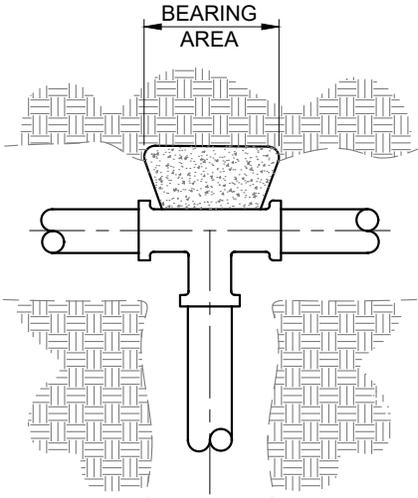
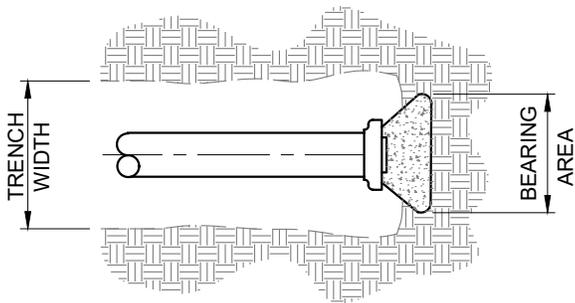


**PLAN**  
**HORIZONTAL BEND**



**PLAN**  
**TEE**



**PLAN**  
**DEAD END**

**NOTES:**

1. THRUST BLOCK BEARING FACES SHALL BE Poured AGAINST UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.
2. THRUST BLOCKS SHALL BE CLASS A2 CONCRETE (600-C-2500).

**THRUST BLOCK-MINIMUM BEARING AREA  
IN SQUARE FEET AT 188 PSI**

FITTINGS (IN)	ALLOWABLE SOIL BEARING VALUE (PSF)				
	1000	1500	2000	2500	3000
4 x 11-1/4° BEND	1.0	1.0	1.0	1.0	1.0
4 x 22 1/2° BEND	1.5	1.0	1.0	1.0	1.0
4 x 45° BEND	2.5	1.5	1.0	1.0	1.0
4 x 90°	4.0	3.0	2.0	1.5	1.5
4 TEE OUTLET	3.0	2.0	1.5	1.5	1.0
4 DEAD END	3.0	2.0	1.5	1.5	1.0
6 x 11-1/4° BEND	1.5	1.0	1.0	1.0	1.0
6 x 22 1/2° BEND	2.5	2.0	1.5	1.0	1.0
6 x 45° BEND	5.0	3.5	2.5	2.0	1.5
6 x 90° BEND	9.0	6.0	4.5	3.5	3.0
6 FIRE HYDRANT BASE ELL	9.0	6.0	4.5	3.5	3.0
6 TEE OUTLET	6.0	4.0	3.0	2.5	2.0
6 TAPPING SLEEVE OUTLET	6.0	4.0	3.0	2.5	2.0
6 DEAD END	6.0	4.0	3.0	2.5	2.0
8 x 11-1/4° BEND	2.5	1.5	1.5	1.0	1.0
8 x 22-1/2° BEND	4.5	3.0	2.5	2.0	1.5
8 x 45° BEND	8.5	5.5	4.5	3.5	3.0
8 x 90° BEND	15.5	10.5	8.0	6.5	5.5
8 TEE OUTLET	11.0	7.5	5.5	4.5	4.0
8 TAPPING SLEEVE OUTLET	11.0	7.5	5.5	4.5	4.0
8 DEAD END	11.0	7.5	5.5	4.5	4.0
10 x 11-1/4° BEND	3.5	2.5	2.0	1.5	1.5
10 x 22-1/4° BEND	6.5	4.5	3.5	3.0	2.5
10 x 45° BEND	13.0	8.5	6.5	5.5	4.5
10 x 90° BEND	23.5	16.0	12.0	9.5	8.0
10 TEE OUTLET	16.5	11.0	8.5	7.0	5.5
10 TAPPING SLEEVE OUTLET	16.5	11.0	8.5	7.0	5.5
10 DEAD END	16.5	11.0	8.5	7.0	5.5
12 x 11-1/4° BEND	5.0	3.5	2.5	2.0	1.5
12 x 22-1/4° BEND	9.5	6.5	5.0	4.0	3.5
12 x 45° BEND	18.5	12.0	9.0	7.5	6.0
12 x 90° BEND	33.5	22.5	17.0	13.5	11.5
12 TEE OUTLET	24.0	16.0	12.0	9.5	8.0
12 TAPPING SLEEVE OUTLET	24.0	16.0	12.0	9.5	8.0
12 DEAD END	24.0	16.0	12.0	9.5	8.0

**ANCHOR AND THRUST BLOCKS**

**WDS - 107**



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RECOMMENDED

*Robert Johnson*

DIRECTOR OF ENGINEERING

APPROVED

*Debra Paul*

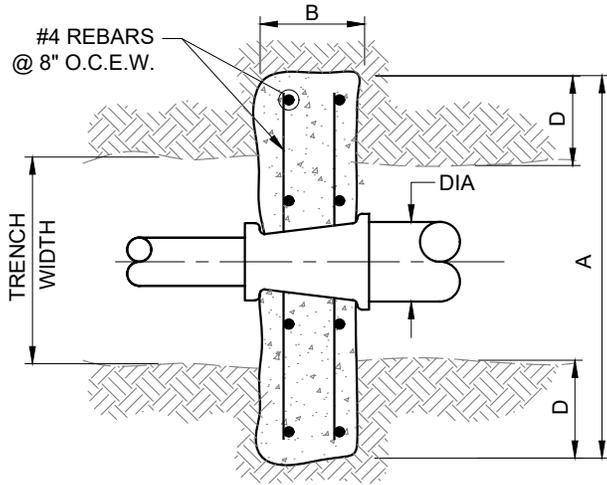
DEPUTY GENERAL MANAGER / CHIEF ENGINEER

DATE: 02-2020

SCALE: N.T.S.

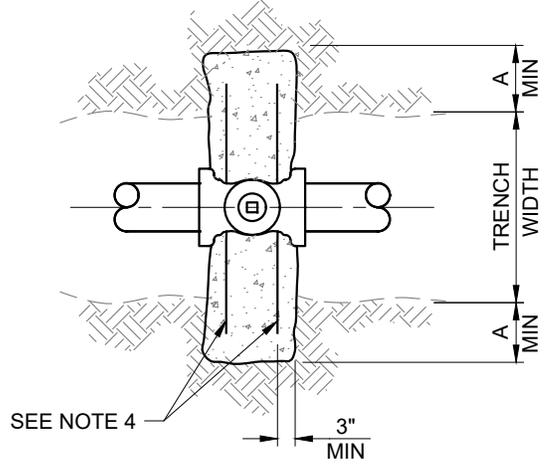
SHEET 1 OF 4

### REDUCER



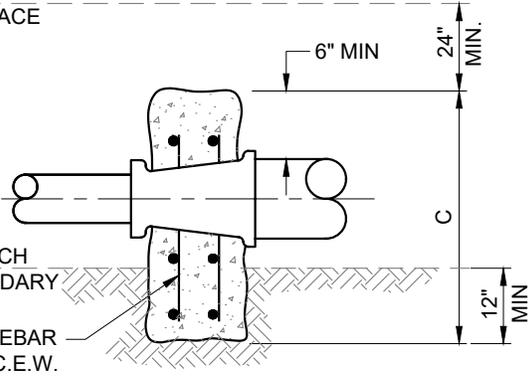
### PLAN

### GATE VALVE

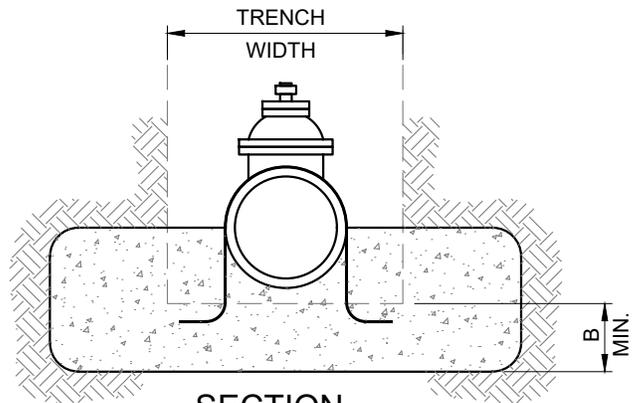


### PLAN

GROUND SURFACE



### ELEVATION



### SECTION

THRUST BLOCK AT REDUCERS

LARGE END (IN)	A (IN)	B (IN)	C (IN)	D (IN)
6	38	8	25	7
8	42	10	28	9
10	48	10	32	13
12	54	12	41	19

THRUST BLOCK AT GATE VALVES

SIZE (IN)	A (IN)	B (IN)
4	6	4
6	6	8
8	6	12
10	12	18
12	12	18

### NOTES:

- POUR CLASS A2 CONCRETE (600-C-2500) THRUST BLOCK AGAINST UNDISTURBED SOIL.
- COAT STEEL STIRRUPS NOT EMBEDDED IN CONCRETE WITH 1/8" MINIMUM THICKNESS OF NO-OX-ID.
- STEEL STIRRUPS SHOULD BE GRADE 60.
- USE #3 REBAR FOR 6" VALVES. USE #4 REBAR FOR VALVES 8" AND ABOVE.

ANCHOR AND THRUST BLOCKS

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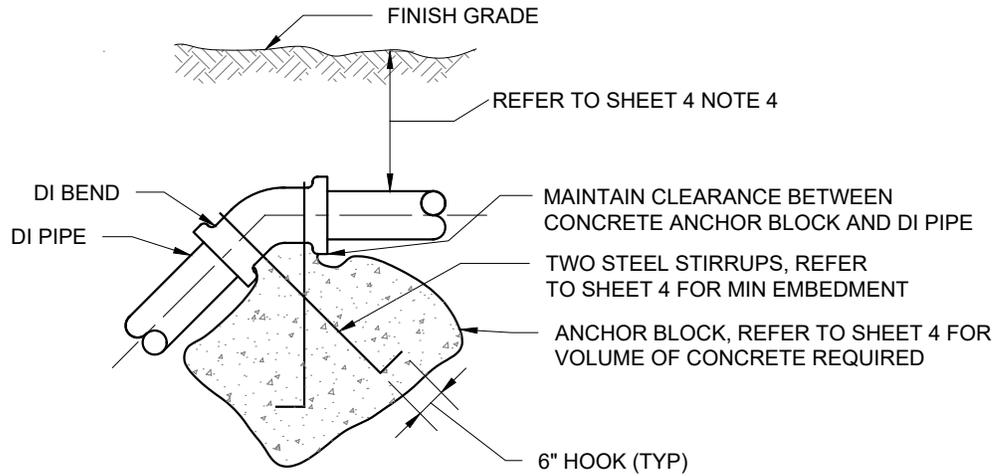
*Shirley Paul*

DEPUTY GENERAL MANAGER / CHIEF ENGINEER

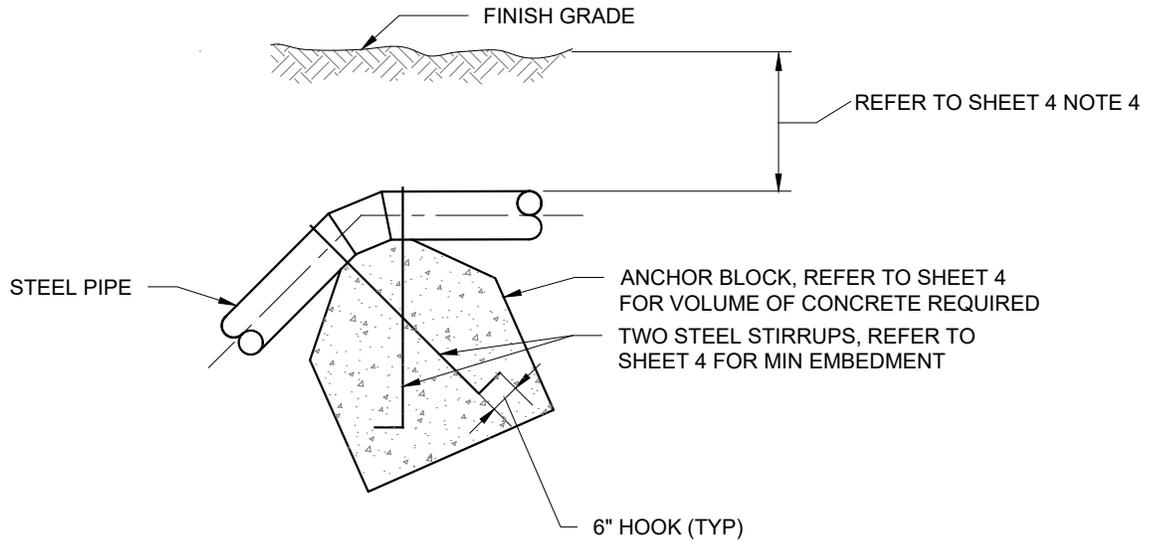
DATE: 02-2020

SCALE: N.T.S.

SHEET 2 OF 4



**DUCTILE IRON VERTICAL BEND**



**FABRICATED STEEL VERTICAL BEND**

**NOTES:**

GASKETS SHALL BE RESTRAINED.

**ANCHOR AND THRUST BLOCKS**

**WDS - 107**



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DATE: 02-2020

SCALE: N.T.S.

SHEET 3 OF 4

ANCHOR BLOCK AT VERTICAL BENDS-VOLUME OF CONCRETE (CUBIC FEET)									
SIZE (IN)	11-1/4° BEND			22-1/2° BEND			45° BEND		
	CONCRETE	BARS	EMBED MIN (IN)	CONCRETE	BARS	EMBED MIN (IN)	CONCRETE	BARS	EMBED MIN (IN)
4	4	2-#4	6	7	2-#4	6	12	2-#4	6
6	7	2-#4	6	14	2-#4	6	28	2-#4	6
8	13	2-#4	6	25	2-#4	6	49	2-#4	10
10	20	2-#4	8	40	2-#4	10	80	2-#4	16
12	28	2-#4	8	56	2-#4	10	109	2-#4	16

**NOTES:**

1. POUR CLASS A2 CONCRETE (600-C-2500) ANCHOR BLOCK AGAINST UNDISTURBED SOIL.
2. COAT STEEL STIRRUPS NOT EMBEDDED IN CONCRETE WITH 1/8" MINIMUM THICKNESS OF NO-OX-ID.
3. BACKFILL 15' BOTH WAYS FROM BEND PRIOR TO HYDROSTATIC TEST.
4. REFER TO CONSTRUCTION DRAWINGS FOR MINIMUM PIPE COVER.

ANCHOR AND THRUST BLOCKS

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*Shirley Reed*

DEPUTY GENERAL MANAGER / CHIEF ENGINEER

DATE: 02-2020

SCALE: N.T.S.

SHEET 4 OF 4