

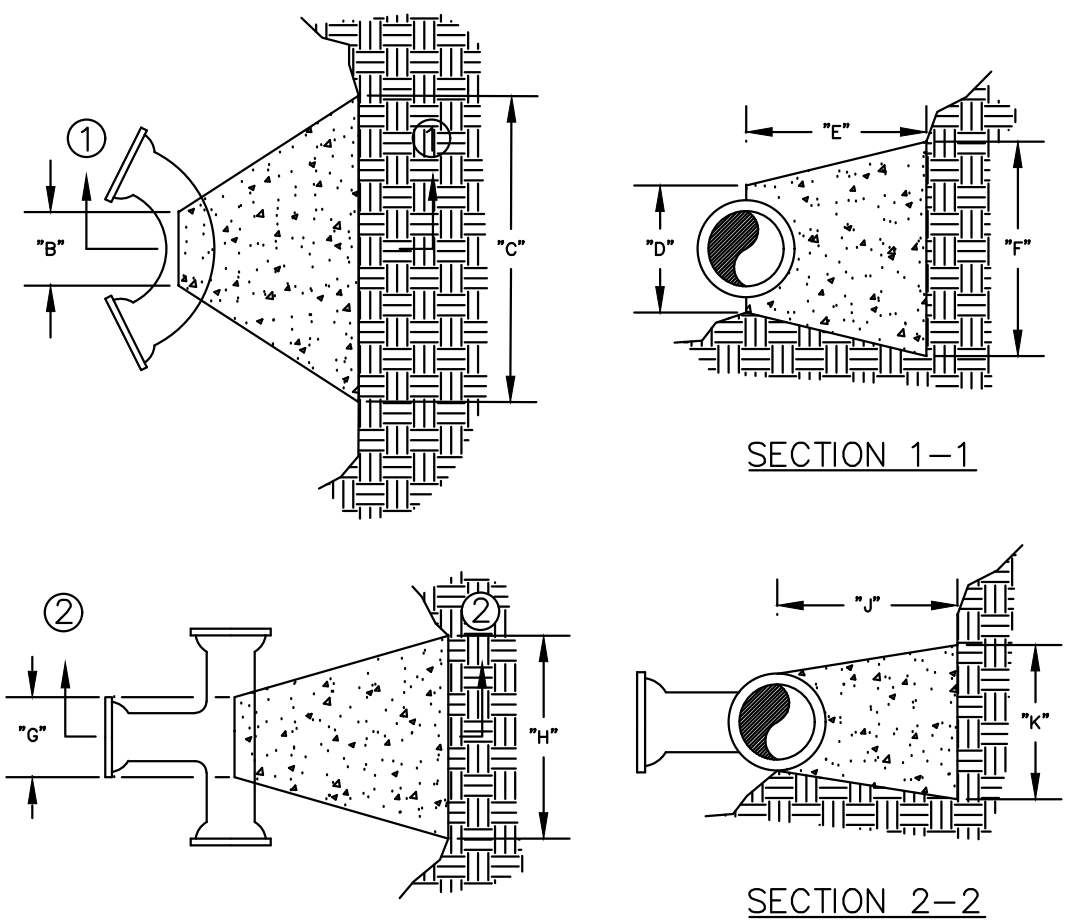
BENDS	"0"	"1"	"2"	"3"
6"-11 1/4"	8"	15"	24"	30"
6"-22 1/2"	8"	19"	24"	30"
6"-45"	8"	30"	24"	30"
6"-90"	8"	30"	12"	24"
8"-11 1/4"	8"	20"	24"	30"
8"-22 1/2"	8"	22"	24"	30"
8"-45"	8"	31"	24"	30"
8"-90"	8"	38"	12"	24"
12"-11 1/4"	8"	30"	12"	24"
12"-22 1/2"	8"	35"	12"	24"
12"-45"	8"	40"	12"	24"
12"-90"	8"	60"	12"	24"
16"-11 1/4"	TL	28"	24"	28"
16"-22 1/2"	TL	39"	24"	39"
16"-45"	TL	51"	24"	51"
16"-90"	TL	91"	20"	24"
20"-11 1/4"	TL	34"	24"	28"
20"-22 1/2"	TL	48"	24"	39"
20"-45"	TL	74"	24"	51"
20"-90"	TL	136"	24"	60"
24"-11 1/4"	TL	40"	28"	40"
24"-22 1/2"	TL	56"	28"	56"
24"-45"	TL	101"	28"	60"
24"-90"	TL	186"	28"	60"
30"-11 1/4"	TL	49"	34"	49"
30"-22 1/2"	TL	79"	34"	60"
30"-45"	TL	154"	34"	60"
30"-90"	TL	285"	34"	60"

TEES	"0"	"1"	"2"	"3"
6"x6"x6"	12"	24"	24"	18"
6"x8"x6"	12"	24"	24"	18"
6"x8"x8"	12"	27"	24"	27"
12"x12"x6"	12"	24"	24"	18"
12"x12"x8"	12"	27"	27"	27"
12"x12"x12"	12"	38"	24"	38"
24"x24"x16"	16"	53"	28"	53"

NOTES:  
 1. 2" & 4" FITTINGS EQUIVALENT TO 6" FITTINGS.  
 2. TAPPING SLEEVES TO HAVE BACKING BLOCKS SAME SIZE AS REQUIRED FOR TEES.  
 3. "L" = TOTAL LENGTH OF FITTING MINUS CLEARANCE FOR BELLS.

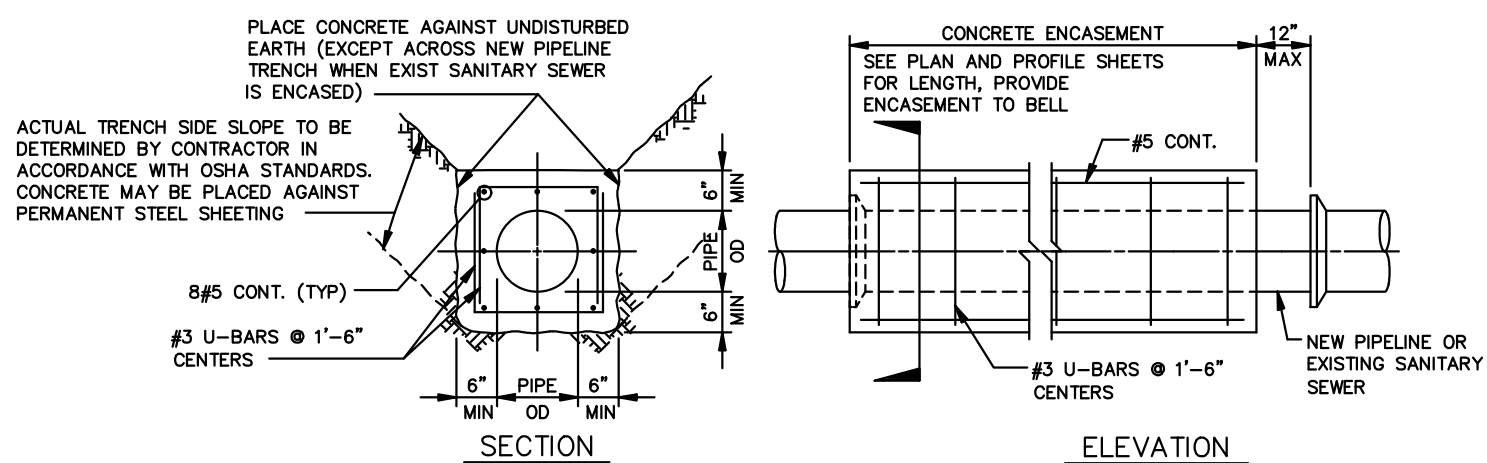
INTERNAL WATER PRESSURE 6" through 12"=200 psi  
 INTERNAL WATER PRESSURE 16" through 30"=210 psi  
 BEARING PRESSURE OF SOIL=2000 psi

**BACKING BLOCKS**  
 NOT TO SCALE



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**BACKING BLOCK  
 DETAILS AND LOCATIONS**

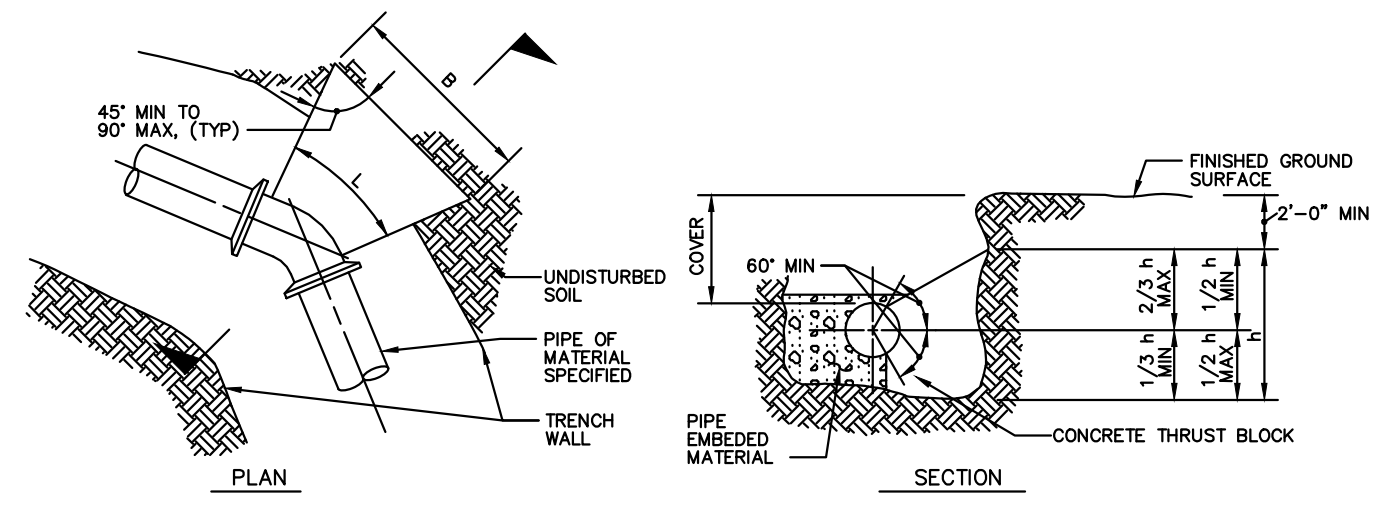


NOTES:  
 1. AT LOCATIONS WHERE THE TRANSMISSION MAIN CROSSES AN EXISTING SANITARY SEWER, SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.  
 2. WHEN THE PIPELINE IS PROTECTED WITH POLYETHYLENE TUBE ENCASUREMENT, THE CONCRETE ENCASUREMENT IS TO COVER THE POLYETHYLENE ENCASUREMENT.

**CONCRETE ENCASUREMENT**  
 NO SCALE

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**CONCRETE ENCASUREMENT  
 DETAILS**



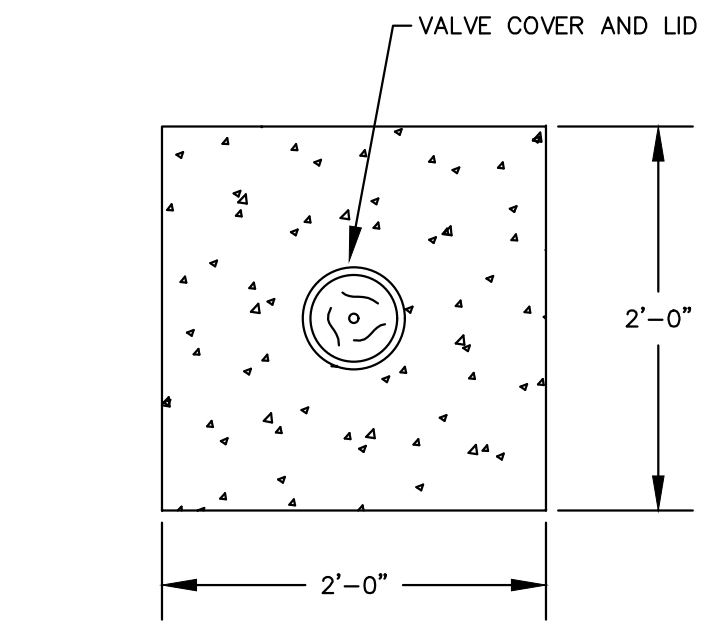
NOTES:  
 1. AREA OF BLOCK, A = BxH. BLOCK AREAS ARE SHOWN ON GENERAL LAYOUT OR TABLE.  
 2. B = h = 1/2(A), EXCEPT WHERE TOP OF BLOCK IS WITHIN 2 FEET FROM GROUND SURFACE, THEN B = A/1.5.  
 3. MINIMUM BLOCK DIMENSION (B & h) SHALL BE AT LEAST OD OF PIPE OR 1 FOOT FOR PIPE OD 12" OR LESS.  
 4. THE BOTTOM OF THE BLOCK SHALL EXTEND AT LEAST TO THE BOTTOM OF THE TRENCH IN ALL CASES.  
 5. L=FITTING LENGTH MINUS CLEARANCE FOR BELLS.  
 6. DETAIL IS SHOWN FOR CAST IRON PIPE; DETAIL IS SIMILAR FOR OTHER TYPES OF PIPE.  
 7. DIMENSIONS FOR THRUST BLOCKS FOR FIRE HYDRANT ASSEMBLY ARE SHOWN FIRE HYDRANT ASSEMBLY DETAIL.

SIZE	BEND	THRUST AREA	B	H
16"	11 1/2"	4 SF	2'	2'
16"	45"	8 SF	2.8'	2.8'

**CONCRETE THRUST BLOCKING**  
 NOT TO SCALE

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**CONCRETE THRUST  
 BLOCKING DETAILS**

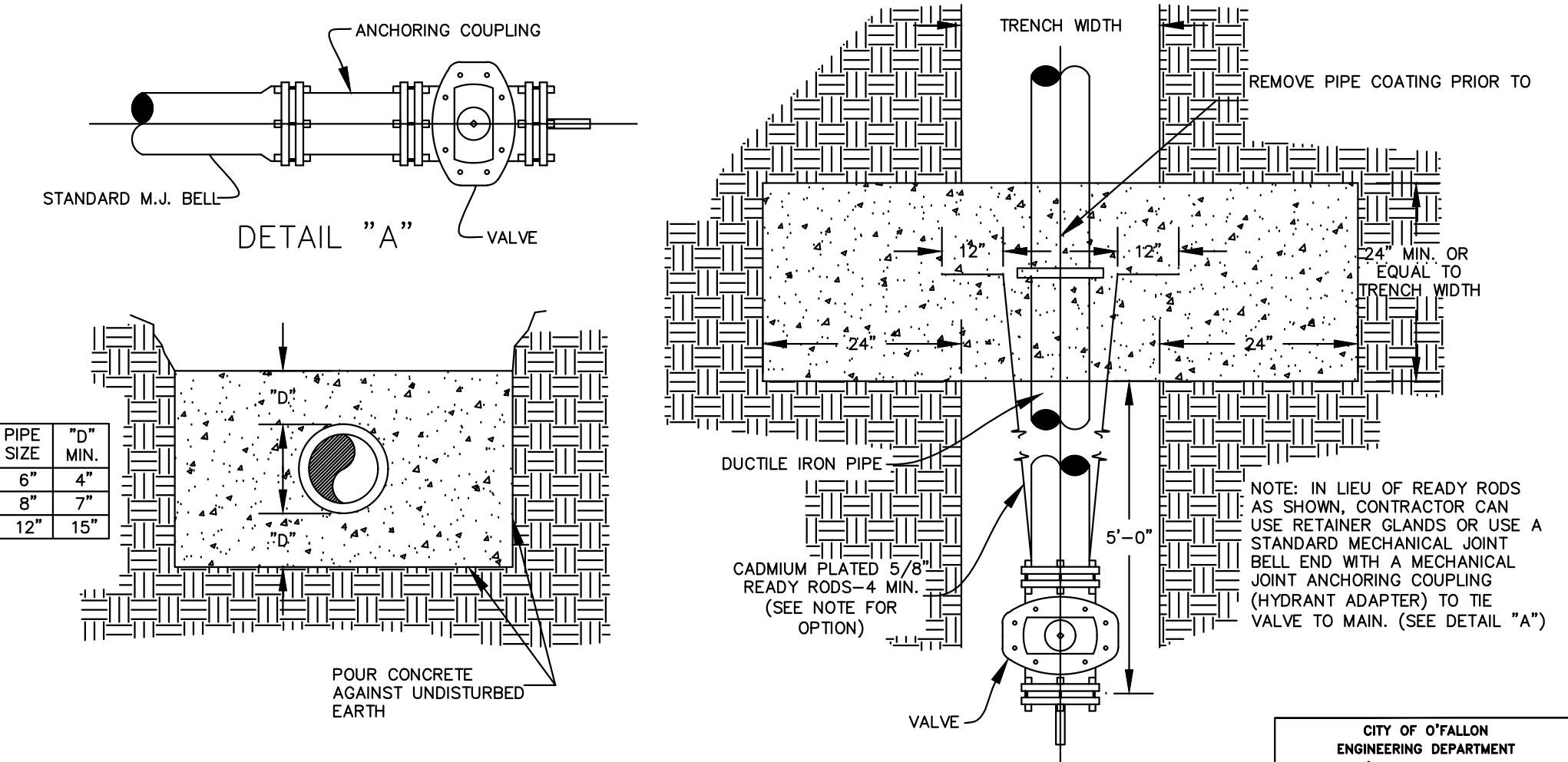


**TOP VIEW  
 CONCRETE COLLAR**  
 NOT TO SCALE

Note: 1. Concrete collar joint pattern is required in paved areas such as roadways, driveways, sidewalks or other areas of paved surfaces.  
 2. Concrete collars are optional in other non-paved areas.

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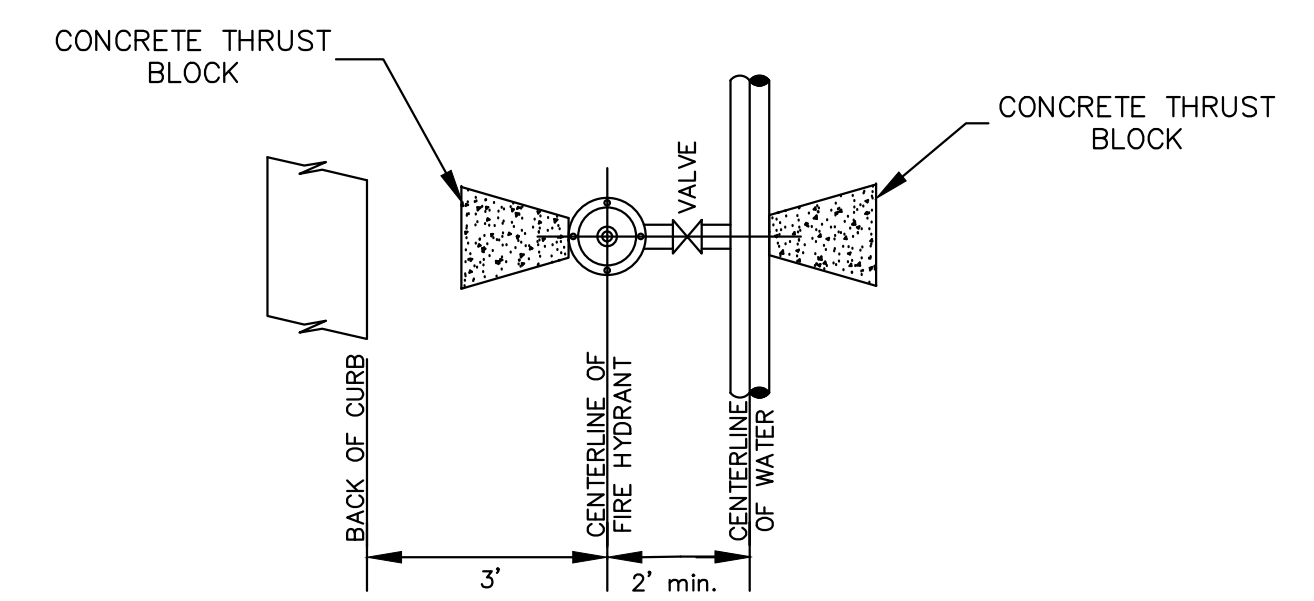
**CONCRETE  
 COLLAR DETAIL**



**STRADDLE BLOCK DETAIL**  
 NOT TO SCALE

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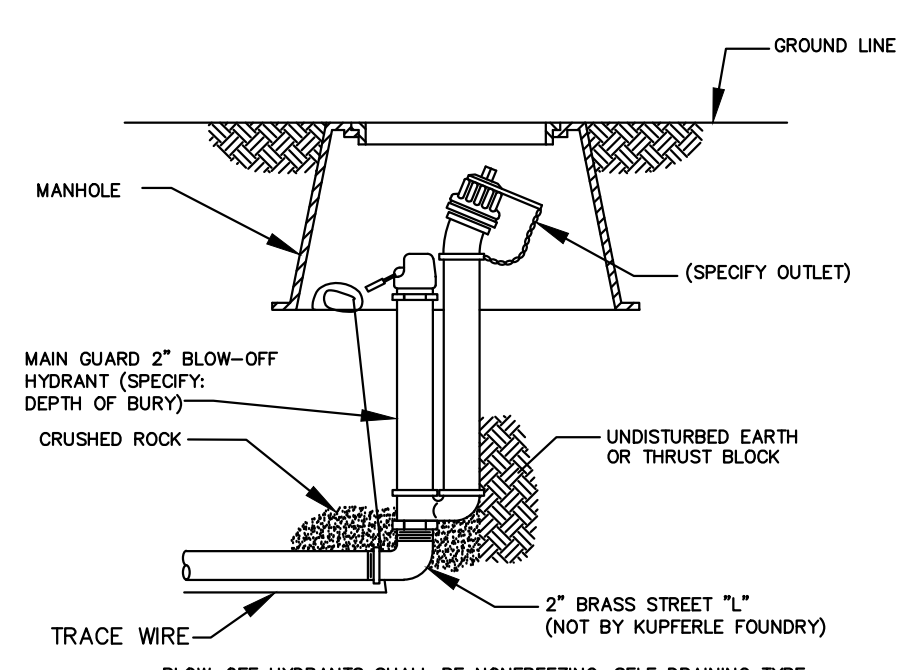
**STRADDLE BLOCK  
 DETAILS**



**TYPICAL WATER MAIN AND FIRE  
 HYDRANT LOCATIONS**  
 NOT TO SCALE

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**WATER MAIN  
 FIRE HYDRANT DETAIL**



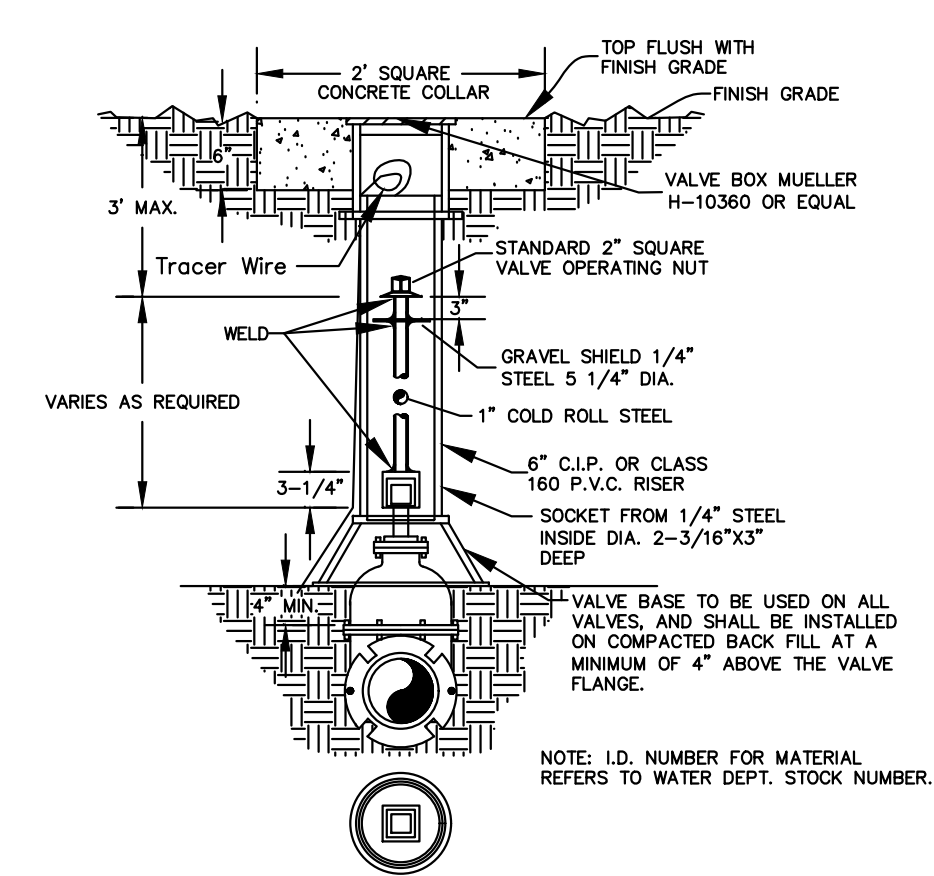
BLOW-OFF HYDRANTS SHALL BE NON-FREEZING, SELF DRAINING TYPE, WITH AN OVERALL LENGTH OF 2'. SET UNDERGROUND IN A METER BOX. THESE HYDRANTS WILL BE FURNISHED WITH A 2" FIP INLET, A NON-TURNING OPERATING ROD, AND SHALL OPEN TO THE LEFT. ALL OF THE WORKING PARTS SHALL BE OF BRONZE-TO BRONZE DESIGN, AND BE SERVICEABLE FROM ABOVE GRADE WITH NO DIGGING. THE OUTLET SHALL ALSO BE BRONZE AND BE 2-1/2" NPT. HYDRANTS SHALL BE LOCKABLE TO PREVENT UNAUTHORIZED USE AS MANUFACTURED BY KUPFERLE FOUNDRY CO., ST. LOUIS, MO, OR APPROVED EQUAL.

**BLOW-OFF HYDRANT**  
 NOT TO SCALE

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**BLOW-OFF  
 HYDRANT DETAIL**

Concrete collar will be in accordance with the Concrete collar detail.



**WATER VALVE DETAIL**  
 NOT TO SCALE

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**WATER  
 VALVE DETAIL**

PROJECT TITLE  
**Brookview**  
 O'FALLON, MISSOURI

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 Corporate Certificate of Authority #001348

STATE OF MISSOURI  
 SEAN M. ACKLEY  
 PROFESSIONAL ENGINEER  
 LICENSE # PE-2009018679  
 Civil Engineer  
 Date: 01/11/18

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P+Z No. 17-005894  
 City No. 17-008288  
 Date: 01/11/18  
 Job No. 17-02-041

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