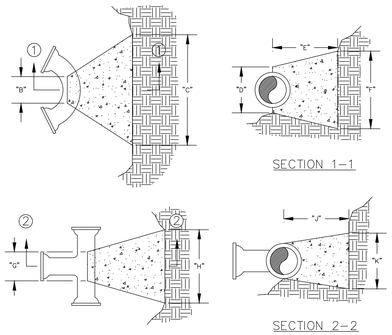
BENDS	"B"	"C"	"D"	"E"	"F"
6"–11 1/4°	8"	15"	12"	24"	10"
6"–22 1/2°	8"	19"	12"	24"	13"
6"–45°	8"	30"	12"	24"	15"
6"–90°	8"	30"	12"	24"	28"
8"–11 1/4°	8"	20"	12"	24"	10"
8"–22 1/2°	8"	22"	12"	24"	18"
8"–45°	8"	31"	12"	24"	24"
8"–90°	8"	38"	12"	24"	36"
12"–11 1/4°	8"	30"	12"	24"	15"
12"–22 1/2°	8"	35"	12"	24"	25"
12"–45°	8"	40"	12"	24"	40"
12"–90°	8"	60"	12"	24"	52"
16"–11 1/4°	TL	28"	20"	24"	28"
16"–22 1/2°	TL	39"	20"	24"	39"
16"–45°	TL	55"	20"	24"	55"
16"–90°	TL	91"	20"	24"	60"
20"–11 1/4°	TL	34"	24"	26"	28"
20"–22 1/2°	TL	48"	24"	26"	39"
20"–45°	TL	74"	24"	26"	55"
20"–90°	TL	136"	24"	26"	60"
24"–11 1/4°	TL	40"	28"	28"	40"
24"–22 1/2°	TL	56"	28"	28"	56"
24"–45°	TL	101"	28"	28"	60"
24"–90°	TL	186"	28"	28"	60"
30"–11 1/4°	TL	49"	34"	30"	49"
30"–22 1/2°	TL	79"	34"	30"	60"
30"–45°	TL	154"	34"	30"	60"
30"–90°	TL	285"	34"	30"	60"

TEES	"G"	"H"	"J"	"K"
6"X6"X6"	12"	24"	24"	18"
8"X8"X6"	12"	24"	24"	18"
8"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. "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

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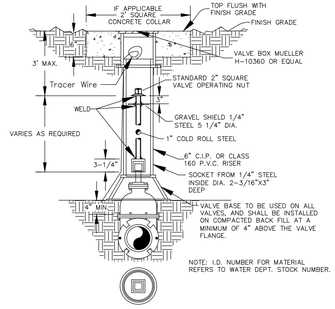
ENGINEERING DEPARTMENT
O'FALLON, MISSOURI

BACKING BLOCK DETAILS AND LOCATIONS

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



WATER VALVE DETAIL

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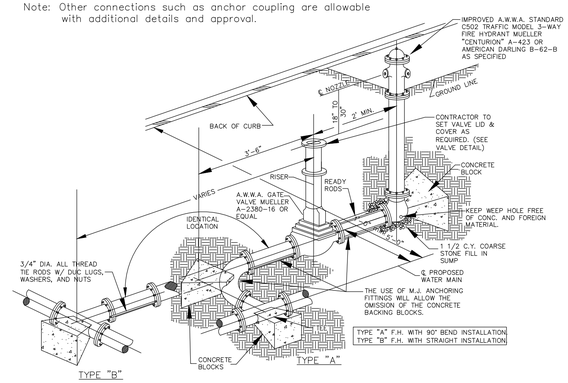
WATER VALVE DETAIL

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



PROVIDE TRACER WIRE FROM MAIN TO VALVE

FIRE HYDRANT DETAIL

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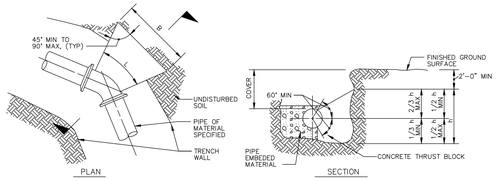
FIRE HYDRANT DETAILS



NOTES:
1. AREA OF BLOCK, A = BxH, BLOCK AREAS ARE SHOWN ON GENERAL LAYOUT OR TABLE.
2. B = h = √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 FIRE HYDRANT ASSEMBLY DETAIL.

SIZE	BEND	THRUST AREA	B	H
16"	11 1/2° 22 1/2°	4 SF	2'	2'
16"	45°	8 SF	2.8'	2.8'

CONCRETE THRUST BLOCKING

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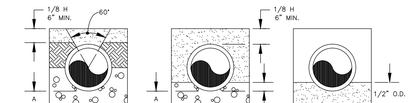
O'FALLON, MISSOURI

CONCRETE THRUST BLOCKING DETAILS



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

TAMPED BACK FILL
COMPACTED BACK FILL
GRANULAR BEDDING

TABLE OF EMBEDED DEPTHS BELOW PIPE

I.D.	A MIN. SOIL	A MIN. ROCK
27" & SMALLER	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, 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.

EMBEDED THE TYPE OF EMBEDED TO BE USED SHALL BE AS SPECIFIED IN THE PLANS AND SPECIFICATIONS.

TRACER WIRE REQUIRED ON ALL WATER MAINS

WATER MAIN EMBEDED

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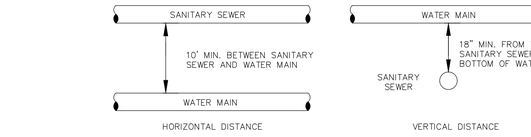
O'FALLON, MISSOURI

WATER MAIN EMBEDED



TYPICAL WATER AND SEWER SEPARATION

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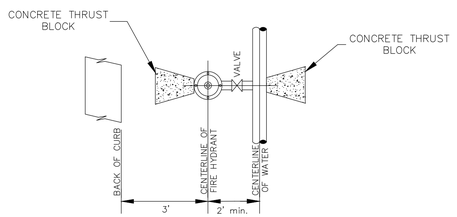
O'FALLON, MISSOURI

WATER AND SEWER SEPARATION DETAIL



CONFIGURATION

ALL FIRE HYDRANTS SHALL BE 3' OFF BACK OF CURB
ALL WATER MAINS SHALL BE A MIN. OF 5' OFF BACK OF CURB

TYPICAL WATER MAIN AND FIRE HYDRANT LOCATIONS

NOT TO SCALE

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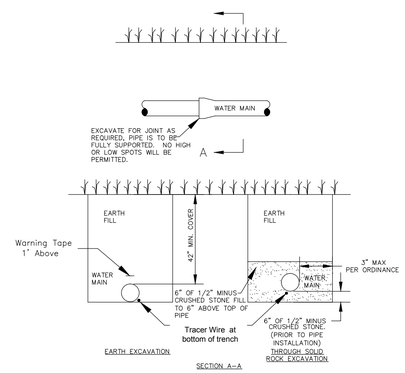
O'FALLON, MISSOURI

WATER MAIN FIRE HYDRANT DETAIL



TYPICAL WATER MAIN INSTALLATION DETAILS

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ENGINEERING DEPARTMENT
O'FALLON, MISSOURI

WATER MAIN INSTALLATION 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.

CITY OF O'FALLON WATER DETAILS

P+Z No. 16–000086
Approval Date: Jan 7, 2016
City No.: CSP–16–0000001

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

EXCEL ENGINEERING inc.
100 CAMELOT DRIVE
FOND DU LAC, WI 54935
PHONE: (920) 926-9800
FAX: (920) 926-9801

Always a Better Plan

OWNER:
W.D.S. CONSTRUCTION, INC.
111 ROWELL STREET
BEAVER DAM, WI 53916

PROJECT:
BIOLIFE PLASMA CENTER
BRAMBLET CROSSING (LOT A)
O'FALLON, MO 63368

PRELIMINARY SHEET DATES:
DECEMBER 4, 2015

JOB NUMBER:
1514400

SHEET
C1.8