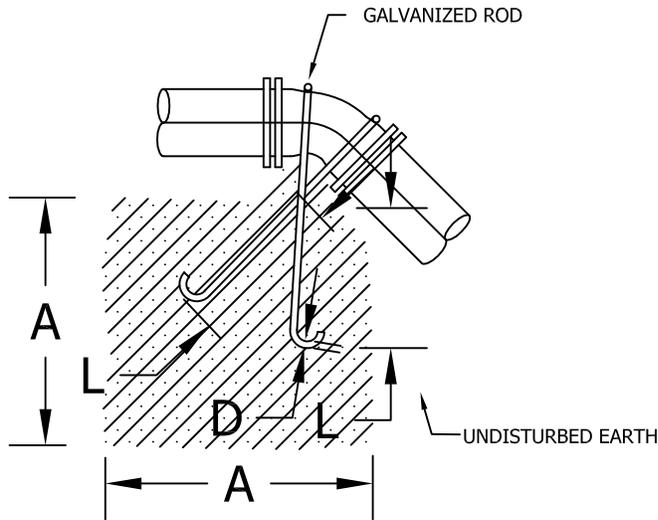


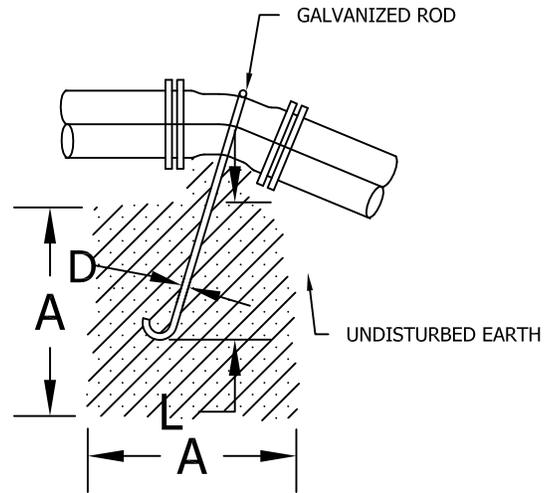
GENERAL NOTES (WATER MAIN INSTALLATION)

1. All workmanship and material shall be in accordance with City of Blaine Development Standards and the State of Washington Standard Specifications for Road, Bridge and Municipal Construction as amended.
2. A preconstruction meeting shall be held with the City prior to the start of construction.
3. Water mains shall be ductile iron cement mortar lined thickness Class 50. Pipe shall be enclosed within polyethylene membrane manufactured for such purpose.
4. Gate valves shall be resilient wedge, NRS (Non Rising Stem) with 0-rings seals. Valve ends shall be mechanical joint or ANSI flanges. Valves shall conform to AWWA 509-94. Valves shall be Mueller, M & H, Kennedy, Clow R/W or Waterous Series 500. existing valves to be operated by City employees only.
5. Hydrants shall be Waterous Pacer 100 Model WB-67, Clow Model F-2505 or Mueller Centurion Model A-421. Hydrants shall be bagged until system is approved. AWWA C 502-94
6. All lines shall be chlorinated and tested in conformance with the above referenced specification (Note 1).
7. Pipe installer shall place pipe in a straight alignment. Pipe installer shall wrap pipe with 8 MIL polyethylene membrane designed for such use. Pipe installer shall plug pipe ends at end of each work day.
8. Provide traffic control plan(s) in accordance with MUTCD if applicable.
9. All water mains shall be staked for grades and alignment by an engineering or surveying firm capable of performing such work.
10. All service lines shall be installed perpendicular to the main and the locations shall be marked on the face of the curb with an embossed 'W' 1/4 Inch into concrete.
11. Call Underground Locate at 1-800-424-5555 a minimum of 48 hours prior to any excavations.
12. The Developoer shall coordinate with the City prior to scheduling any shutdown of the water system. Where connections require "field verification", connection points will be exposed by contractor and fittings verified 48 hours prior to distributing shut-down notices.
13. At any connection to an existing line where a new valve is not installed, the existing valve must be pressure tested to City standards prior to connection. If an existing valve fails to pass the test, the contractor shall make the necessary provisions to test the new line prior to connection to the existing system or install a new valve.
14. The City of Blaine's Public Works Department Inspector shall observe placement and installation of all sewer pipe bedding material, creation of the requisite pipe cradle in the bedding material, installation and connection of the pipes themselves, and backfill placement and compaction, to ensure compliance with City of Blaine Development Guildline and Public Works Standards No. 6.14. Contractor shall coordinate/schedule all observations.

					WATER MAIN INSTALLATION GENERAL NOTES	CITY OF BLAINE PUBLIC WORKS DEPARTMENT				
						SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-1		
0 updated tmc						SCALE <i>NONE</i>	SHEET OF	REV. NO.		
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED						



**VERTICAL BLOCKING
FOR 45° BENDS**



**VERTICAL BLOCKING FOR
11-1/4°, 22-1/2°
& 30° BENDS**

VERTICAL BLOCKING FOR 11-1/4°, 22-1/2°, 30° BENDS					
PIPE SIZE	VB	CU. FT.	A*	D	L
4"	11-1/4°	8	2.0'	3/4"	1.5'
	22-1/2°	11	2.2'		2.0'
	30°	17	2.6'		
6"	11-1/4°	11	2.2'	3/4"	2.0'
	22-1/2°	25	2.9'		
	30°	41	3.5'		
8"	11-1/4°	16	2.5'	3/4"	2.0'
	22-1/2°	47	3.6'		
	30°	70	4.1'	3/4"	2.5'
12"	11-1/4°	32	3.2'	3/4"	2.0'
	22-1/2°	88	4.5'	7/8"	3.0'
	30°	132	5.1'		
16"	11-1/4°	70	4.1'	7/8"	3.0'
	22-1/2°	184	5.7'	1-1/8"	4.0'
	30°	275	6.5'	1-1/4"	
20"	11-1/4°	91	4.5'	7/8"	3.0'
	22-1/2°	225	6.1'	1-1/4"	4.0'
	30°	330	6.9'	1-3/8"	4.5'
24"	11-1/4°	128	5.0'	1"	3.5'
	22-1/2°	320	6.8'	1-3/8"	4.5'
	30°	480	7.9'	1-5/8"	5.5'

VERTICAL BLOCKING FOR 45° BENDS					
PIPE SIZE	VB	CU. FT.	A*	D	L
4"	45°	30	3.1'	3/4"	2.0'
6"		68	4.1'		
8"		123	5.0'		
12"		232	6.1'	3/4"	2.5'
16"	478	7.8'	1-1/8"	4.0'	
20"	560	8.2'	1-1/4"		
24"	820	9.4'	1-3/8"	4.5'	

* "A"=LENGTH, WIDTH & DEPTH

NOTE: CONCRETE BLOCKING IS
BASED ON 200 PSI PRESSURE AND
2500 PSI CONCRETE

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

**VERTICAL CONCRETE
BLOCKING**

**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-2
SCALE <i>NONE</i>	SHEET	OF
		REV. NO.



THRUST BLOCK TABLE

MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL

PIPE SIZE	(A) SQ. FT.	(B) SQ. FT.	(C) SQ. FT.	(D) SQ. FT.	(E) SQ. FT.	X (100 PSI) NONE
4	3	1	1	1	1	NONE
6	4	4	2	1	1	NONE
8	7	6	4	2	1	3
10	11	10	6	3	2	4
12	16	14	9	5	3	5
14	22	19	12	6	3	7
16	29	25	16	8	4	10
18	36	31	20	10	5	13
20	45	39	24	13	6	16
22	54	47	29	15	8	23
24	64	56	35	18	9	
28	87	76	48	24	12	
30	101	87	55	28	14	
36	145	125	78	40	20	

SAFE BEARING LOADS IN LB./SQ. FT. THE SAFE BEARING LOADS GIVEN IN THE FOLLOWING TABLE ARE FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET.

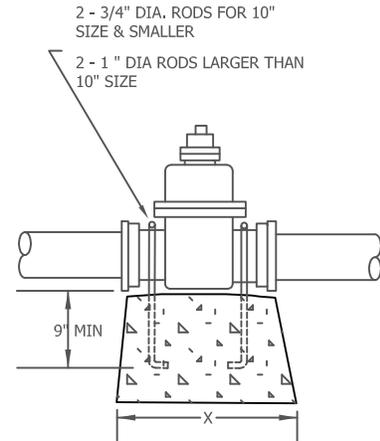
SOIL SAFE BEARING LOAD
 LB. PER SQ. FT.

*MUCK, PEAT, ETC.	0
SOFT CLAY	1000
SAND	2000
SAND & GRAVEL	3000
SAND & GRAVEL CEMENTED W/ CLAY	4000
HARD SHALE	10000

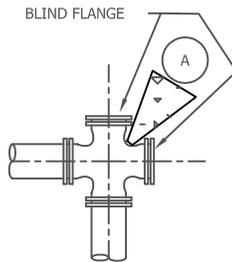
*IN MUCK OR PEAT, ALL THRUSTS SHALL BE RESTRAINED BY PILES OR TIE RODS TO SOLID FOUNDATIONS OR BY REMOVAL OF MUCK OR PEAT AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY.

NOTES

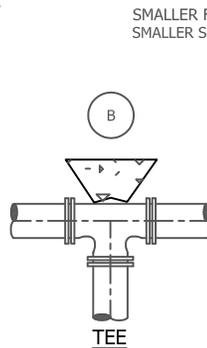
1. BEARING AREA OF CONCRETE THRUST BLOCK IS BASED ON 200 PSI PRESSURE AND SOIL BEARING LOAD OF 2000 PSF.
2. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZES, PRESSURES AND SOIL CONDITIONS.
3. CONCRETE BLOCKING SHALL BE CAST IN PLACE AND HAVE A MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.
4. THE BLOCK SHALL BEAR AGAINST THE FITTING ONLY AND SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING OF FITTING.
5. THE CONTRACTOR SHALL INSTALL LOCKING DEVICES ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATION PRESSURE UNDER ALL CONDITIONS OF SERVICE.



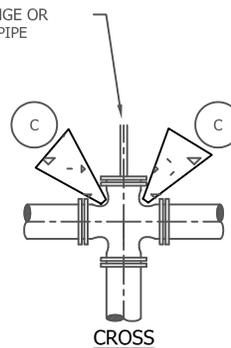
NOTE: ADDITIONAL BLOCKING MUST BE PROVIDED IF GATE VALVE IS AT END OF LINE DURING TESTING.



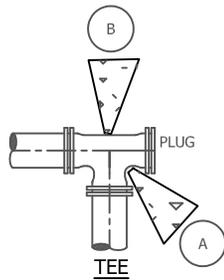
CAPPED CROSS



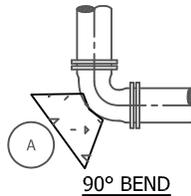
TEE



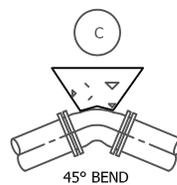
CROSS



TEE

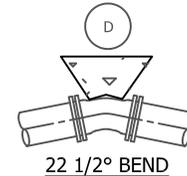


90° BEND

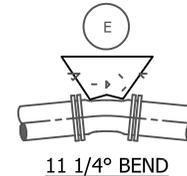


45° BEND

GATE VALVE



22 1/2° BEND



11 1/4° BEND

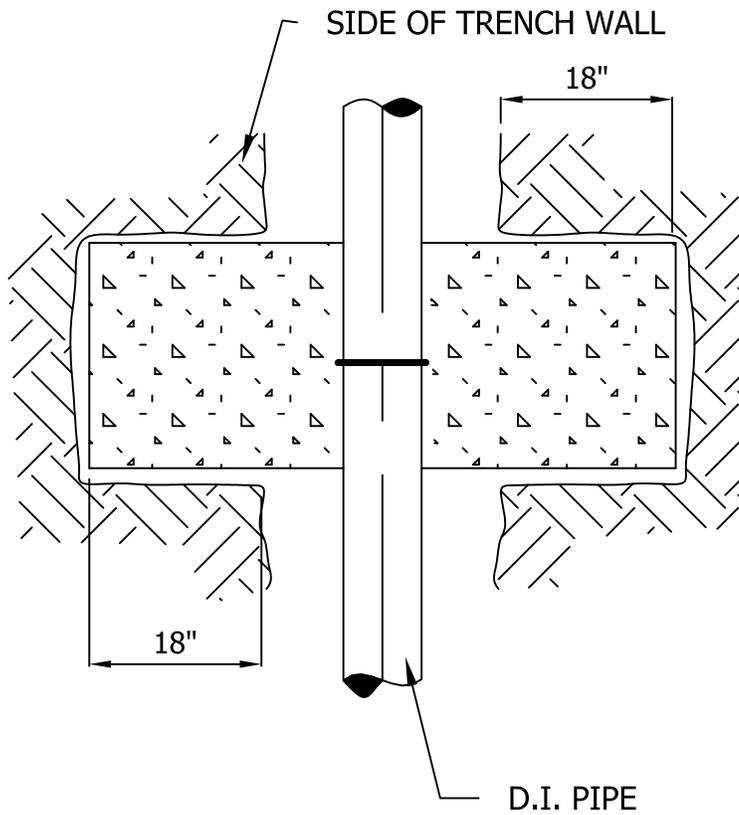
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

HORIZONTAL THRUST BLOCKING

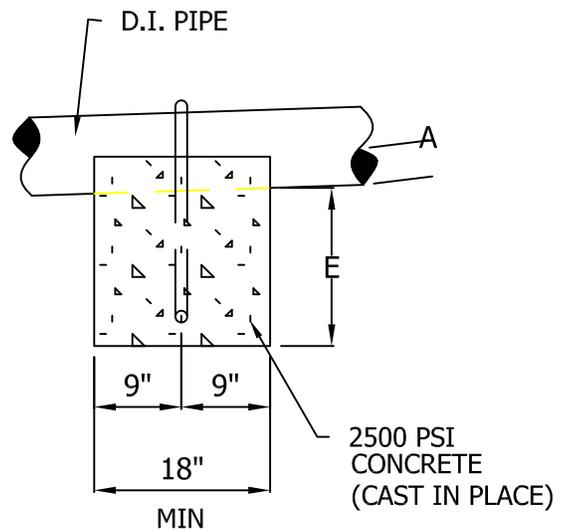
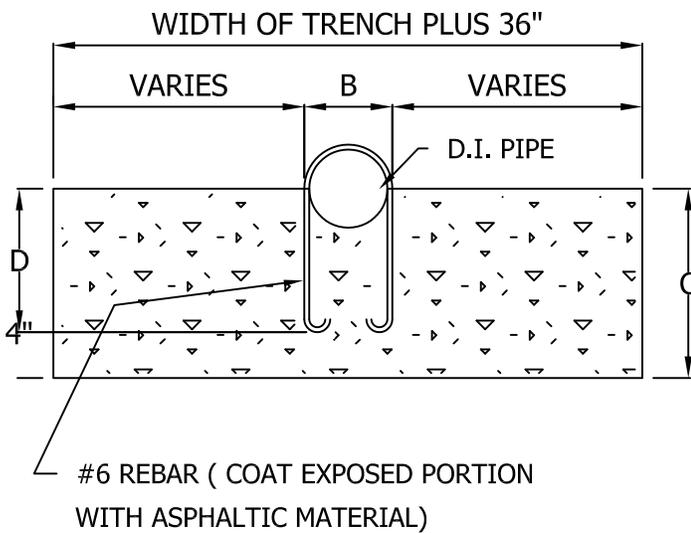
**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-3	SHEET OF
SCALE <i>NONE</i>			REV. NO.





PIPE SIZE	DIMENSIONS (INCHES)				
	A	B	C	D	E
4"	2.4	4.8	17	13	14.6
6"	3.5	6.9	18	14	14.5
8"	4.5	9.1	19	15	14.5
10"	5.6	11.1	20	16	14.4
12"	6.6	13.2	21	17	14.4
14"	7.7	15.3	22	18	14.3
16"	8.7	17.4	23	19	14.3
18"	9.8	19.5	24	20	14.2



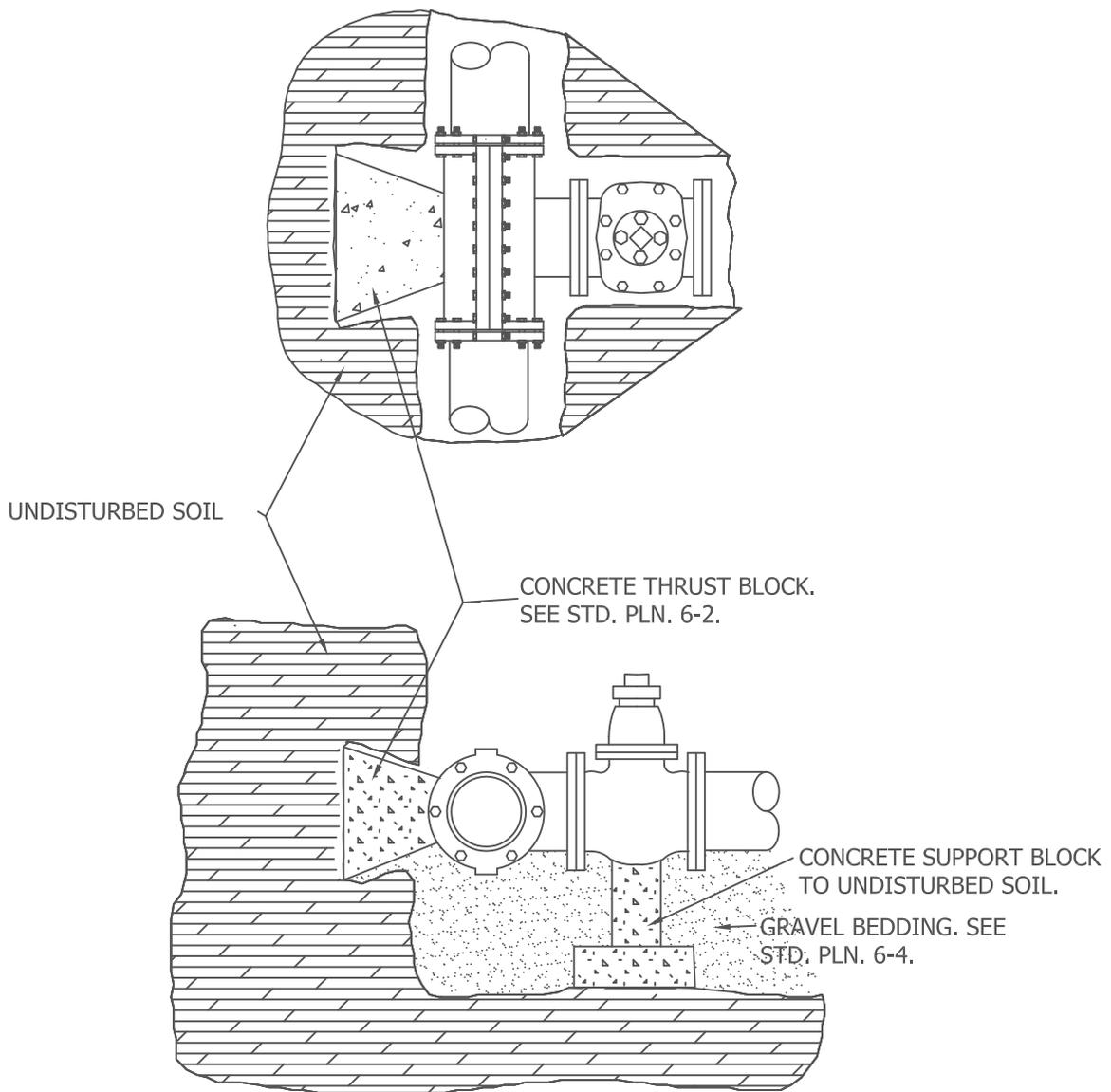
NOTES:
 SLOPES > 20% - PROVIDE CONCRETE
 SLOPE ANCHORS (20' TO 25' ON CENTERS)

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

**CONCRETE SLOP
 ANCHOR
 DETAIL**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER	
A		4-4	
SCALE	NONE	SHEET	OF





CAST IRON TAPPING TEE
MECHANICAL JOINT SLEEVE

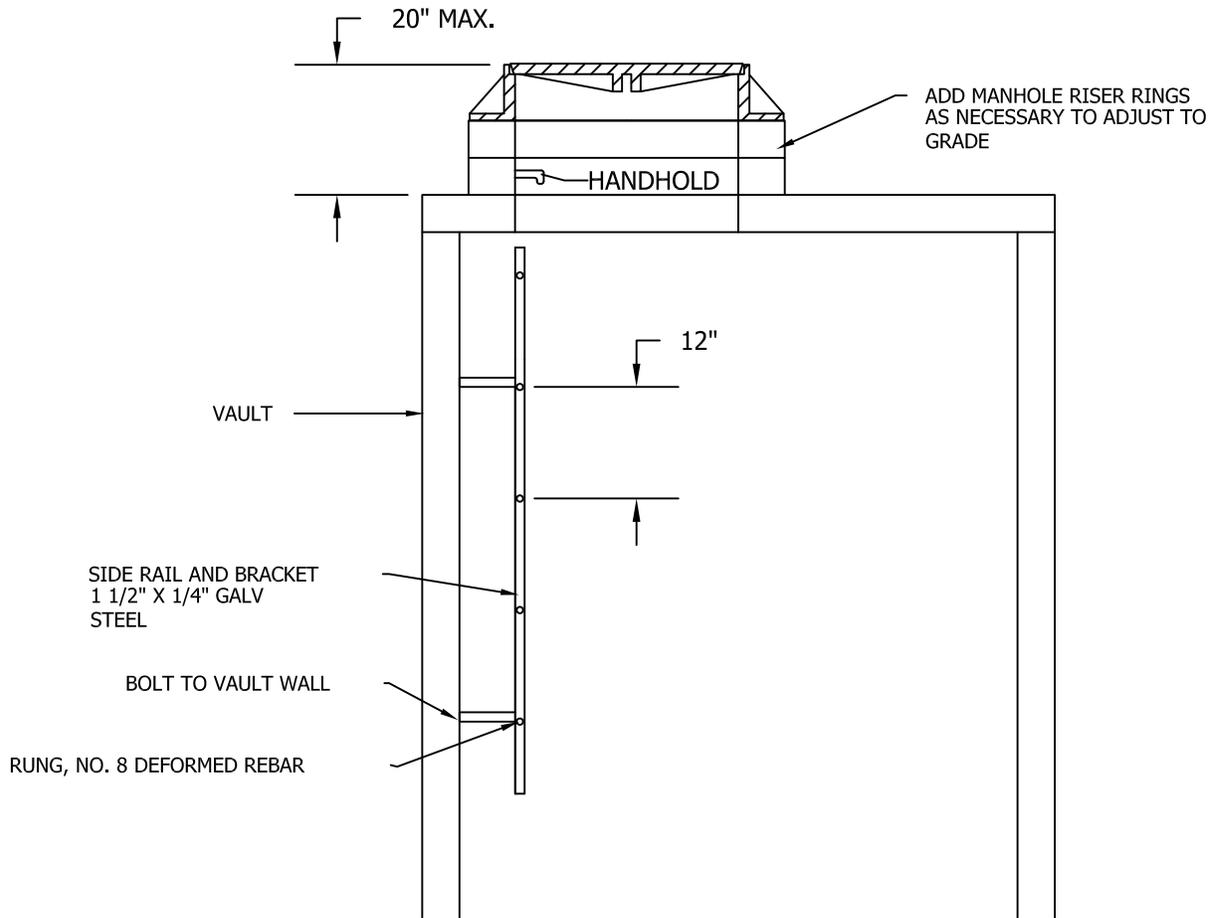
INSTALLED ON ASBESTOS CEMENT PIPE
 CAST IRON PIPE AND DUCTILE IRON PIPE

0	updated	tmc		
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

TAPPING TEES

CITY OF BLAINE			
PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-5.	
SCALE NONE	SHEET	OF	REV. NO.





NOTES:
 -LADDER IS TO BE SECURED TO VAULT WALL AS REQUIRED.
 -ALL LADDER PARTS ARE TO BE GALVANIZED, CONFORMING TO ASTM A 123

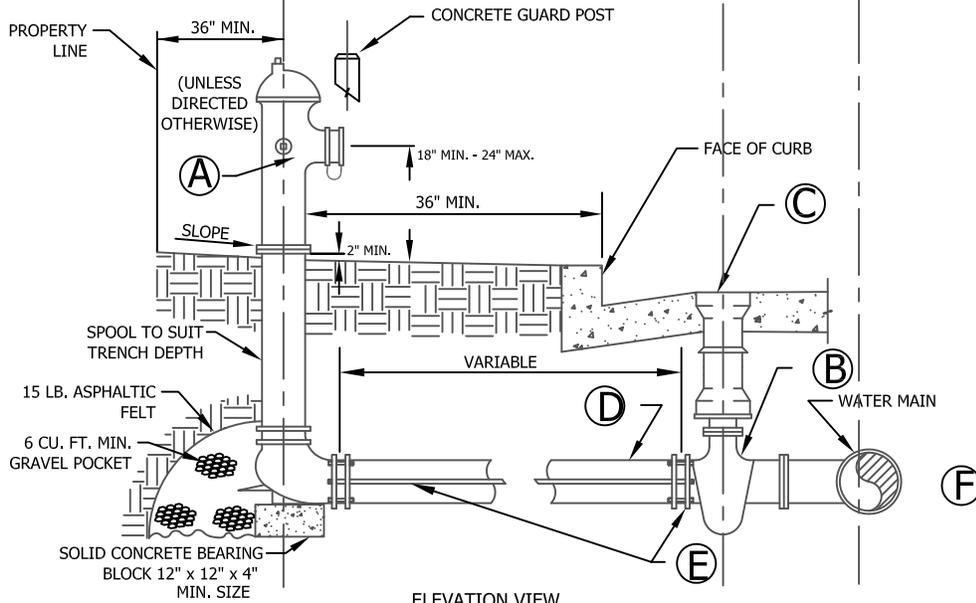
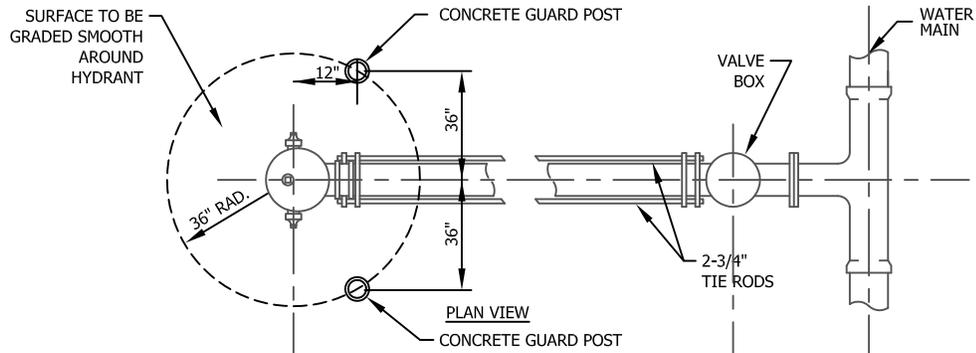
0	updated	tmc		
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

**P.R.V./METER VAULT
ACCESS LADDER**

**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-6
SCALE <i>NONE</i>	SHEET	OF
		REV. NO.





LEGEND:

MAIN VALVE OPENING OF THE HYDRANT SHALL BE A MINIMUM OF (5-1/4") FIVE AND ONE-QUARTER INCH DIAMETER, ONE (4- 1/2") FOUR AND ONE-HALF INCH PUMPER PORT:

- MAIN PORT SHALL INCLUDE ONE FIVE INCH STORZ METALFACE ADAPTER AND ONE FIVE INCH STORZ ALUMINUM CAP. ADAPTER REQUIREMENTS ARE AS FOLLOWS:
1. OVERALL DIAMETER NOT TO EXCEED 7-3/8".
 2. OVERALL LENGTH NOT TO EXCEED 4-1/4".
 3. TO BE SUPPLIED WITH (2) 14-20 HOLES DRILLED AND TAPPED, 180° APART THRU FEMALE THREAD, TO LOCK ADAPTER TO HYDRANT.
 4. 1/8" VINYL AIRCRAFT CABLE, 18" MINIMUM LENGTH TO BE ATTACHED TO CAP AND ADAPTER.

TWO (2) TWO AND ONE-HALF INCH (2-1/2") HOSE PORTS WILL BE PROVIDED. ALL SHALL BE N.S.T. THREADS.

- 1 6", OR 8", GATE VALVE, AWWA C-500, RESILIENT SEAT, WEDGE GATE VALVE "O" RING STEM SEAL, MJ X FLG WITH LUGS, DEPENDENT UPON NOTE "D" SPEC'S.
- 1 TWO PIECE CAST IRON VALVE BOX SIMILAR TO RICH MANUFACTURING TYPE 940 OR 5" C.I. SOILS PIPE VALVE BOX EXTENSION
- 6" DUCTILE IRON PIPE, CLASS 50, UNDER 50' IN LENGTH. 8" DUCTILE IRON PIPE, CLASS 50, OVER 50' IN LENGTH.
- 2- 3/4" STEEL SHACKLE RODS, (COATED WITH COLD TAR EPOXY AFTER INSTALLATION) OR PACIFIC WATER WORKS HOLDING SPOOL, OR MEGA LUGS.
- FULL BODY TAPPING SLEEVE, C.I. OR D.I., OR HYDRANT TEE (F X MJ)
- HYDRANT COLOR SHALL FOLLOW THE NATIONAL FIRE CODE CLASSIFICATION RATING.
 CLASS AA - LIGHT BLUE 1500 GPM OR GREATER
 CLASS A - GREEN 1000-1499 GPM
 CLASS B - ORANGE 500-999 GPM
 CLASS C - RED 500 GPM OR LESS

EACH HYDRANT SHALL HAVE A WHITE BARREL. THE CAPS AND TOP WILL BE PAINTED ACCORDING TO NFC CODE.

NOTES:

1. TOP GUARD POST TO BE LEVEL WITH TOP OF HYDRANT.
2. GUARD POST INSTALLED ONLY WHEN DIRECTED.
3. FIRE HYDRANTS
 - Conform to AWWA C502 except as herein modified.
 - Standard barrel of the hydrants shall be a minimum of (7-1/4") seven and one-quarter inches minimum.
 - Provide pentagon operating nuts.
 - Open by turning counterclockwise.
 - Nozzles and operating nuts shall be identical with the owner's existing equipment or as elsewhere provided.
 - Depth of clear cover over the pipe shall be three feet (3) unless larger depth or cover is required where the hydrant is installed.
 - Provide a sidewalk flange and safety stem coupling which will allow hydrant barrel to separate with minimum damage.
 - Hydrant barrel extension standard of manufacturer of hydrant provided.
 - Hydrant shall be as:
 - Waterous Pacer 100 Model WB-67.
 - Clow Model F 2505.
 - Mueller Centurion Model A-421.
 - M&H 929 Reliance
 - or other preapproved equal
 - Hydrant to remain tagged or bagged until accepted by City.
4. BLUE REFLECTOR OFFSET 6" FROM CENTERLINE OF STREET TO HYDRANT SIDE.

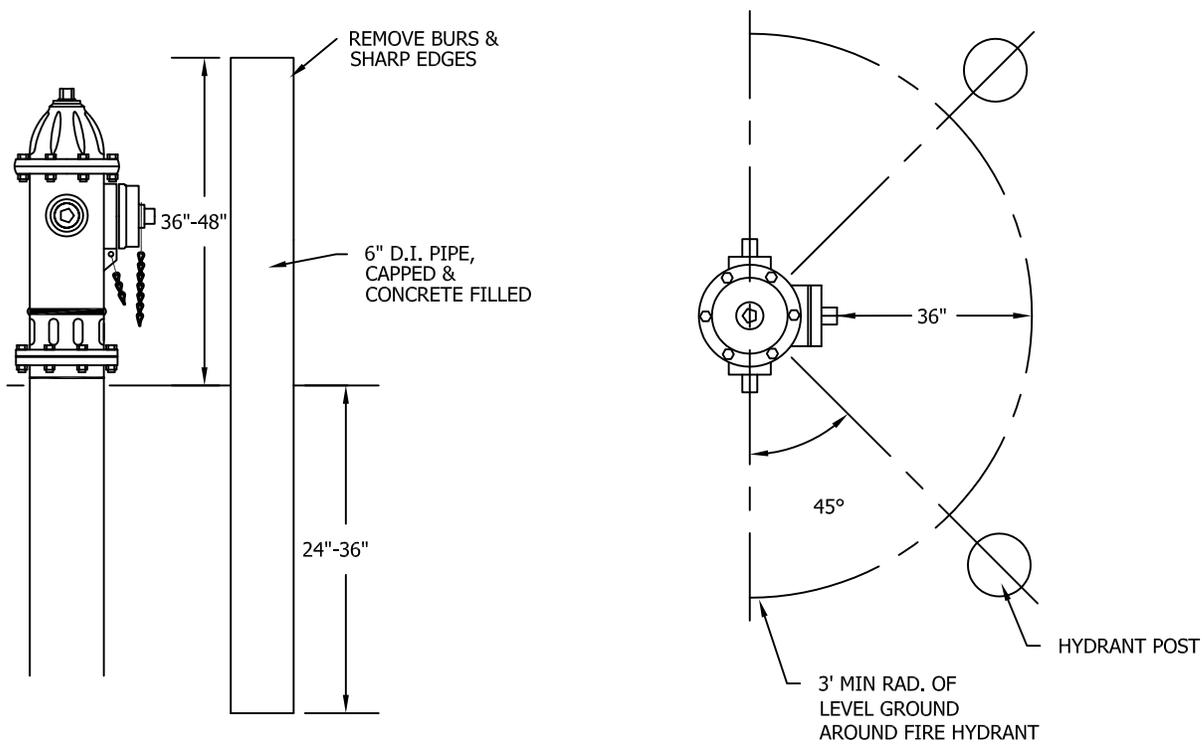
**STANDARD
FIRE HYDRANT
INSTALLATION**

**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	update	tmc		

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-7
SCALE <i>NONE</i>	SHEET	REV. NO.



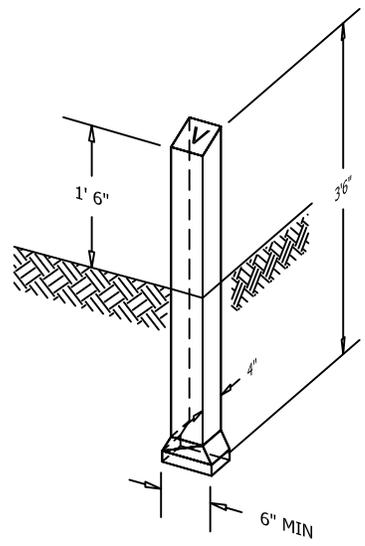


ELEVATION

PLAN

FIRE HYDRANT GUARD POST

VALVE MARKER POST



NOTES:

GUARD POSTS SHALL BE 6" D.I., CLASS 50 PIPE, 6' LONG, FILLED WITH CONCRETE. PAINT PER WATER UTILITY REQUIREMENTS.

VALVE MARKER POST SHALL BE EQUAL TO FOG TITE METER SEAL COMPANY. PAINT PER WATER UTILITY REQUIREMENTS.

VALVE MARKER POST TO BE USED FOR ALL MAINLINE VALVES OUTSIDE PAVED AREAS.

COLOR CODING: WATER VALVES - YELLOW
 AIR VALVES - GREEN
 BLOW OFF VALVES - RED

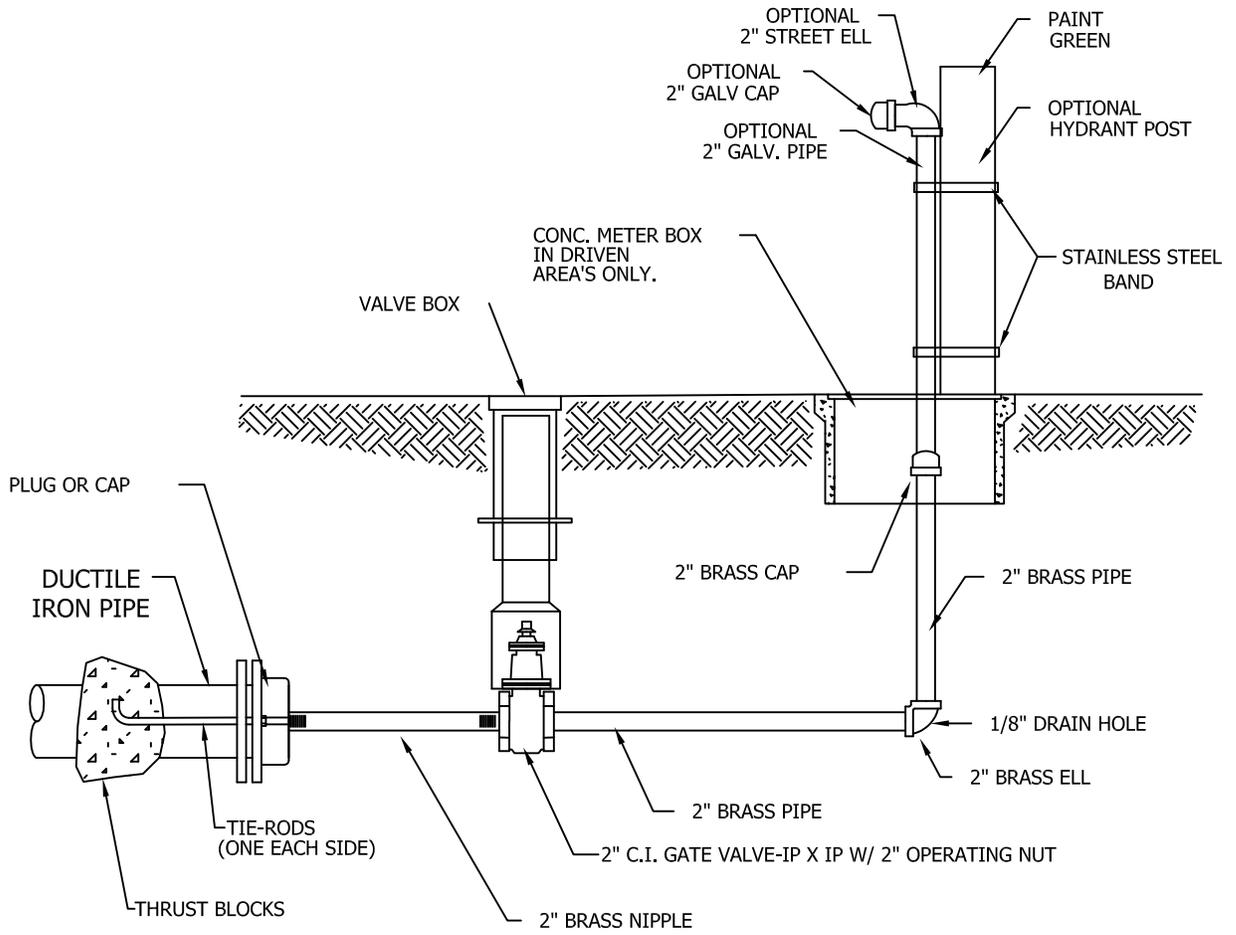
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

*FIRE HYDRANT
 GUARD POST & VALVE
 MARKER POST*

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-8	
SCALE NONE	SHEET OF	REV. NO.	



OPTIONAL INSTALLATION



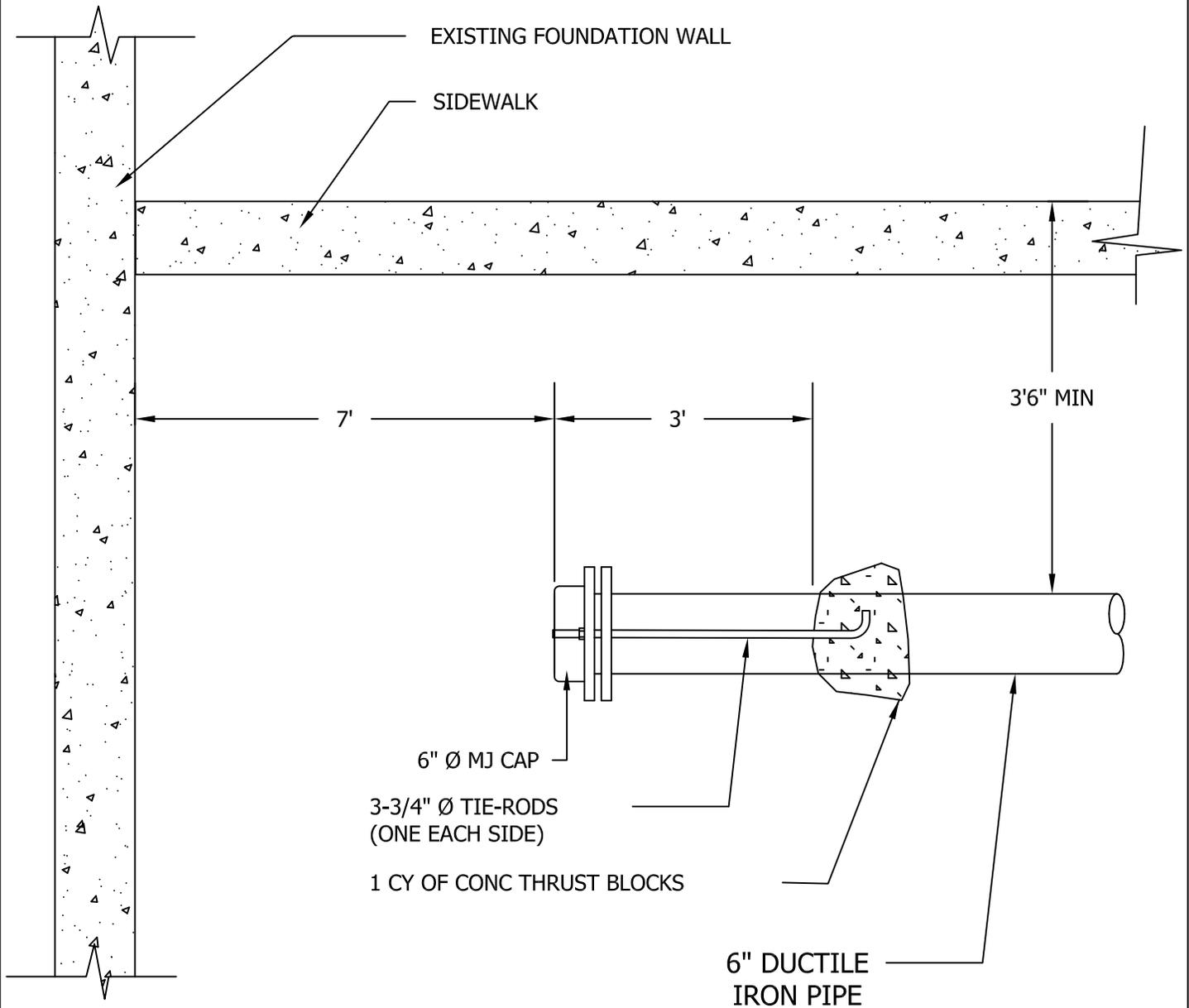
NOTE
PLACE CONCRETE VALVE MARKER NEAR METER BOX

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

**STANDARD BLOW-OFF
ASSEMBLY**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-9	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





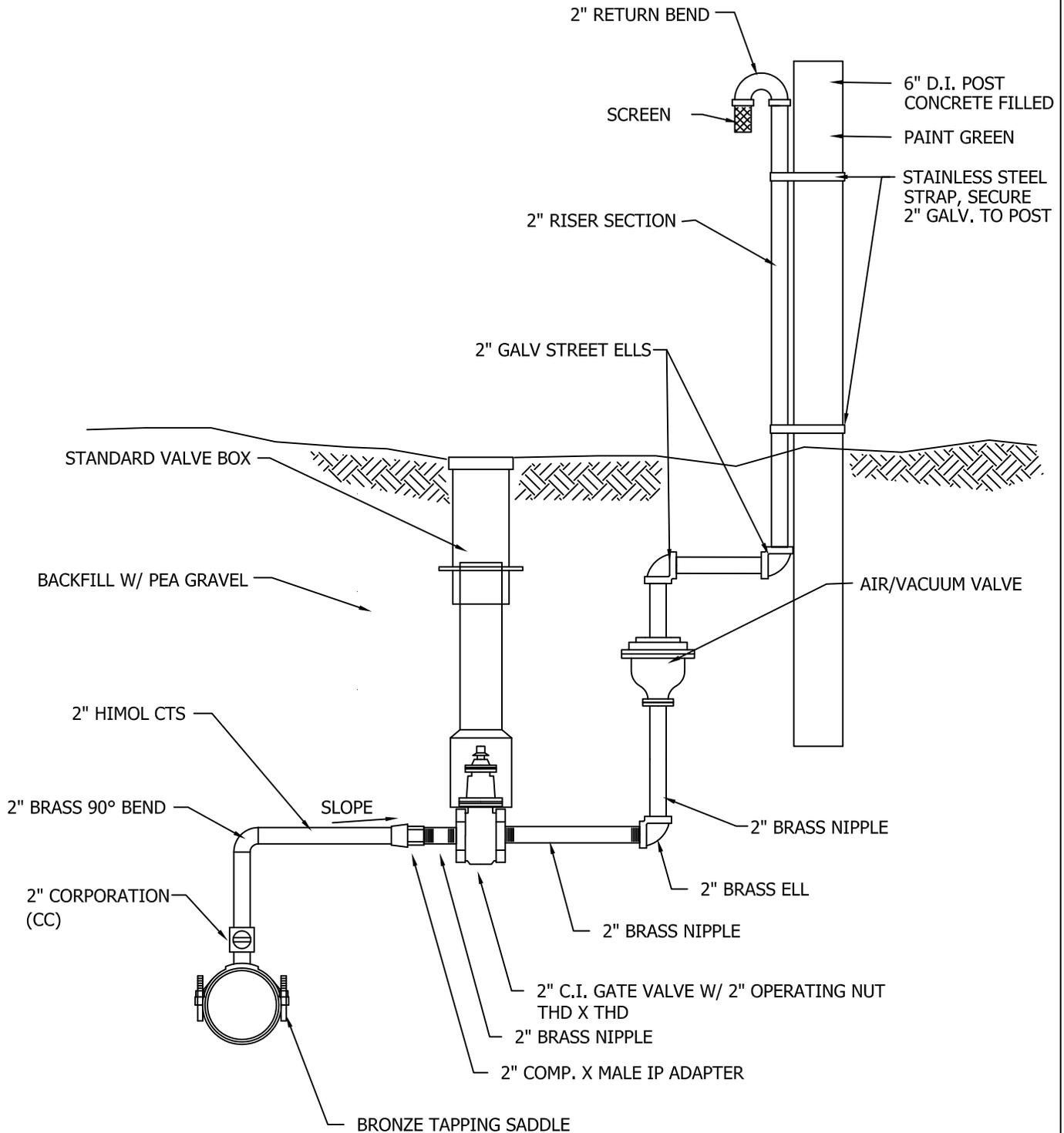
6" DIAMETER FIRE SERVICE (FOR FUTURE USE)

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

**6" DIAMETER
FIRE SERVICE
(FOR FUTURE USE)**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-10	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





NOTE

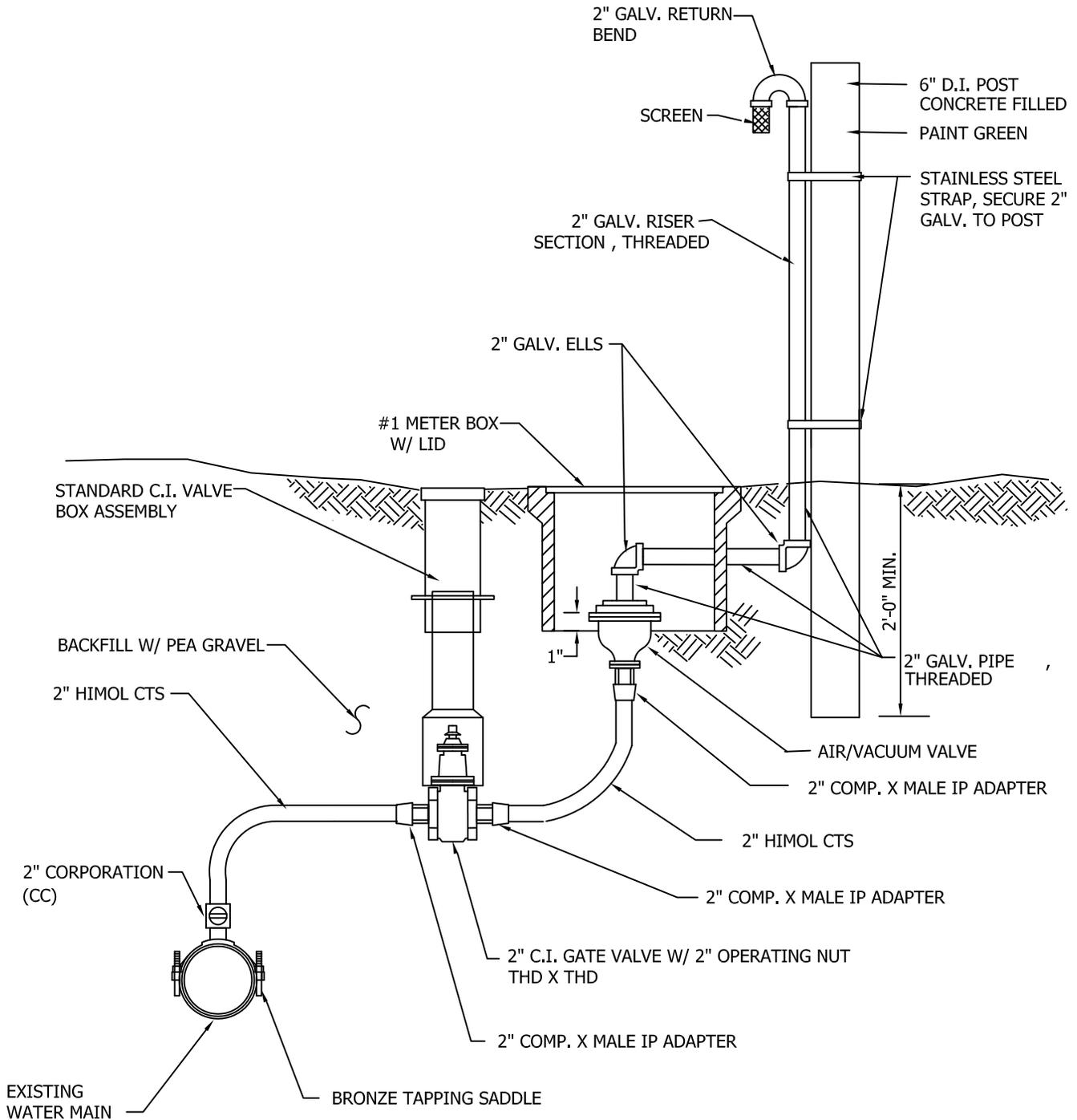
1. USE APPROVED JOINT COMPOUND ON ALL THREADED CONNECTIONS.
2. RELOCATE RISER SECTION OUT OF DRIVING SURFACE WITH D.I. POST

0	updated	tmc		
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

**2" AIR & VACUUM
RELEASE VALVE ASSEMBLY**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-11	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





NOTE

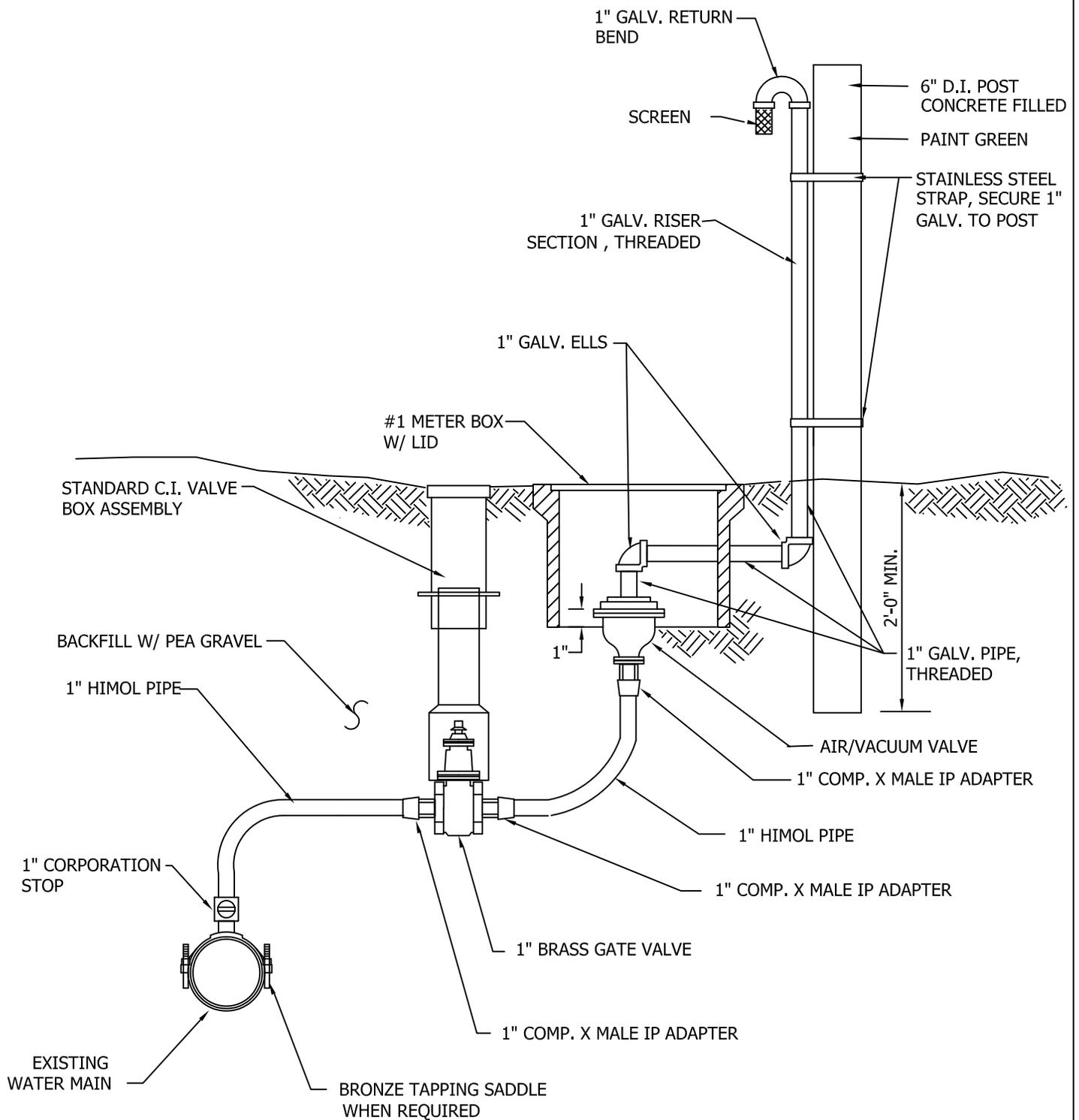
1. USE APPROVED JOINT COMPOUND ON ALL THREADED CONNECTIONS.
2. PAINT CONCRETE POST - GREEN (PER UTILITY STD. SPECIFICATIONS)
3. AIR/VAC TO BE BURIED AS SHOWN FOR FREEZE PROTECTION.
4. LOCATION OF RISER SECTION TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION, AWAY FROM DRIVING SURFACE, ATTACHED TO D.I. POST (CONCRETE FILLED).
5. TAP INTO WATER MAIN BY CITY UTILITY CREW.

0	updated	tmc		
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

**2" AIR & VACUUM
RELEASE VALVE ASSEMBLY
12" MAIN OR LARGER**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-12	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





NOTE

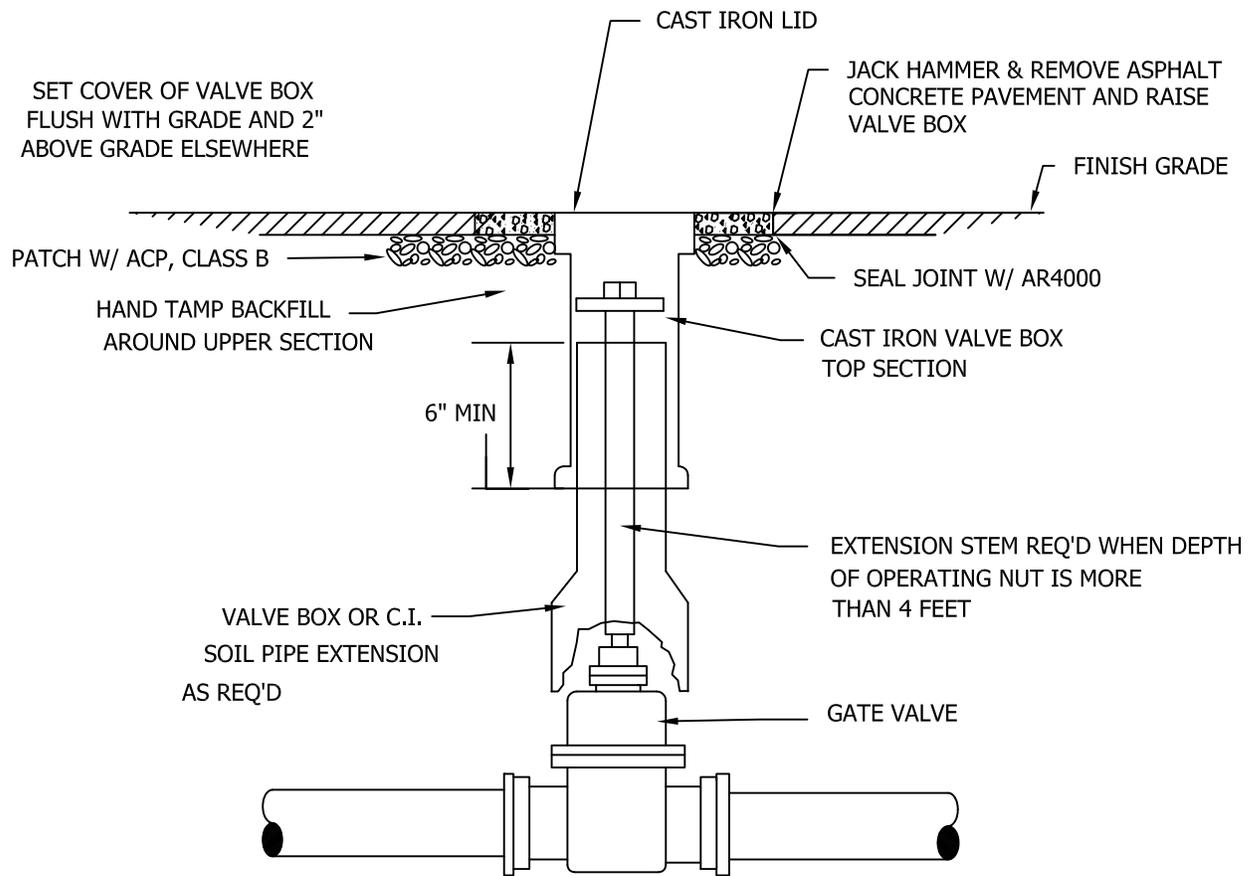
1. USE APPROVED JOINT COMPOUND ON ALL THREADED CONNECTIONS.
2. PAINT CONCRETE POST - GREEN (PER UTILITY STD. SPECIFICATIONS)
3. AIR/VAC TO BE BURIED AS SHOWN FOR FREEZE PROTECTION.
4. LOCATION OF RISER SECTION TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION, AWAY FROM DRIVING SURFACE, ATTACHED TO D.I. POST (CONCRETE FILLED).
5. TAP INTO WATER MAIN BY CITY UTILITY CREW.

0	updated	tmc		
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

**1" AIR & VACUUM
RELEASE VALVE ASSEMBLY
10" MAIN OR LARGER**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-13	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





VALVE OPERATING NUT EXTENSION

EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN THREE (3) FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG. ONLY ONE EXTENSION TO BE USED PER VALVE.

VALVE BOX EXTENSIONS SHALL BE 5" C.I. SOILS PIPE-TYLER TY SEAL

NOTES:

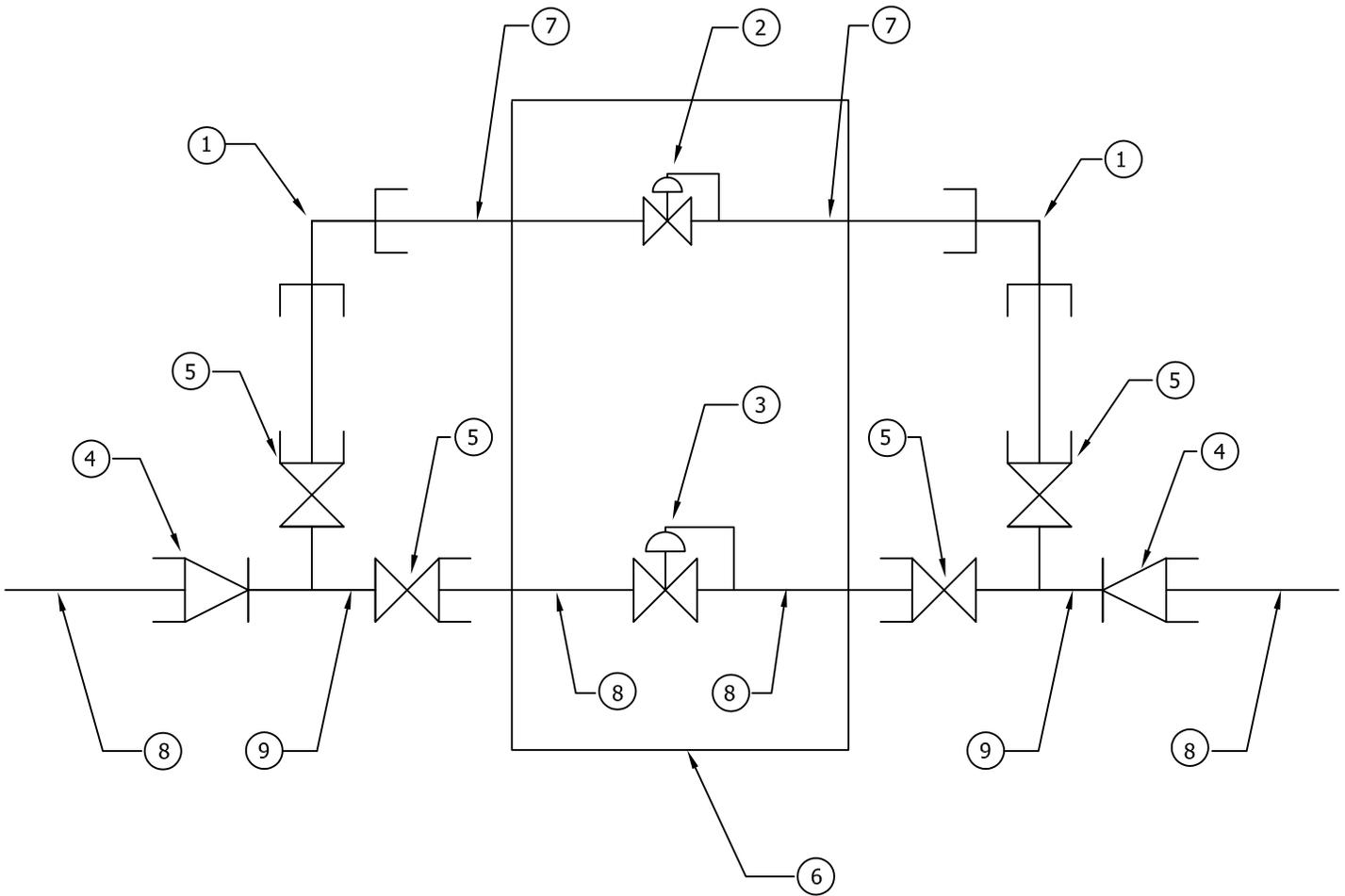
1. ALL EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH 2 COATS OF RUST INHIBITIVE METAL PAINT.
2. RAISE THE VALVE BOX TO TOP OF CRUSHED ROCK GRADE PRIOR TO PAVING, AND TO FINISH GRADE AFTER ASPHALT CONCRETE WORK IS COMPLETED BUT IN NO CASE LATER THAN 48 HOURS AFTER PAVING.
3. SEAL EDGES OF ASPHALT CONCRETE PATCH WITH JOINT SEALER.

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

**VALVE OPERATING
EXTENSION**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-14	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





MATERIALS LIST

1. 90° Bend MJ
2. Bypass Pressure Reducing Valve
3. Mainline Pressure Reducing Valve
4. Mainline Reducer
5. Gate Valve, FL X MJ
6. Precast Concrete Vault, Sized as required
7. Bypass Piping, D.I., Sized as required
8. Mainline Piping, D.I., Sized as required
9. Tee, FL X FL

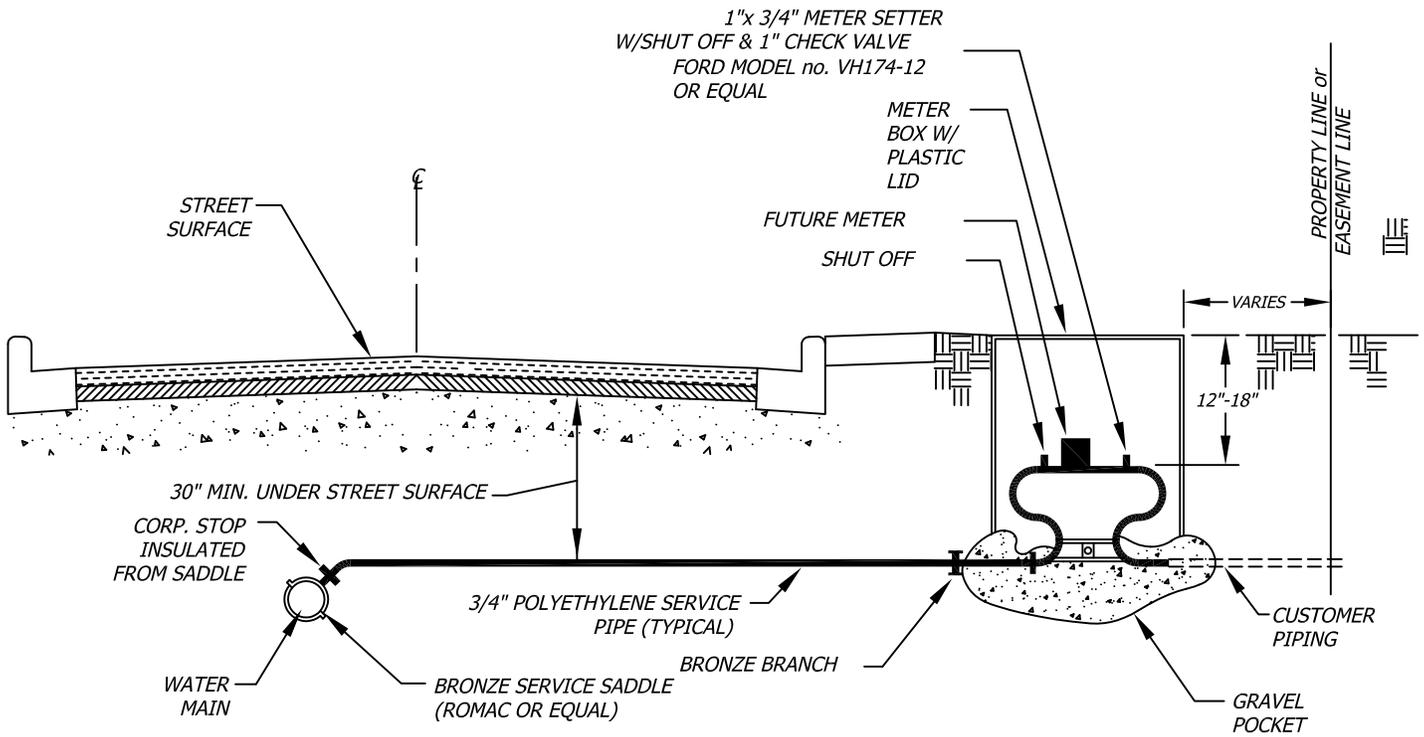
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

**STANDARD PRESSURE
REDUCING STATION**

**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-15
SCALE <i>NONE</i>	SHEET	OF
		REV. NO.





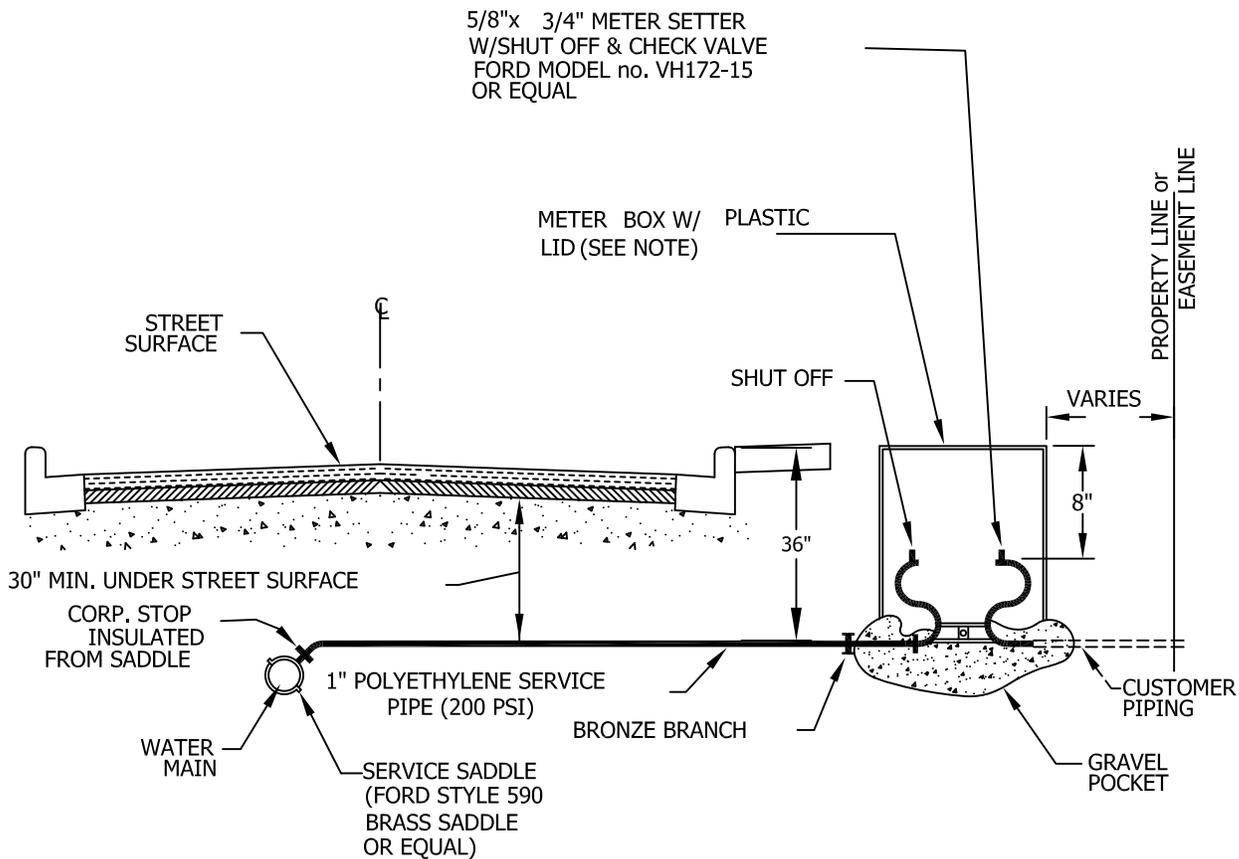
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

**1" SERVICE CONNECTION
DETAIL**

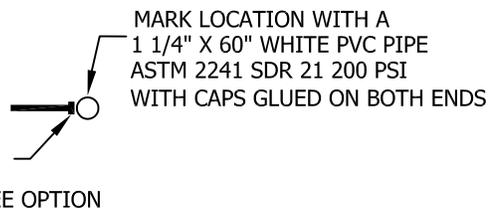
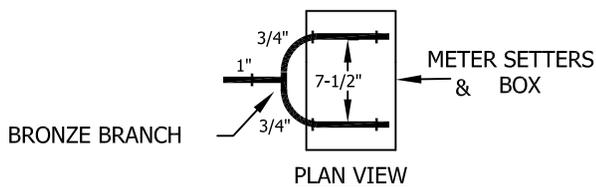
**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

SIZE A	PREV. DNG NO.	PUBLIC WORKS DRAWING NUMBER 4-16
SCALE <i>NONE</i>	SHEET	OF
		REV. NO.





NOTE:
CARSON INDUSTRIES INC.
MODEL 1324-12B WITH BOLT DOWN COVER
OR EQUAL



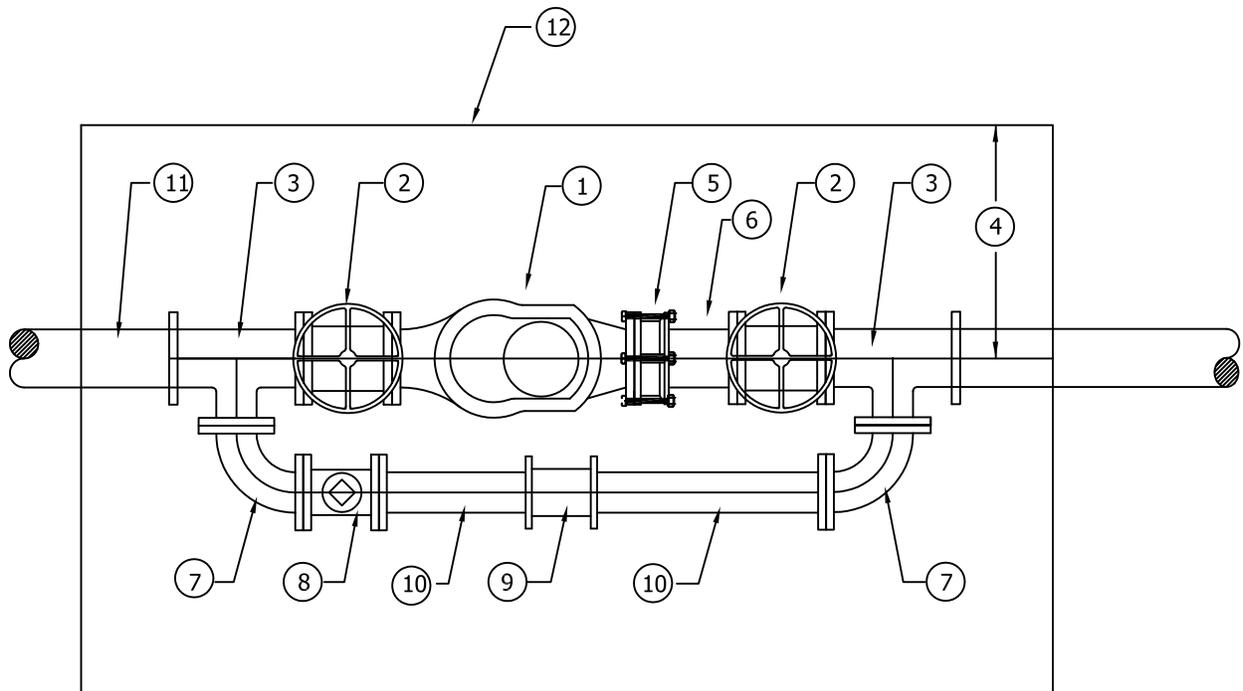
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

**1" DUAL
WATER SERVICE
CONNECTION**

**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

SIZE	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER
A		4-17
SCALE	NONE	SHEET OF





GENERAL NOTES

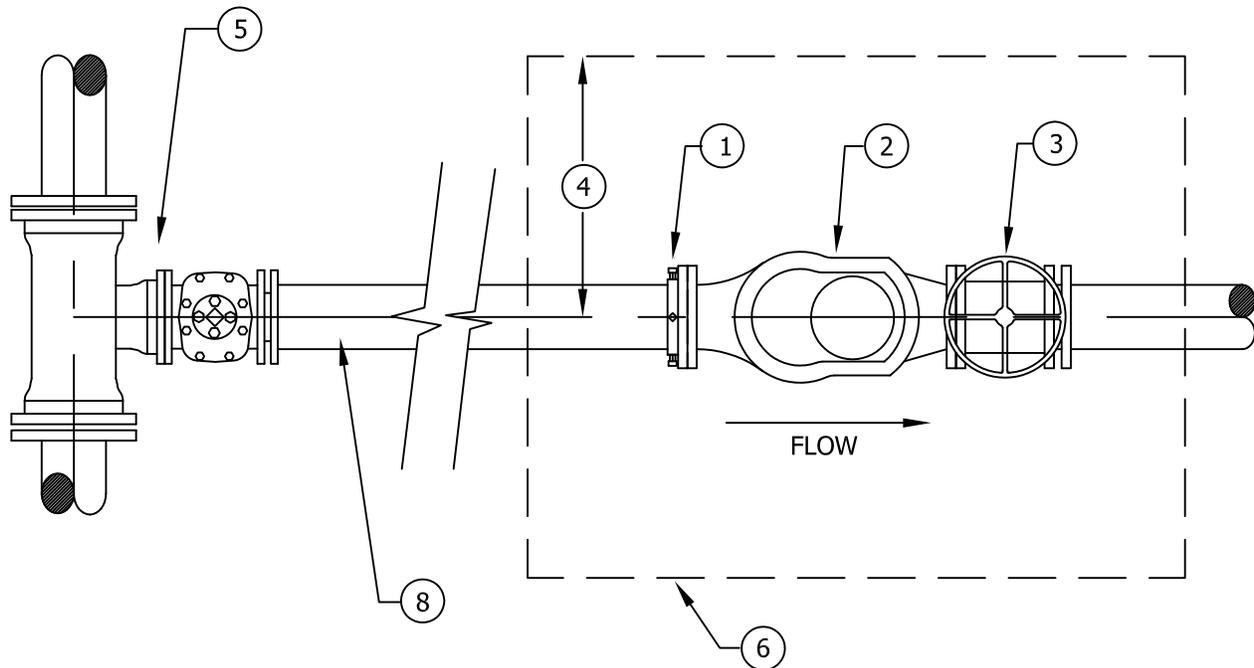
1. COMPOUND METERS
2. GATE VALVE, FL X FL
3. TEE
4. CENTER INSTALLATION IN VAULT
5. FLANGE X MJ ADAPTER
6. FLANGE X PLAIN END ADAPTER OR SPOOL
7. 90° BEND (FOR BYPASS)
8. BYPASS GATE VALVE
9. COUPLING
10. BYPASS PIPING
11. MAINLINE PIPING
12. CONCRETE VAULT, SIZED TO FIT
13. INSTALL MH FRAME AND LID, CENTER OVER METER. (SEE STD. B-606)
14. INSTALLATION IS BY CITY OF BLAINE FORCES

0	updated	tmc		
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

**COMPOUND WATER METER
INSTALLATION 3" TO 10"
WITH OPTIONAL BYPASS**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-18	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





GENERAL NOTES

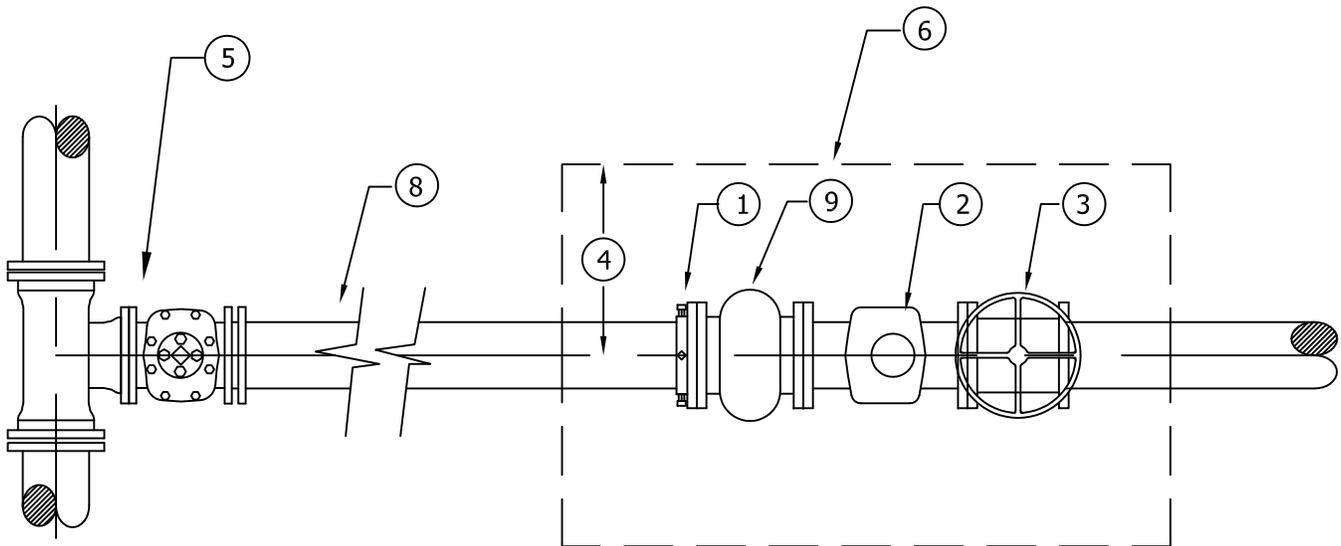
1. UNIFLANGE
2. ROCKWELL COMPOUND METER
3. GATE VALVE- FL X MJ
4. CENTER INSTALLATION IN VAULT
5. MAINLINE TEE AND VALVE (SEE STD. 6-5)
6. CONCRETE VAULT-SIZE AS REQUIRED, INSTALL WITH NO BOTTOM
7. PLACE VALVE SUPPORTS UNDER VALVES INSTALLED IN VAULT
8. DUCTILE IRON PIPING
9. INSTALL MH FRAME AND LID, CENTER OVER METER (SEE STD. 6-6)
10. INSTALLATION IS BY CITY OF BLAINE FORCES.

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

**TYPICAL COMPOUND
WATER METER
INSTALLATION 3" TO 10"**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-19	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





GENERAL NOTES

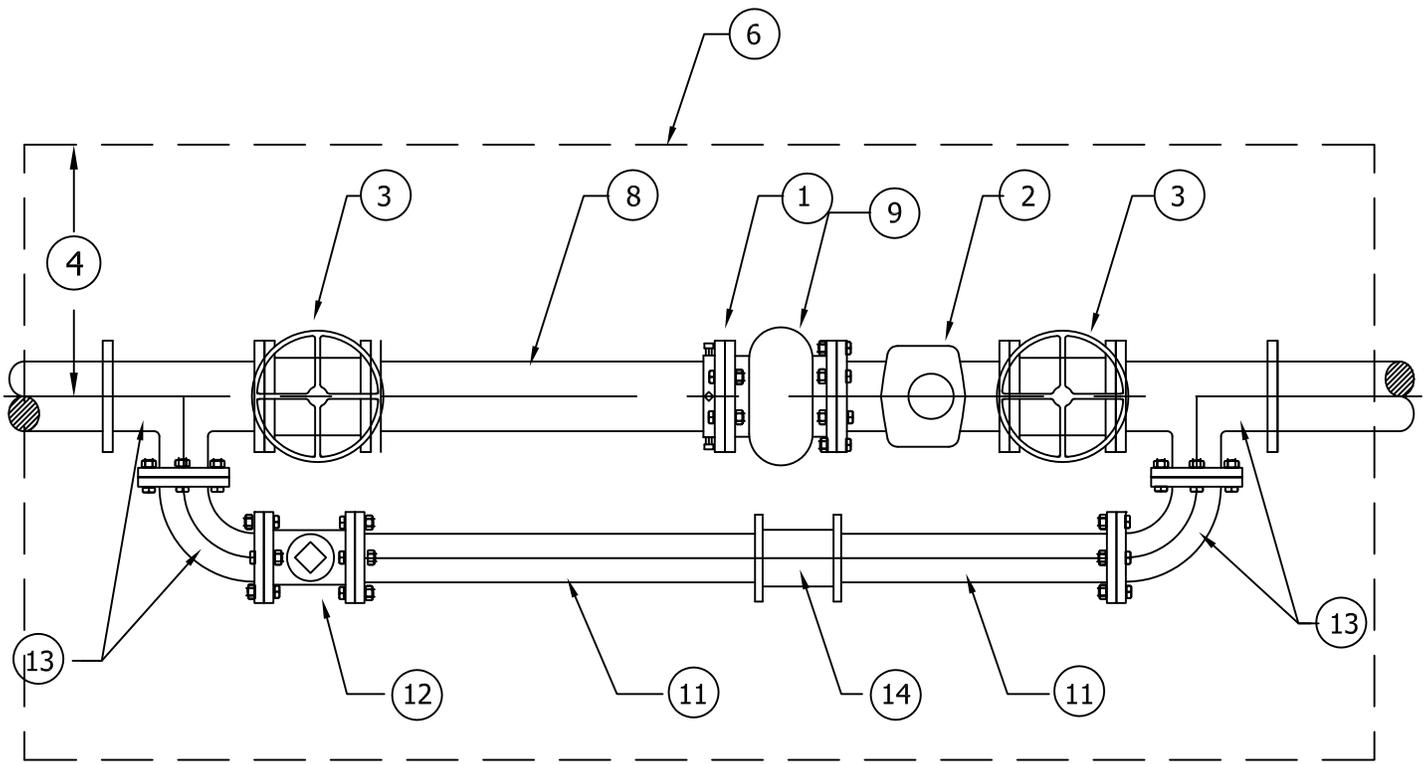
1. UNIFLANGE, SIZE AS REQUIRED.
2. ROCKWELL TURBINE METER-SIZE AS REQUIRED.
3. GATE VALVE-FL X MJ
4. CENTER METER INSTALLATION IN THE VAULT.
5. MAINLINE TEE AND VALVE (SEE STD. 6-5)
6. CONCRETE VAULT-SIZE AS REQUIRED, INSTALLED WITH NO BOTTOM
7. PLACE VALVE SUPPORTS UNDER VALVES AND SERVICE LINE AS REQUIRED.
8. DUCTILE IRON PIPING
9. STRAINER
10. INSTALL MH FRAME AND LID, CENTER OVER METER (SEE STD. 7-6)
11. WHEN INSTALLING TURBO-METERS WITH A STRAINER, A MINIMUM OF 5 PIPE DIAMETERS OF STRAIGHT RUN OF PIPE IS REQUIRED UPSTREAM OF THE METER. (A MINIMUM OF 10 PIPE DIAMETERS OF STRAIGHT RUN OF PIPE SHOULD BE USED UPSTREAM OF A METER INSTALLED WITHOUT A STRAINER. THE DELETION OF A STRAINER, HOWEVER, IS NOT RECOMMENDED.)
12. DO NOT INSTALL CHECK VALVES AND PRESSURE REDUCING DEVICES UPSTREAM OF THE METER.
13. EXTERNALLY WEIGHTED CHECK VALVES ANDE PRESSURE REDUCING DEVICES SHOULD NOT BE LOCATED CLOSER THAN 5 PIPE DIAMETERS DOWNSTREAM OF THE METER.
14. UNWEIGHTED CHECK VALVES SHOULD NOT BE LOCATED CLOSER THAN 3 PIPE DIAMETERS DOWNSTREAM OF THE METER.
15. VALVES IMMEDIATELY UPSTREAM OF THE METER SHOULD ONLY BE FULL-OPEN GATE VALVES. BUTTERFLY VALVES ARE ACCEPTABLE IF THEY ARE 5 PIPE DIAMETERS OR MORE UPSTREAM FROM THE METER. DOWNSTREAM, FULLY OPEN GATE OR BUTTERFLY VALVES CAN BE USED.
16. INSTALLATION IS BY CITY OF BLAINE FORCES.

0	updated	tmc		
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

**TYPICAL TURBINE
WATER METER
INSTALLATION 3" TO 10"**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-20	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





GENERAL NOTES

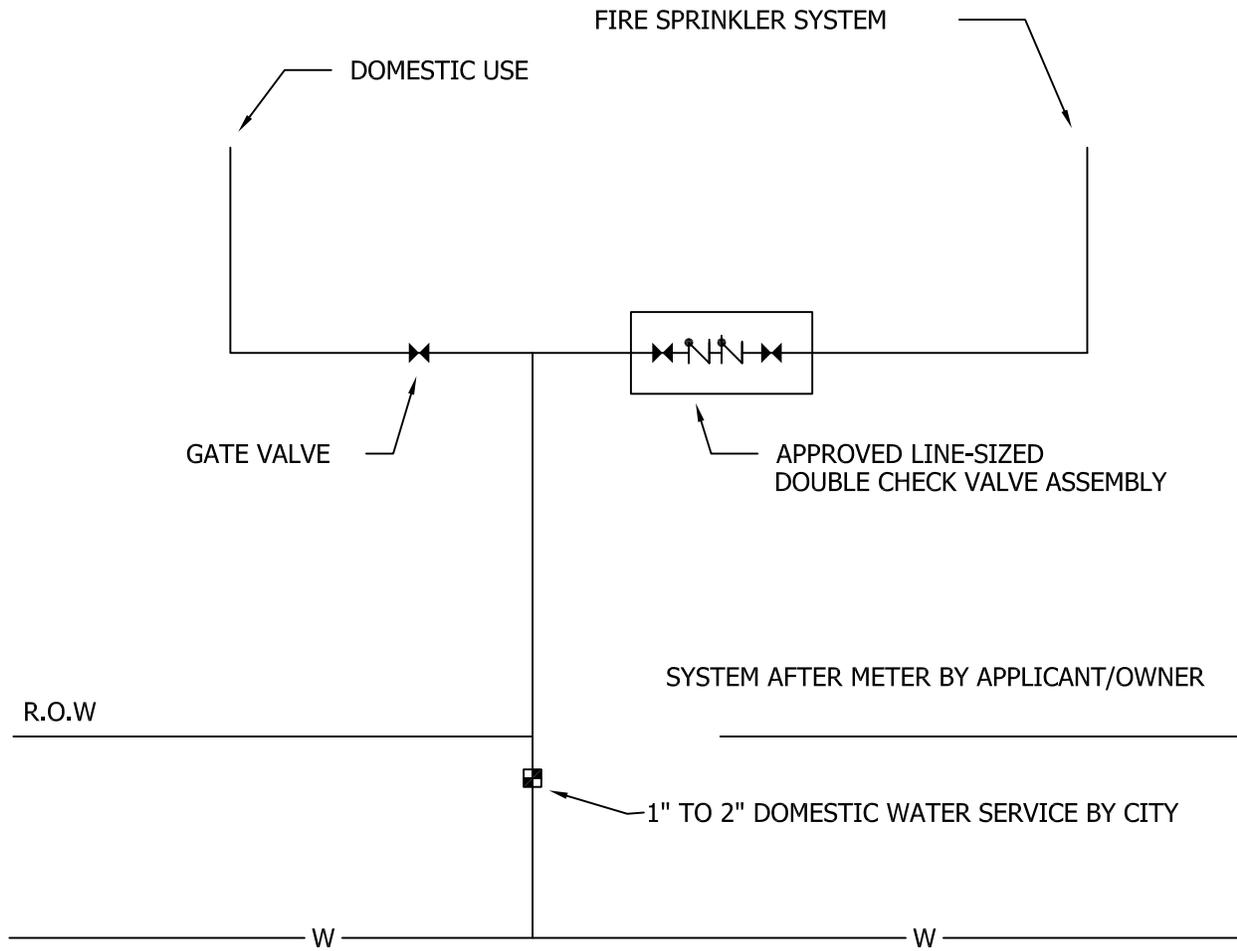
1. UNIFLANGE, SIZE AS REQUIRED.
2. ROCKWELL TURBINE METER-SIZE AS REQUIRED.
3. GATE VALVE-FL X MJ
4. CENTER METER INSTALLATION IN THE VAULT.
5. MAINLINE TEE AND VALVE (SEE STD. 6-5)
6. CONCRETE VAULT-SIZE AS REQUIRED, INSTALLED WITH NO BOTTOM
7. PLACE VALVE SUPPORTS UNDER VALVES AND SERVICE LINE AS REQUIRED.
8. DUCTILE IRON PIPING
9. STRAINER
10. INSTALL MH FRAME AND LID, CENTER OVER METER (SEE STD. 7-6)
11. BYPASS PIPING (SIZE PER ROCKWELL RECOMMENDATIONS)
12. BYPASS GATE VALVE
13. BYPASS 90° BENDS AND TEES (MAINLINE SIZE X BYPASS SIZE)
14. BYPASS COUPLING
15. WHEN INSTALLING TURBO-METERS WITH A STRAINER, A MINIMUM OF 5 PIPE DIAMETERS OF STRAIGHT RUN OF PIPE IS REQUIRED UPSTREAM OF THE METER. (A MINIMUM OF 10 PIPE DIAMETERS OF STRAIGHT RUN OF PIPE SHOULD BE USED UPSTREAM OF A METER INSTALLED WITHOUT A STRAINER. THE DELETION OF A STRAINER, HOWEVER, IS NOT RECOMMENDED.)
16. DO NOT INSTALL CHECK VALVES AND PRESSURE REDUCING DEVICES UPSTREAM OF THE METER.
17. EXTERNALLY WEIGHTED CHECK VALVES AND PRESSURE REDUCING DEVICES SHOULD NOT BE LOCATED CLOSER THAN 5 PIPE DIAMETERS DOWNSTREAM OF THE METER.
18. UNWEIGHTED CHECK VALVES SHOULD NOT BE LOCATED CLOSER THAN 3 PIPE DIAMETERS DOWNSTREAM OF THE METER.
19. VALVES IMMEDIATELY UPSTREAM OF THE METER SHOULD ONLY BE FULL-OPEN GATE VALVES. BUTTERFLY VALVES ARE ACCEPTABLE IF THEY ARE 5 PIPE DIAMETERS OR MORE UPSTREAM FROM THE METER. DOWNSTREAM, FULLY OPEN GATE OR BUTTERFLY VALVES CAN BE USED.
20. INSTALLATION IS BY CITY OF BLAINE FORCES.

0	update	tmc		
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

**TURBINE WATER METER
INSTALLATION 3" TO 10"
W/OPTIONAL BYPASS**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-21	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





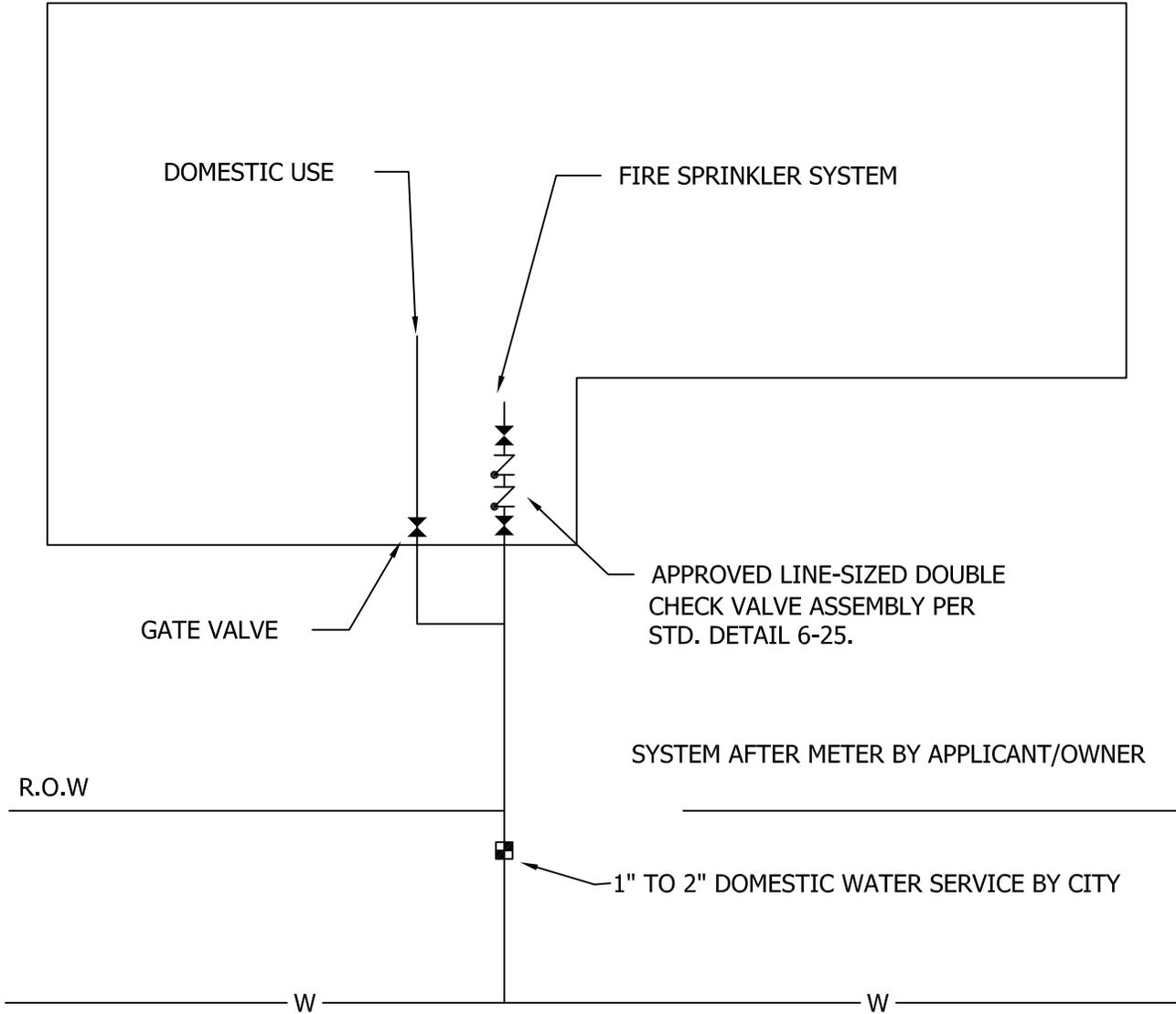
**RESIDENTIAL FIRE
SPRINKLER CHECK
SYSTEM**

**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**



NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-22	REV. NO.
SCALE <i>NONE</i>	SHEET	OF	REV. NO.

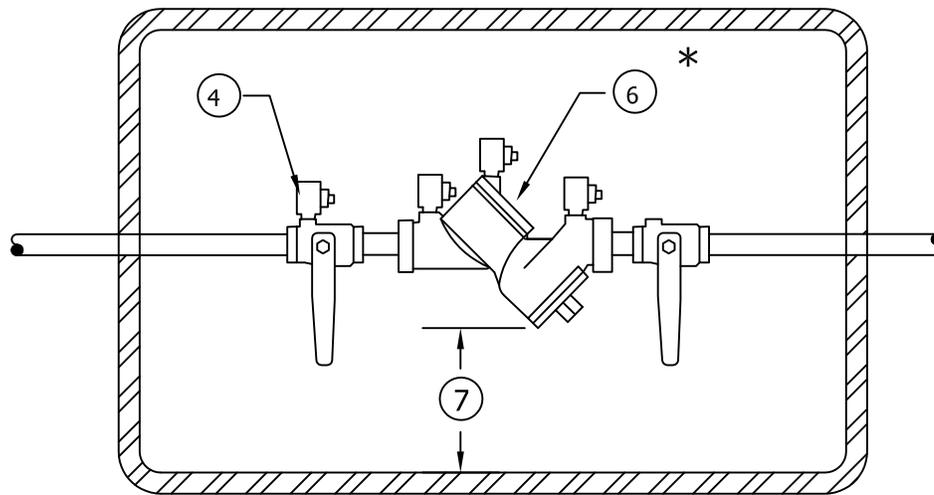
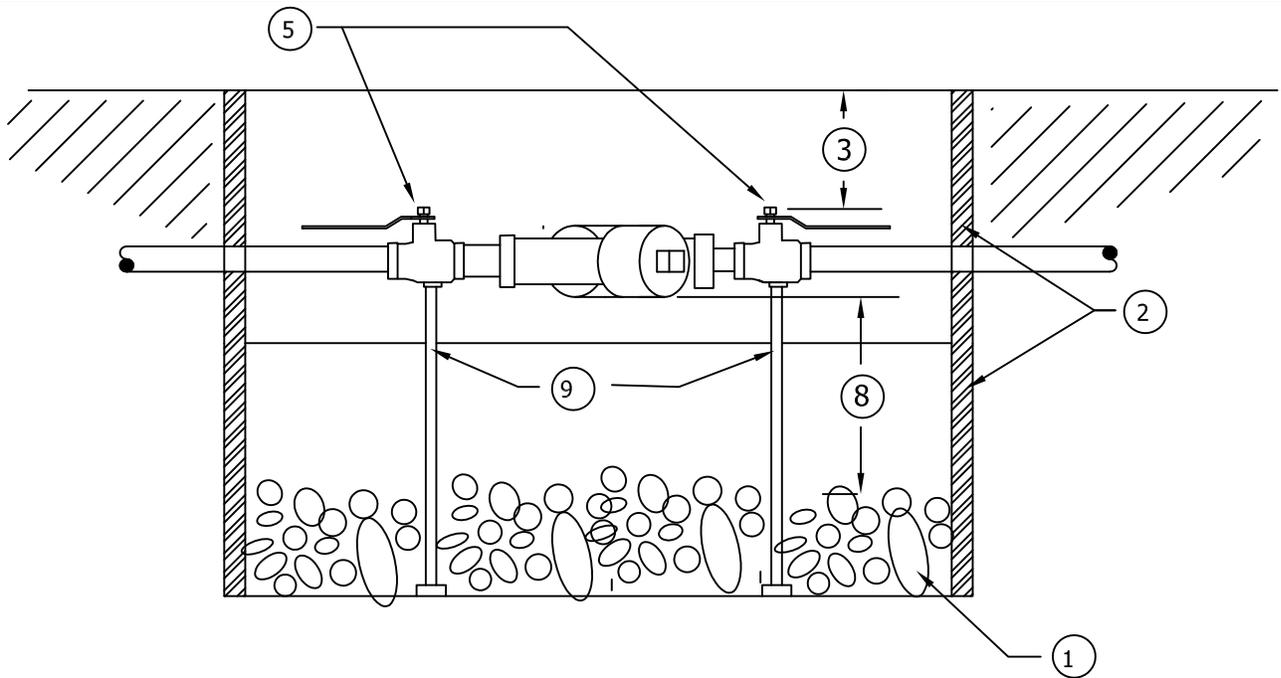


0	updated	tmc		
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

**RESIDENTIAL FIRE
SPRINKLER INSIDE
CHECK SYSTEM**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-23	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





*INSTALL ACCORDING TO MANUFACTURER'S SPECIFICATIONS

NOTES

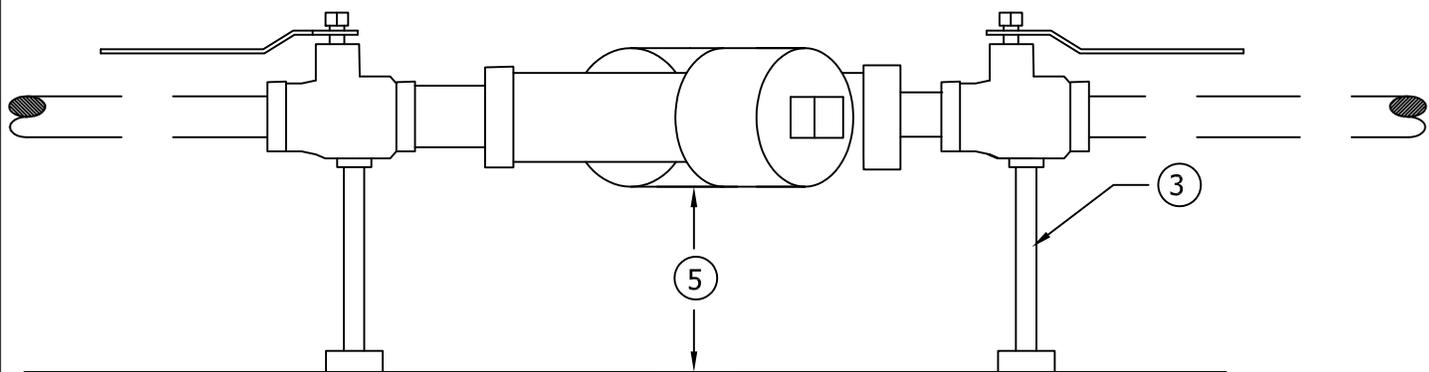
- 1 1" ROUND WASHED GRAVEL BY 6" DEEP ON BOTTOM OF BOX OF
- 2 ENCLOSE 2" & SMALLER D.C.V.A. IN 2 METER BOXES STACKED ON TOP OF EACH OTHER OR , OVERSIZED BOX. MUST HAVE A REMOVABLE COVER
- 3 MAXIMUM OF 3" DISTANCE BETWEEN UNDERSIDE OF LID AND HIGHEST POINT OF DEVICE.
- 4 MUST INCLUDE (4) RESILIENT SEATED TEST-COCKS WITH PLUGS INSTALLED.
- 5 THE D.C.V.A. MUST INCLUDE (2) RESILIENT SEATED SHUT OFF VALVES.
- 6 Y-PATTERN D.C.V.A. SHOULD BE INSTALLED ON SIDE.
- 7 WHEN TEST COCKS ARE FACING SIDWAYS THERE MUST BE A 6" MIN CLEARANCE BETWEEN THEM AND SIDE OF BOX.
- 8 MIN OF 12" BETWEEN LOWEST POINT OF DEVICE AND DRAIN ROCK.
- 9 PROVIDE SUPPORT FOR 2" DEVICES.
- 10 TEST BEFORE USE AND SEND REPORT TO BLAINE WATER UTILITY FOR APPROVAL.

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

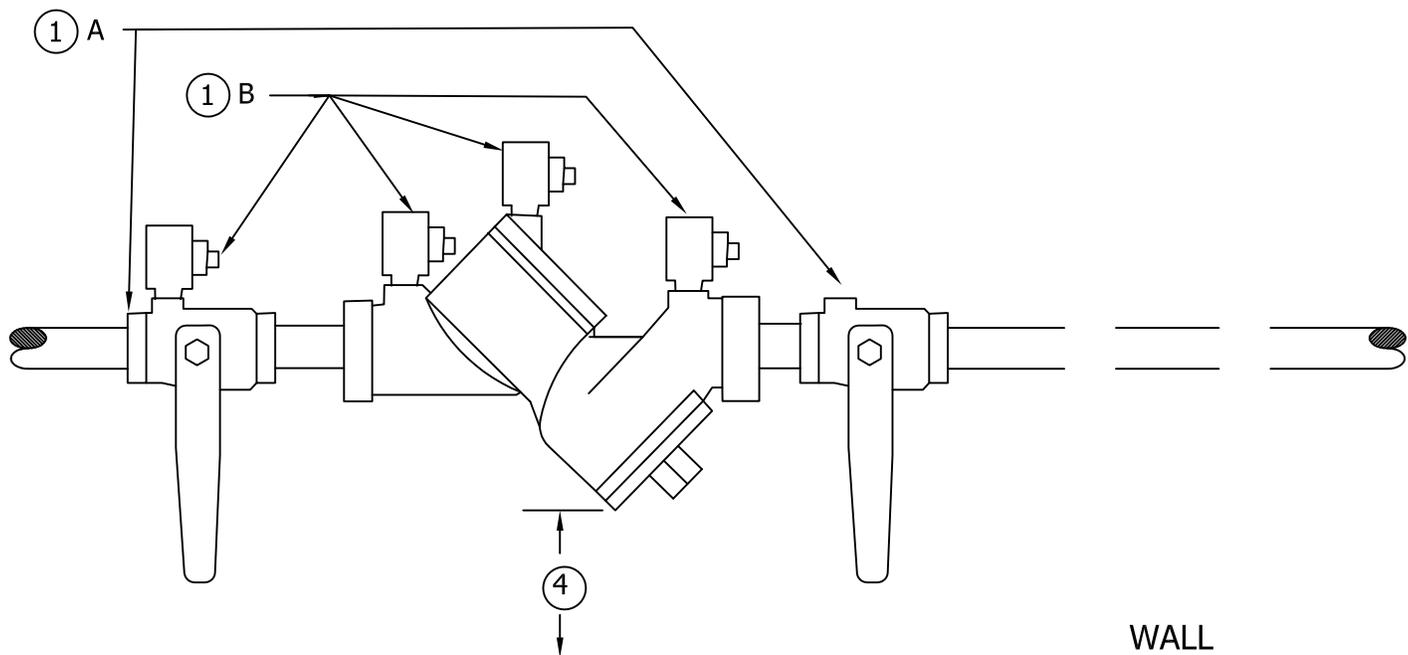
**3/4" TO 2" OUTSIDE
INSTALLED IRRIGATION OR
FIRE SPRINKLER**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-24	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





PROFILE



PLAN

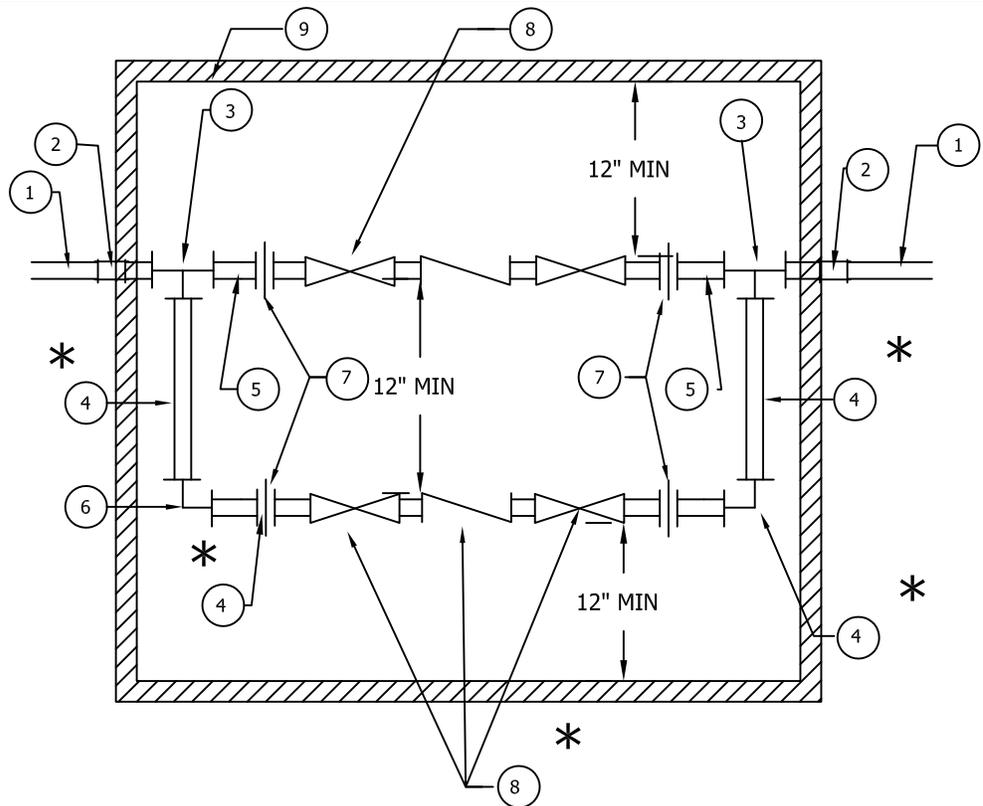
- ① LINE-SIZED WA. STATE APPROVED DOUBLE CHECK VALVE ASSEMBLY.
-A. THE D.C.V.A. INCLUDES 2 RESILIENT-SEATED SHUT-OFF VALVES.
-B. THE D.C.V.A. INCLUDES 4 RESILIENT-SEATED TEST COCKS.
- ② THE D.C.V.A. MUST BE INSTALLED HORIZONTALLY, NOT VERTICALLY.
- ③ 2 SUPPORTS (EITHER WALL OR FLOOR) ONE ON EACH SIDE OF DEVICE, MUST FIRMLY ANCHOR DEVICE.
- ④ MUST PROVIDE A MINIMUM IF 6" SIDE CLEARANCE BETWEEN D.C.V.A. AND WALL OR OBSTRUCTION.
- ⑤ CLEARANCE BETWEEN FLOOR AND DEVICE MUST BE A MINIMUM OF 12" AND A MAXIMUM OF 5'.
- ⑥ TEST BEFORE USE AND SEND REPORT TO BLAINE WATER UTILITY FOR APPROVAL.
- ⑦ REQUIRES ANNUAL BACKFLOW TEST BY A CERTIFIED TESTER.
- ⑧ PROTECT AGAINST FREEZING OR DAMAGE. USE HEAT-TAPE IF AREA IS SUBJECT TO FREEZING.

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

**3/4" TO 2-1/2" INSIDE
INSTALLED DOUBLE CHECK
VALVE ASSEMBLY**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-25	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





TYPICAL INSTALLATION

THIS INSTALLATION IS INSTALLED BY AND MAINTAINED BY THE OWNER/
CONTRACTOR. PLACEMENT IS ON PRIVATE PROPERTY.

CHECK LOCAL PLUMBING AND CROSS CONNECTION CONTROL CODES
FOR INSTALLATION REQUIREMENTS.

THE CITY OF BLAINE SHALL NOT BE HELD LIABLE OR
RESPONSIBLE FOR ERRORS OR OMISSIONS IN THIS TYPICAL
INSTALLATION.

* BYPASS SHOWN IS SUBJECT TO CODE REQUIREMENTS

GENERAL NOTES

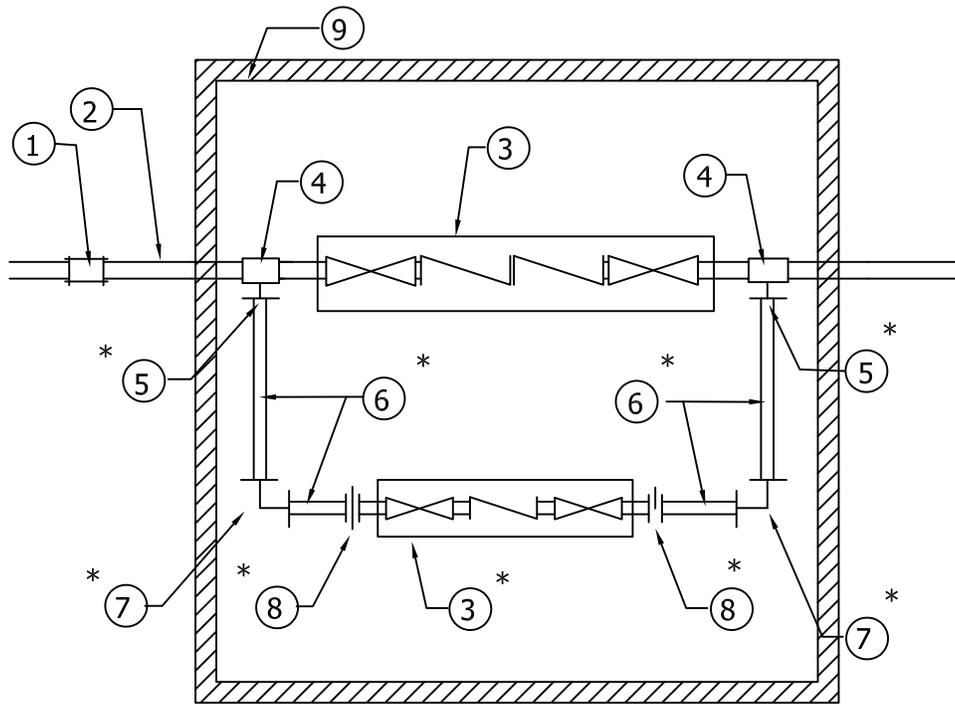
- ① TYPE K, COPPER TUBING
- ② COMPRESSION COUPLING, MALE IP X COMPRESSION
- ③ BRASS TEE, MAIN LINE SIZE X 1", IP THREAD
- ④ BRASS NIPPLE, TO FIT, 1"
- ⑤ BRASS NIPPLE, MAIN LINE SIZE, TO FIT
- ⑥ BRASS ELL, 1" IP THREAD
- ⑦ BRASS UNION, MALE X FEMALE IP THREAD
- ⑧ STATE APPROVED INTERNALLY LOADED DOUBLE CHECK VALVE ASSEMBLY, COMPLETE WITH 2 FULL FLOW RESILIENT SEATED SHUT-OFF VALVES AND TEST COCKS.
- ⑨ CONCRETE VAULT, SIZED TO FIT

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NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED	

**DOUBLE CHECK VALVE
(PRIVATE INSTALL)
1--1/2" & 2" SIZES**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-26	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





TYPICAL INSTALLATION

THIS INSTALLATION IS INSTALLED AND MAINTAINED BY THE OWNER/ CONTRACTOR. PLACEMENT IS ON PRIVATE PROPERTY.

CHECK LOCAL PLUMBING AND CROSS CONNECTION CONTROL CODES FOR INSTALLATION REQUIREMENTS.

THE CITY OF BLAINE SHALL NOT BE HELD LIABLE OR RESPONSIBLE FOR ERRORS OR OMISSIONS IN THIS TYPICAL INSTALLATION.

BYPASS SHOWN IS SUBJECT TO CODE REQUIREMENTS.

GENERAL INSTALLATION NOTES

- ① FLEX COUPLING
- ② D.I. PIPE, CUT TO FIT
- ③ STATE APPROVED INTERNALLY LOADED DOUBLE CHECK VALVE ASSEMBLY, COMPLETE WITH 2 FULL FLOW RESILIENT SEATED SHUT-OFF VALVES AND TEST COCK
- ④ SERVICE SADDLE
- ⑤ COMPRESSION COUPLING
- ⑥ TYPE K COPPER TUBING
- ⑦ 90° COPPER SWEAT ELL
- ⑧ COUPLING, COMPRESSION X IP
- ⑨ CONCRETE VAULT, SIZED TO FIT

SUGGESTED BYPASS SIZES

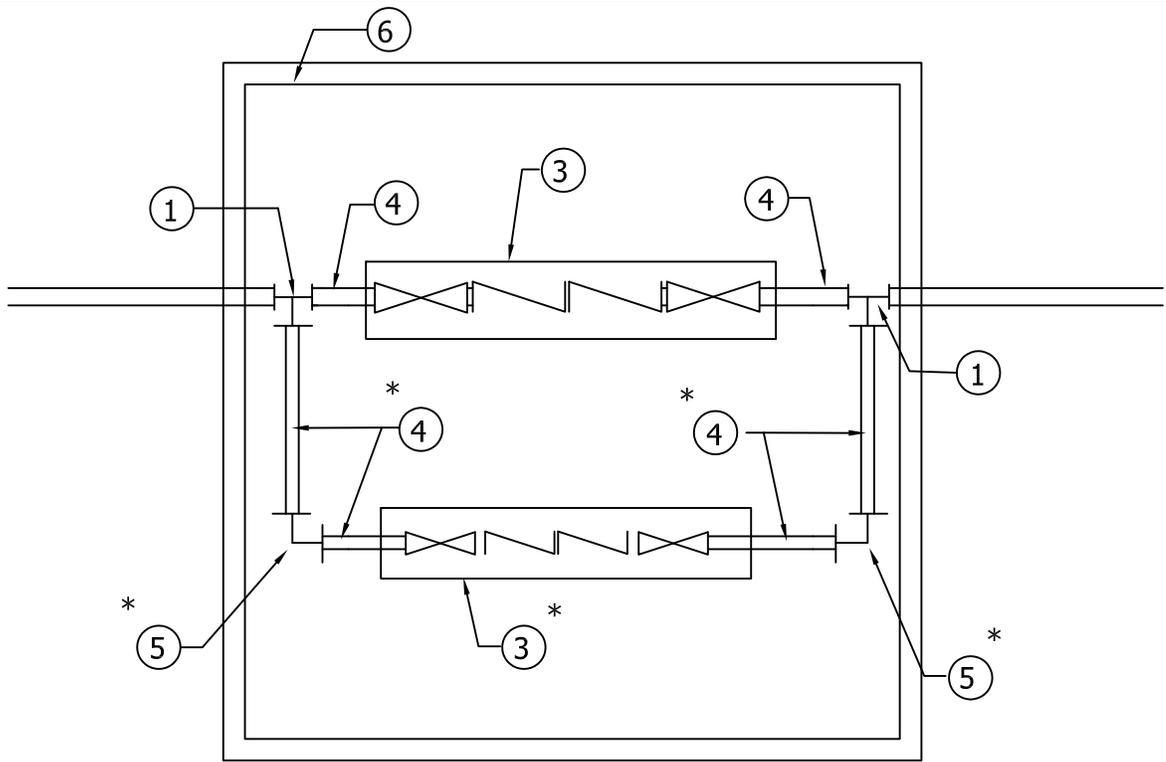
METER SIZE	MAIN-LINE	BY PASS
3"	3" D.I.	1 1/2" COPPER
4"	4" D.I.	1 1/2" COPPER
6"	6" D.I.	2" COPPER

0	updated	tmc			
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED	

**DOUBLE CHECK VALVE
(PRIVATE INSTALL)
3" TO 6" SIZES**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-27	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





TYPICAL INSTALLATION

THIS INSTALLATION IS INSTALLED BY AND MAINTAINED BY THE OWNER/
CONTRACTOR. PLACEMENT IS ON PRIVATE PROPERTY.

CHECK LOCAL PLUMBING AND CROSS CONNECTION CONTROL CODES
FOR INSTALLATION REQUIREMENTS.

THE CITY OF BLAINE SHALL NOT BE HELD LIABLE OR
RESPONSIBLE FOR ERRORS OR OMISSIONS IN THIS TYPICAL
INSTALLATION.

* BYPASS SHOWN IS SUBJECT TO CODE REQUIREMENTS.

GENERAL NOTES

- ① TEE, MJ, MAINLINE SIZE BY 4" BRANCH
- ② PIPE, PE X FL, CUT TO FIT
- ③ STATE APPROVED INTERNALLY LOADED DOUBLE CHECK VALVE ASSEMBLY, COMPLETE WITH 2 FULL FLOW RESILIENT SEATED SHUT-OFF VALVES AND TEST COCKS.
- ④ 4" PIPE, PE X PE, CUT TO FIT
- ⑤ 4" 90° BEND, MJ X MJ
- ⑥ CONCRETE VAULT, SIZED TO FIT

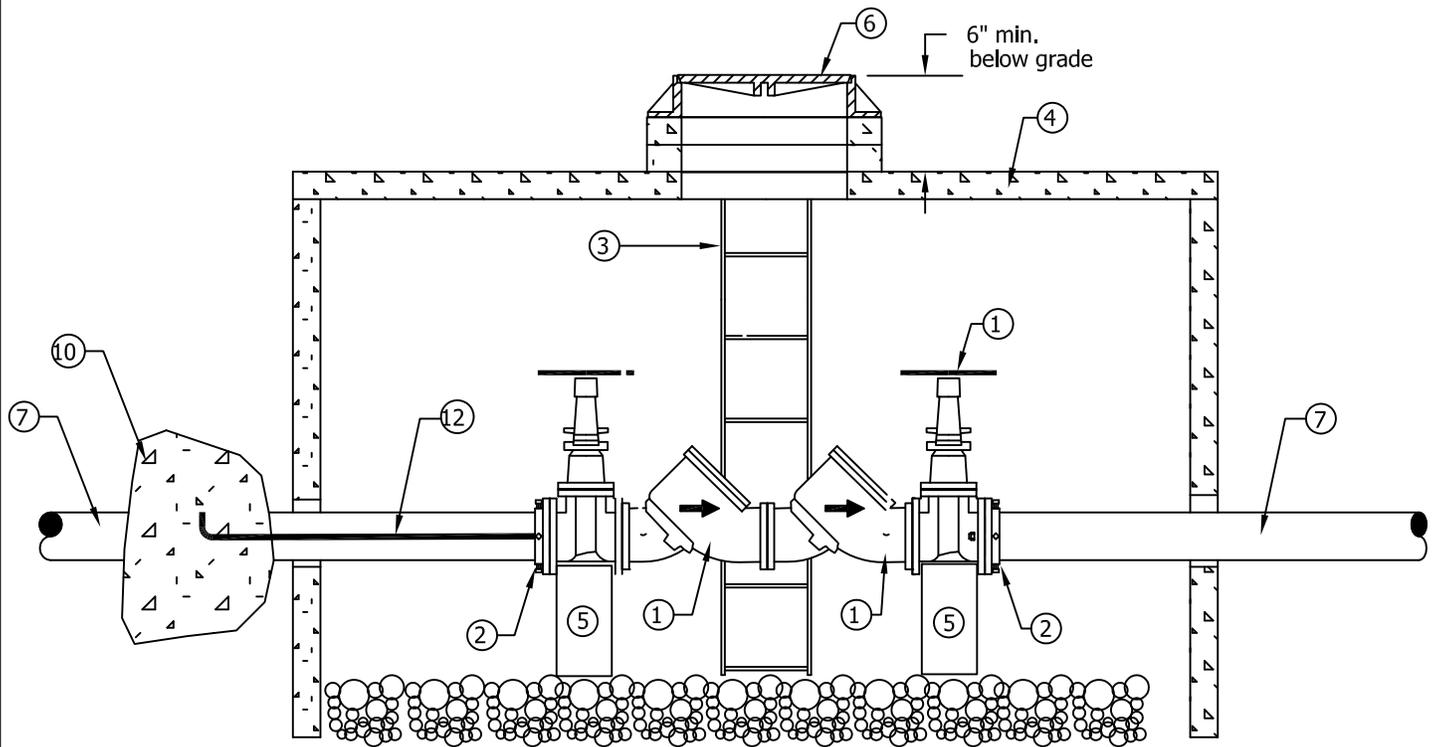
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NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

**DOULBE CHECK VALVE
(PRIVATE INSTALL)
8" TO 10" SIZES**

**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-28
SCALE <i>NONE</i>	SHEET	OF
		REV. NO.





SECTION

GENERAL NOTES

- ① AWWA DOUBLE CHECK VALVE ASSEMBLY, COMPLETE WITH 2 RESILIENT SEATED OS&Y VALVES AND 4 RESILIENT SEATED TEST COCKS
- ② UNIFLANGE PIPE ADAPTER
- ③ ONE GALVANIZED STEEL LADDER TO BE SECURED TO VAULT.
- ④ CONCRETE VAULT-SIZE AS REQUIRED INSTALL WITH NO BOTTOM
- ⑤ CONCRETE VALVE SUPPORTS
- ⑥ MH FRAME & LID CENTERED OVER METER
- ⑦ CL 50 D.I. PIPE
- ⑧ INSTALLATION SHALL BE CENTERED IN VAULT
- ⑨ A TEE AND VALVE SHALL BE INSTALLED ON MAINLINE
- ⑩ VALVES INSTALLED IN VAULT SHALL BE TIE RODDED TO THRUST BLOCKS OUTSIDE OF VAULT
- ⑪ INSTALLATION BY CITY OF BLAINE FORCES
- ⑫ 2-3/4" DIA. GALVANIZED THD. ROD.

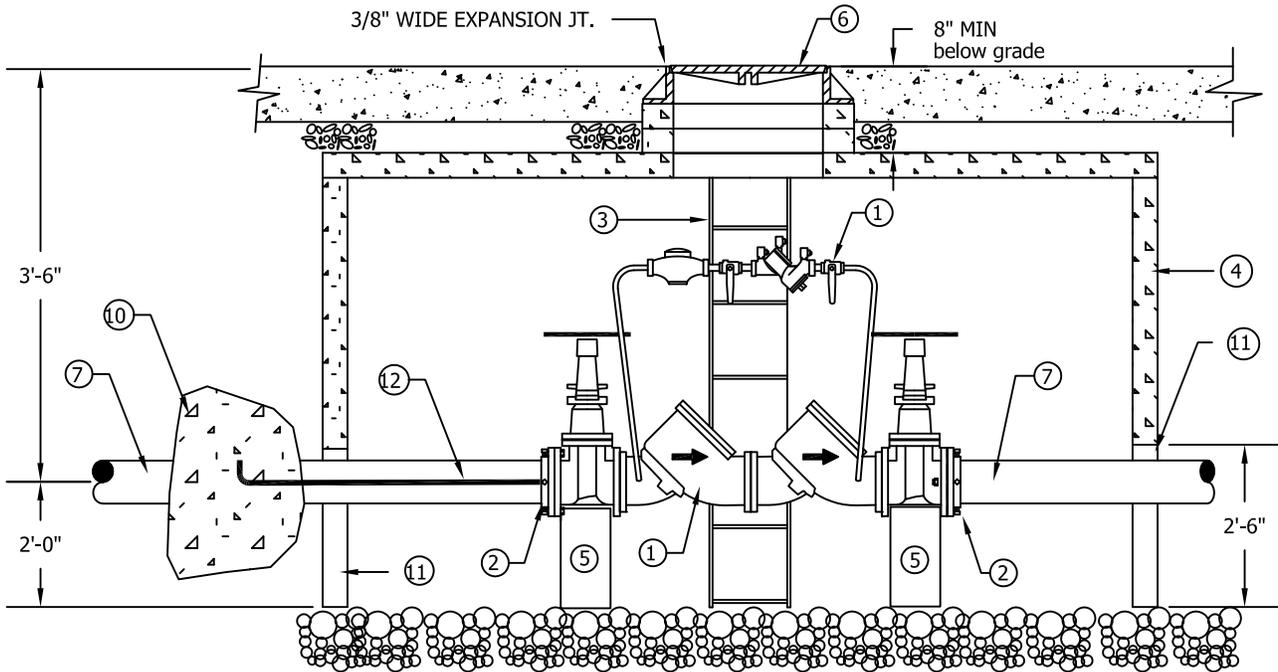
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NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

DOUBLE CHECK VALVE ASSEMBLY

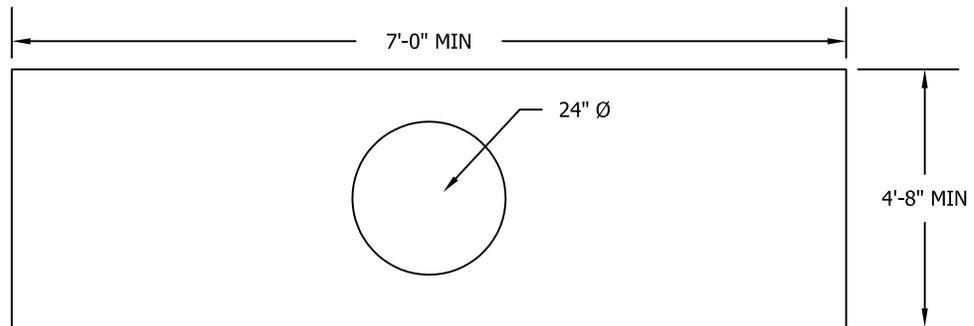
**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-29
SCALE <i>NONE</i>	SHEET OF	REV. NO.





SECTION



PLAN

GENERAL NOTES

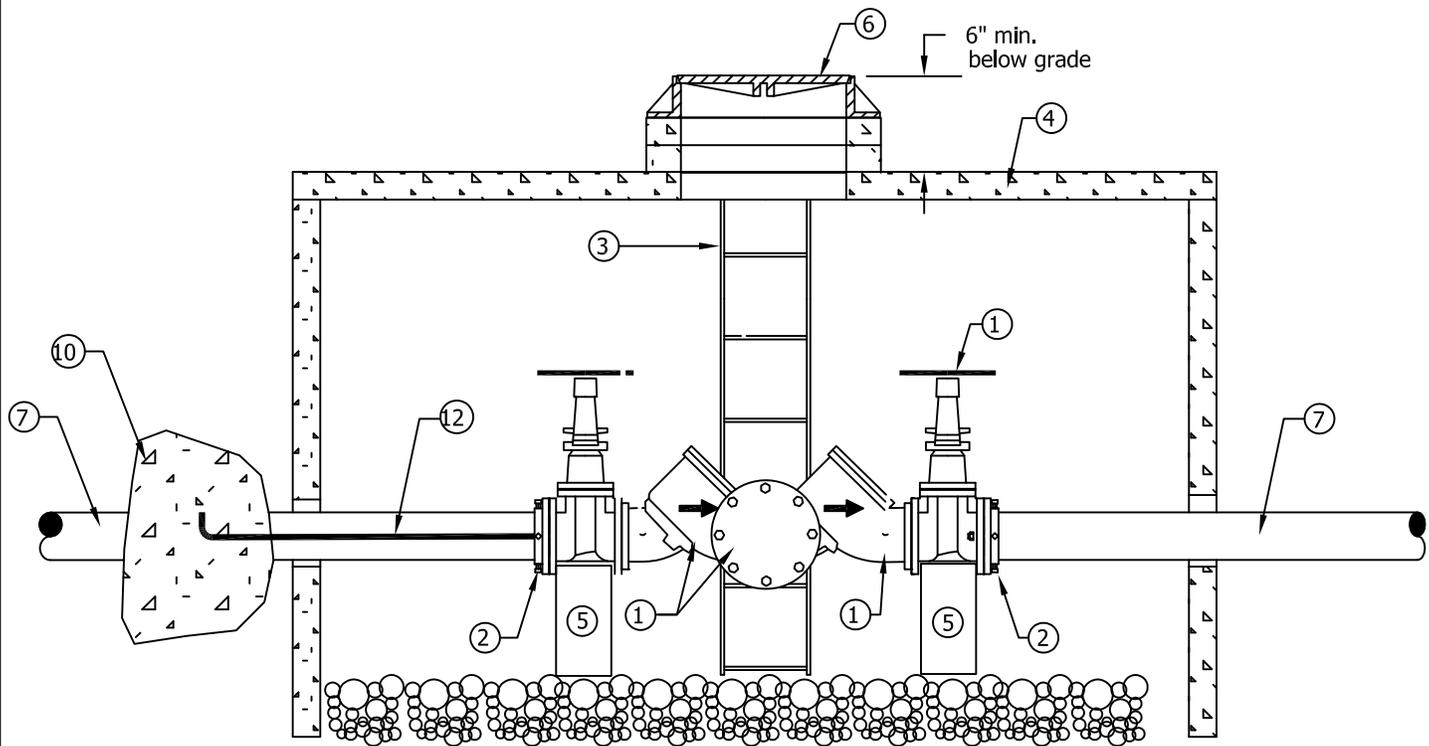
- ① EXISTING DOUBLE CHECK VALVE ASSEMBLY, COMPLETE WITH 2 RESILIENT SEATED OS&Y VALVES AND 4 RESILIENT SEATED TEST COCKS AND BRASS OR COPPER DETECTOR BY-PASS.
- ② UNIFLANGE ADAPTER (6x4 REDUCER WHERE NECESSARY, SEE PLAN).
- ③ ONE GALVANIZED STEEL LADDER TO BE SECURED TO VAULT.
- ④ CONCRETE UTILITY VAULT SIMILIAR TO UTILITY VAULT CO. MODEL #575-LA.
- ⑤ CONCRETE VALVE SUPPORTS
- ⑥ MH FRAME & LID CENTERED OVER METER, ALUMINUM MH FRAME AND LID TO BE SUPPLIED BY CITY OF BLAINE UTILITIES, TO BE USED IN SIDEWALK AREAS ONLY
- ⑦ CL 50 D.I. PIPE
- ⑧ INSTALLATION SHALL BE CENTERED IN VAULT.
- ⑨ A TEE AND VALVE SHALL BE INSTALLED ON MAINLINE
- ⑩ VALVES INSTALLED IN VAULT SHALL BE TIE-RODDED TO THRUST BLOCKS OUTSIDE OF THE VAULT. THRUST BLOCKS PER STANDARD PLAN 6-2.
- ⑪ 8" WIDE SLOTTED OPENING W/FULL RADIUS. GROUT & SEAL AROUND PIPE ONCE VAULT IS SET.
- ⑫ 2-3/4" DIA. GALVANIZED THD. ROD.

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
0	updated	tmc		

DOUBLE CHECK VALVE ASSEMBLY W/DETECTOR (FOR FIRE LINES)

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-30	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





SECTION

GENERAL NOTES

- ① AWWA REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY, WITH 2 RESILIENT SEATED OS&Y VALVES AND 4 RESILIENT SEATED TEST COCKS
- ② UNIFLANGE PIPE ADAPTER
- ③ ONE GALVANIZED STEEL LADDER TO BE SECURED TO VAULT.
- ④ CONCRETE VAULT-SIZE AS REQUIRED INSTALL WITH NO BOTTOM
- ⑤ CONCRETE VALVE SUPPORTS
- ⑥ MH FRAME & LID CENTERED OVER METER
- ⑦ CL 50 D.I. PIPE
- ⑧ INSTALLATION SHALL BE CENTERED IN VAULT
- ⑨ A TEE AND VALVE SHALL BE INSTALLED ON MAINLINE
- ⑩ VALVES INSTALLED IN VAULT SHALL BE TIE RODDED TO THRUST BLOCKS OUTSIDE OF VAULT
- ⑪ INSTALLATION IS BY CITY OF BLAINE FORCES
- ⑫ 2-3/4" DIA. GALVANIZED TRD. ROD.

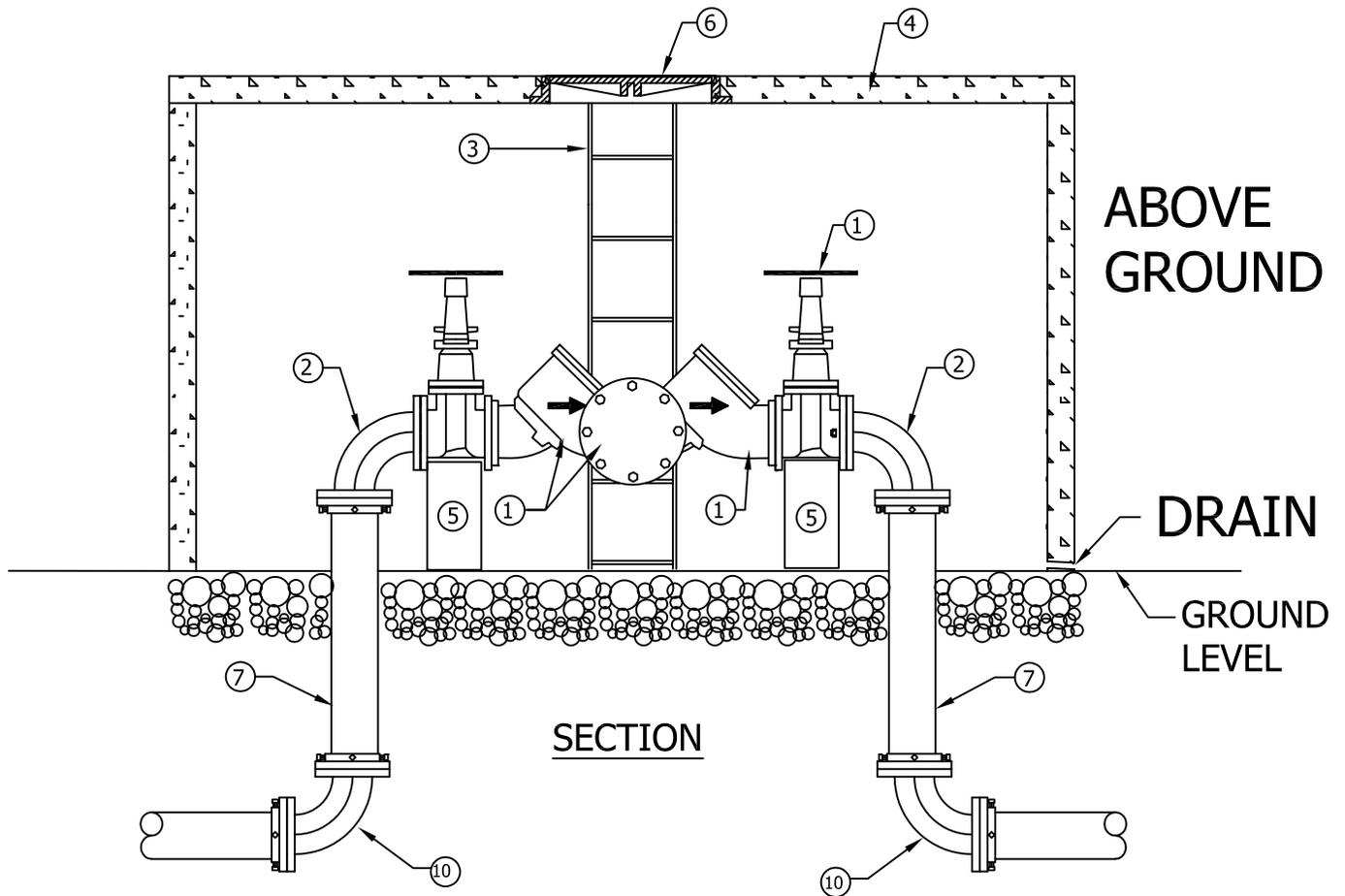
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NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

**REDUCED PRESSURE
PRICIPLE BACKFLOW
ASSEMBLY**

**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-31
SCALE <i>NONE</i>	SHEET	OF
		REV. NO.





NOTE: SEE UTILITY STANDARD 6-32A
FOR INSTALLATION ON A FIRELINE

GENERAL NOTES

- ① AWWA REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY, WITH 2 RESILIENT SEATED OS&Y VALVES AND 4 RESILIENT SEATED TEST COCKS
- ② MJ X F BENDS
- ③ ONE GALVANIZED STEEL LADDER TO BE SECURED TO VAULT.
- ④ CONCRETE VAULT-SIZE AS REQUIRED INSTALL WITH NO BOTTOM
- ⑤ CONCRETE VALVE SUPPORTS
- ⑥ STANDARD VAULT LID, CENTERED OVER METER
- ⑦ CL 50 D.I. PIPE
- ⑧ INSTALLATION SHALL BE CENTERED IN VAULT
- ⑨ A TEE AND VALVE SHALL BE INSTALLED ON MAINLINE
- ⑩ MJ X MJ BENDS
- ⑪ INSTALLATION IS BY CITY OF BLAINE FORCES

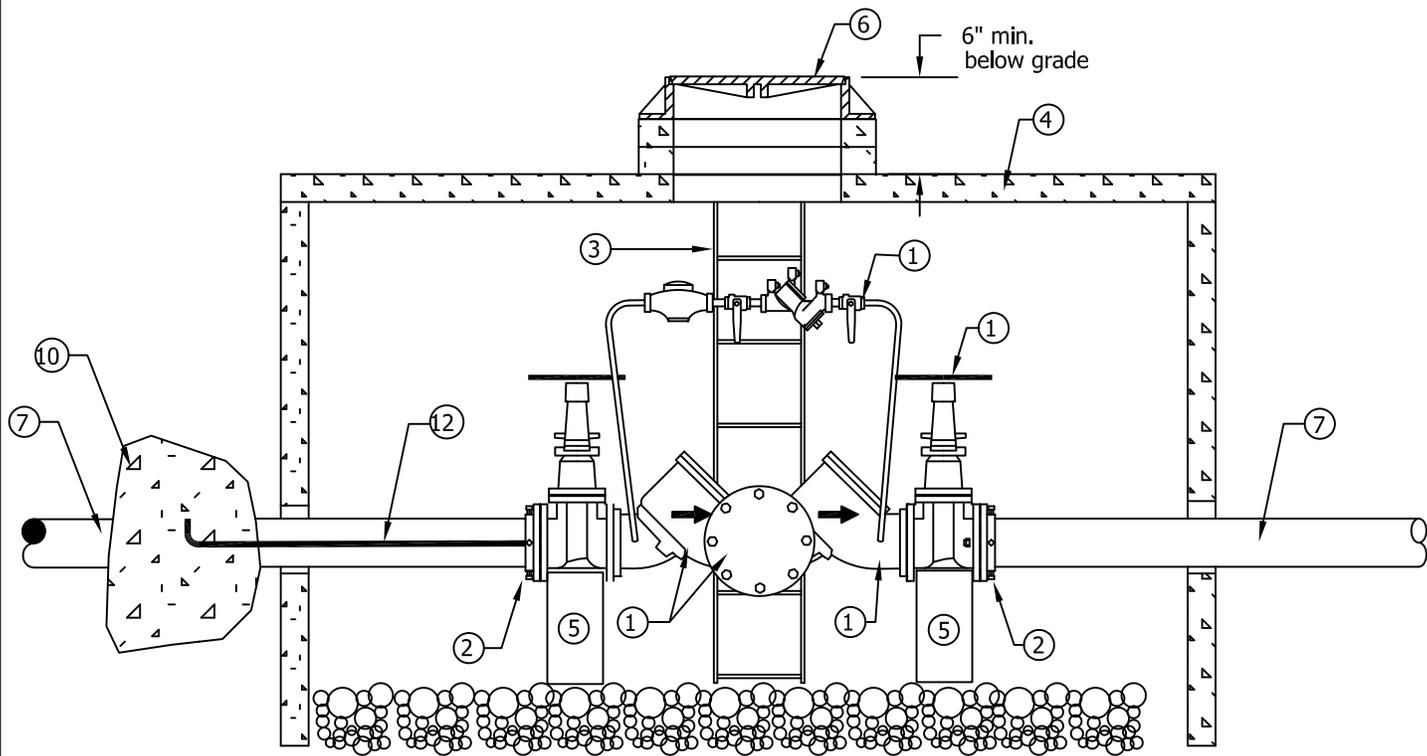
NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
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REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY

CITY OF BLAINE
PUBLIC WORKS DEPARTMENT

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-32
SCALE <i>NONE</i>	SHEET	OF
	REV. NO.	





SECTION

GENERAL NOTES

- ① AWWA REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY, WITH 2 RESILIENT SEATED OS&Y VALVES AND 4 RESILIENT SEATED TEST COCKS AND BRASS OR COPPER DETECTOR BY-PASS.
- ② UNIFLANGE PIPE ADAPTER
- ③ ONE GALVANIZED STEEL LADDER TO BE SECURED TO VAULT.
- ④ CONCRETE VAULT-SIZE AS REQUIRED INSTALL WITH NO BOTTOM
- ⑤ CONCRETE VALVE SUPPORTS
- ⑥ MH FRAME & LID CENTERED OVER METER
- ⑦ CL 50 D.I. PIPE
- ⑧ INSTALLATION SHALL BE CENTERED IN VAULT
- ⑨ A TEE AND VALVE SHALL BE INSTALLED ON MAINLINE
- ⑩ VALVES INSTALLED IN VAULT SHALL BE TIE RODDED TO THRUST BLOCKS OUTSIDE OF VAULT
- ⑪ INSTALLATION IS BY CITY OF BLAINE FORCES
- ⑫ 2-3/4" DIA. GALVANIZED TRD. ROD.

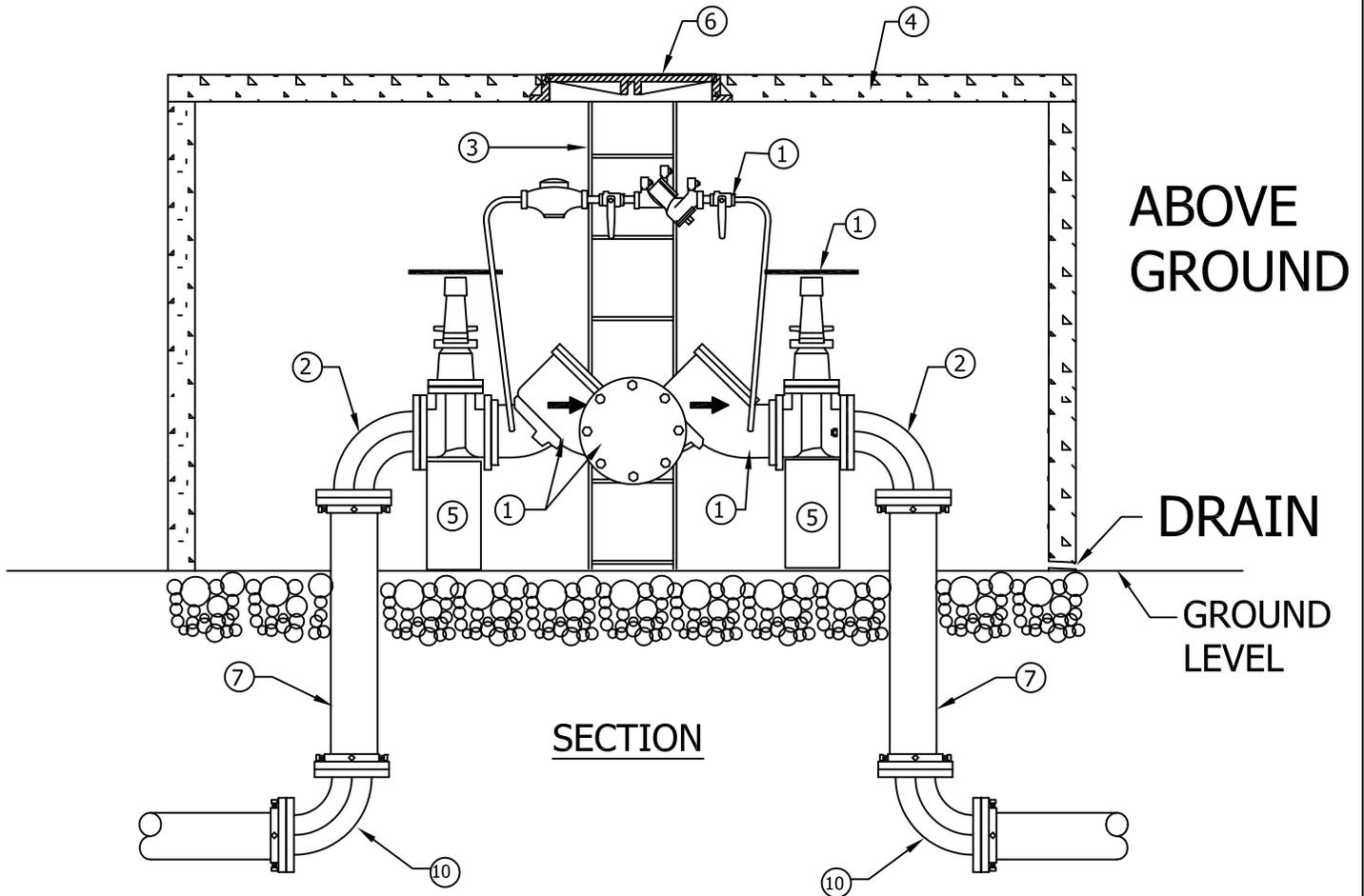
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NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED	

**REDUCED PRESSURE
PRINCIPLE BACKFLOW
ASSEMBLY (FIRELINES)**

**CITY OF BLAINE
PUBLIC WORKS DEPARTMENT**

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-33	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





GENERAL NOTES

- ① AWWA REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY, WITH 2 RESILIENT SEATED OS&Y VALVES AND 4 RESILIENT SEATED TEST COCKS AND BRASS OR COPPER DETECTOR BY-PASS.
- ② MJ X F BENDS
- ③ ONE GALVANIZED STEEL LADDER TO BE SECURED TO VAULT.
- ④ CONCRETE VAULT-SIZE AS REQUIRED INSTALL WITH NO BOTTOM
- ⑤ CONCRETE VALVE SUPPORTS
- ⑥ STANDARD VAULT LID, CENTERED OVER METER
- ⑦ CL 50 D.I. PIPE
- ⑧ INSTALLATION SHALL BE CENTERED IN VAULT
- ⑨ A TEE AND VALVE SHALL BE INSTALLED ON MAINLINE
- ⑩ MJ X MJ BENDS
- ⑪ INSTALLATION IS BY CITY OF BLAINE FORCES

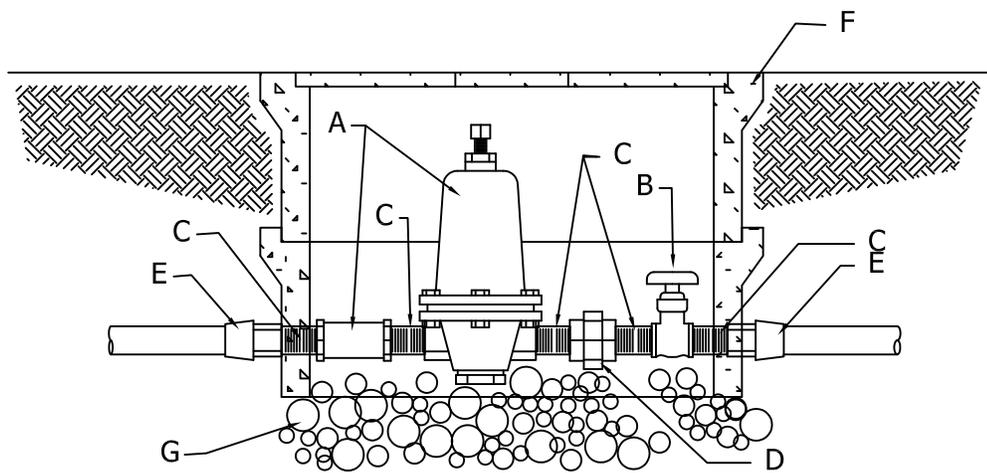
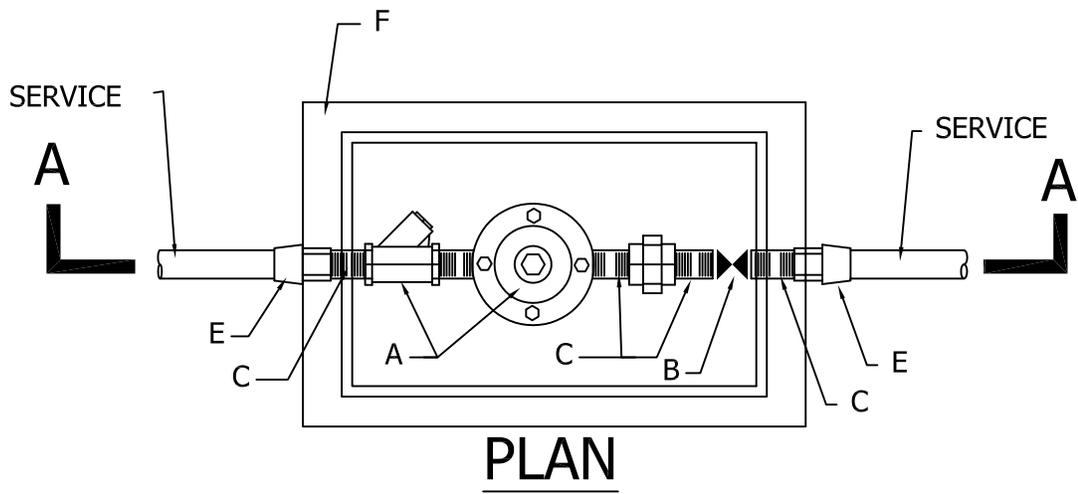
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REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY (FIRELINES)

CITY OF BLAINE
PUBLIC WORKS DEPARTMENT

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-34
SCALE NONE	SHEET OF	REV. NO.





SECTION A-A

BILL OF MATERIALS

- A PRESSURE REGULATOR - MUELLER H-9300, NO 2 SETTING, STRAINER W/ BLOW OFF PLUG.
- B BRONZE GATE VALVE, SOLID WEDGE TYPE - MUELLER H-10914.
- C NIPPLE X 2-1/2" LONG, MALE
- D UNION, FEMALE
- E ADAPTER, FEMALE X COMPRESSION FITTING FOR COPPER.
- F 17" X 28" METER BOX W/ TRAFFIC COVER AND 12" RISER, FOGTITE NO. 2T.
- G 1" ROUND WASHED GRAVEL, 8" MIN. DEPTH.

NOTES

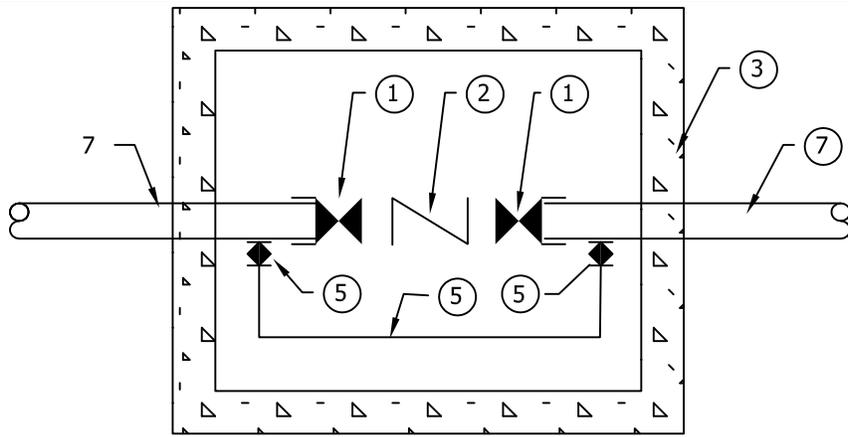
- 1 PRESSURE REGULATOR SIZE AS SPECIFIED OR SHOWN ON CONTRACT PLAN.
- 2 SIZES FOR ITEMS B THROUGH E SHALL CORRESPOND TO THE SPECIFIED SIZE OF THE PRESSURE REGULATOR.
- 3 ALL FITTINGS AND NIPPLES ARE BRASS WITH IRON PIPE THREADS.

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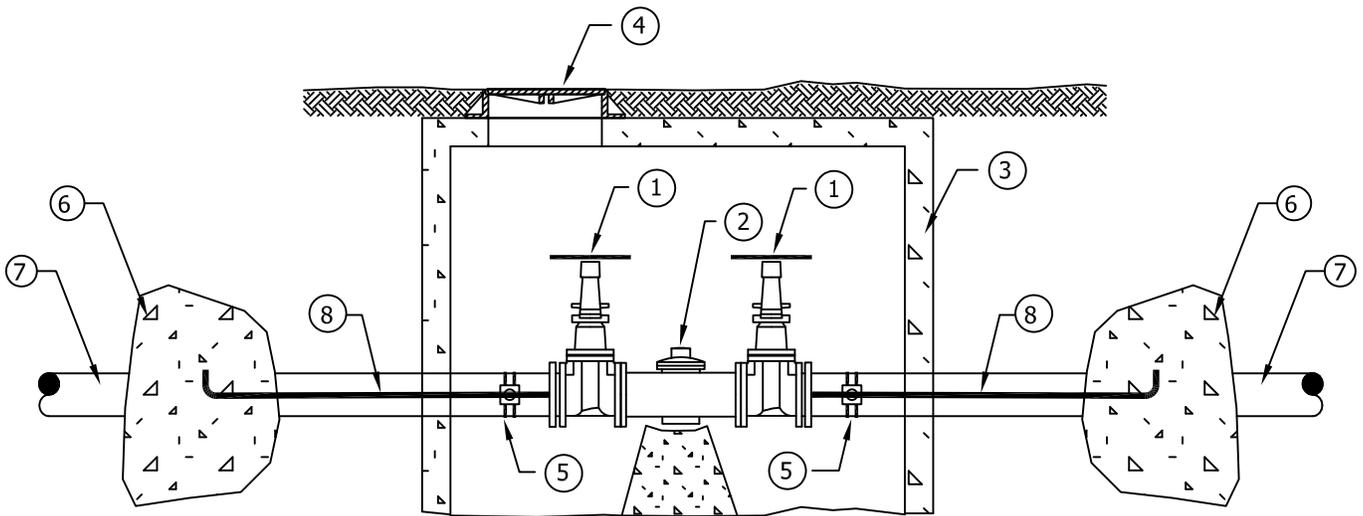
**INDIVIDUAL PRESSURE
REDUCING VALVE
ASSEMBLY**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-35	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





PLAN



SECTION

NOTES

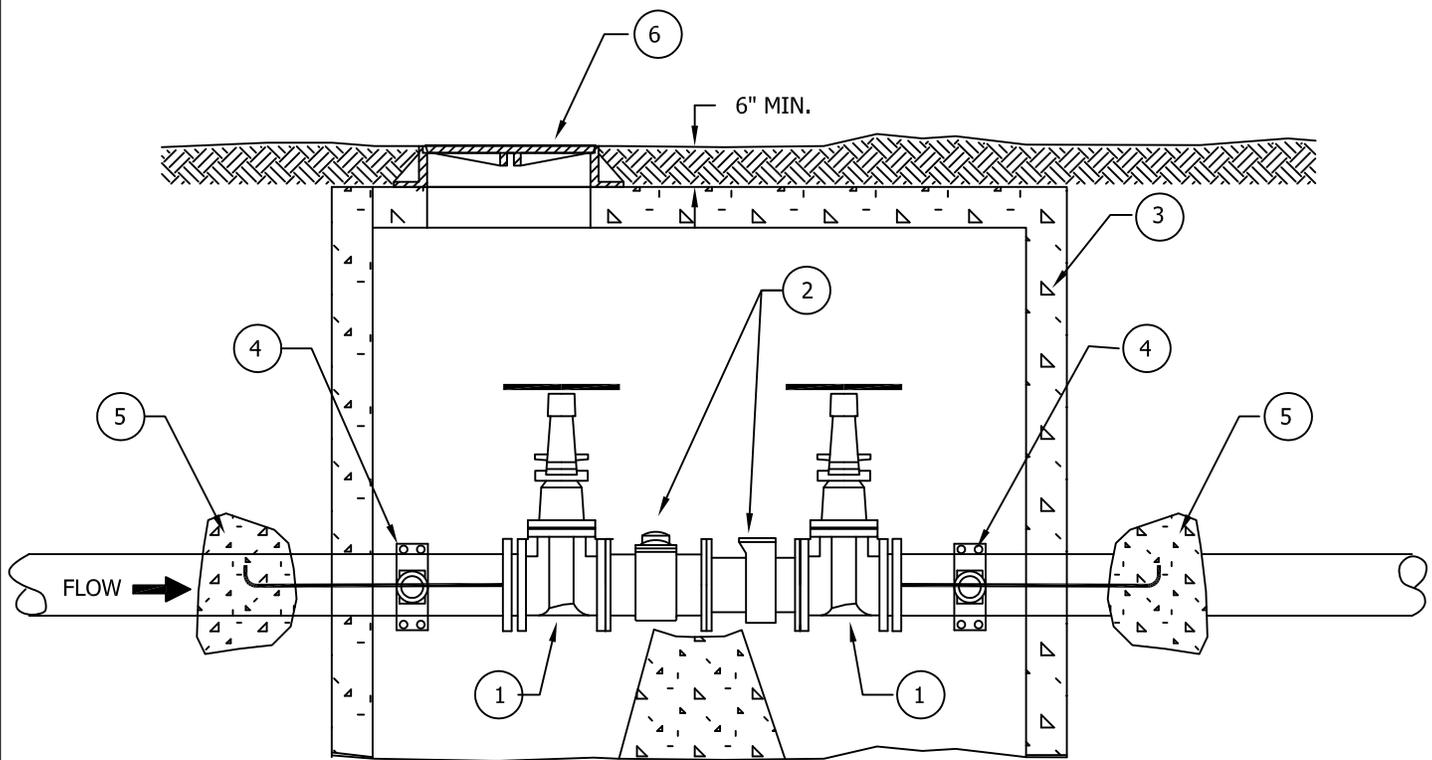
1. 2 GATE VALVES- MJ X FL
(OS&Y VALVES FOR FIRELINE USAGE)
2. WATER METER-(3" TO 10") TYPE AND SIZE AS REQUIRED
(SUPPLIED BY THE CITY OF BLAINE) CUBIC FEET
READING
3. PRECAST CONCRETE VAULT (SIZE AS REQUIRED)
4. DOUBLE HATCH (TRAFFIC RATED AS REQUIRED).
MARKED " WATER" ON LID
5. 2 SERVICE SADDLES AND 1" CORPORATIONS (3" METER ONLY)
OR 2" (OPTIONAL OR PERMANENT) BYPASS (OVER 3" METERS)
CONSISTING OF
 2-2" TAPPING BRASS SADDLES
 2-2" GATE VALVES FL X FL
 2" GALV. PIPING (AS REQUIRED)
6. VALVES BE RESTRAINED (TIE RODDED) TO THRUST BLOCKS
POURED OUTSIDE OF VAULT
7. PIPING-4" MIN. D.I. PIPE
(FOR 3" METERS, REDUCE DOWN FROM 4")
8. 2-3/4" DIA. GALVANIZED TRD. ROD.

NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
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**3" TO 10" METER
INSTALLATION
DOMESTIC & IRRIGATION**

CITY OF BLAINE PUBLIC WORKS DEPARTMENT			
SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-36	
SCALE <i>NONE</i>	SHEET	OF	REV. NO.





ELEVATION

GENERAL NOTES

1. 2 GATE VALVES- MJ X FL, OS&Y
2. 3"-10" TURBINE METER WITH STRAINER, READING IN CUBIC FEET
3. PRECAST CONCRETE VAULT, SIZED AS REQUIRED.
4. OPTIONAL BYPASS-2 SERVICE SADDLES AND 1" CORPORATION STOP (FOR 3" METER) OR 2" CORPORATION STOP (FOR METER OVER 3").
5. VALVES TO BE TIE RODDED OUTSIDE OF VAULT.
6. ALUMINUM MANHOLE FRAME & LID, MARKED "WATER"
7. ALLOW 5 PIPE DIAMETERS OF STRAIGHT RUN BEFORE AND 2 PIPE DIAMETERS AFTER THE METER BEFORE PLACING ANY BENDS.

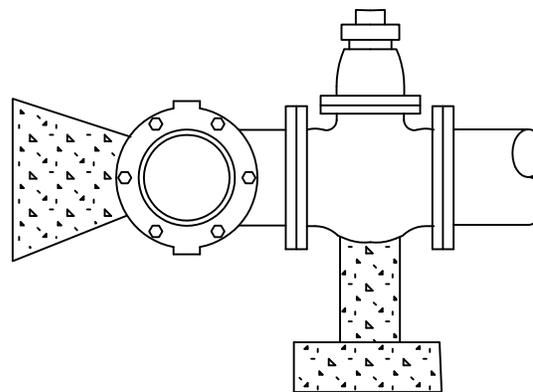
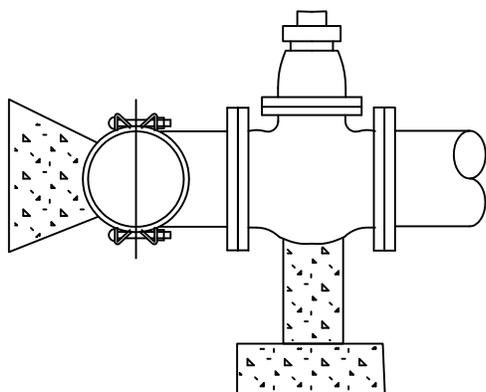
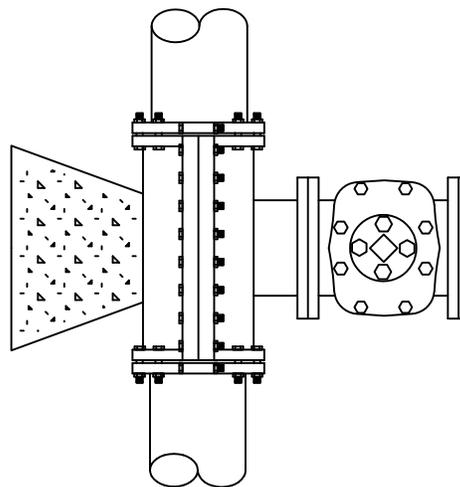
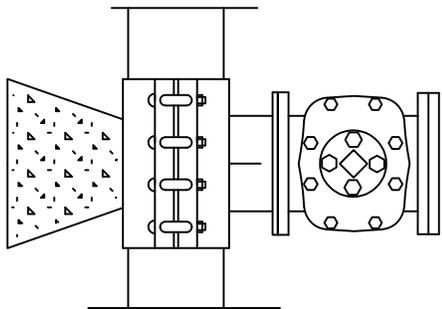
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3 TO 10" DOMESTIC & IRRIGATION TURBINE METER INSTALLATION

CITY OF BLAINE PUBLIC WORKS DEPARTMENT

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-37
SCALE <i>NONE</i>	SHEET	OF
		REV. NO.





CAST IRON TAPPING TEE MECHANICAL JOINT SLEEVE

INSTALLED ON ASBESTOS CEMENT PIPE
CAST IRON PIPE AND DUCTILE IRON PIPE

NOTES

1. STAINLESS STEEL TAPPING TEES SHALL HAVE FULL CIRCLE SEAL.
2. STEEL TAPPING TEES SHALL BE EPOXY COATED.
3. ALL TEES AND VALVES TO BE WATER TESTED BEFORE TAP.
4. NO SIZE ON SIZE TAPS. TAPS SHALL BE AT LEAST 2" SMALLER DIAMETER THAN THE EXISTING MAIN.

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NO.	REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED

*TAPPING
TEES*

*CITY OF BLAINE
PUBLIC WORKS DEPARTMENT*

SIZE A	PREV. DWG NO.	PUBLIC WORKS DRAWING NUMBER 4-38
SCALE <i>NONE</i>	SHEET	OF
		REV. NO.

