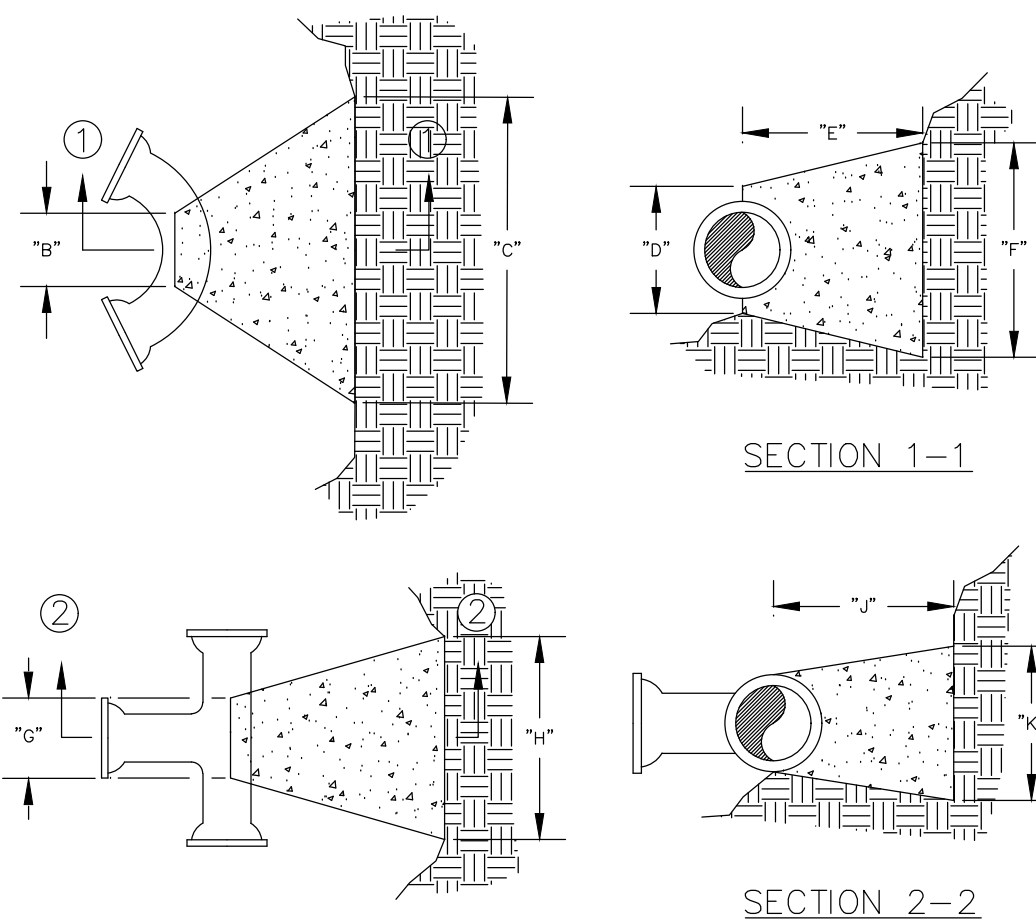


BENDS	"0"	"1"	"2"	"3"	"4"
6"-11 1/4"	8"	15"	12"	24"	10"
6"-22 1/2"	8"	19"	12"	24"	13"
6"-45"	8"	30"	12"	24"	15"
6"-90"	8"	30"	12"	24"	28"
8"-11 1/4"	8"	20"	12"	24"	10"
8"-22 1/2"	8"	22"	12"	24"	18"
8"-45"	8"	12"	24"	24"	24"
8"-90"	8"	38"	12"	24"	24"
12"-11 1/4"	8"	30"	12"	24"	15"
12"-22 1/2"	8"	35"	12"	24"	25"
12"-45"	8"	40"	12"	24"	40"
12"-90"	8"	60"	12"	24"	52"
16"-11 1/4"	12"	28"	20"	24"	28"
16"-22 1/2"	12"	39"	20"	24"	39"
16"-45"	12"	55"	20"	24"	55"
16"-90"	12"	91"	20"	24"	60"
20"-11 1/4"	12"	34"	24"	28"	28"
20"-22 1/2"	12"	48"	24"	28"	39"
20"-45"	12"	74"	24"	28"	55"
20"-90"	12"	136"	24"	28"	60"
24"-11 1/4"	12"	40"	28"	28"	40"
24"-22 1/2"	12"	56"	28"	28"	56"
24"-45"	12"	101"	28"	28"	60"
24"-90"	12"	186"	28"	28"	60"
30"-11 1/4"	12"	49"	34"	30"	49"
30"-22 1/2"	12"	79"	34"	30"	60"
30"-45"	12"	154"	34"	30"	60"
30"-90"	12"	285"	34"	30"	60"

TEES	"0"	"1"	"2"	"3"	"4"
6"X8"X6"	12"	24"	24"	24"	18"
8"X8"X8"	12"	24"	24"	24"	18"
12"X12"X6"	12"	24"	24"	24"	18"
12"X12"X8"	12"	24"	24"	24"	27"
12"X12"X12"	12"	38"	24"	24"	38"
24"X24"X16"	16"	53"	28"	28"	53"

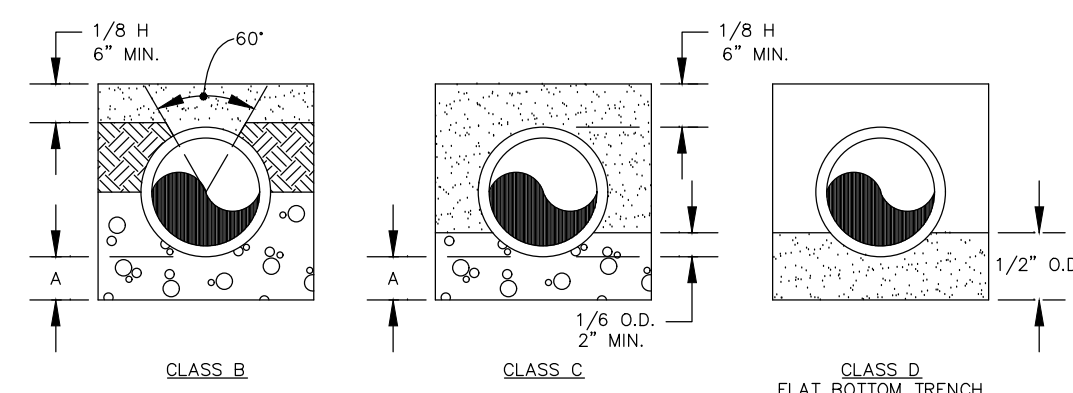
NOTES:
 1. 2" & 4" FITTINGS EQUIVALENT TO 6" FITTINGS
 2. TAPPING SLEEVES TO HAVE BACKING BLOCKS SAME SIZE AS REQUIRED FOR TEES
 3. $L =$ TOTAL LENGTH OF FITTING MINUS CLEARANCE FOR BELLS.



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

CITY OF O'FALLON
 ENGINEERING DEPARTMENT
 O'FALLON, MISSOURI
**BACKING BLOCK
 DETAILS AND LOCATIONS**



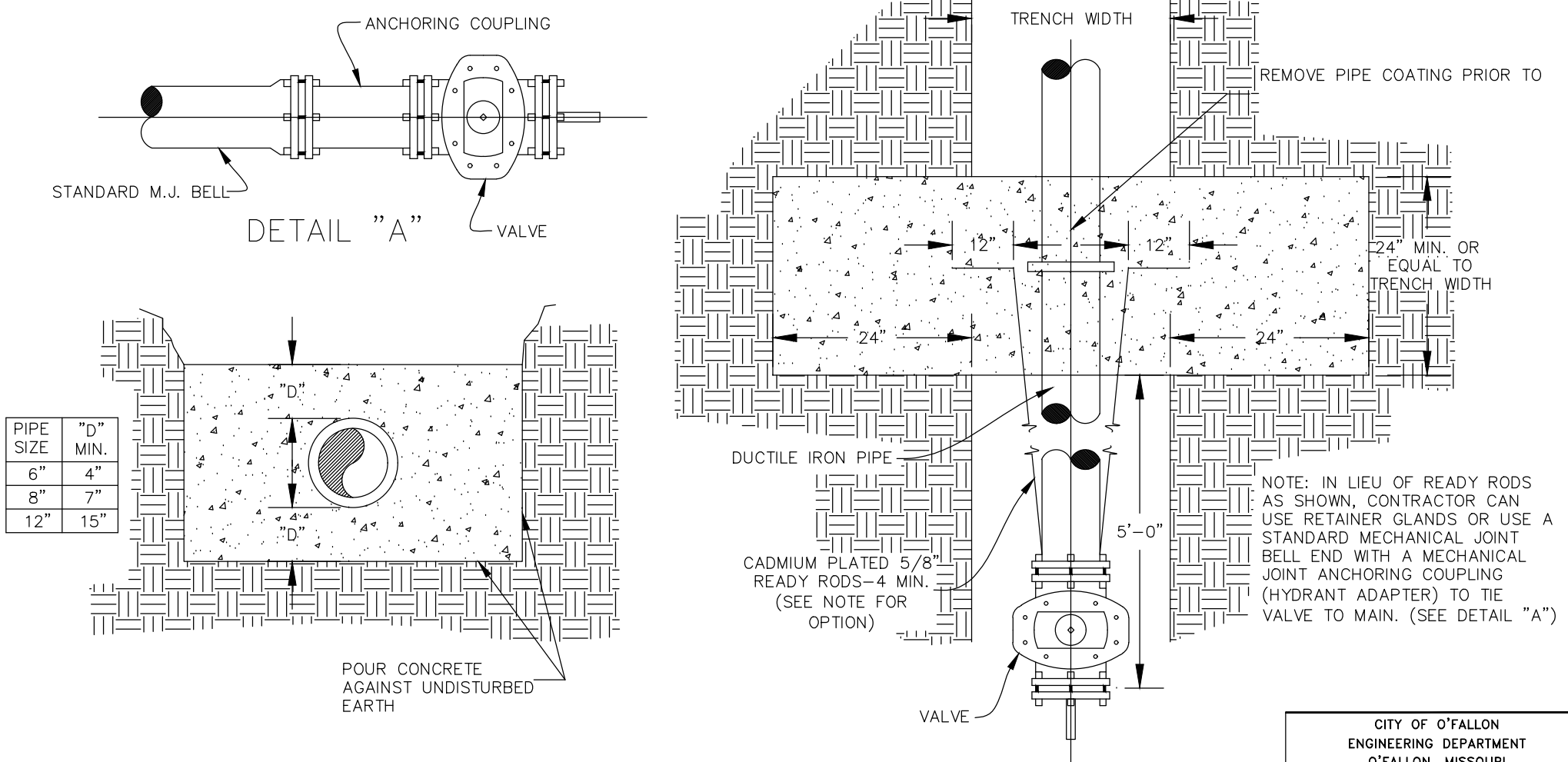
LEGEND:
 I.D. = NOMINAL PIPE SIZE
 O.D. = OUTSIDE DIAMETER OF PIPE
 H = COVER ABOVE TOP OF PIPE
 A = EMBEDDED BELOW PIPE (SEE TABLE)

CLASS	I.D.	A MIN. SOIL	A MIN. ROCK
CLASS B	27" & SMALLER	3"	6"
CLASS C	30"	3"	6"
CLASS D	30"	3"	6"

GRANULAR BEDDING SHALL BE CRUSHED ROCK OR PEA GRAVEL WITH NOT LESS THAN 95% PASSING 1/2" (95% PASSING 3/4" FOR 30" AND LARGER PIPE) AND NOT LESS THAN 95% RETAINED ON A #4; TO BE PLACED IN NOT MORE THAN 6" LAYERS AND COMPACTED BY SLICING WITH A SHOVEL OR VIBRATING.
 COMPACTED BACK FILL SHALL BE FINELY DIVIDED JOB EXCAVATED MATERIAL FREE FROM DEBRIS, ORGANIC MATERIAL AND STONES, HAND PLACED IN UNIFORM LAYERS NOT MORE THAN 6" THICK, COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY A.S.T.M. D698, OR GRADED AGGREGATE. GRANULAR BACK FILL MATERIAL MAY BE SUBSTITUTED FOR ALL OR PART OF COMPACTED BACK FILL.
 TAMPED BACK FILL SHALL BE FINELY DIVIDED JOB EXCAVATED MATERIAL FREE FROM DEBRIS, ORGANIC MATERIAL AND STONES, HAND PLACED IN UNIFORM LAYERS NOT MORE THAN 8" THICK AND TAMPED AROUND CONDUIT PIPE. GRANULAR BACK FILL MATERIAL MAY BE SUBSTITUTED FOR ALL OR PART OF TAMPED BACK FILL.
 TRENCH BACK FILL SHALL BE AS REQUIRED IN THE "LAYING AND BACK FILL" SECTION OF THE DETAILED SPECIFICATIONS.
 EMBEDDED THE TYPE OF EMBEDDED TO BE USED SHALL BE AS SPECIFIED IN THE PLANS AND SPECIFICATIONS.
 TRACER WIRE REQUIRED ON ALL WATER MAINS

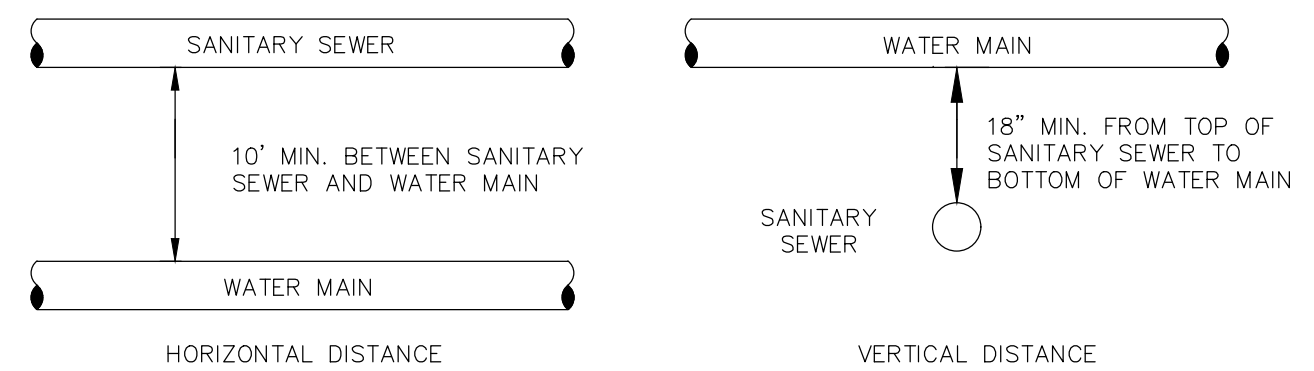
WATER MAIN EMBEDDED
 NOT TO SCALE

CITY OF O'FALLON
 ENGINEERING DEPARTMENT
 O'FALLON, MISSOURI
**WATER MAIN
 EMBEDDED**



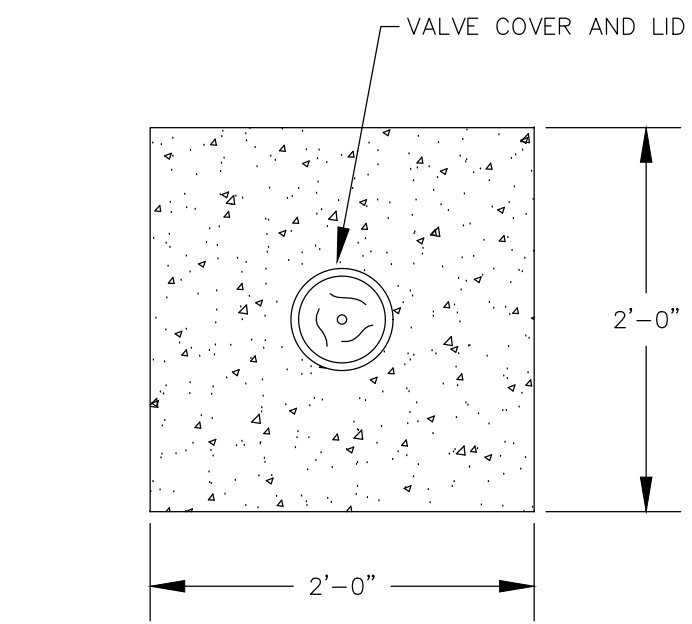
STRADDLE BLOCK DETAIL
 NOT TO SCALE

CITY OF O'FALLON
 ENGINEERING DEPARTMENT
 O'FALLON, MISSOURI
**STRADDLE BLOCK
 DETAILS**



TYPICAL WATER AND SEWER SEPARATION
 NOT TO SCALE

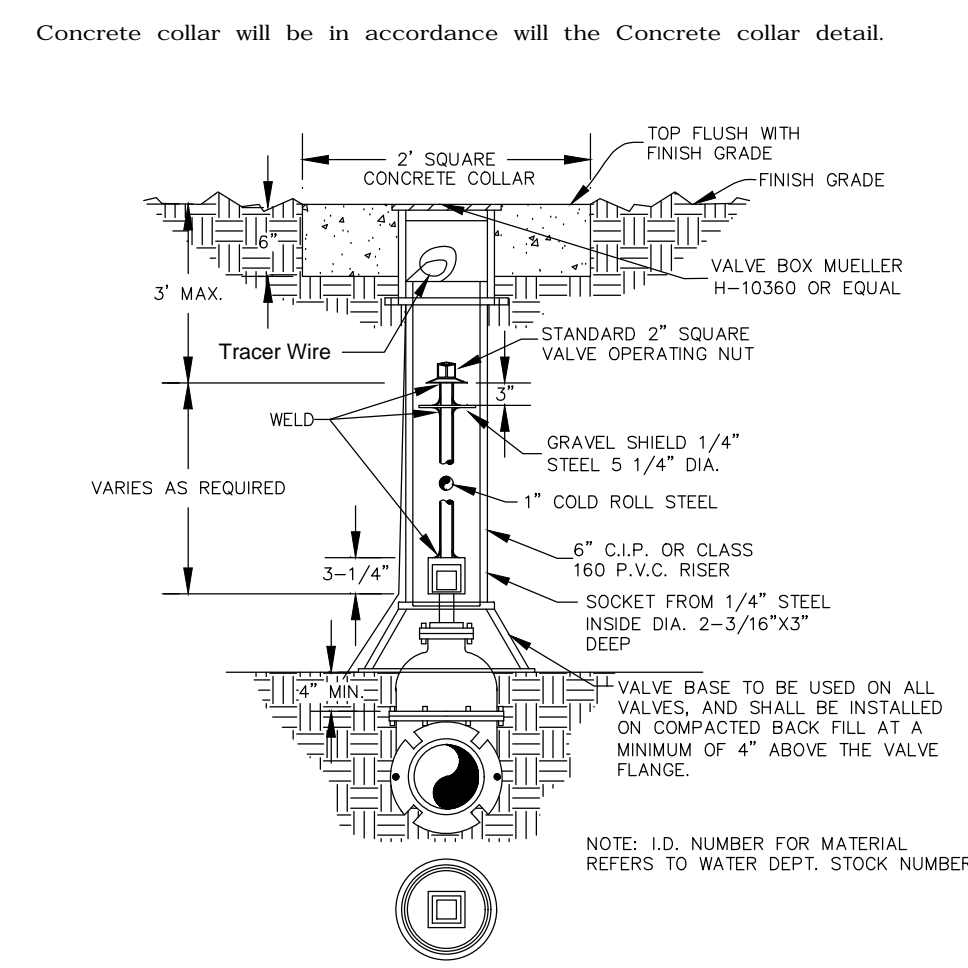
CITY OF O'FALLON
 ENGINEERING DEPARTMENT
 O'FALLON, MISSOURI
**WATER AND SEWER
 SEPARATION DETAIL**



**TOP VIEW
 CONCRETE COLLAR**
 NOT TO SCALE

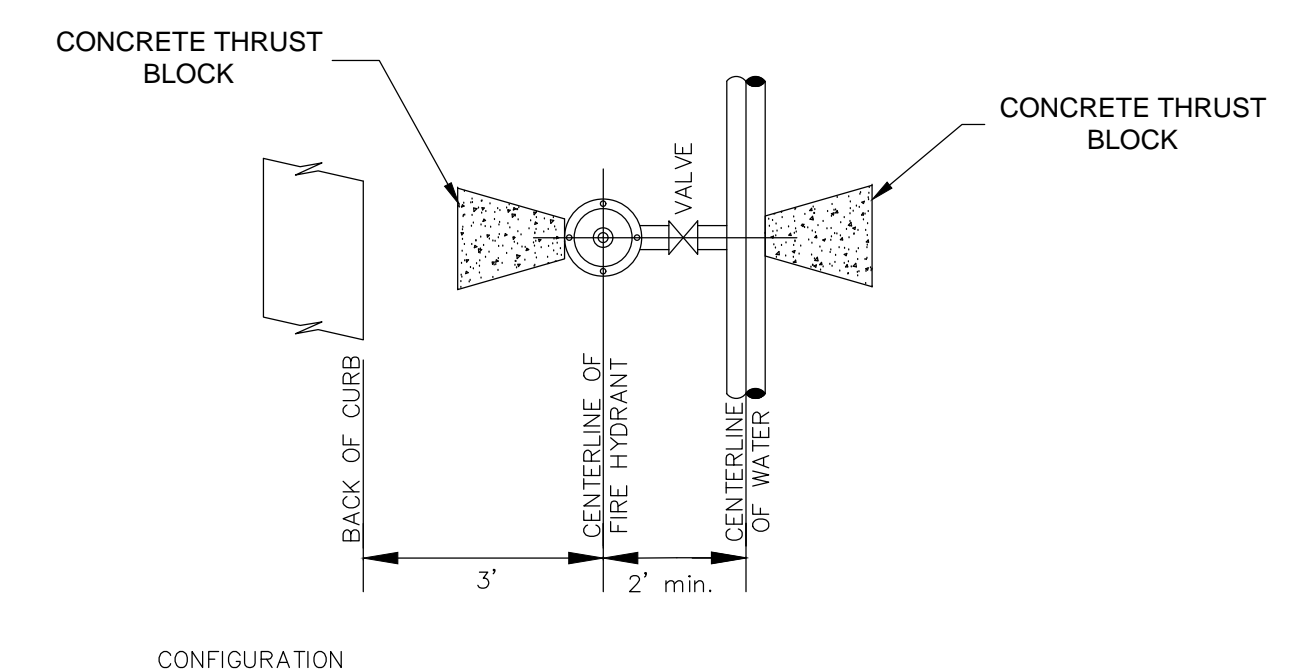
Note : 1. Concrete collar joint pattern is required in paved areas such as roadways, driveways, sidewalks or other areas of paved surfaces.
 2. Concrete collars are optional in other non-paved areas.

CITY OF O'FALLON
 ENGINEERING DEPARTMENT
 O'FALLON, MISSOURI
**CONCRETE
 COLLAR DETAIL**



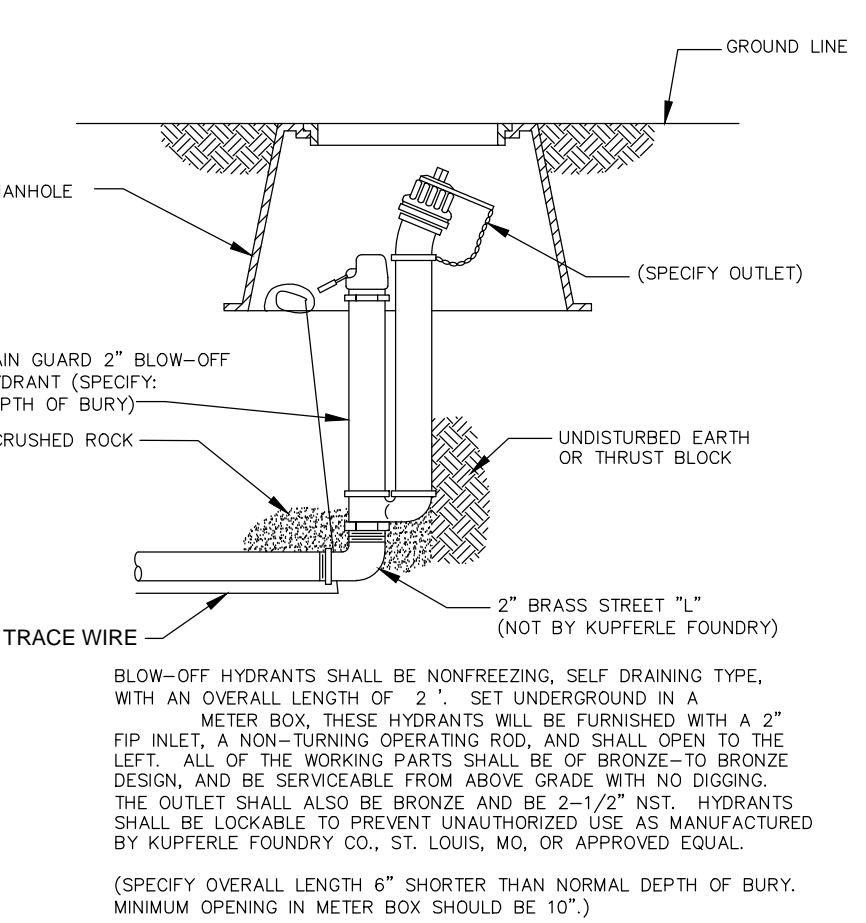
WATER VALVE DETAIL
 NOT TO SCALE

CITY OF O'FALLON
 ENGINEERING DEPARTMENT
 O'FALLON, MISSOURI
**WATER
 VALVE DETAIL**



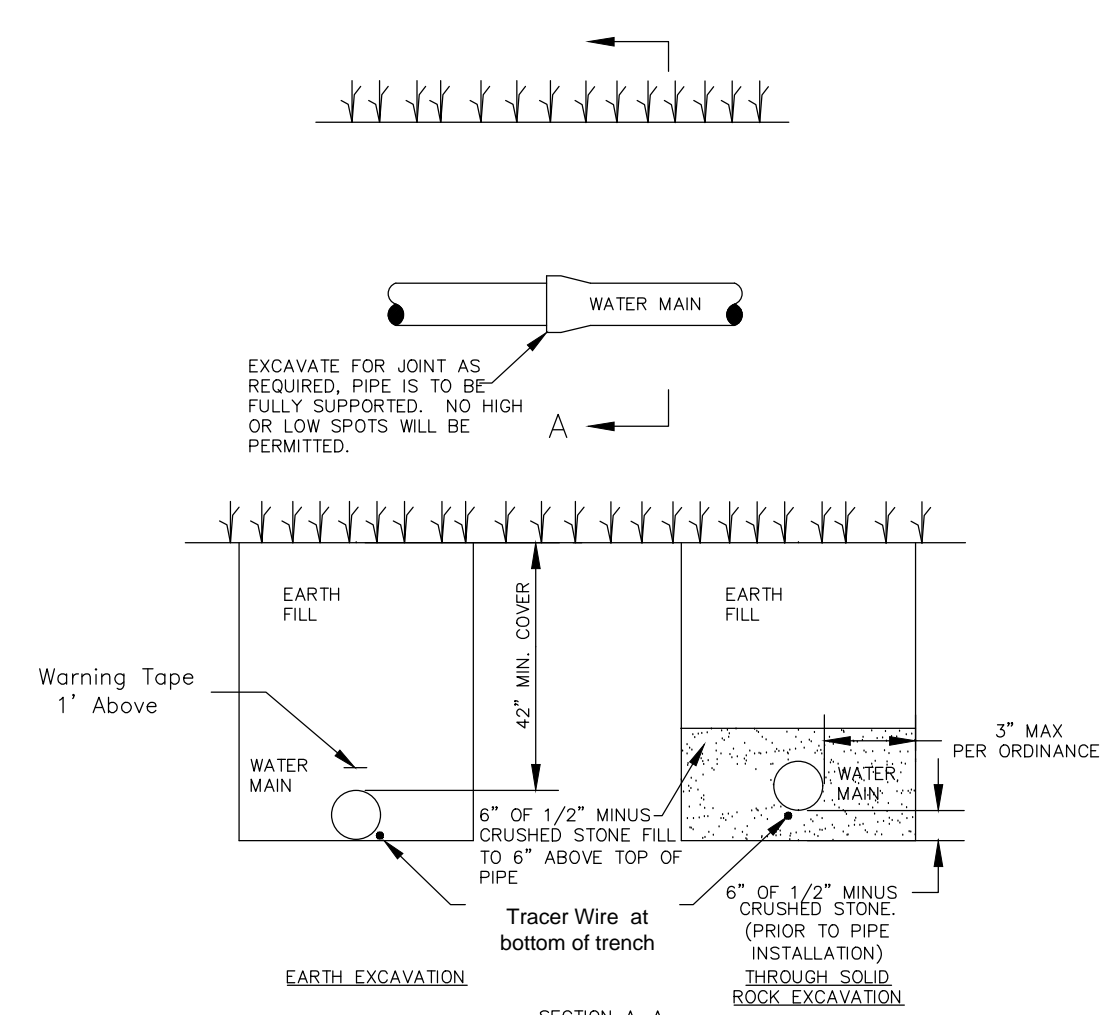
TYPICAL WATER MAIN AND FIRE HYDRANT LOCATIONS
 NOT TO SCALE

CITY OF O'FALLON
 ENGINEERING DEPARTMENT
 O'FALLON, MISSOURI
**WATER MAIN
 FIRE HYDRANT DETAIL**



BLOW-OFF HYDRANT
 NOT TO SCALE

CITY OF O'FALLON
 ENGINEERING DEPARTMENT
 O'FALLON, MISSOURI
**BLOW-OFF
 HYDRANT DETAIL**



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

CITY OF O'FALLON
 ENGINEERING DEPARTMENT
 O'FALLON, MISSOURI
**WATER MAIN
 INSTALLATION DETAIL**

PRINTS ISSUED
 05/11/18 - Permit Set
 REVISIONS:
HORNER SHIFRIN
 101 LAURA V. DR., STE. 101, O'FALLON, MO 63366-9891
 636-329-8296 • FAX 636-329-2810 • WWW.HORNERSHIFRIN.COM
 DISCIPLINE: PROFESSIONAL ENGINEERING
 CERTIFICATE OF AUTHORITY: 000169
 EXPIRATION DATE: DECEMBER 31, 2018

STATE OF MISSOURI
 APRIL 17, 2019
 APRIL GEISMAN
 PROFESSIONAL ENGINEER
 E-2001004592
 7/18/18
 Name: April Geisman
 Discipline: Civil Engineer
 License No. E2001004592
 Expiration Date: 12/31/2019

RENEW O'FALLON
T.R. HUGHES BLVD
O'FALLON, MO 63366

SHEET TITLE: WATER DETAILS
 PROJECT NUMBER: 17050
 SHEET NUMBER:
C10.9

DRAWN BY: AMH CHECKED BY: AMG

OPERATOR: AMHARRISON
 CTR: Trans-stitch
 PLOT DATE: 6/24/2018 1:44:52 PM
 DWG: C:\pwworking\aharrison\esdms19759\Details.dwg
 PAGE SETUP NAME: ...
 SAVE DATE: 7/19/2018 12:12:13 PM