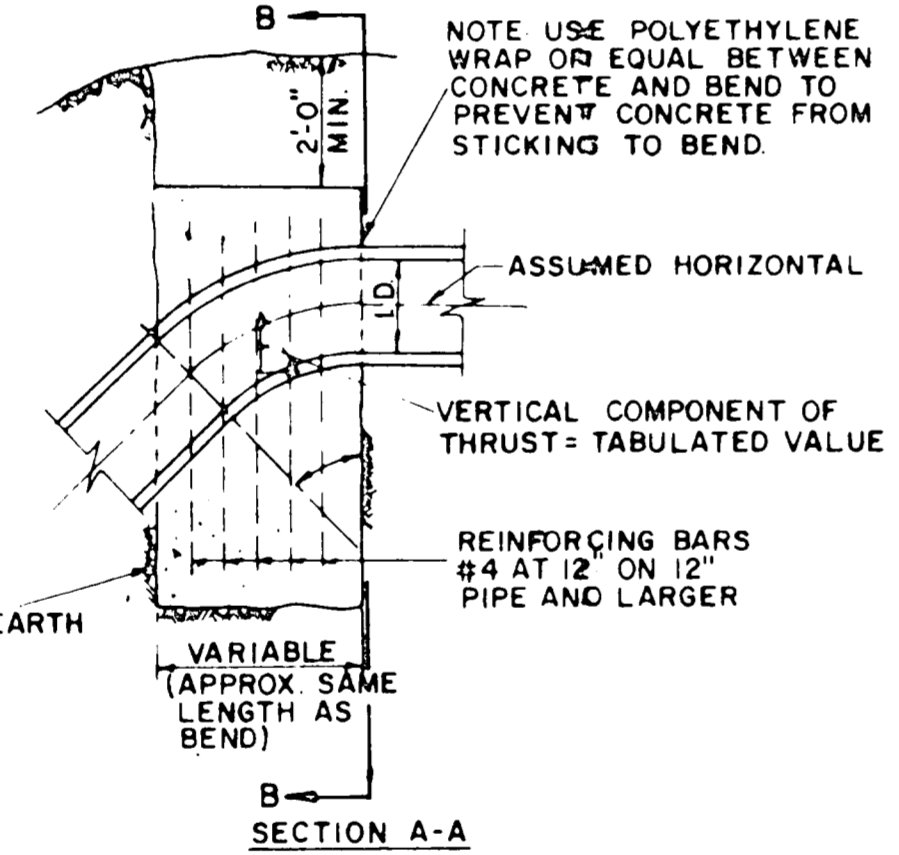
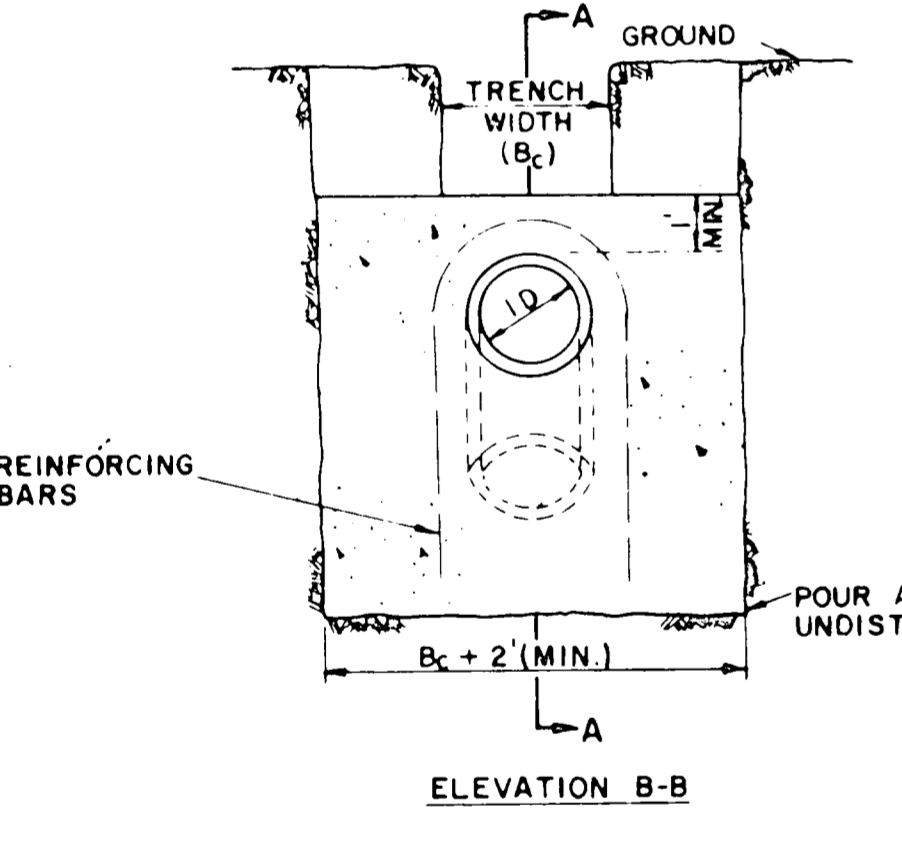


I.D. (IN.)	T (IN.)	C (IN.)	22.50° VOL. CY	22.50° WT. LB.
4.6, 8	0.4	1.5	1.5	0.9
10, 12	0.5	1.5	1.5	1.2
16, 18	0.6	1.5	1.5	1.6
20	0.7	1.5	1.5	1.8
24	0.9	1.5	1.5	2.1
30	2.9	1.5	1.5	2.6
36	4.5	1.5	2.3	3.3
42	5.0	1.0	2.6	3.0
48	5.5	2.0	3.0	4.3
54	6.0	2.5	3.4	4.0
60	6.5	2.5	3.8	5.3
66	6.0	2.0	4.1	5.7
72	7.5	3.0	4.5	6.3
78	7.5	3.0	4.9	6.7
84	8.0	3.5	5.3	7.2
90	8.5	3.0	5.6	7.7
96	9.0	4.0	6.0	8.2



Δ = 11.25°				Δ = 22.50°				Δ = 30°				Δ = 45°				Δ = 67.50°				Δ = 90°																															
I.D. (IN.)	G (FT)	THRUST (TONS)	THRUST (CY)	A (FT)	B (FT)	VOL. CY	WT. LB.	I.D. (IN.)	G (FT)	THRUST (TONS)	THRUST (CY)	A (FT)	B (FT)	VOL. CY	WT. LB.	I.D. (IN.)	G (FT)	THRUST (TONS)	THRUST (CY)	A (FT)	B (FT)	VOL. CY	WT. LB.	I.D. (IN.)	G (FT)	THRUST (TONS)	THRUST (CY)	A (FT)	B (FT)	VOL. CY	WT. LB.	I.D. (IN.)	G (FT)	THRUST (TONS)	THRUST (CY)	A (FT)	B (FT)	VOL. CY	WT. LB.												
4.6, 8	0.4	1.0	1.0	1.0	1.0	0.1	0.1	10	10	0.1	0.1	10	10	0.1	0.1	10	10	0.1	0.1	10	10	0.1	0.1	10	10	0.1	0.1	10	10	0.1	0.1	10	10	0.1	0.1	10	10	0.1	0.1	10	10	0.1	0.1	10	10	0.1	0.1	10	10	0.1	0.1

HORIZONTAL BEND THRUST BLOCK



Δ	11.25°	22.50°	30°	45°	67.50°	90°	Δ
I.D. (IN.)	THRUST (TONS)	VOL. CY	THRUST (TONS)	VOL. CY	THRUST (TONS)	VOL. CY	I.D. (IN.)
4.6, 8	1.0	0.5	2.0	1.0	2.5	1.3	4.6, 8
10, 12	2.2	1.1	4.3	2.2	5.7	2.8	10, 12
16, 18	5.0	2.5	9.7	4.9	12.7	6.4	16, 18
20	6.1	3.1	12.0	6.0	15.7	7.9	20
24	8.2	4.4	17.3	8.7	22.6	11.3	24
30	10.5	5.2	20.3	10.1	26.5	13.3	30
36	14.9	7.5	29.2	14.6	38.2	19.1	36
42	20.3	10.1	39.0	19.9	52.0	26.0	42
48	26.5	13.2	51.9	26.0	67.9	33.9	48
54	33.5	16.8	65.7	32.9	85.9	42.9	54
60	41.4	20.7	81.2	40.6	106.0	53.0	60
66	50.1	25.0	98.2	49.1	126.0	64.2	66
72	59.6	29.8	117.0	58.4	147.0	76.3	72
78	69.9	35.0	137.0	68.6	179.0	90.5	78
84	81.1	40.5	159.0	79.5	208.0	104.0	84
90	93.1	46.5	183.0	91.3	239.0	119.0	90
96	106.0	53.0	208.0	104.0	272.0	136.0	96

GENERAL NOTES - FOR ALL THRUST BLOCKS

- All Calculations are Based On Internal Pressure Of 200 P.S.I. For 24" I.D. Pipe And Smaller And 150 P.S.I. On 30" I.D. And Larger.
- Volumes Of Vertical Bend Thrust Blocks are Net Volumes Of Concrete To Be Furnished. The Corresponding Weight Of The Concrete (Class F) Is Equal To Or Greater Than The Vertical Component Of Thrust On The Vertical Bend.
- Wall Thickness (T) Assumed Here For Estimating Purposes Only.
- Concrete For Blocking Shall Be Class B Concrete.
- Dimensions May Be Varied As Required By Field Conditions Where And As Directed By The Engineer. The Volume Of Concrete Blocking Shall Not Be Less Than Shown Here.

VERTICAL BEND THRUST BLOCK

I.D. (IN.)	THRUST (TONS)	C (FT)	A (FT)	VOL. CY	WT. LB.	THRUST (TONS)	WT. LB.
4.6, 8	1.0	1.5	2.5	0.3	2.0	0.2	0.2
10, 12	2.2	1.5	3.5	0.6	2.5	0.3	0.3
16, 18	5.0	2.0	6.0	1.3	4.0	0.9	0.9
20	6.1	2.5	7.0	1.6	4.0	0.9	0.9
24	8.2	3.0	8.0	2.0	4.0	0.9	0.9
30	10.5	3.5	9.0	2.4	4.0	0.9	0.9
36	14.9	4.0	10.0	2.8	4.0	0.9	0.9
42	20.3	4.5	11.0	3.2	4.0	0.9	0.9
48	26.5	5.0	12.0	3.6	4.0	0.9	0.9
54	33.5	5.5	13.0	4.0	4.0	0.9	0.9
60	41.4	6.0	14.0	4.4	4.0	0.9	0.9
66	50.1	6.5	15.0	4.8	4.0	0.9	0.9
72	59.6	7.0	16.0	5.2	4.0	0.9	0.9
78	69.9	7.5	17.0	5.6	4.0	0.9	0.9
84	81.1	8.0	18.0	6.0	4.0	0.9	0.9
90	93.1	8.5	19.0	6.4	4.0	0.9	0.9
96	106.0	9.0	20.0	6.8	4.0	0.9	0.9

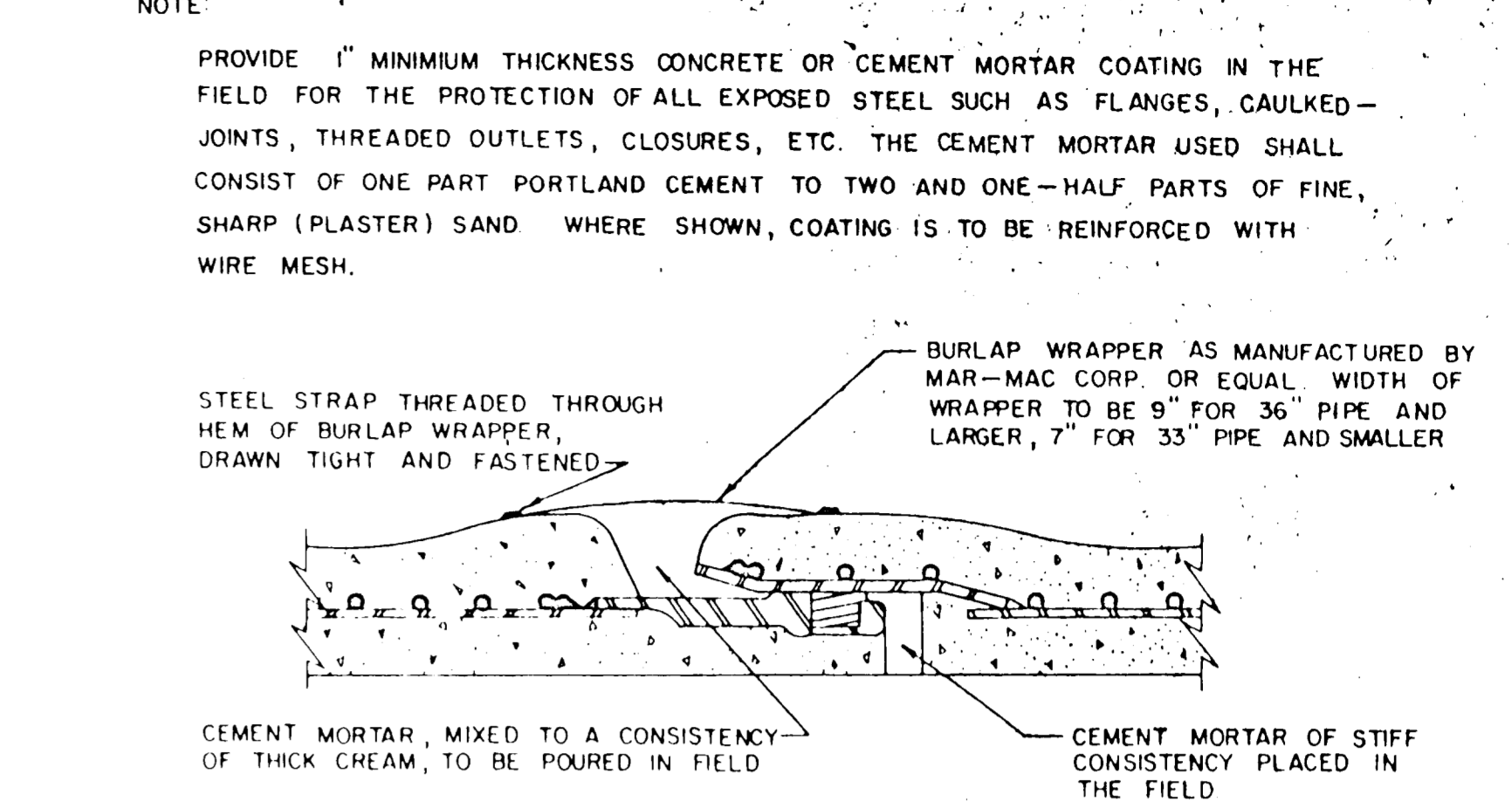
PLUG & TEE THRUST BLOCK

TYPICAL VALVE SETTING AND BOX

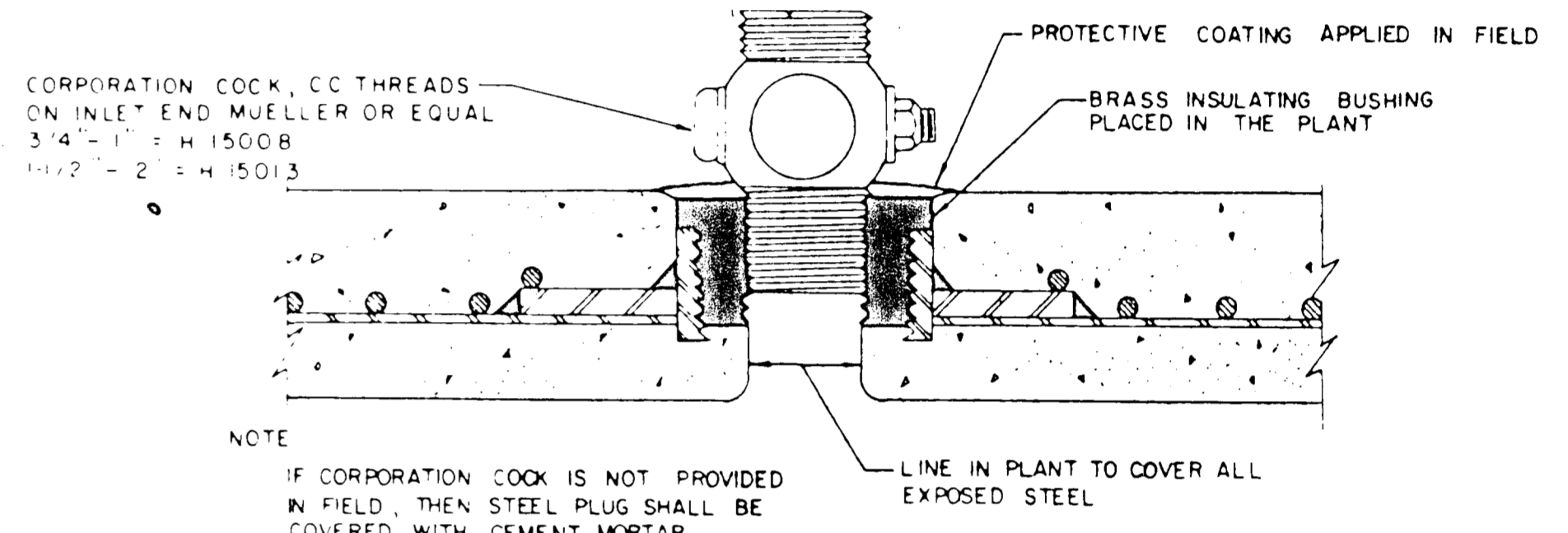


NOTE:

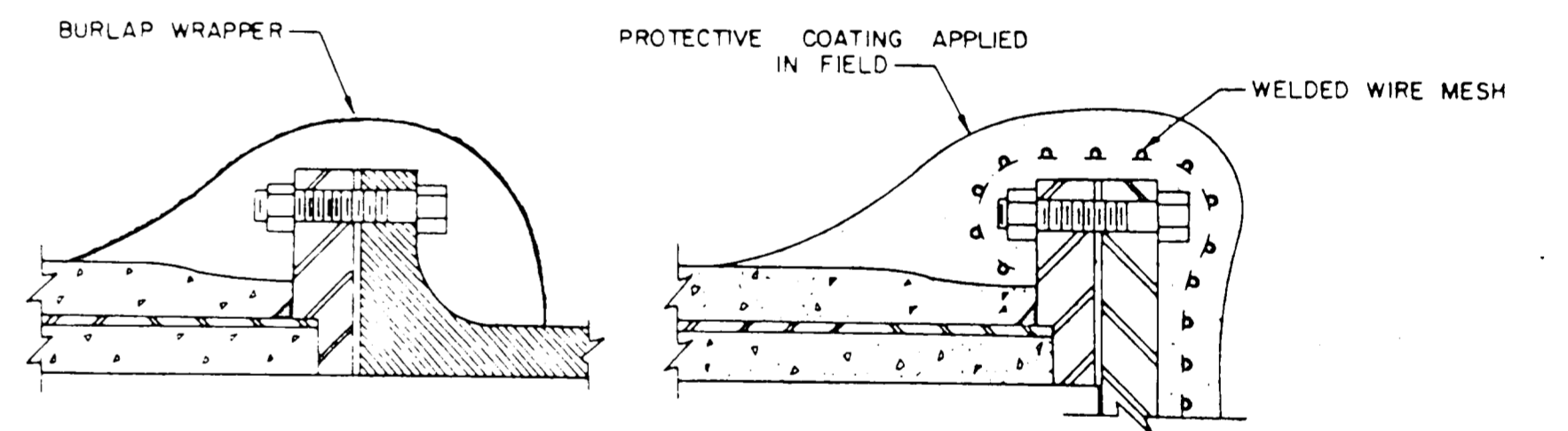
- GATE VALVES SHALL BE IN ACCORDANCE WITH AWWA STANDARD C-509-80 OR LATEST THEREOF ALL VALVES SHALL BE "MUELLER" OR APPROVED EQUAL.
- A PERMANENTLY ATTACHED VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE THATS OPERATING NUT IS LOCATED IN EXCESS OF 4 FEET BELOW THE TOP OF VALVE BOX. THIS EXTENSION SHALL BE OF SUFFICIENT LENGTH TO INSURE THAT ITS TOP IS WITHIN 4" OF VALVE BOX LID. MANUFACTURED VALVE STACK DUCTILE IRON PIPE TO BE USED FOR EXTENSION GREATER THAN 4'-0" BELL END OF STACK TO BE FITTED OVER VALVE. VALVE AND VALVE STACK IS TO BE POLY WRAPPED.
- VALVES SHALL BE OF DUCTILE IRON W/RUBBER ENCAPSULATED DISK BODY BOLTS SHALL BE STAINLESS STEEL OF SAME SIZE ON EACH VALVE.



STANDARD RUBBER GASKET JOINT



THREADED CONNECTION



FLANGED CONNECTIONS

REINFORCED CONCRETE CYLINDER PIPE AS BUILTS DETAILS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

TOWN OF ADDISON, TEXAS	
DEPARTMENT OF ENGINEERING	
STANDARD CONSTRUCTION DETAILS	
WATER	
THRUST BLOCKS	
Designed -	Drawn -
Approved -	Checked -
Date - AUGUST, 1991	Job No. - 90025 6
Scale -	Sheet 19 OF