

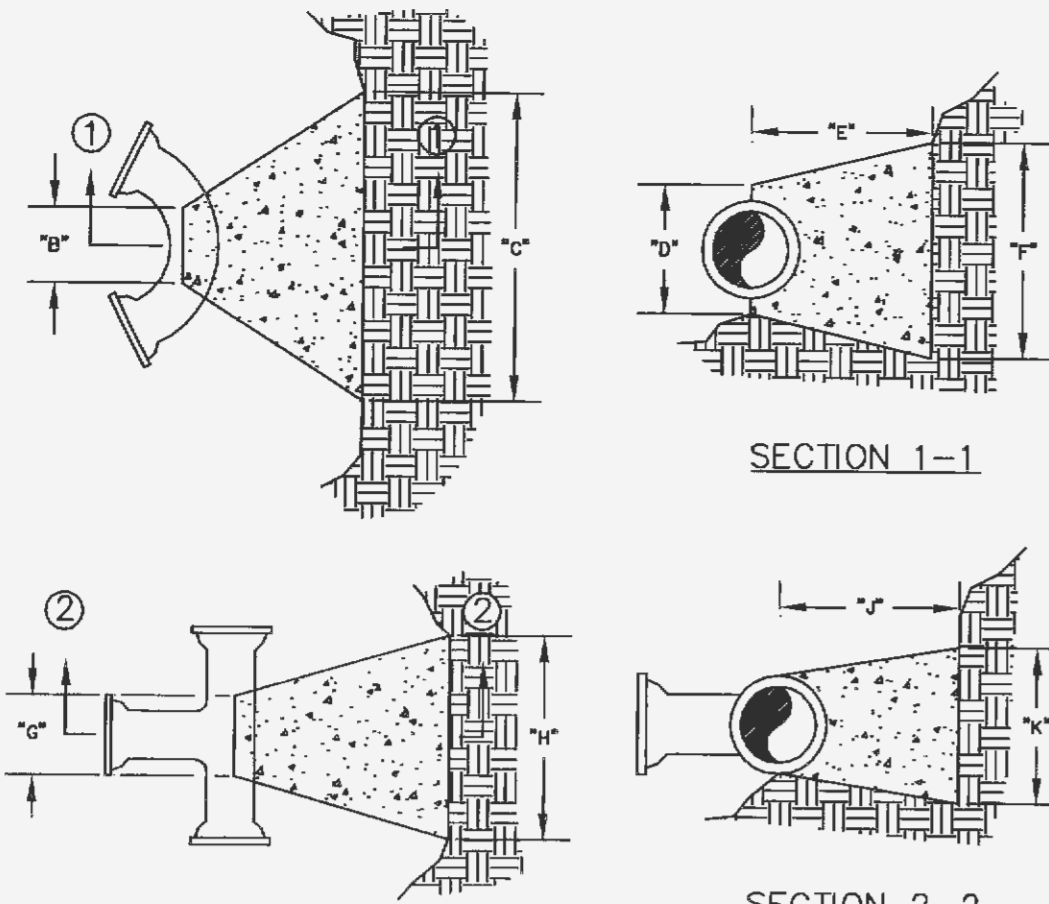
BENDS	78"	90"	108"	126"	144"
8"-11 1/4"	8"	15"	12"	24"	10"
8"-22 1/2"	8"	18"	12"	24"	15"
8"-45"	8"	30"	12"	24"	18"
8"-90"	8"	30"	12"	24"	28"
12"-11 1/4"	8"	20"	12"	24"	10"
12"-22 1/2"	8"	24"	12"	24"	15"
12"-45"	8"	30"	12"	24"	18"
12"-90"	8"	30"	12"	24"	28"
16"-11 1/4"	12"	28"	20"	24"	28"
16"-22 1/2"	12"	36"	20"	24"	36"
16"-45"	12"	48"	20"	24"	48"
16"-90"	12"	48"	20"	24"	60"
20"-11 1/4"	12"	34"	24"	28"	28"
20"-22 1/2"	12"	40"	24"	28"	36"
20"-45"	12"	48"	24"	28"	48"
20"-90"	12"	48"	24"	28"	60"
24"-11 1/4"	12"	40"	28"	28"	40"
24"-22 1/2"	12"	48"	28"	28"	48"
24"-45"	12"	56"	28"	28"	56"
24"-90"	12"	56"	28"	28"	70"
30"-11 1/4"	12"	48"	34"	30"	48"
30"-22 1/2"	12"	56"	34"	30"	56"
30"-45"	12"	64"	34"	30"	64"
30"-90"	12"	64"	34"	30"	80"

TEES	6"	8"	10"	12"	14"
8"x8"x8"	12"	24"	24"	18"	18"
8"x8"x12"	24"	24"	24"	18"	18"
8"x12"x8"	12"	24"	24"	18"	18"
12"x12"x8"	12"	24"	24"	18"	18"
12"x12"x12"	12"	24"	24"	18"	18"
12"x12"x16"	12"	24"	24"	18"	18"
24"x24"x16"	18"	53"	24"	38"	53"

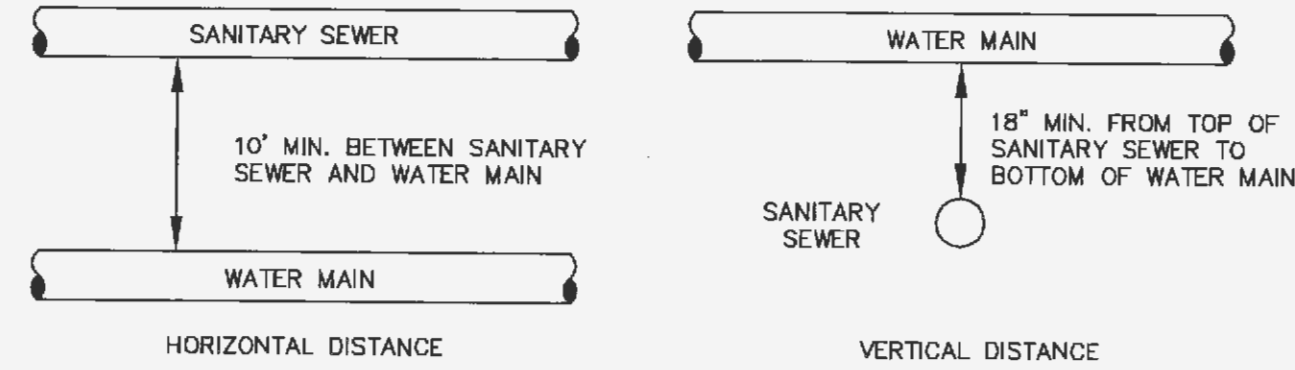
NOTES:  
 1. 2" & 4" FITTINGS EQUIVALENT TO 6" FITTINGS.  
 2. TAPPING SLEEVES TO HAVE BACKING BLOCKS SAME SIZE AS REQUIRED FOR TEES.  
 3. "TL" = TOTAL LENGTH OF FITTING MINUS CLEARANCE FOR BELLS.

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

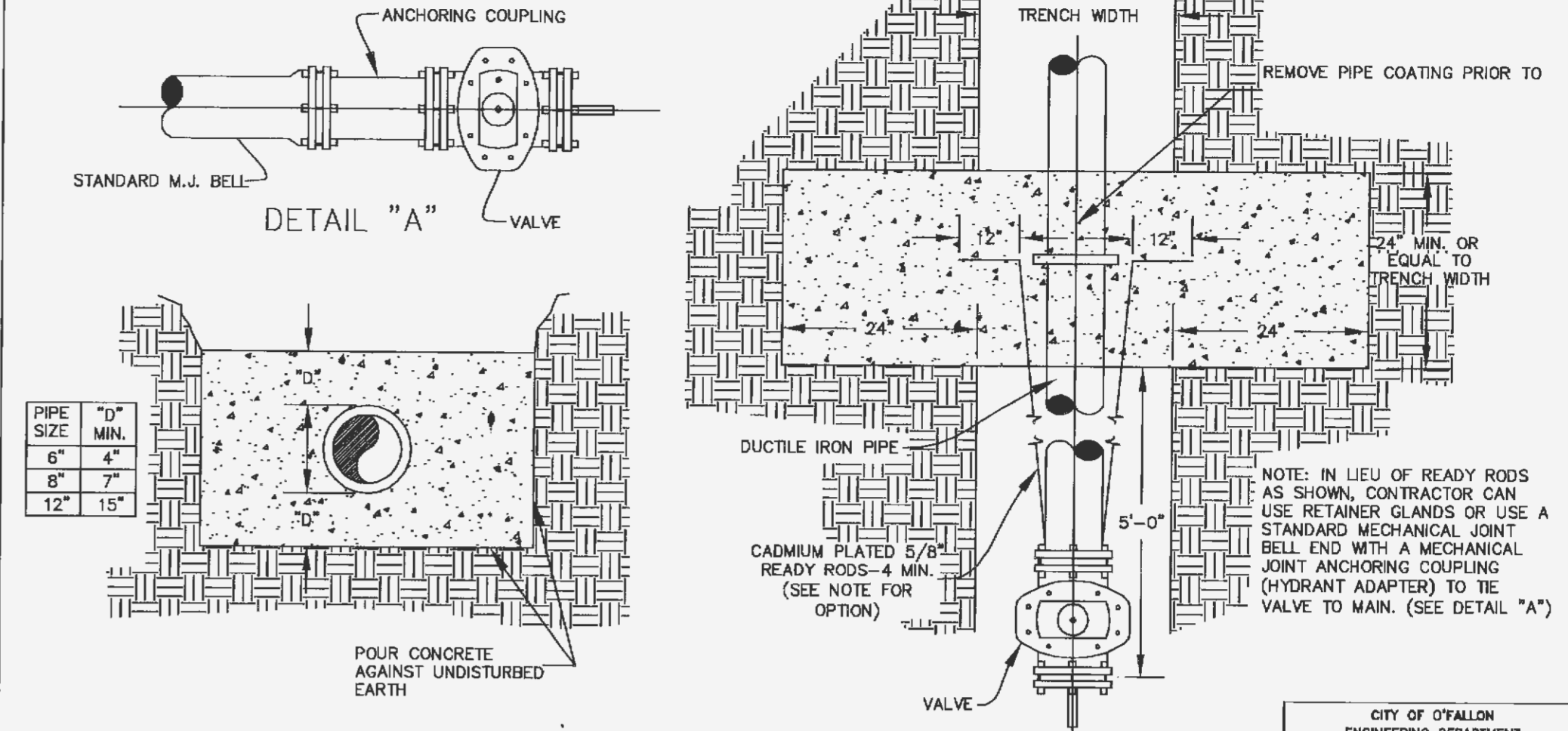
**BACKING BLOCKS**  
NOT TO SCALE



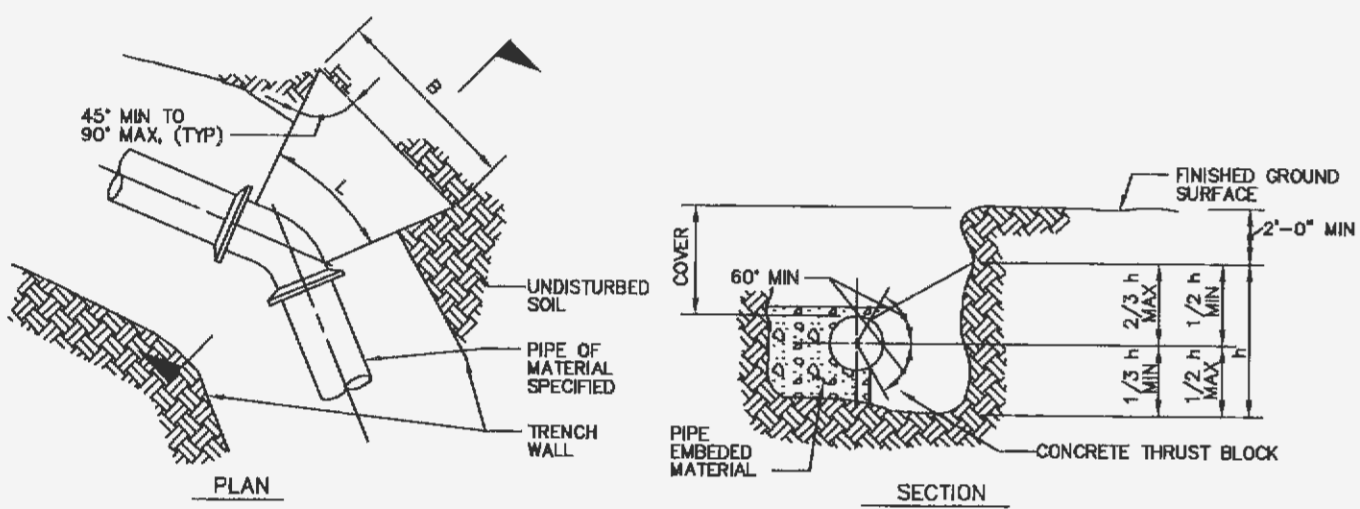
**BACKING BLOCK DETAILS AND LOCATIONS**



**TYPICAL WATER AND SEWER SEPARATION**  
NOT TO SCALE



**STRADDLE BLOCK DETAIL**  
NOT TO SCALE

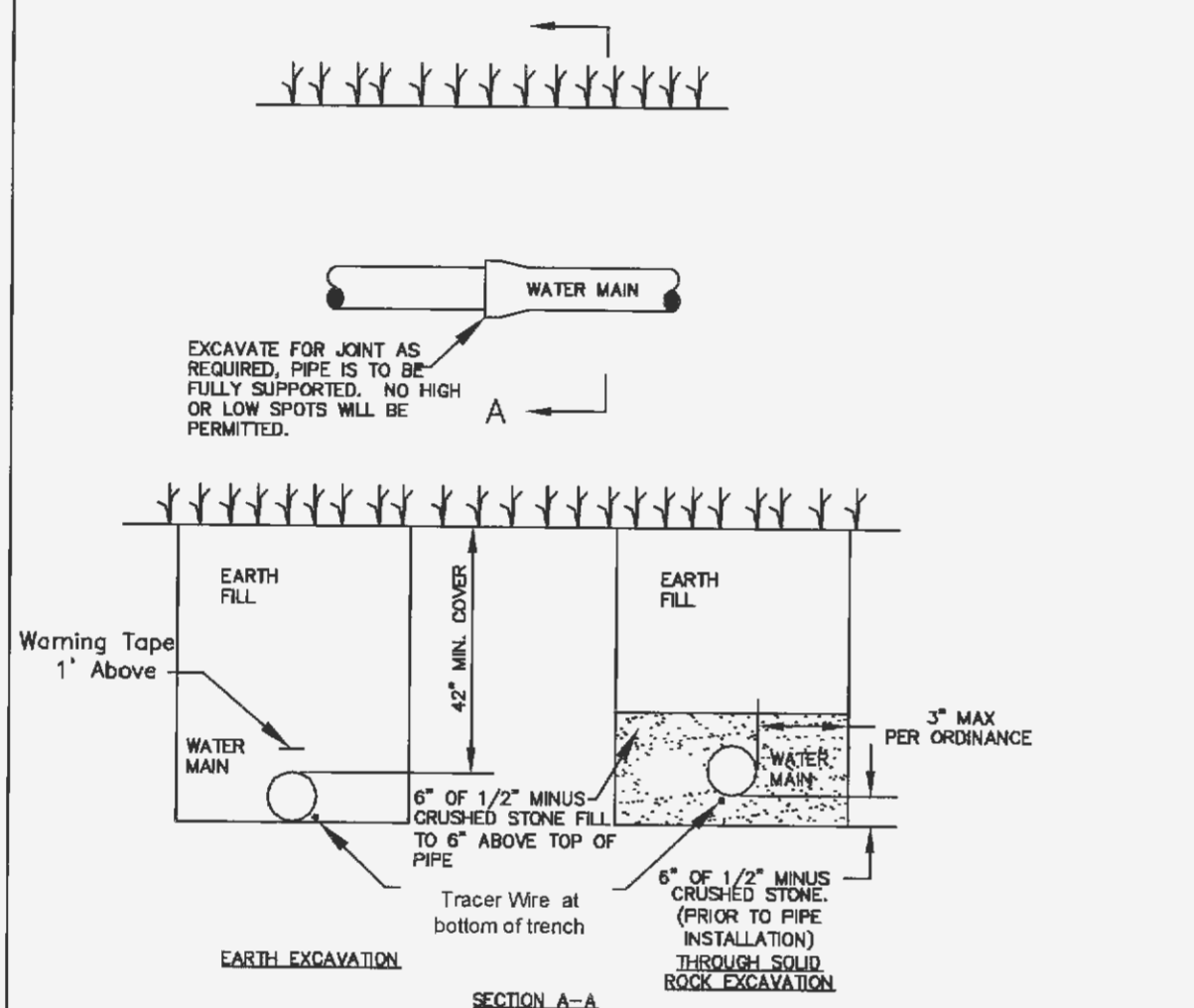


- NOTES:  
 1. AREA OF BLOCK, A = BxH, BLOCK AREAS ARE SHOWN ON GENERAL LAYOUT OR TABLE.  
 2. B = H = V/A, EXCEPT WHERE TOP OF BLOCK IS WITHIN 2 FEET FROM GROUND SURFACE, THEN B = A/H.  
 3. MINIMUM BLOCK DIMENSION (B & H) SHALL BE AT LEAST OD OF PIPE OR 1 FOOT FOR PIPE OD 12" OR LESS.  
 4. THE BOTTOM 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 PER HYDRANT ASSEMBLY DETAIL.

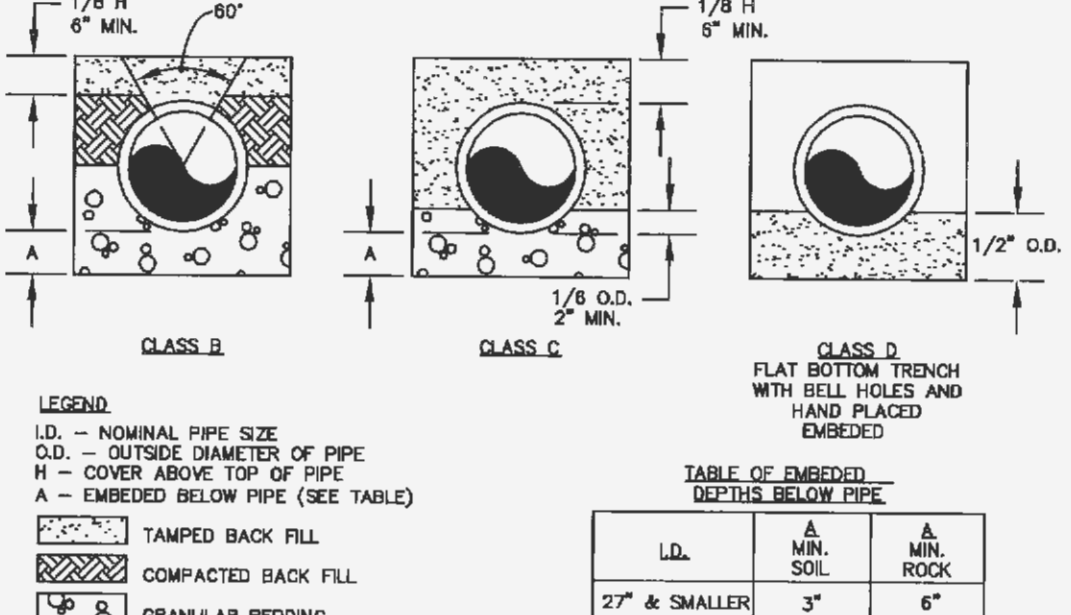
SIZE	BEND	THRUST AREA	B	H
16"	11 1/2"	4 SF	2'	2'
16"	45"	B SF	2.8'	2.8'

**CONCRETE THRUST BLOCKING**  
NOT TO SCALE

**CONCRETE THRUST BLOCKING DETAILS**



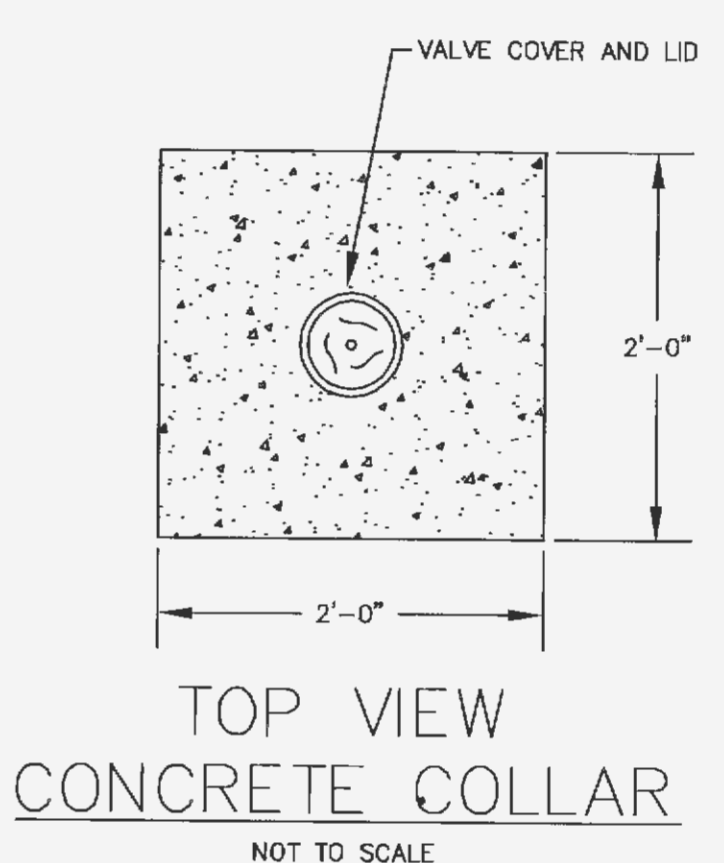
**TYPICAL WATER MAIN INSTALLATION DETAILS**  
NOT TO SCALE



**WATER MAIN EMBEDDED**  
NOT TO SCALE

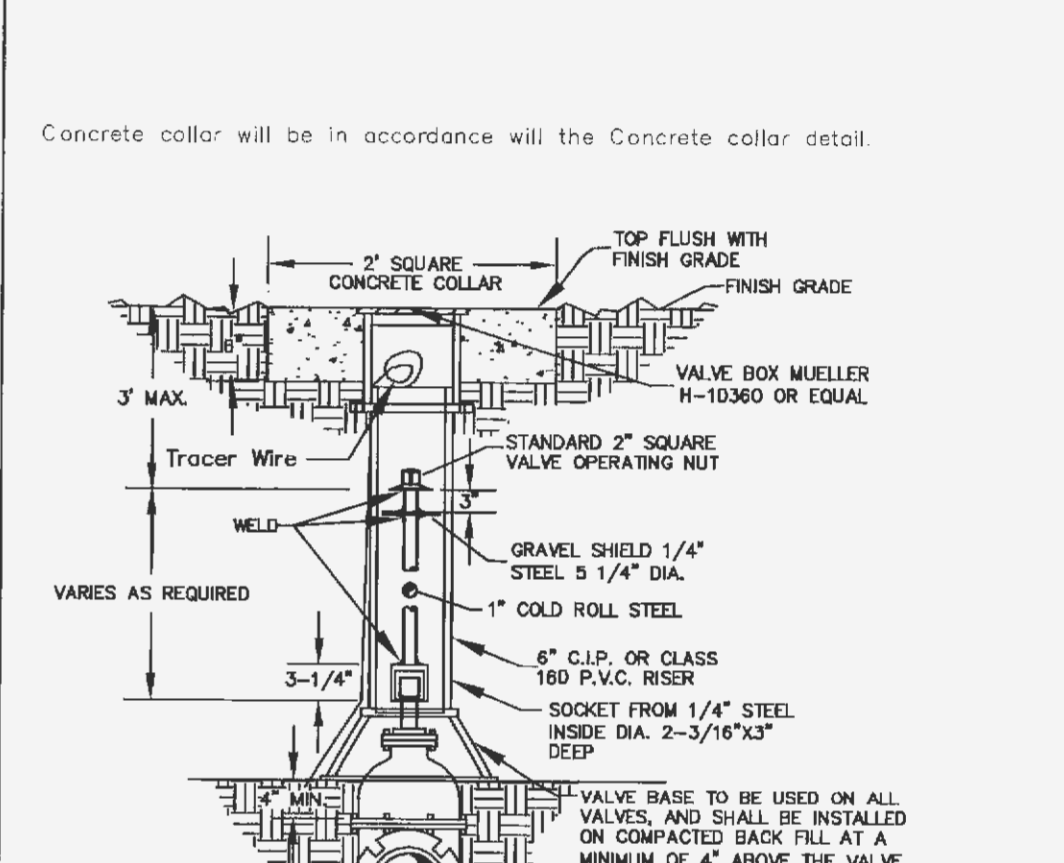
**WATER MAIN INSTALLATION DETAIL**

**WATER MAIN EMBEDDED**



**TOP VIEW CONCRETE COLLAR**  
NOT TO SCALE

**CONCRETE COLLAR DETAIL**



**WATER VALVE DETAIL**  
NOT TO SCALE

**WATER VALVE DETAIL**

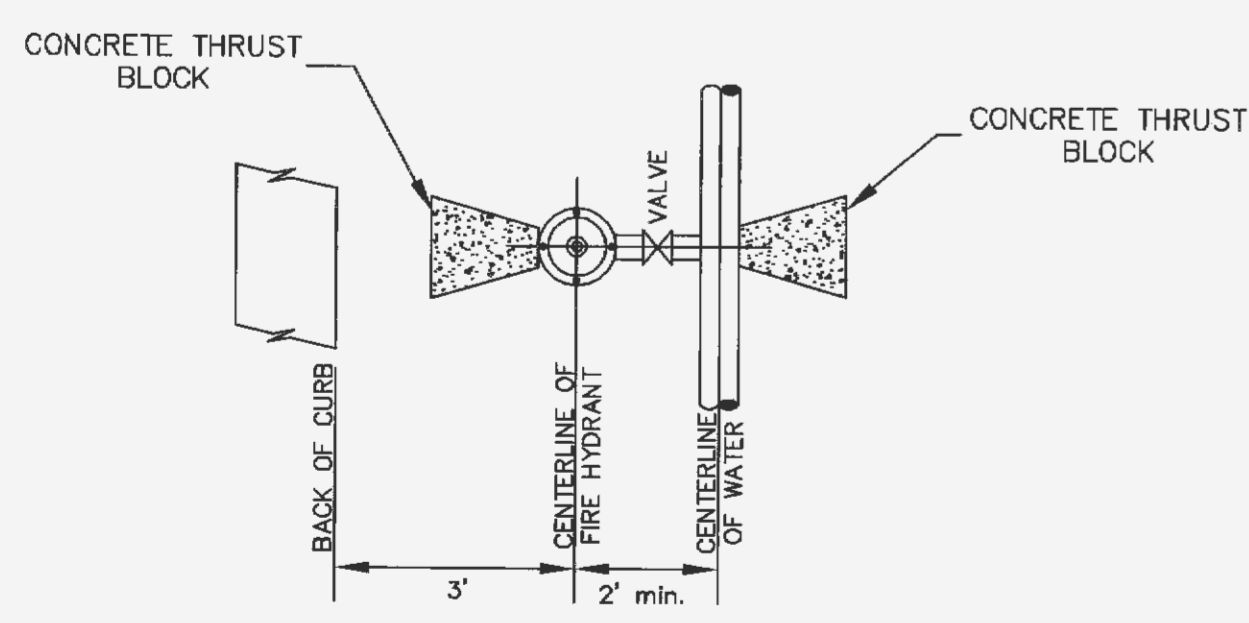
Ductile Iron Pipe installation shall follow the Ductile Iron Research Association (DIPRA) guide line.

The installation of PVC Pipe shall follow the Uni-Bell PVC Pipe Association Handbook of PVC Design and Construction.

Call Before you DIG  
 Dial 811 or TOLL FREE  
 1-800-344-7483  
 MISSOURI ONE-CALL SYSTEM INC.

Underground facilities, structures & utilities have been plotted from available surveys, records & information, and therefore, do not necessarily reflect the actual existence, nonexistence, size, type, number of, or location of these facilities, structures, & utilities.

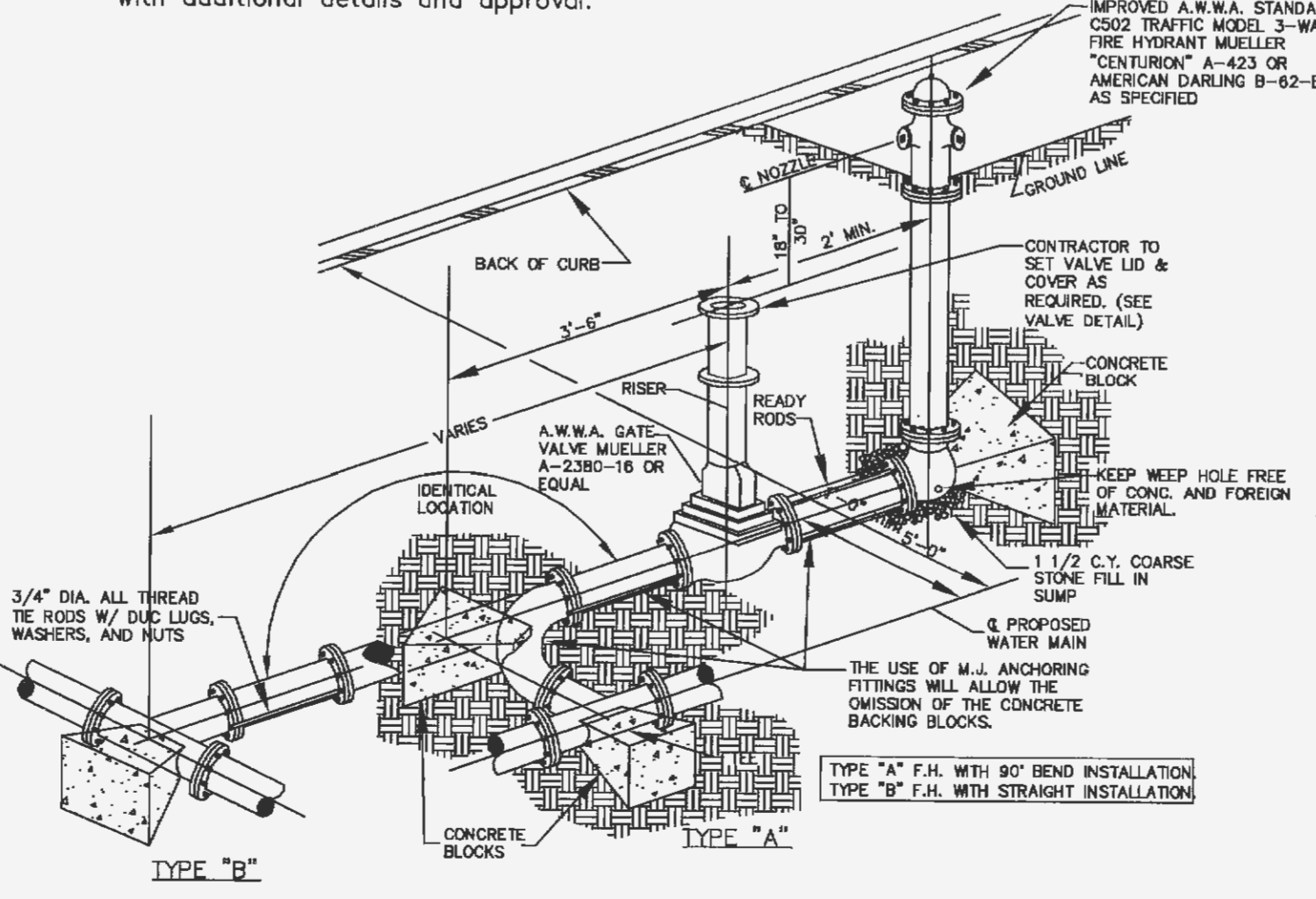
The Contractor shall be responsible for verifying the actual location of all underground facilities, structures, & utilities, either shown or not shown on these plans. The underground facilities, structures, & utilities shall be located in the field prior to any grading, excavation or construction of improvements. These provisions shall in no way absolve any party from complying with the Underground Facility Safety and Damage Prevention Act, Chapter 319, RSMO.



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

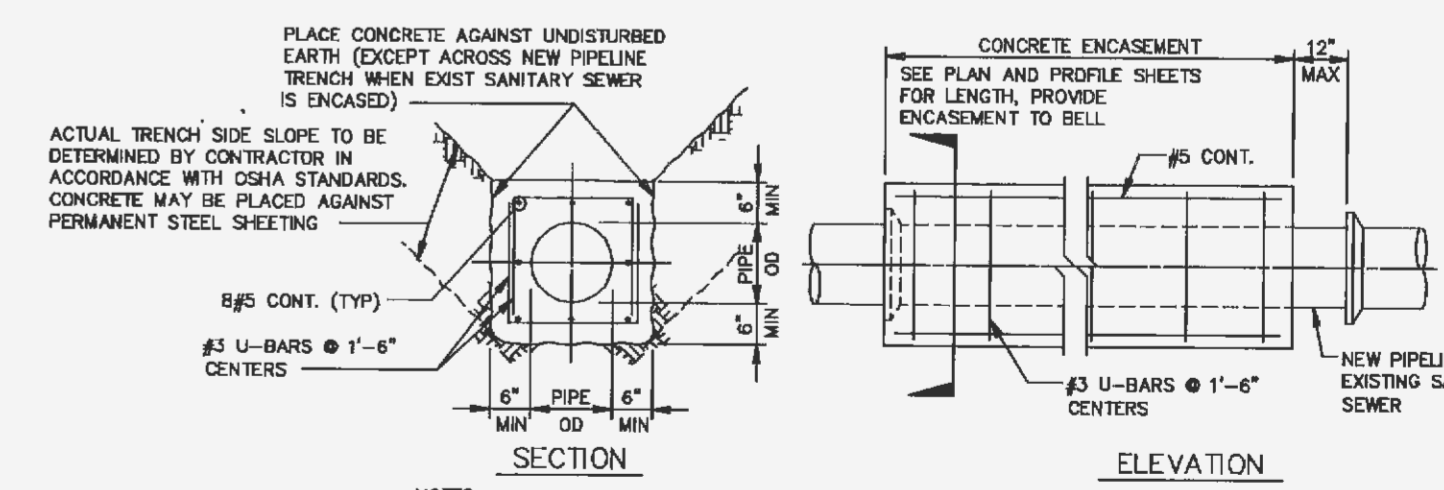
**WATER MAIN FIRE HYDRANT DETAIL**

Note: Other connections such as anchor coupling are allowable with additional details and approval.



**FIRE HYDRANT DETAIL**  
NOT TO SCALE

**FIRE HYDRANT DETAILS**



**CONCRETE ENCASUREMENT**  
NO SCALE

**CONCRETE ENCASUREMENT DETAILS**

**PROJECT TITLE:**  
 SITE CONSTRUCTION PLANS  
 DIRT CHEAP OF OFALLON  
 #708 MO. STATE HIGHWAY K  
 O'FALLON, MISSOURI 63366

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 Clayton Engineering Co.  
 11920 Westline Industrial Drive  
 St. Louis, MO 63146  
 (314) 992-8888  
 claytoneng.pro  
 Job#: 10152



Plan Date: November 8, 2013  
 Revision Date: April 28, 2014  
 Revision Date: May 22, 2014  
 Revision Date: August 1, 2014  
 Revision Date: Sept 4, 2014

Developer / Owner Information:  
 U-GAS PROPERTIES OFALLON LLC  
 895 Bolger Court  
 Fenton, Missouri 63026  
 (636) 343-9770 FAX: (636) 343-9768

P+Z No.: (23-13.02)  
 Approval Date: 10/03/13  
 City No.

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**WATER LINE DETAILS**