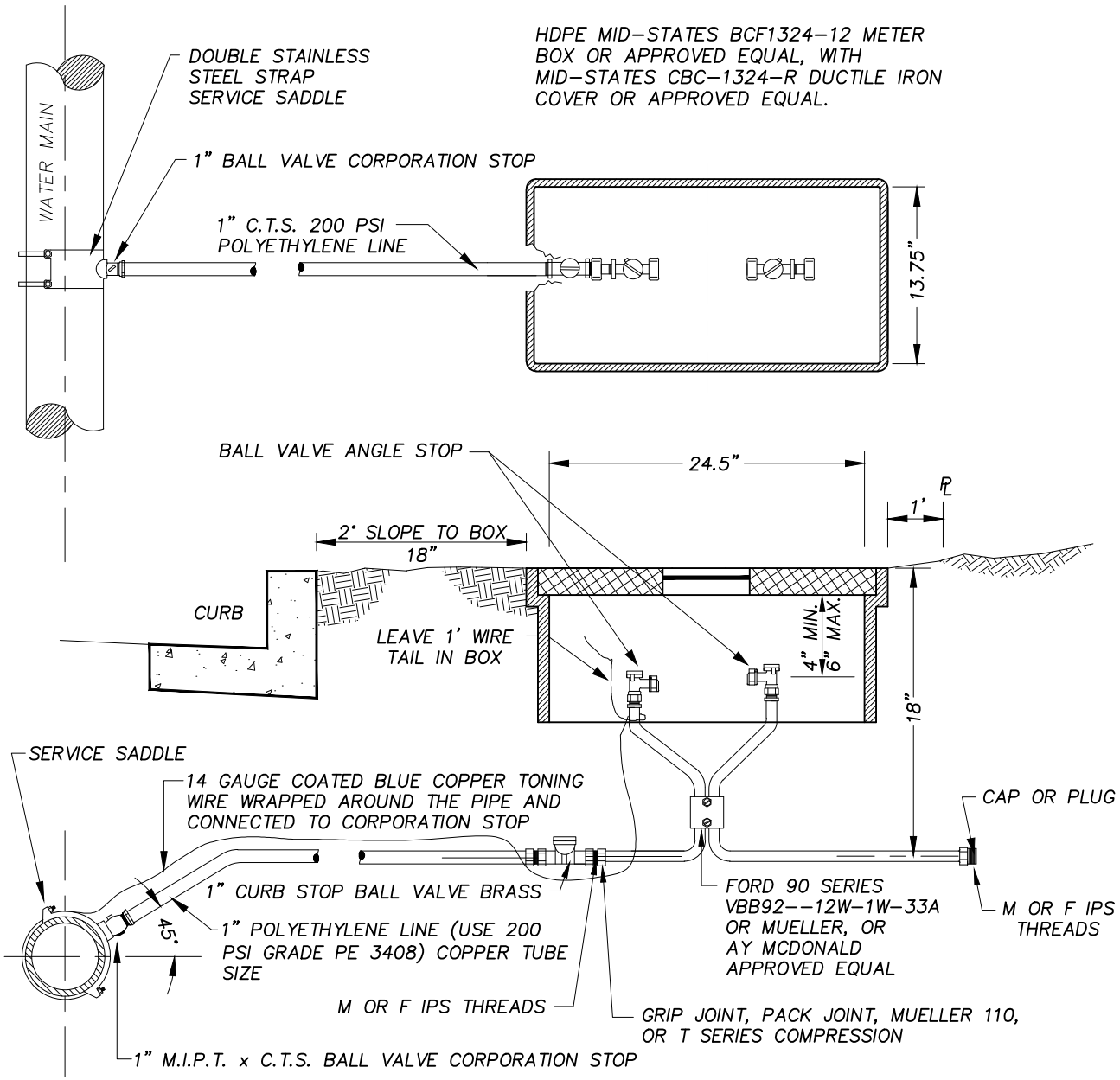
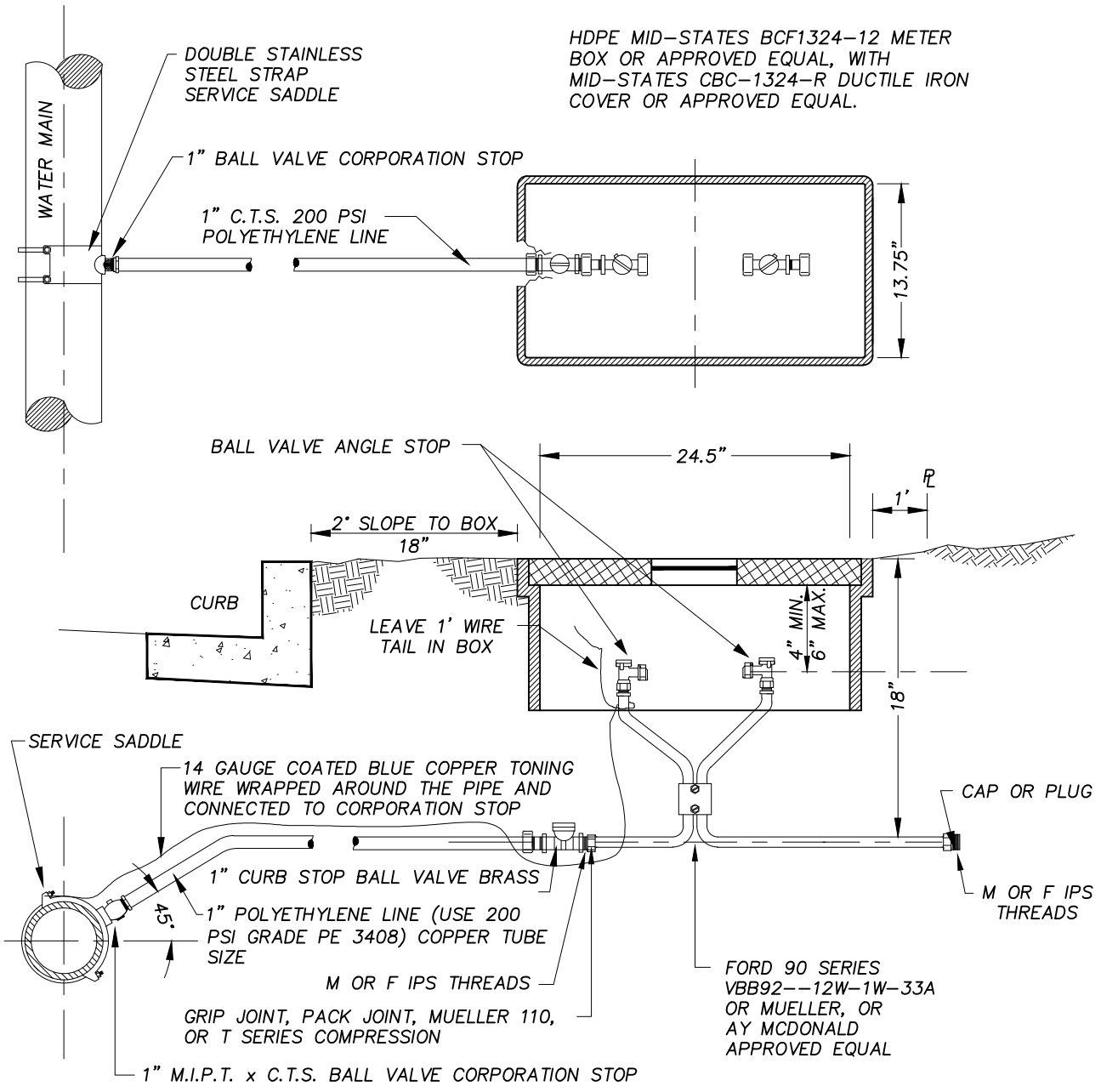


NOTES:

1. THE CITY OF OLYMPIA DOES NOT ALLOW THE USE OF RE-SETTERS TO MEET CLEARANCE SPECIFICATIONS.
2. CORPORATION STOPS SHALL BE ALL U.S. BRASS AND SHALL BE FORD, MUELLER, OR AY MCDONALD, WITH THREADS CONFORMING TO AWWA C800. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS OR GRIP JOINTS.
3. SETTER SHALL BE CENTERED IN THE BOX.
4. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET, I.P. THREADS, AND STAINLESS STEEL DOUBLE STRAPS. TORQUE TO MANUFACTURES SPECIFICATIONS.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	SINGLE SERVICE CONNECTION 1" DIAMETER TO 3/4" SETTER	6-1A

6-1A.dwg

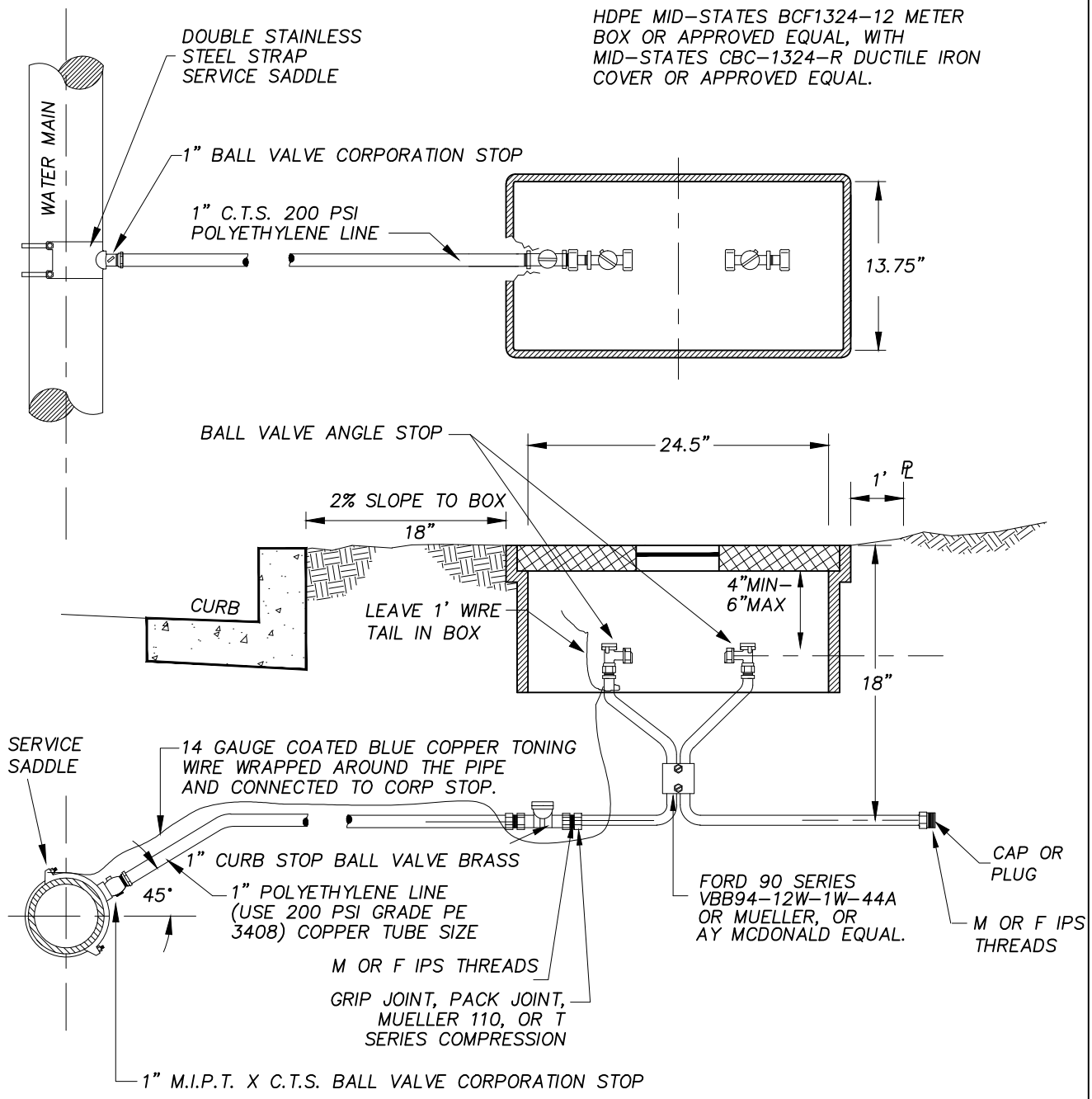


NOTES:

1. THE CITY OF OLYMPIA DOES NOT ALLOW THE USE OF RE-SETTERS TO MEET CLEARANCE SPECIFICATIONS.
2. CORPORATION STOPS SHALL BE ALL U.S. BRASS AND SHALL BE FORD, MUELLER, OR AY MCDONALD, WITH THREADS CONFORMING TO AWWA C800. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS OR GRIP JOINTS.
3. SETTER SHALL BE CENTERED IN THE BOX.
4. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET, I.P. THREADS, AND STAINLESS STEEL DOUBLE STRAPS. TORQUE TO MANUFACTURES SPECIFICATIONS.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	SINGLE SERVICE CONNECTION 1" DIAMETER TO 1" SETTER	6-1B

6-1B.dwg

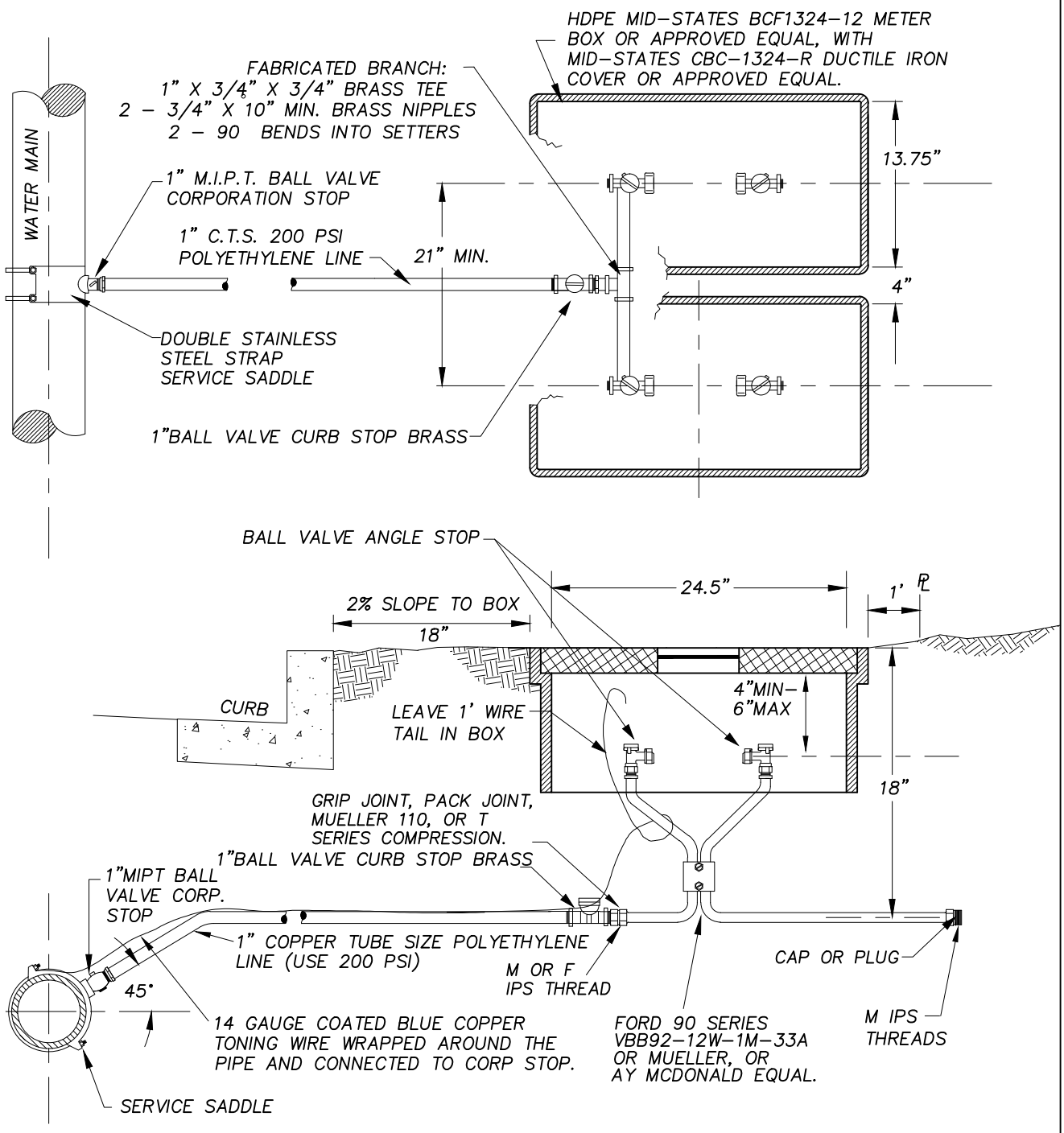


NOTES:

1. THE CITY OF OLYMPIA DOES NOT ALLOW THE USE OF RE-SETTERS TO MEET CLEARANCE SPECIFICATIONS.
2. CORPORATION STOPS SHALL BE ALL U.S. BRASS AND SHALL BE FORD, MUELLER, OR AY MCDONALD, WITH THREADS CONFORMING TO AWWA C800. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS OR GRIP JOINTS.
3. SETTER SHALL BE CENTERED IN BOX.
4. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET, I.P. THREADS, AND STAINLESS STEEL DOUBLE STRAPS. TORQUE TO MANUFACTURES SPECIFICATIONS.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	SINGLE SERVICE CONNECTION FOR RESIDENTIAL 1" DIAMETER FIRE SPRINKLERS	6-1C

6-1C.dwg

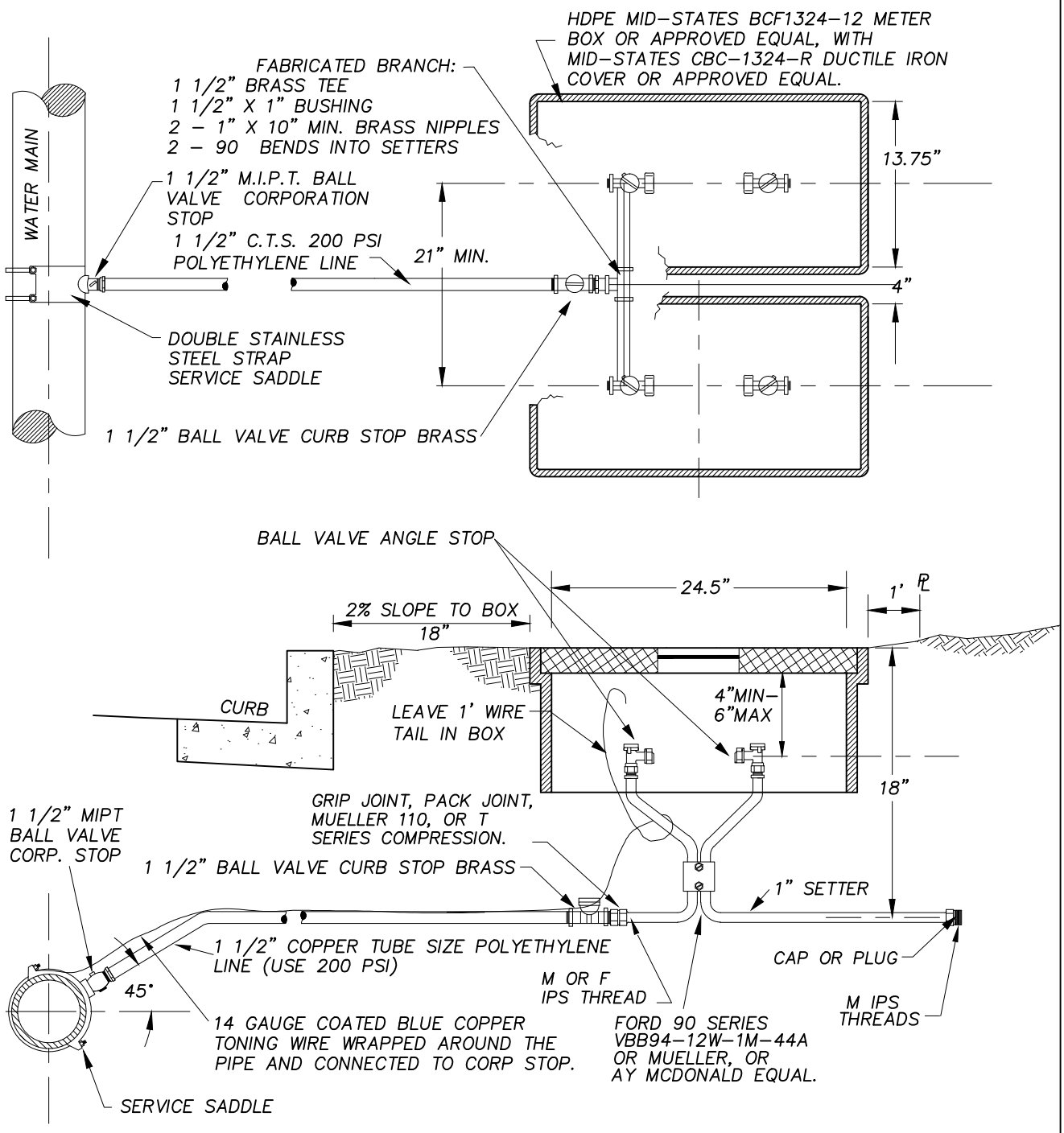


NOTES:

1. CORPORATION STOPS SHALL BE ALL U.S. BRASS AND SHALL BE FORD, MUELLER, OR AY MCDONALD, WITH THREADS CONFORMING TO AWWA C800.
2. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS, OR GRIP JOINTS.
3. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET, I.P. THREADS, AND STAINLESS STEEL DOUBLE STRAPS. TORQUE TO MANUFACTURE'S SPECS.
4. SERVICE FITTINGS 2" AND SMALLER SHALL BE ALL U.S. BRASS
5. SETTER SHALL BE CENTERED IN BOX.
6 THE CITY OF OLYMPIA DOES NOT ALLOW THE USE OF RE-SETTERS TO MEET CLEARANCE SPECIFICATIONS.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	DOUBLE SERVICE CONNECTION 3/4" BRANCH SERVICE	6-2

6-2.dwg



NOTES:

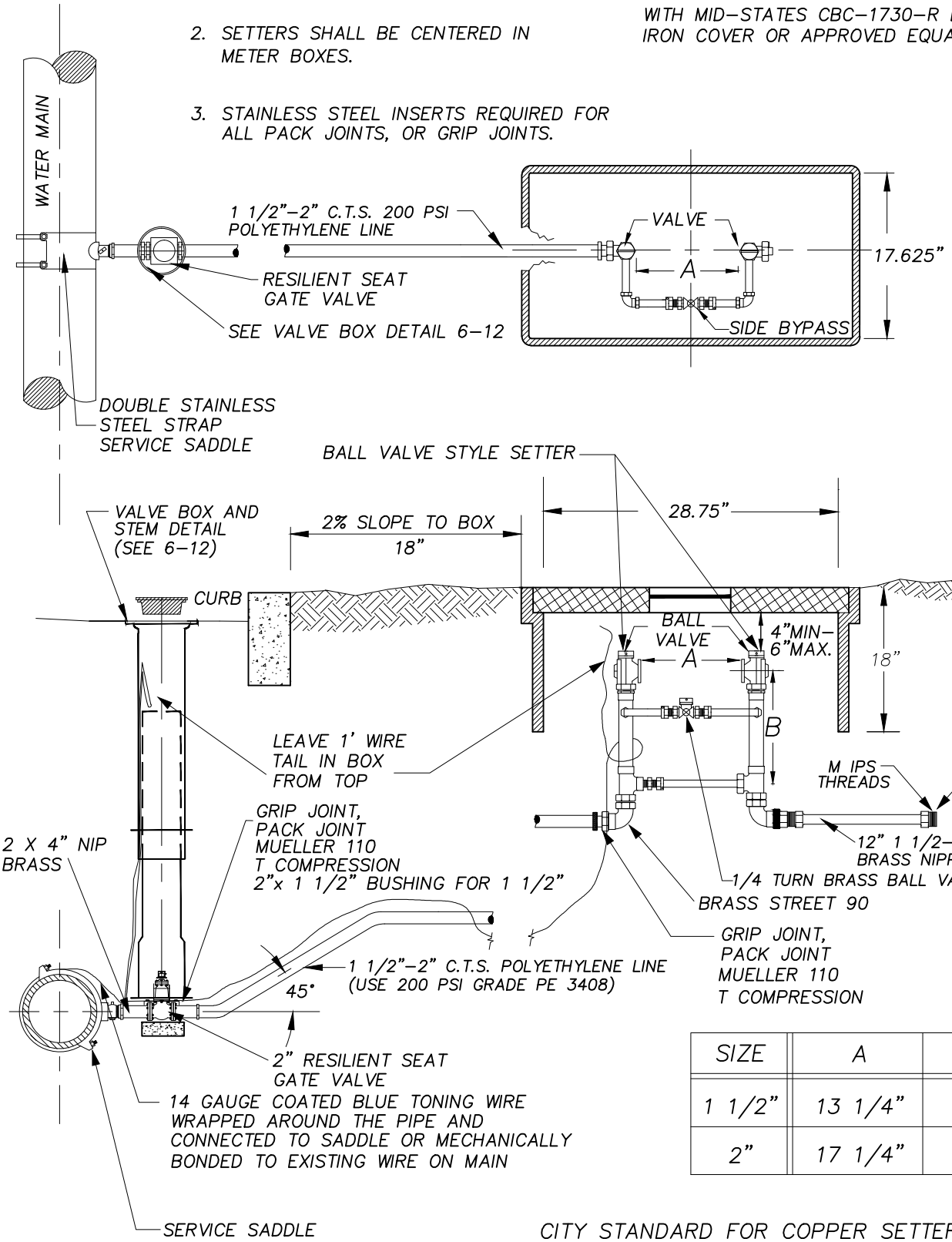
1. CORPORATION STOPS SHALL BE ALL U.S. BRASS AND SHALL BE FORD, MUELLER, OR AY MCDONALD, WITH THREADS CONFORMING TO AWWA C800.
2. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS, OR GRIP JOINTS.
3. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET, I.P. THREADS, AND STAINLESS STEEL DOUBLE STRAPS. TORQUE TO MANUFACTURE'S SPECS.
4. SERVICE FITTINGS 2" AND SMALLER SHALL BE ALL U.S. BRASS
5. SETTER SHALL BE CENTERED IN BOX.
6 THE CITY OF OLYMPIA DOES NOT ALLOW THE USE OF RE-SETTERS TO MEET CLEARANCE SPECIFICATIONS.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	DOUBLE SERVICE CONNECTION 1" RESIDENTAL FIRE SPRINKLERS	6-2B

6-2B.dwg

NOTES:

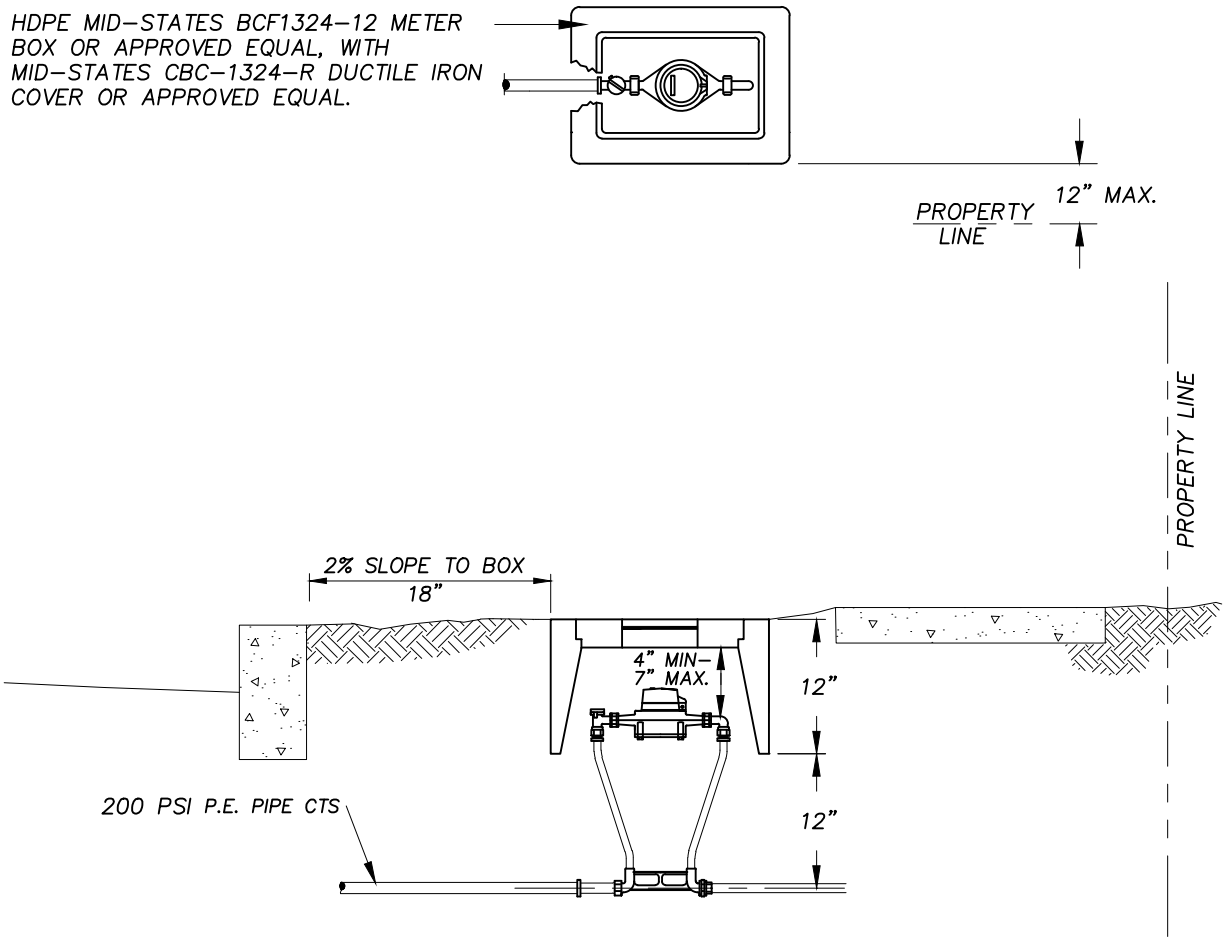
1. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET AND I.P. THREADS.
2. SETTERS SHALL BE CENTERED IN METER BOXES.
3. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS, OR GRIP JOINTS.
4. METER BOX SHALL BE HDPE MID-STATES BCF1730-18 OR APPROVED EQUAL, WITH MID-STATES CBC-1730-R DUCTILE IRON COVER OR APPROVED EQUAL.



SIZE	A	B
1 1/2"	13 1/4"	12"
2"	17 1/4"	12"

CITY STANDARD FOR COPPER SETTERS ARE:
2" VBB77-12HB-11-77
1 1/2" VBB76-12HB-11-77

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/10/2010	1-1/2" AND 2" STANDARD SETTER WITH BYPASS	6-3



APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	TYPICAL METER PLACEMENT	6-7

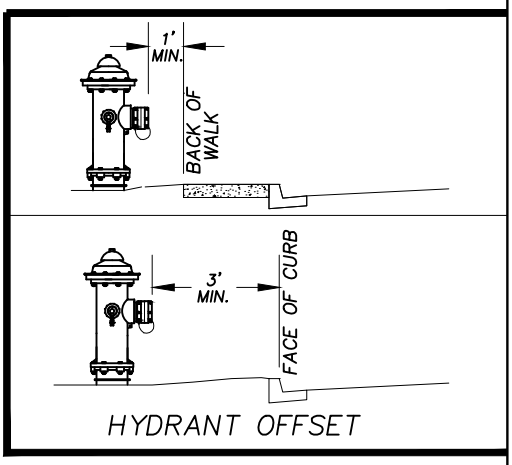
6-7.dwg

NOTES

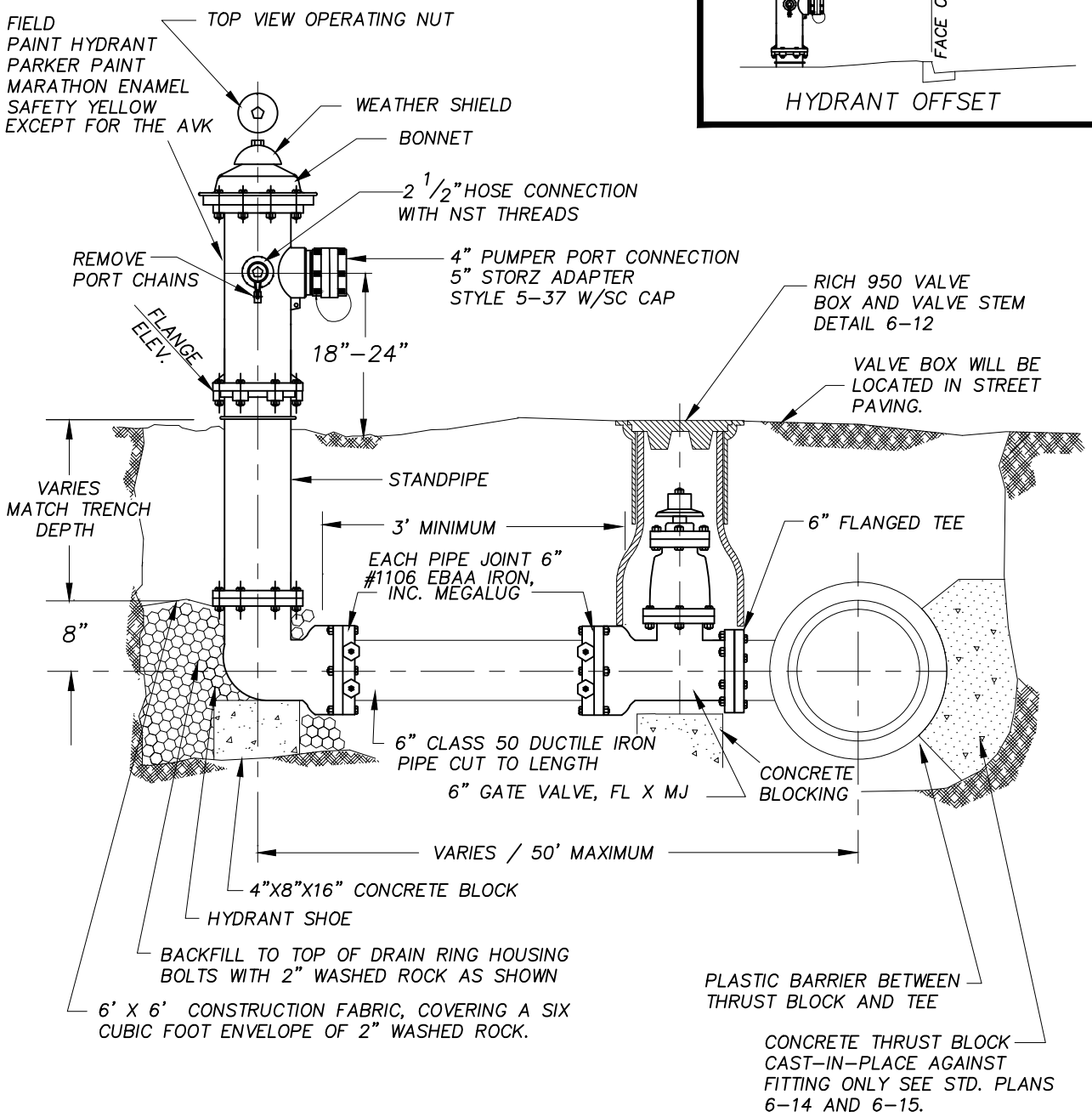
1. HYDRANTS SHALL BE LOCATED WITH A MINIMUM THREE FOOT RADIUS UNOBSTRUCTED WORKING AREA PROVIDED AROUND ALL HYDRANTS, AND IN NO CASE SHALL BE LOCATED IN SIDEWALK.

2. WHEN R/W IS NOT ADEQUATE, A MINIMUM 5' EASEMENT IS REQUIRED ON ALL SIDES OF THE HYDRANT.

3. HYDRANT SHALL BE DRESSER M&H RELIANT STYLE 929, WATEROUS PACER 250, MUELLER CENTURION, CLOW MEDALLION OR AVK.

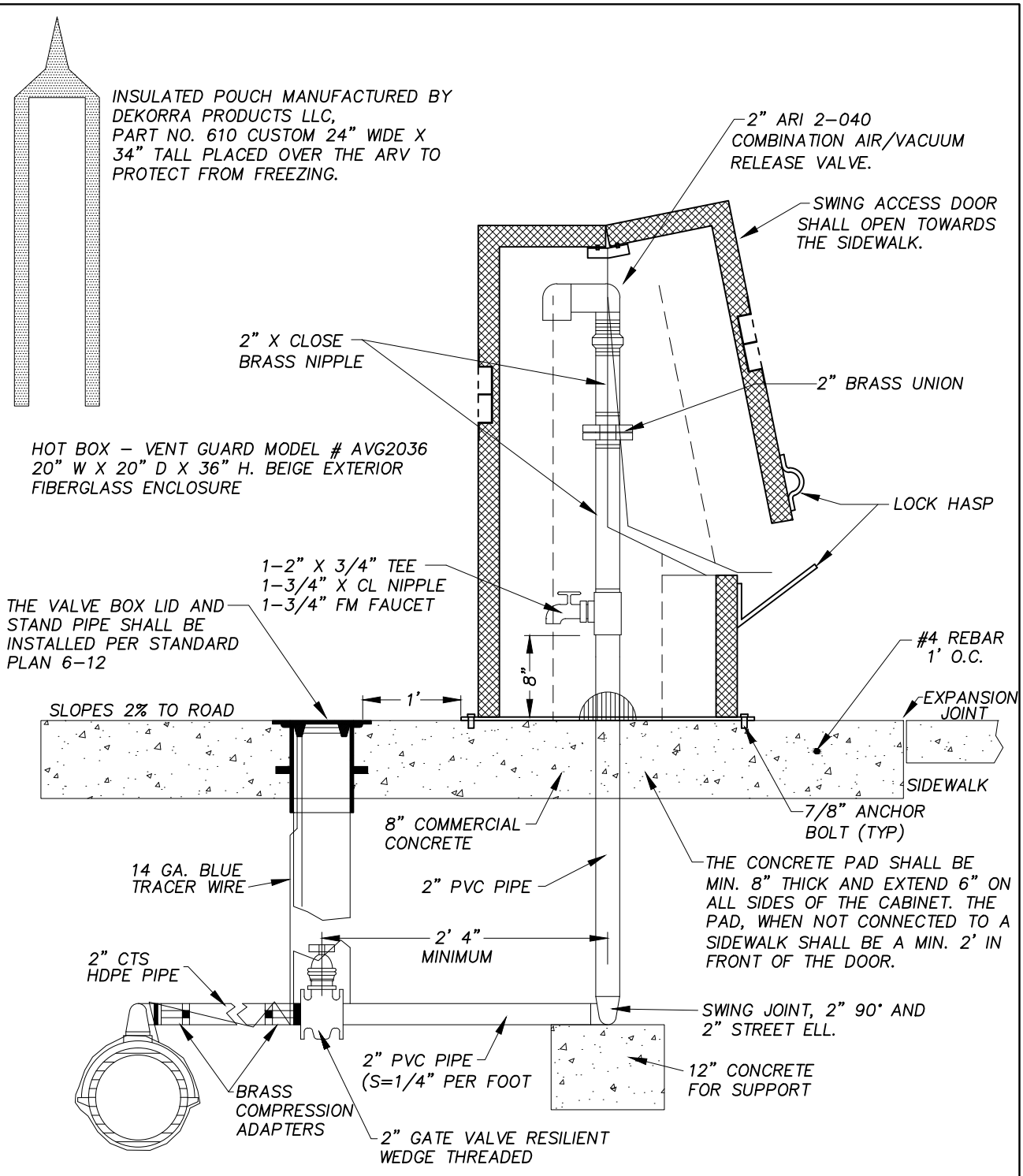


HYDRANT OFFSET



APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	HYDRANT ASSEMBLY	6-8

6-8.dwg

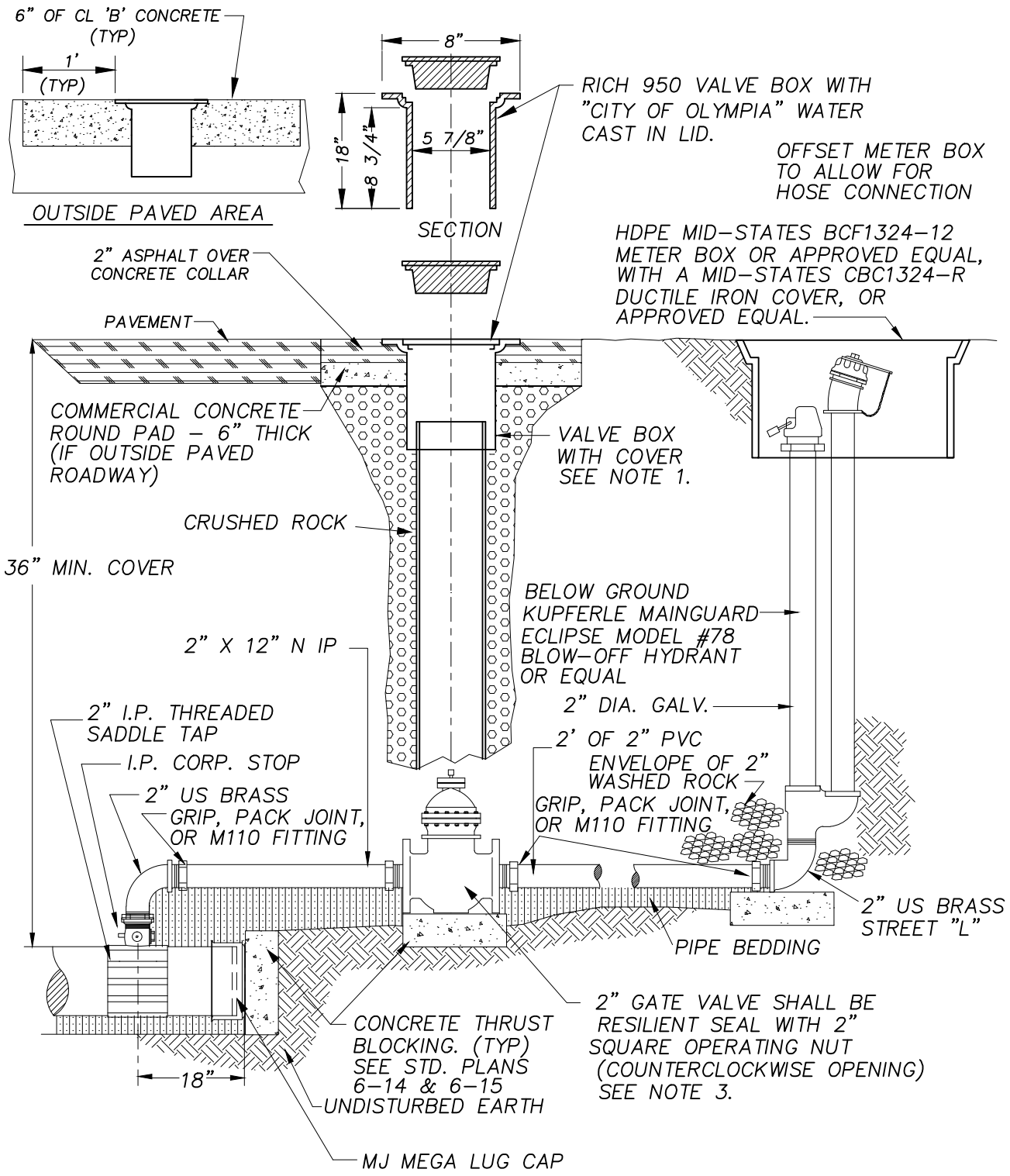


GENERAL NOTES:

1. VALVE ASSEMBLY SHALL BE SET AT THE HIGH POINT OF THE LINE.
2. ALL AIR/VACUUM RELEASE VALVES SHALL BE INSTALLED BEHIND THE SIDEWALK AT THE NEAREST PROPERTY CORNER AND NOT IN FRONT OF A RESIDENCE.
3. AIR RELEASE VALVES SHALL BE 2" ARI D-040 W/ THERMO PROTECTION ENCASEMENT.
4. ALL FITTINGS AND PIPING SHALL BE DOMESTIC BRASS.
5. CABINET SHALL OPEN TOWARDS THE SIDEWALK.
6. INSTALL THE INSULATED POUCH 602-DT OVER THE ARV UNIT TO PROTECT IT FROM FREEZING.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	2" AIR AND VACUUM RELEASE VALVE	6-9A

6-9A.dwg

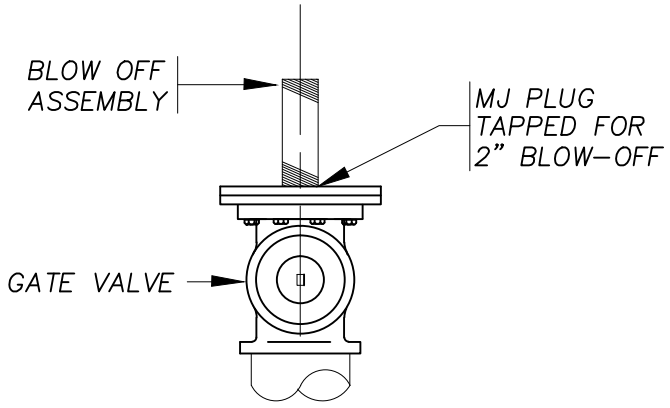


NOTES:

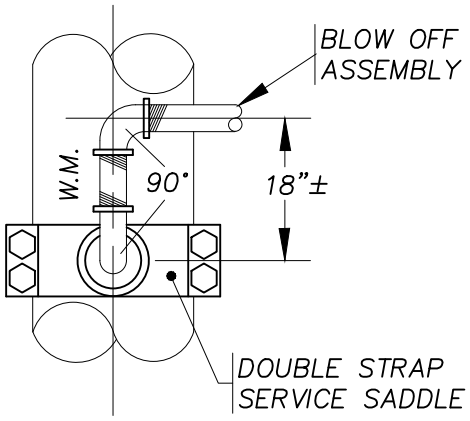
1. VALVE BOX AND COVER SHALL BE PER VALVE BOX DETAIL 6-12.
2. LOCATE BLOW-OFF HYDRANT OUTSIDE ROADWAY, LOCATE VALVE WITHIN ROADWAY.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	2" BLOWOFF ASSEMBLY FOR DEAD END	6-10

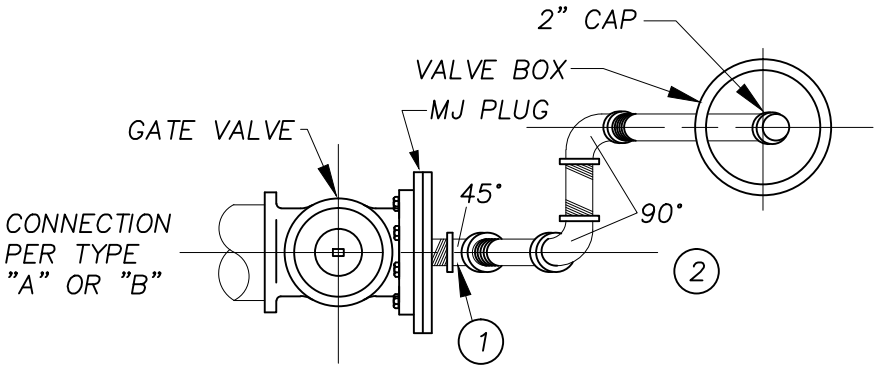
6-10.dwg



TYPE "A" (END CAP)
DEAD END SYSTEM ONLY



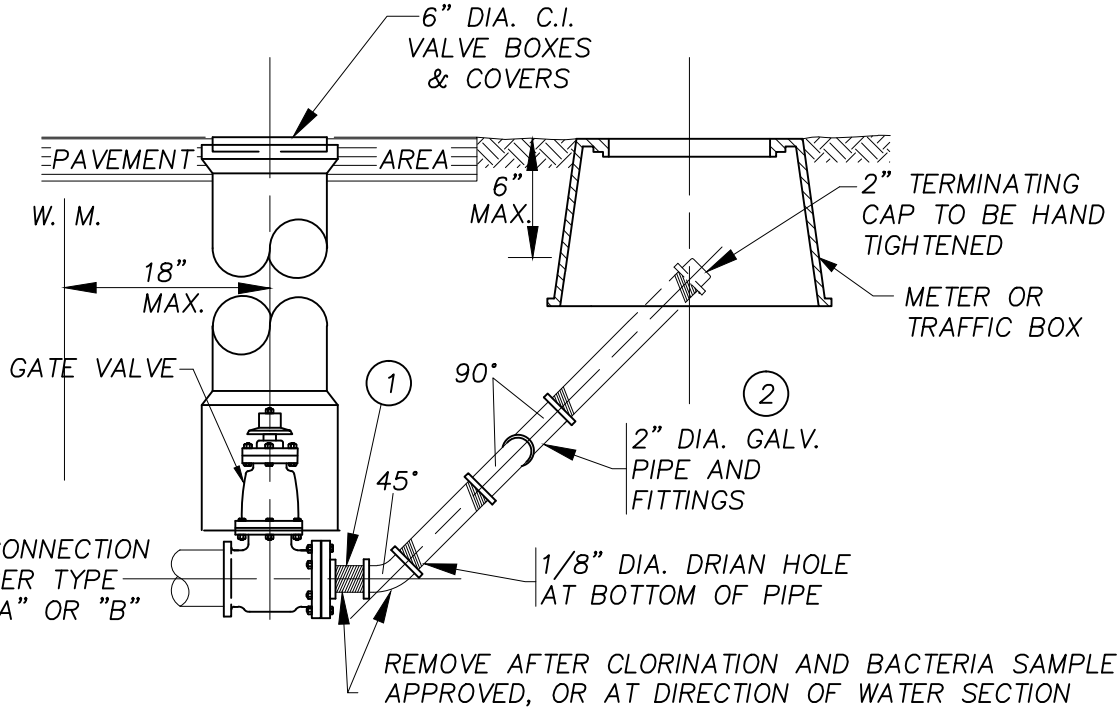
TYPE "B" (TOP/IN-LINE)



PLAN VIEW

NOTES:

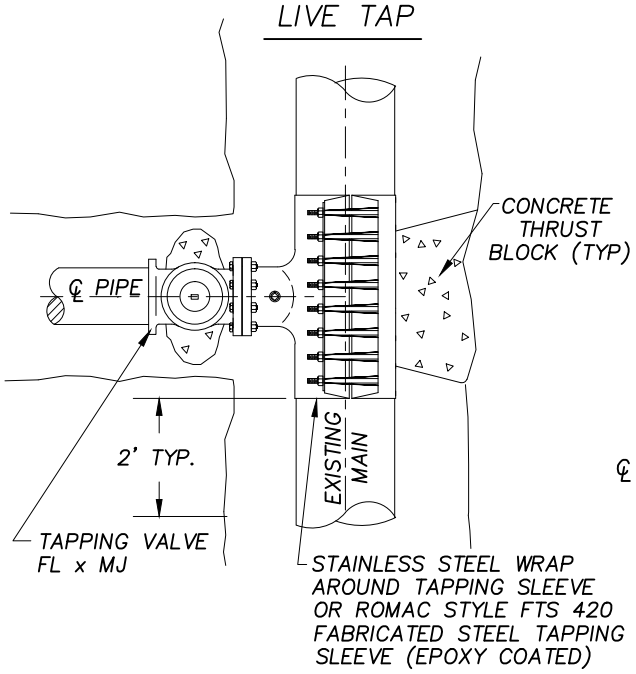
1. LENGTH OF PIPE AS DIRECTED TO EXTEND BLOW-OFF TERMINUS BEYOND EDGE OF PAVEMENT
2. ALL PIPE & FITTINGS TO BE GALVANIZED



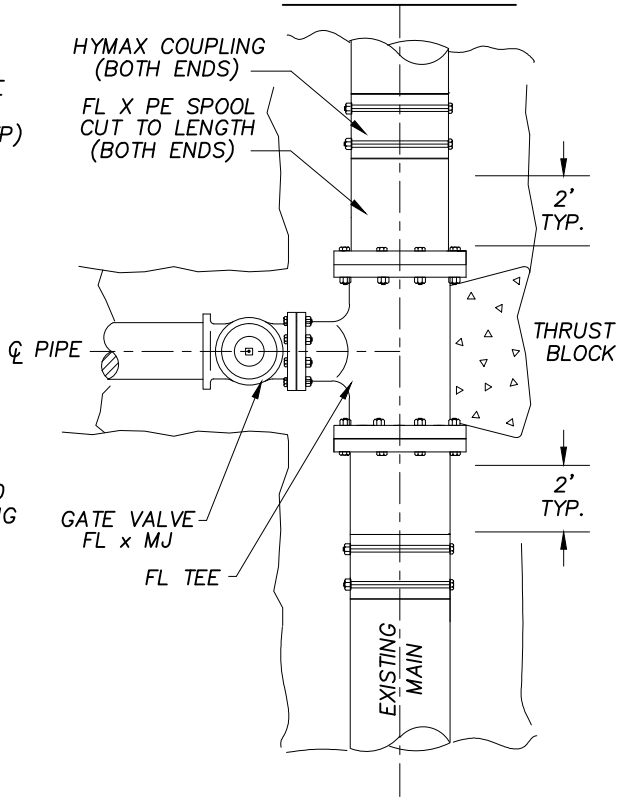
APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	1/24/96	2" TEMPORARY BLOW-OFF ASSEMBLY TYPE "A" AND "B"	6-10B

6-10B.dwg

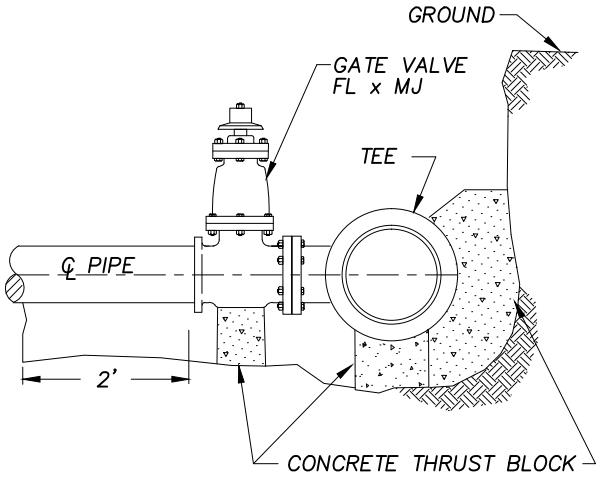
LIVE TAP



CUT–IN–TEE



VALVE AND SLEEVE SHALL BE SUPPORTED AND BACKFILLED AS SHOWN BELOW–RIGHT.

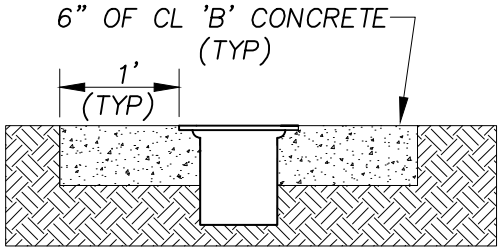


NOTES:

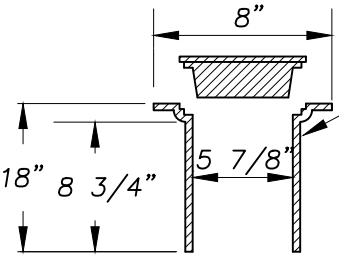
1. 11 MIL PLASTIC OR CONSTRUCTION FABRIC SHALL BE WRAPPED AROUND PIPE AND FITTINGS BEFORE THRUST BLOCKS ARE POURED.
2. SUPPORT VALVE AND SLEEVE CONTINUOUSLY THROUGH INSTALLATION.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/08	CONNECTION TO EXISTING MAIN	6–11

6–11.dwg



OUTSIDE PAVED AREA



RICH–950 VALVE BOX WITH "CITY OF OLYMPIA" WATER CAST IN LID.

SECTION

LOOP AT TOP MUST EXTEND A MIN OF 3 FT. ABOVE FINISHED GRADE.

FINISHED GRADE

6"

DRILL "1" HOLE AS NOTED. PULL WIRE THROUGH TO INSIDE OF CAN AND PULL THROUGH. TRACER WIRE MUST SUPPLY CONTINUOUS SIGNAL FOR THE LENGHT OF MAIN.

1" DRILLED HOLE

24" Minimum

36" Maximum

6" SDR 35 PVC WATER PIPE CONFORMING TO ASTM 3034. RISER PIPE TO BE PLUMB AND CENTERED OVER VALVE STEM.

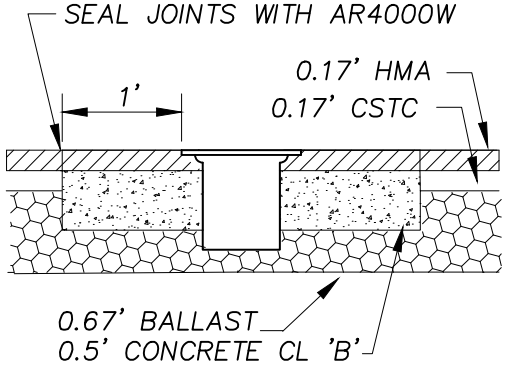
3' MINIMUM COVER

1/4"

VALVE STEM RISER IF NEEDED (LENGTH VARIES)

TRENCH BOTTOM

GATE VALVE SHOWN–SIMILAR INSTALLATION REQUIRED FOR BUTTERFLY VALVES.



INSIDE PAVED ROADWAY

VALVE STEM EXTENSION LEGEND

① VALVE OPERATING NUT OR 1 7/8" X 1 7/8" X 2" HIGH GRADE STEEL WELDED TO GUIDE PLATE.

② 3/16" THICK X 5 1/5" DIA STEEL GUIDE PLATE WELDED TO RISER SHAFT.

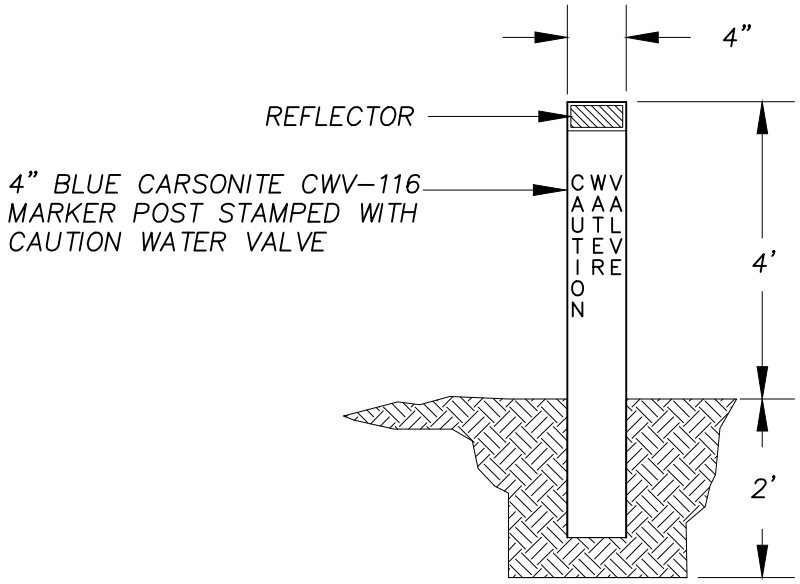
③ 2"X2"X 3/16" SQUARE STRUCTURAL STEEL TUBING TO FIT OPERATING NUT. LENGTH AS REQUIRED.

NOTE:

① ALL WELDS TO SHAFT SHALL BE FILLET WELD ALL AROUND, AS SPECIFED ABOVE

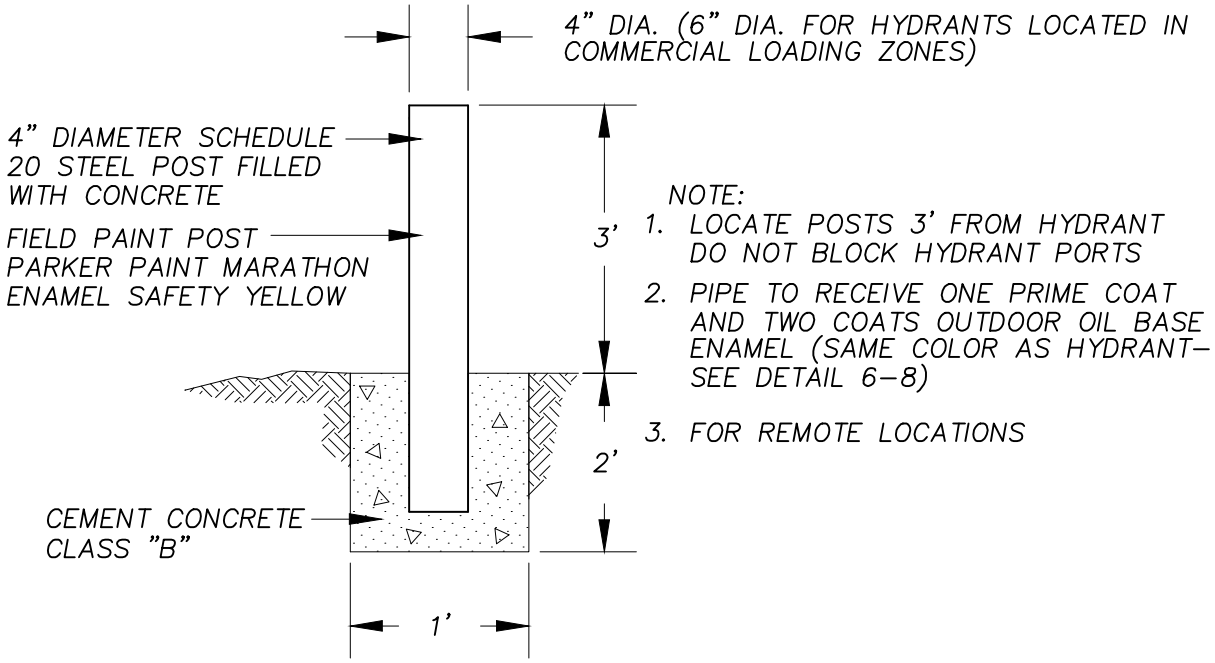
APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	STANDARD VALVE BOX	6–12

6–12.dwg



FRONT

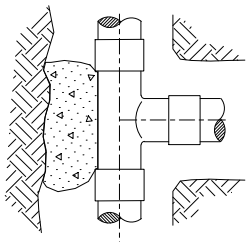
VALVE MARKER POST

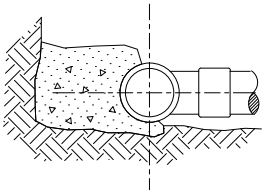


HYDRANT BOLLARD

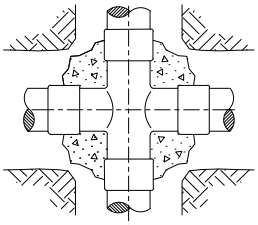
APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	3/31/00	VALVE MARKER POST AND HYDRANT BOLLARD DETAIL	6–13

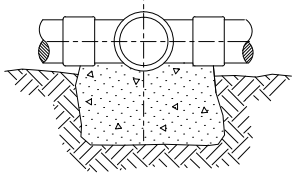
6–13.dwg



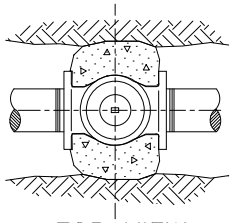


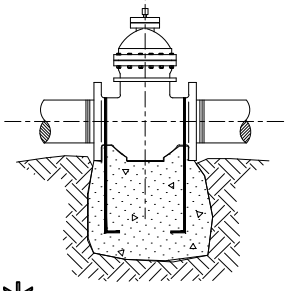
TEE



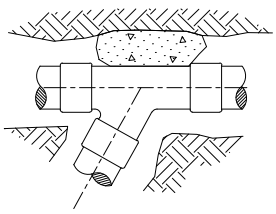


CROSS

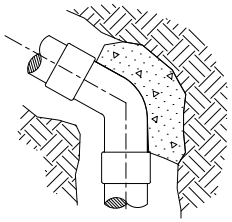




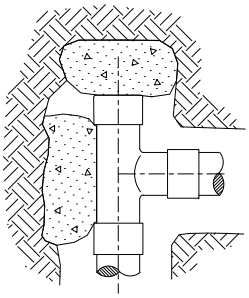
* GATE VALVE



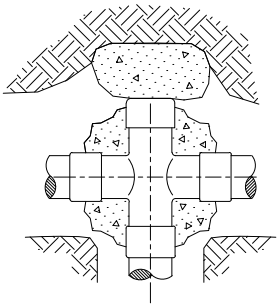
WYE



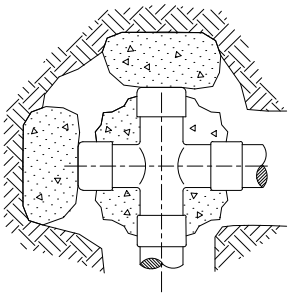
HORIZ. BEND



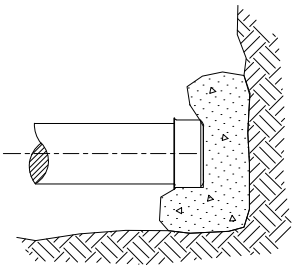
TEE WITH PLUG



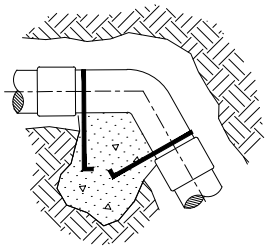
CROSS WITH PLUG



CROSS WITH PLUGS



PLUG OR CAP



45° – 90° VERTICAL BEND

NOTES:

1. *CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.*
2. *PLASTIC BARRIER SHALL BE PLACED BE– TWEEN ALL THRUST BLOCKS & FITTINGS.*
3. *ANCHOR REBAR SHALL BE #5 ON 12" DIA. AND LESS WITH 30" IMBEDMENT, #5 ON 16"–24" DIAMETER WITH 36" IMBEDMENT.*
4. *PLUGS TO BE MINIMUM OF 5' FROM TEE, WYE, CROSS ON VALVE.*

* *IF IN THE OPINION OF THE CITY ENGINEER THE VALVE IS ON A SLOPE AND/OR THE COVER ON THE PIPE WOULD APPLY UPWARD THRUST, THEN THRUST BLOCKING WILL BE REQUIRED.*

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	3/14/00	STANDARD BLOCKING DETAIL	6–14

6–14.dwg

THRUST LOADS

THRUST AT FITTINGS IN POUNDS AT 200 POUNDS PER SQUARE INCH OF WATER PRESSURE

PIPE DIAMETER	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND	DEAD END OR TEE
4"	3,600	2,000	1,000	500	2,600
6"	8,000	4,400	2,300	1,200	5,700
8"	14,300	7,700	4,000	2,000	10,100
10"	22,300	12,100	6,200	3,100	15,800
12"	32,000	17,400	8,900	4,500	22,700
14"	43,600	23,600	12,100	6,100	30,800
16"	57,000	30,800	15,700	7,900	40,300

NOTES:

1. BLOCKING SHALL BE CEMENT CONCRETE CLASS "B" POURED IN PLACE AGAINST UNDISTURBED EARTH. FITTING SHALL BE ISOLATED FROM CONCRETE THRUST BLOCK WITH PLASTIC OR SIMILAR MATERIAL.

2. TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (S.F.):

   EXAMPLE : 12" – 90° BEND IN SAND AND GRAVEL
   32,000 LBS ÷ 3000 LB/S.F. = 10.7 S.F. OF AREA

3. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZE, PRESSURES AND SOIL CONDITIONS.

4. BLOCKING SHALL BE ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

SAFE SOIL BEARING LOADS

FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET

SOIL	POUNDS PER SQUARE FOOT
MUCK, PEAT	0
SOFT CLAY	1,000
SAND	2,000
SAND & GRAVEL	3,000
SAND & GRAVEL CEMENTED WITH CLAY	4,000
HARD SHALE	10,000

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	04/26/93	THRUST LOADS	6-15

6-15.dwg

REQUIRED OPENINGS TO FLUSH PIPELINES*
(40–psi Residual Pressure)

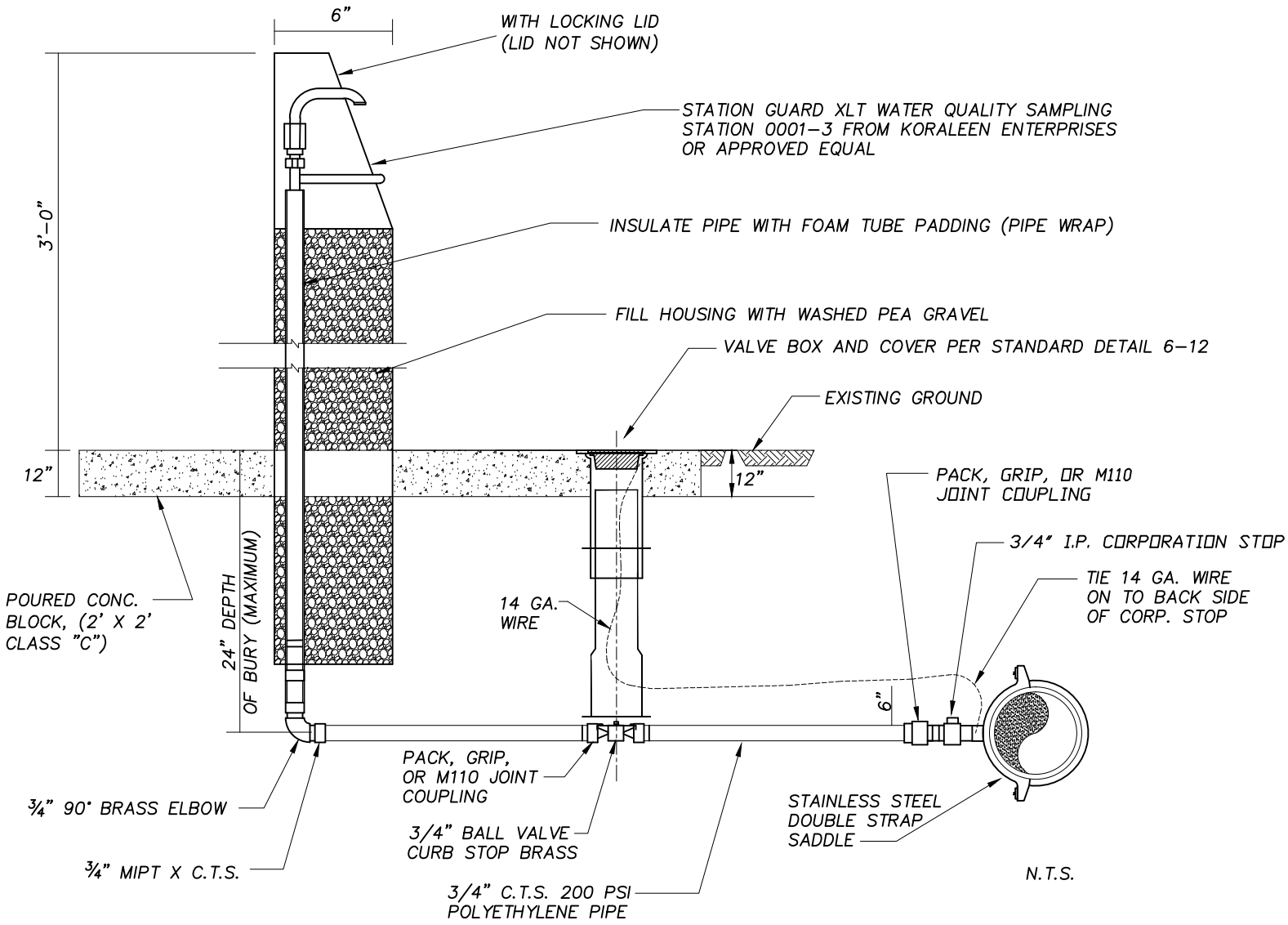
Pipe Size in.	Flow Required to Produce 2.5–fps Velocity gpm	Orifice Size in.	Hydrant Outlet Nozzles	
			Number	Size in.
4	100	15/16	1	2 1/2
6	220	1 3/8	1	2 1/2
8	390	1 7/8	1	2 1/2
10	610	2 5/16	1	2 1/2
12	880	2 13/16	1	2 1/2
14	1,200	3 1/4	2	2 1/2
16	1,565	3 5/8	2	2 1/2
18	1,980	4 3/16	2	2 1/2

*With 40 psi residual pressure, a 2 1/2 in. hydrant outlet nozzle will discharge approximately 1,000 gpm and a 4 1/2 in. hydrant nozzle will discharge approximately 2,500 gpm.

REFER TO SECTIONS 7–11.3(12) FLUSHING AND 7–11.3(12)N FINAL FLUSHING & TESTING, IN THE STANDARD SPECIFICATIONS.

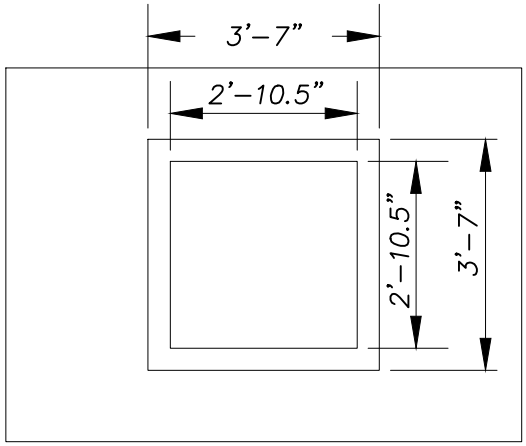
APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	04/26/93	BLOWOFF SIZES FOR FLUSHING PIPELINES	6–17

6–17.dwg

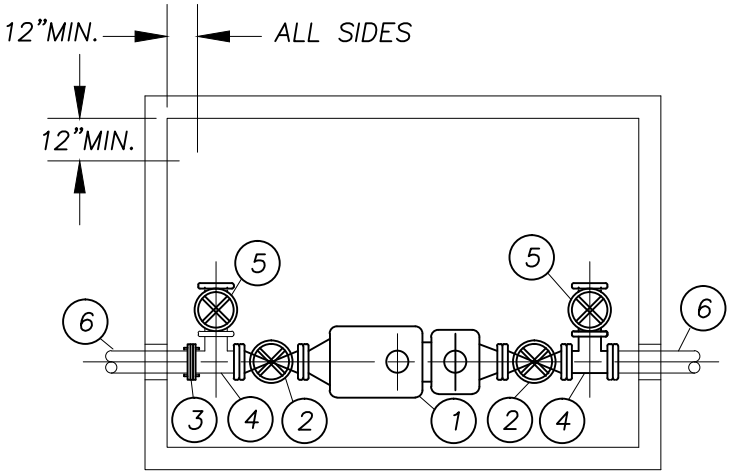


APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	SAMPLING STATION	6-18

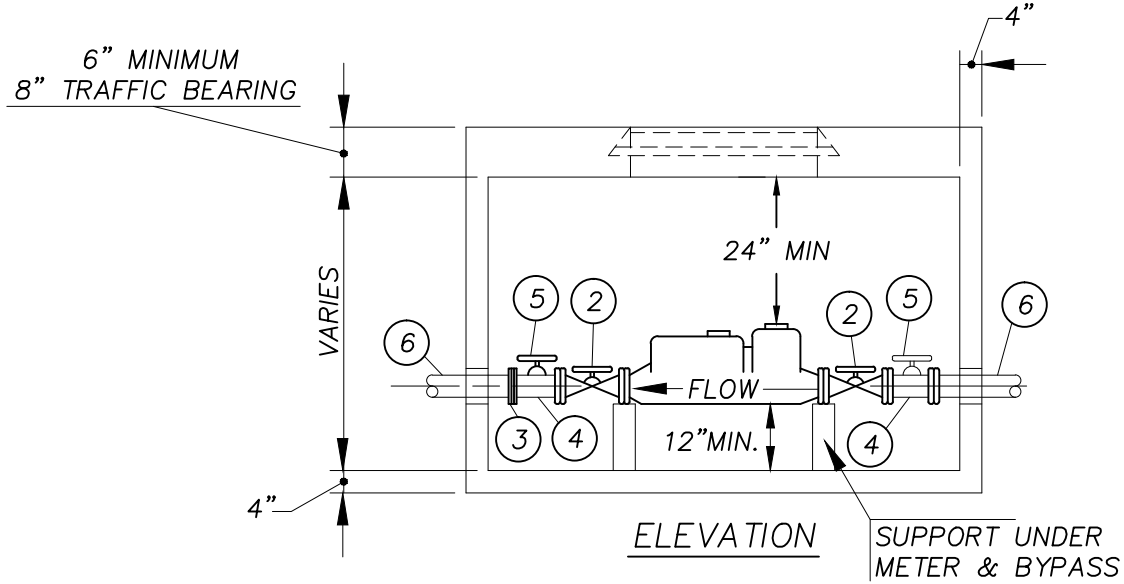
6-18.dwg



LID COVER



PLAN



ELEVATION

SUPPORT UNDER METER & BYPASS

NOTES:

- FOR 6" & 8" METERS.
- SEE STANDARD PLAN 6–19A2 FOR NOTES

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	COMPOUND WATER METER WITH BYPASS FOR 6" AND 8" SIZE	6–19A1

6–19A1.dwg

6 INCH METER INSTALLATION

1. 6" COMPOUND METER – NEPTUNE OR APPROVED EQUAL METERS WITH ITRON 100W ENCODER #ERW–1300–202, 5' CABLE CONNECTOR #CF6–0151–001, REMOTE ANTENNA #CFG–0900–003.
2. 6" FLANGED VALVE WITH HAND WHEEL R.W.
3. 6" FLEX BY FLANGE COUPLING ALL–THREAD TO VAULT WITH 1/4" STEEL PLATE OR 2X DIAMETER OF HOLE.
4. 6" FLANGE X 6" FLANGE X 4" TAPPED TEE C.I. ALL–THREAD TO VAULT WITH 1/4" STEEL PLATE OR 2X DIAMETER OF HOLE.
5. 4" IBBM RESILIENT SEAT GATE VALVE.
6. 6" PLAIN END I.P.
7. 10" SLEEVE.

8 INCH METER INSTALLATION

1. 8" COMPOUND METER – NEPTUNE OR APPROVED EQUAL METERS WITH ITRON 100W ENCODER #ERW–1300–202, 5' CABLE CONNECTOR #CF6–0151–001, REMOTE ANTENNA #CFG–0900–003.
2. 8" FLANGED VALVE WITH HAND WHEEL R.W.
3. 8" FLEX BY FLANGE COUPLING ALL–THREAD TO VAULT WITH 1/4" STEEL PLATE OR 2X DIAMETER OF HOLE.
4. 8" FLANGE X 8" FLANGE X 6" TAPPED TEE C.I. ALL–THREAD TO VAULT WITH 1/4" STEEL PLATE OR 2X DIAMETER OF HOLE.
5. 6" IBBM RESILIENT SEAT GATE VALVE.
6. 8" PLAIN END I.P.
7. 12" SLEEVE.

NOTES:

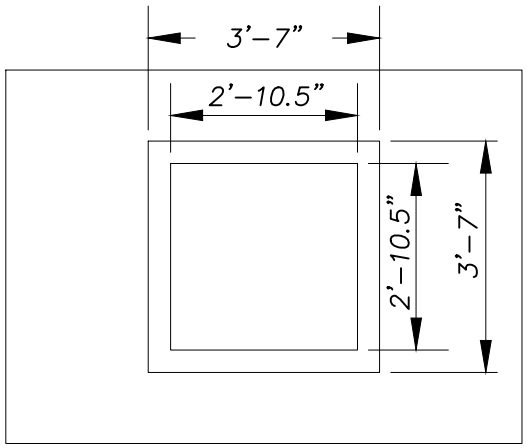
A. DRAINAGE MUST BE PROVIDED FOR METER PIT.
B. PIPE LENGTHS MAY BE CHANGED DUE TO VARYING LENGTHS IN METERS USED.
C. METER PIT MAY BE EXYENDED WHEN P.R.V. IS REQUIRED.
D. ON ALL METERS 3" AND ABOVE, A FLLEX–COUPLING SHALL BE INSTALLED IN THE OUTLET LINE WITHIN THE METER BOX. REFER TO NOTE 4.
E. REMOTE SHALL BE LOCATED IN A READILY ACCESSIBLE AREA OUTSIDE THE VAULT AS APPROVED BY THE CITY OF OLYMPIA.
F. REMOTE SHALL BE INSTALLED BY THE CITY OF OLYMPIA AT THE CONTRACTORS EXPENSE.
G. VAULTS SHALL BE EQUIPPED WITH LADDERS.
H. GROUT ANNULAR SPACE BETWEEN VAULT WALL AND PIPE.

SUBMIT THE FOLLOWING PLANS OR SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

- CONCRETE VAULT: SHOP DRAWINGS FOR PRE–CAST BASE AND VAULT, DESIGNED BY PROFESSIONAL ENGINEER OF THE STATE OF WASHINGTON. A 12 INCH DEEP UNDERDRAIN SYSTEM SHALL BE INSTALLED UNDER THE VAULT. THE CONTRACTOR SHALL INSTALL 12 INCH DEEP ¾" TO 1/2" DRAIN ROCK WRAPPED BY CONSTRUCTION GEOTEXTILE UNDER THE VAULT. THE MINIMUM FOOTPRINT OF UNDERDRAIN AREA SHALL BE 1 FOOT AWAY FROM THE VERTICAL WALL OF THE CONCRETE VAULT. THE CONTRACTOR SHALL FOLLOW VAULT MANUFACTURES GUIDELINES OF INSTRUCTION TO INSTALL THE PRE–CAST VAULT. THE ANNULAR SPACE AND KNOCK–OUTS FOR PIPE GETTING INTO THE VAULT SHALL BE SEALED BEFORE BACKFILL. SEALING SHALL BE MADE WITH MATERIAL APPROVED BY THE ENGINEER AND SHALL EXTEND A MINIMUM OF 8 INCHES INTO THE VAULT WALL IN SUCH A MANNER AS TO FORM A SMOOTH, UNIFORM AND WATERTIGHT JOINT.
- ACCESS HATCHES: PRODUCT DESIGN DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL. VAULT DOORS SHALL BE H–20 TRAFFIC LOADING, NON–SKID, WATERTIGHT, SPRING ASSISTED, OPEN 180°, ALUMINUM HATCH WITH DRAIN CHANNEL. DOUBLE DOORS WILL BE REQUIRED ON LARGER VAULTS AS DETERMINED BY THE ENGINEER.
- POLYPROPYLENE COATED VAULT LADDER: MANUFACTURES CATALOG CUT AND DATA SHEET. STEP HOLE SEALING SHALL BE MADE WITH MATERIAL APPROVED BY THE ENGINEER.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	MATERIAL LIST FOR COMPOUND WATER METER WITH BY–PASS FOR 6" AND 8" SIZE	6–19A2

6–19A2.dwg



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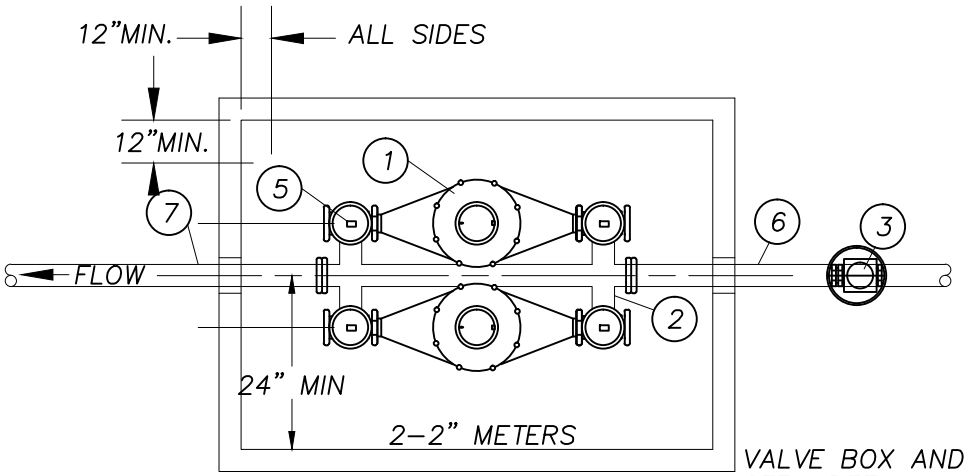
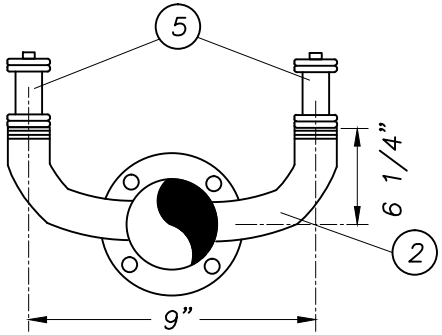
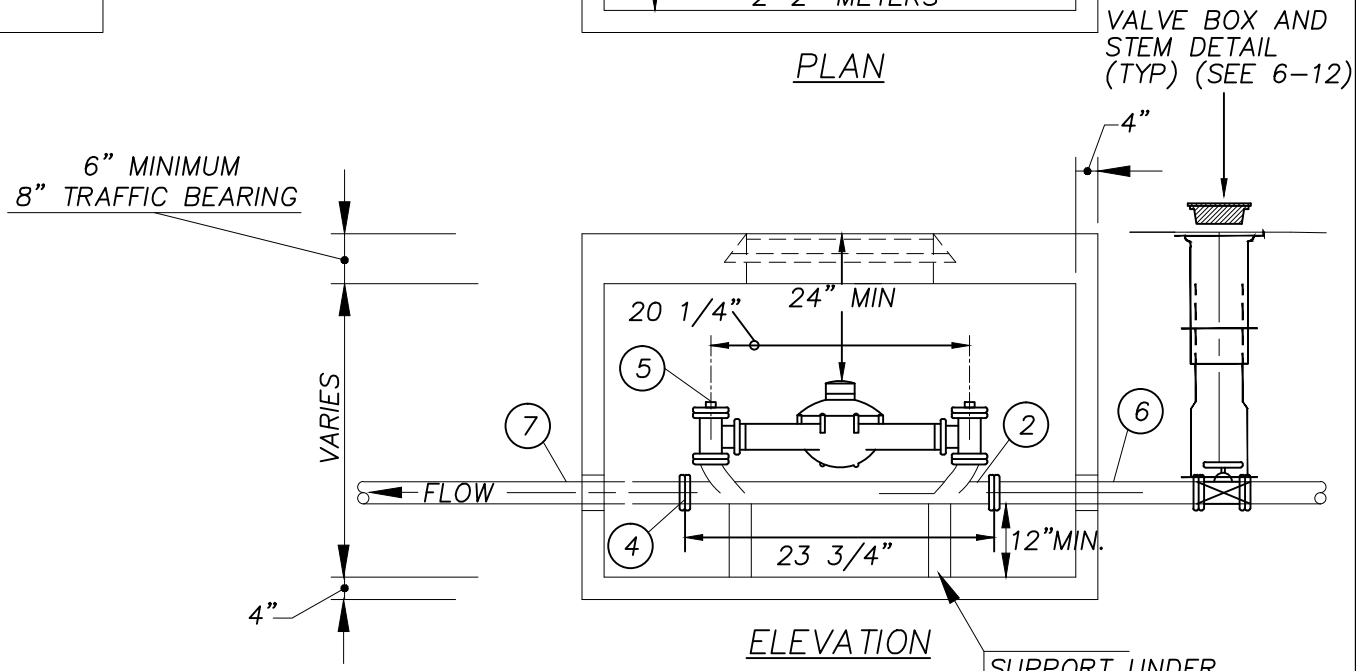


PLAN



MANIFOLD END



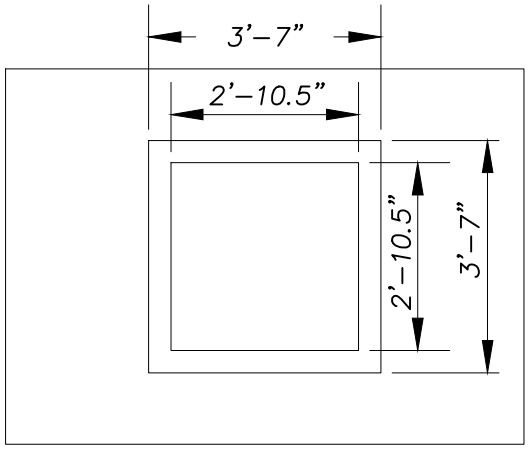
ELEVATION

NOTES:

- INCLUDE LADDER IN VAULT
- FOR CIRCLE NOTES SEE 6–20C

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	WATER METER MANIFOLD FOR 3" SIZE	6–20A

6–20A.dwg



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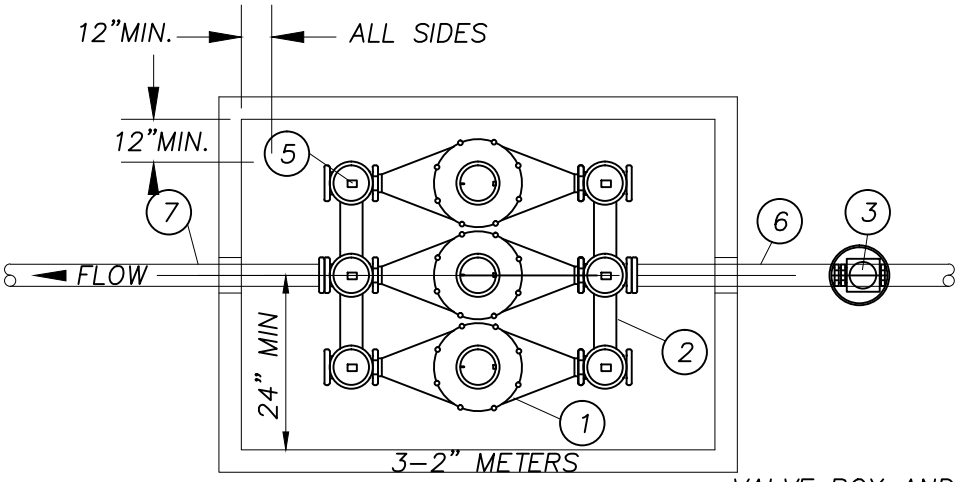

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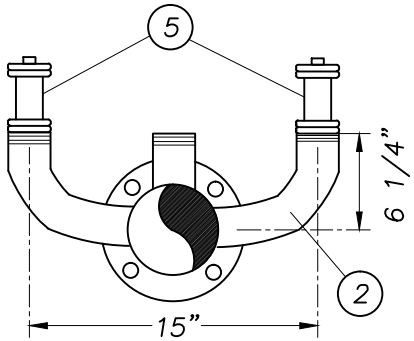
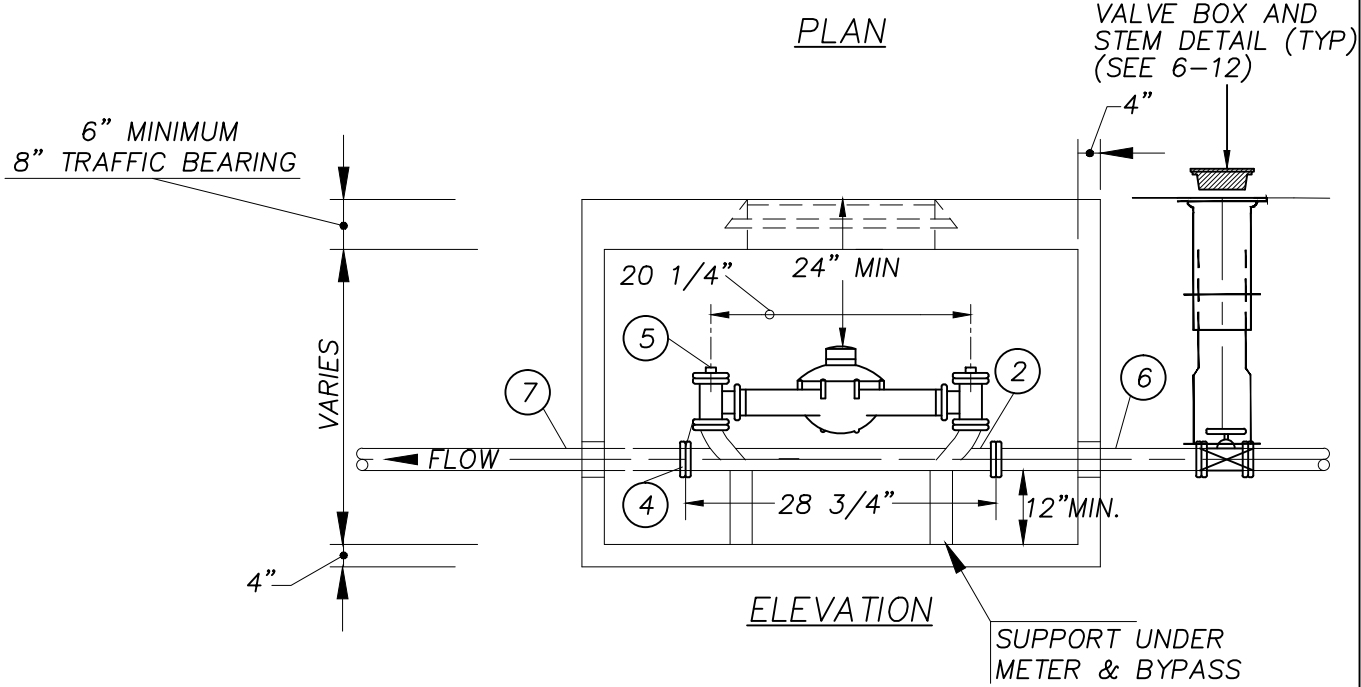


MANIFOLD END



ELEVATION

NOTES:

- INCLUDE LADDER IN VAULT
- FOR CIRCLE NOTES SEE 6–20C

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	WATER METER MANIFOLD FOR 4" SIZE	6–20B

6–20B.dwg

3–INCH METER INSTALLATION

1. 2–2" NEPTUNE OR APPROVED EQUAL METERS WITH ITRON 100W ENCODER #ERW–1300–202, 5' CABLE CONNECTOR #CF6–0151–001, REMOTE ANTENNA #CFG–0900–003.
2. 3" METER MANIFOLD
3. 3" FL X FL RW GATE VALVES
4. 3" FLEX X FLANGE COUPLING ALL–THREAD TO VAULT
5. ANGLE STOP
6. 3" X 36" LENGTH I.P. FLANGED
7. 3" PLAIN END I.P.
8. 6" SLEEVE.

4–INCH METER INSTALLATION

1. 3–2" NEPTUNE OR APPROVED EQUAL METERS WITH ITRON 100W ENCODER #ERW–1300–202, 5' CABLE CONNECTOR #CF6–0151–001, REMOTE ANTENNA #CFG–0900–003.
2. 4" METER MANIFOLD
3. 4" FL X FL RW GATE VALVES
4. 4" FLEX X FLANGE COUPLING ALL–THREAD TO VAULT
5. ANGLE STOP
6. 4" X 36" LENGTH I.P. FLANGED
7. 4" PLAIN END I.P.
8. 8" SLEEVE.

NOTES:

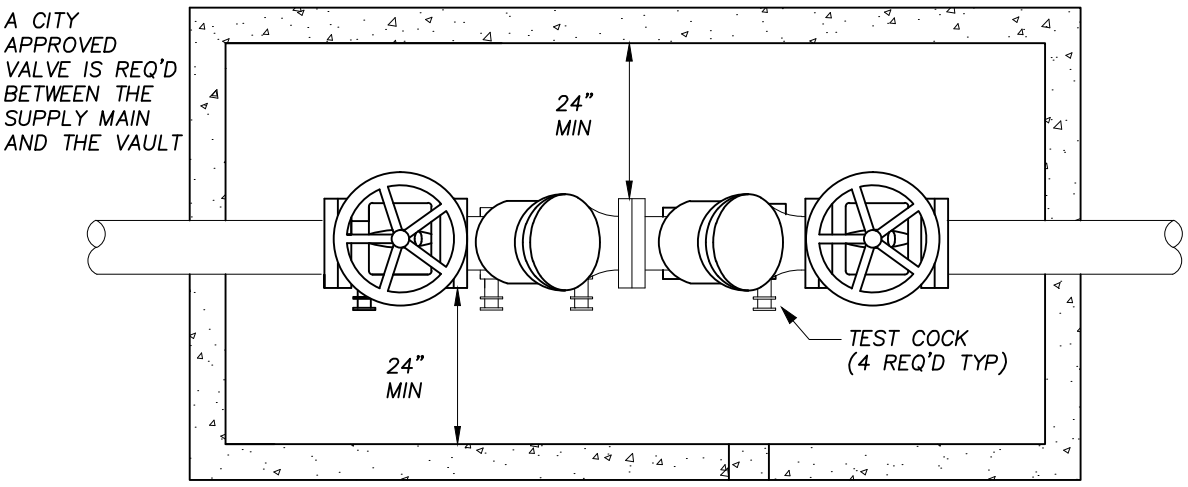
A. DRAINAGE MUST BE PROVIDED FOR METER PIT.
B. PIPE LENGTHS MAY BE CHANGED DUE TO VARYING LENGTHS IN METERS USED.
C. METER PIT MAY BE EXYENDED WHEN P.R.V. IS REQUIRED.
D. ON ALL METERS 3" AND ABOVE, A FLLEX–COUPLING SHALL BE INSTALLED IN THE OUTLET LINE WITHIN THE METER BOX. REFER TO NOTE 4.
E. REMOTE SHALL BE LOCATED IN A READILY ACCESSIBLE AREA OUTSIDE THE VAULT AS APPROVED BY THE CITY OF OLYMPIA.
F. REMOTE SHALL BE INSTALLED BY THE CITY OF OLYMPIA AT THE CONTRACTORS EXPENSE.
G. VAULTS SHALL BE EQUIPPED WITH LADDERS.
H. GROUT ANNULAR SPACE BETWEEN VAULT WALL AND PIPE.

SUBMIT THE FOLLOWING PLANS OR SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

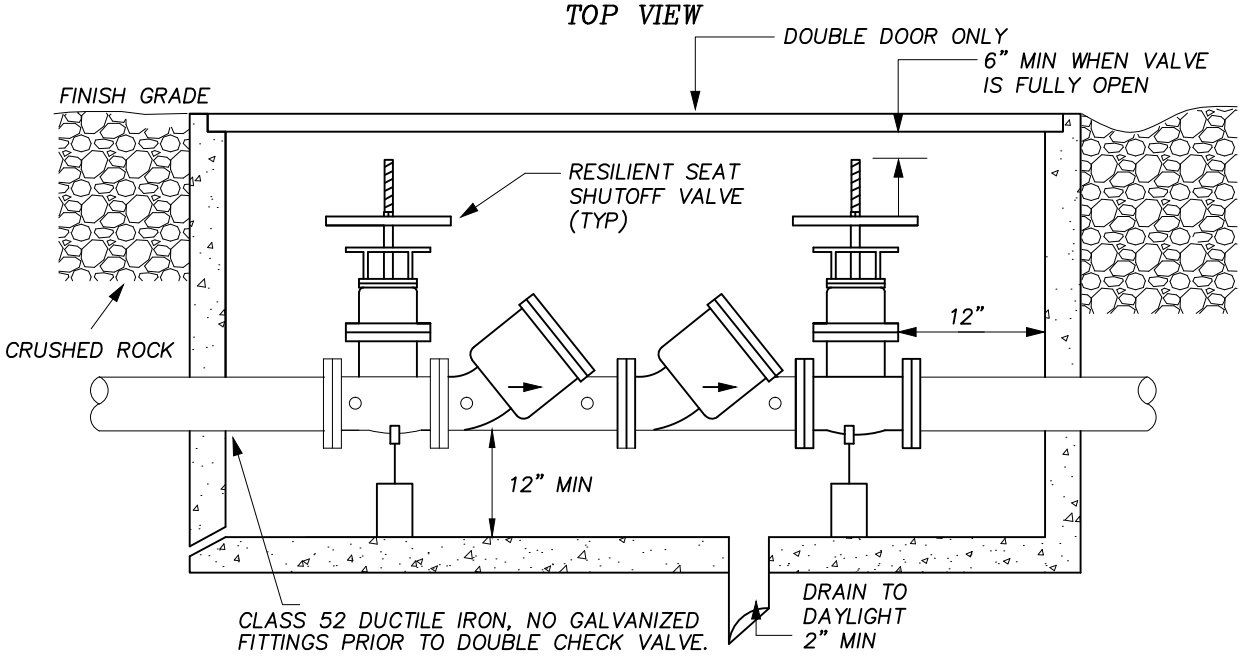
- CONCRETE VAULT: SHOP DRAWINGS FOR PRE–CAST BASE AND VAULT, DESIGNED BY PROFESSIONAL ENGINEER OF THE STATE OF WASHINGTON. A 12 INCH DEEP UNDERDRAIN SYSTEM SHALL BE INSTALLED UNDER THE VAULT. THE CONTRACTOR SHALL INSTALL 12 INCH DEEP ¾" TO 1/2" DRAIN ROCK WRAPPED BY CONSTRUCTION GEOTEXTILE UNDER THE VAULT. THE MINIMUM FOOTPRINT OF UNDERDRAIN AREA SHALL BE 1 FOOT AWAY FROM THE VERTICAL WALL OF THE CONCRETE VAULT. THE CONTRACTOR SHALL FOLLOW VAULT MANUFACTURES GUIDELINES OF INSTRUCTION TO INSTALL THE PRE–CAST VAULT. THE ANNULAR SPACE AND KNOCK–OUTS FOR PIPE GETTING INTO THE VAULT SHALL BE SEALED BEFORE BACKFILL. SEALING SHALL BE MADE WITH MATERIAL APPROVED BY THE ENGINEER AND SHALL EXTEND A MINIMUM OF 8 INCHES INTO THE VAULT WALL IN SUCH A MANNER AS TO FORM A SMOOTH, UNIFORM AND WATERTIGHT JOINT.
- ACCESS HATCHES: PRODUCT DESIGN DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL. VAULT DOORS SHALL BE H–20 TRAFFIC LOADING, NON–SKID, WATERTIGHT, SPRING ASSISTED, OPEN 180°, ALUMINUM HATCH WITH DRAIN CHANNEL. DOUBLE DOORS WILL BE REQUIRED ON LARGER VAULTS AS DETERMINED BY THE ENGINEER.
- POLYPROPYLENE COATED VAULT LADDER: MANUFACTURES CATALOG CUT AND DATA SHEET. STEP HOLE SEALING SHALL BE MADE WITH MATERIAL APPROVED BY THE ENGINEER.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	MATERIAL LIST FOR MAINFOLD WATER METERS 3" AND 4" SIZE	6–20C

6–20C.dwg



TOP VIEW



SIDE VIEW

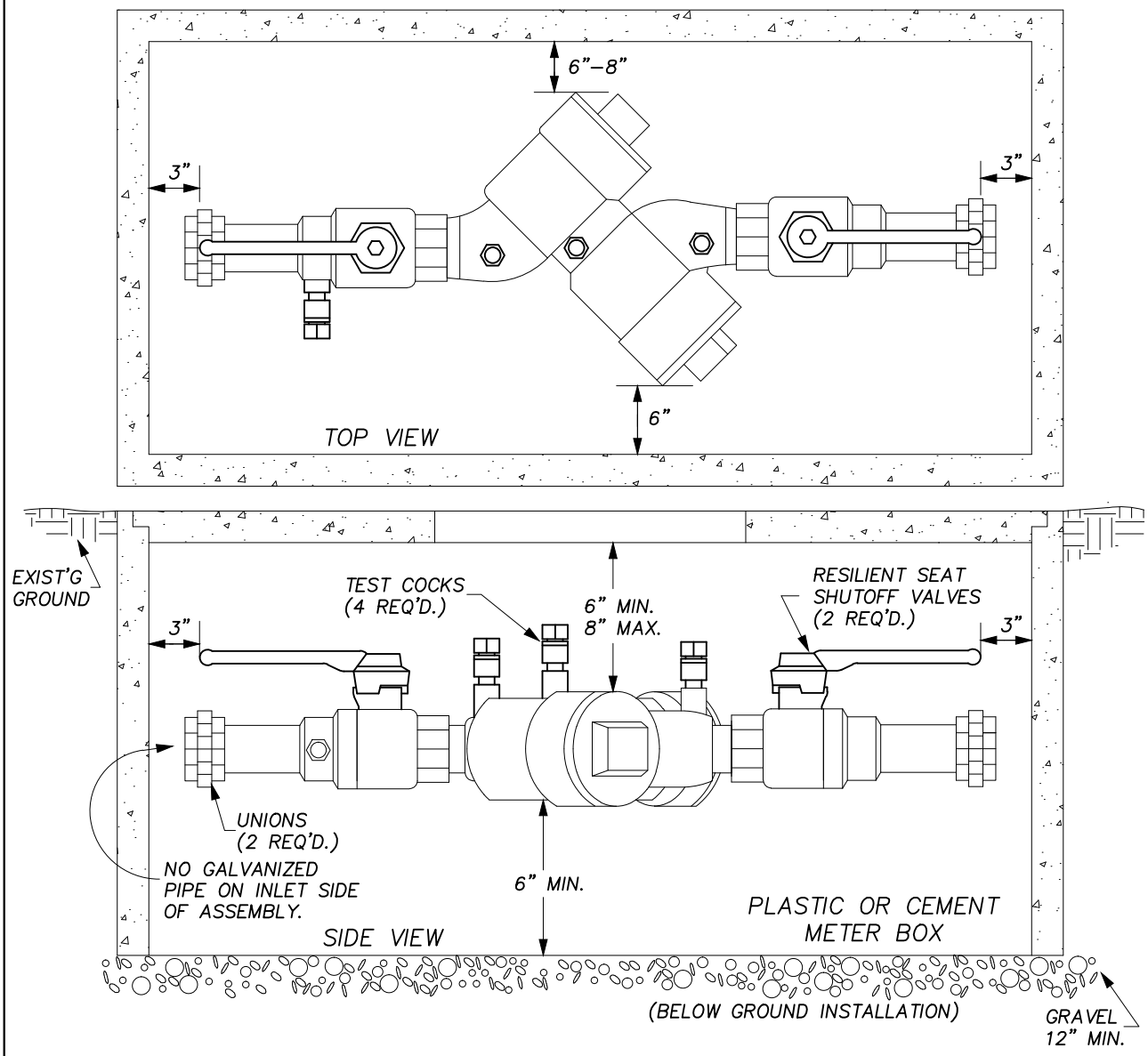
NOTE: ALL ITEMS SHALL COMPLY WITH THE FOLLOWING

- DOUBLE CHECK VALVE ASSEMBLY SHALL BE A WASHINGTON STATE DEPT. OF HEALTH APPROVED MODEL.
- BACK FLOW ASSEMBLY SHALL BE AN APPROVED MODEL W/4 TEST COCKS AND A RESILIENT SEATED SHUT OFF VALVE MOUNTED AT EACH END AND MEET MINIMUM STATE STANDARDS FOR BACK FLOW PROTECTION.
- THE WATER LINE SHALL BE DISINFECTED, FLUSHED, AND PRESSURE TESTED PRIOR TO INSTALLING THE BACK FLOW ASSEMBLY. THE BACK FLOW ASSEMBLY SHALL BE PROTECTED FROM FLOODING.
- THE BACK FLOW ASSEMBLY SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE AND ALSO YEARLY THEREAFTER BY A CERTIFIED BACK FLOW ASSEMBLY TESTER OR CITY OF OLYMPIA CROSS CONNECTION SPECIALIST. TEST RESULTS SHALL BE SENT TO THE CITY OF OLYMPIA WATER SECTION.
- ALL PIPE VALVE AND FITTING JOINTS, FROM THE SUPPLY MAIN, SHALL BE FLANGED AND RESTRAINED.
- FIRE DEPT. CONNECTION SHALL NOT EXIT THROUGH THE TOP OF THE VAULT.
- GROUT PIPE ENTRANCE AND EXIT, IN VAULT, WITH WATERTIGHT GROUT.
- ALL VAULTS SHALL BE PRE APPROVED PRIOR TO INSTALLATION.
- VAULTS SHALL BE INSTALLED AT PROPERTY LINE OR EASEMENT LINE AND ON OWNERS PROPERTY.
- VAULTS SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
- FIRE SERVICES REQUIRE DETECTOR TYPE BACK FLOW PROTECTION ASSEMBLIES.

(ABOVE GROUND INSTALLATION)

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/16/2013	2 1/2" AND LARGER DOUBLE CHECK VALVE ASSEMBLY	6-21

6-21.dwg

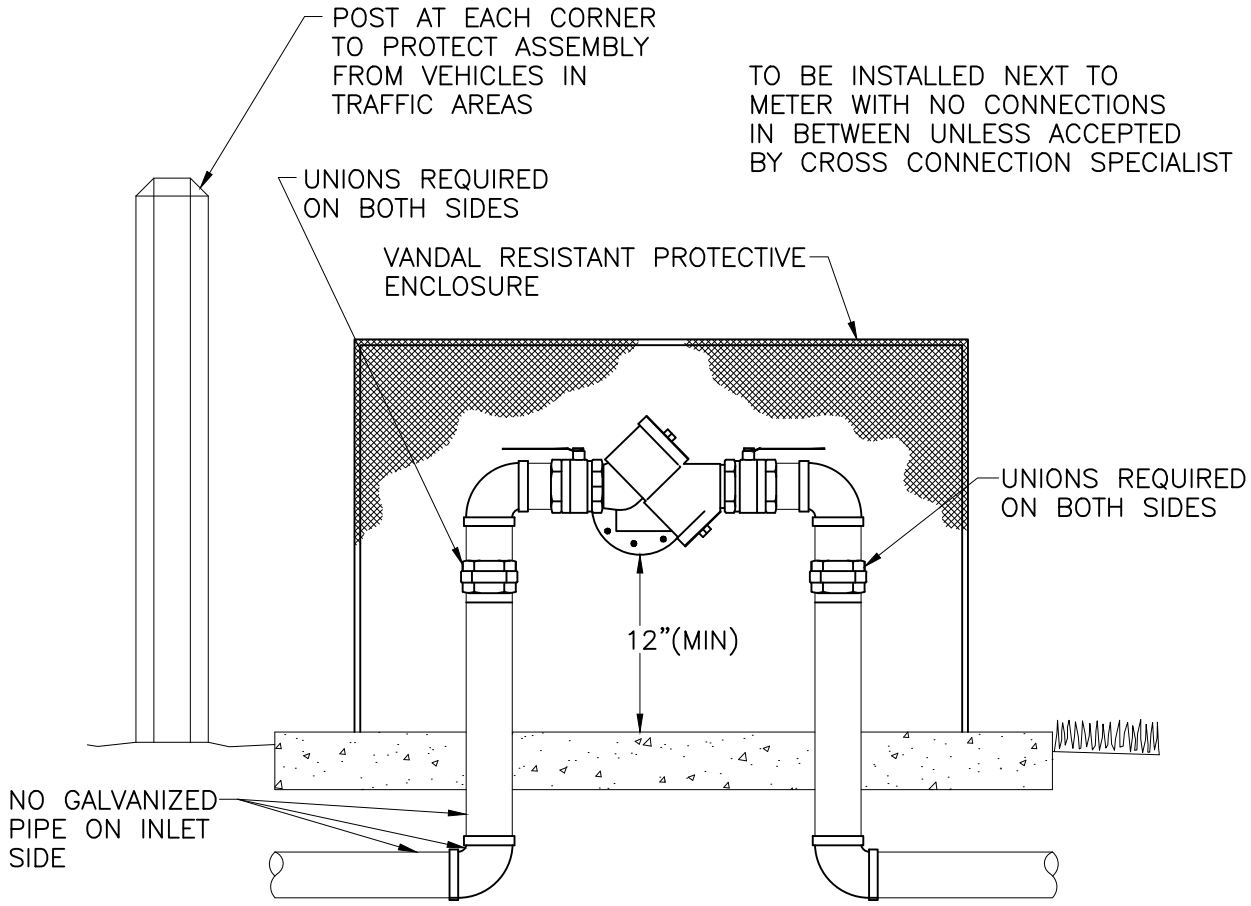


NOTE: ALL ITEMS SHALL COMPLY WITH THE FOLLOWING.

- APPROVED DOUBLE CHECK VALVE ASSEMBLY SHALL LAY HORIZONTAL WITH GROUND.
- DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
- THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACK FLOW PREVENTER
- NO GALVANIZED PIPE BEFORE ASSEMBLY
- THE DCVA MAY BE INSTALLED ABOVE OR BELOW THE GROUND PROVIDED ALL CLEARANCES ARE MET.
- DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
- VALVE SHALL BE PROTECTED FROM FREEZING CONDITIONS.
- THE BACK FLOW ASSEMBLY SHALL BE A MODEL CURRENTLY APPROVED BY THE WASHINGTON STATE DEPARTMENT OF HEALTH
- A PLUMBING PERMIT IS REQUIRED.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/08	DOUBLE CHECK VALVE ASSEMBLY 2" AND SMALLER	6–21A

6–21A.dwg



NOTE: ALL ITEMS SHALL COMPLY WITH THE FOLLOWING.

- *APPROVED REDUCED PRESSURE BACK FLOW ASSEMBLY SHALL LAY HORIZONTAL ONLY.*
- *DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.*
- *THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACK FLOW PREVENTER.*
- *DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.*
- *NO GALVANIZED PIPE BEFORE ASSEMBLY*
- *VALVE SHALL BE PROTECTED FROM FREEZING CONDITIONS.*
- *THE BACK FLOW ASSEMBLY SHALL BE A CURRENT WASHINGTON STATE DEPARTMENT OF HEALTH APPROVED MODEL.*
- *A PLUMBING PERMIT IS REQUIRED.*

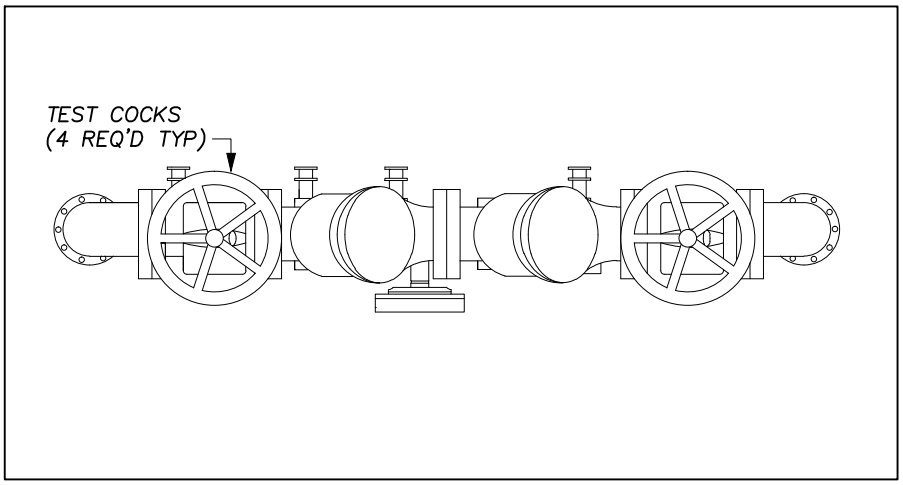
(ABOVE GROUND INSTALLATION)

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	2" AND SMALLER REDUCED PRESSURE (RP) INSTALLATION	6-22

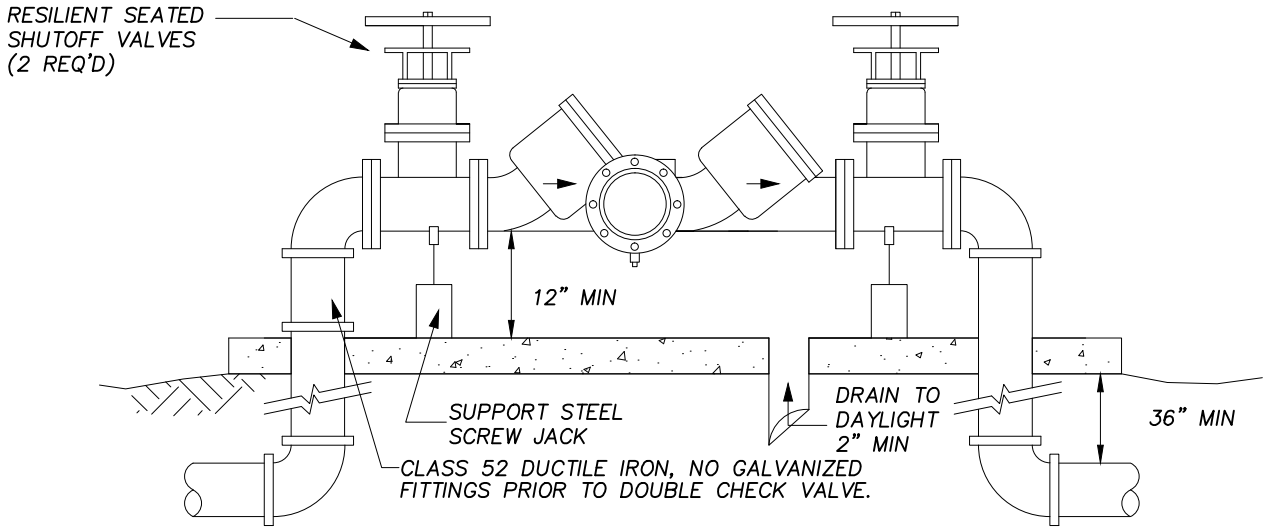
6-22.dwg

A CITY APPROVED VALVE IS REQ'D. BETWEEN THE SUPPLY MAIN AND THE VAULT.

PROVIDE HEAT OR REMOVABLE INSULATED ENCLOSURE ON OUTSIDE APPLICATIONS: PRO–BOX, HOT BOX OR EQUAL INSULATED ENCLOSURES.



TOP VIEW



SIDE VIEW

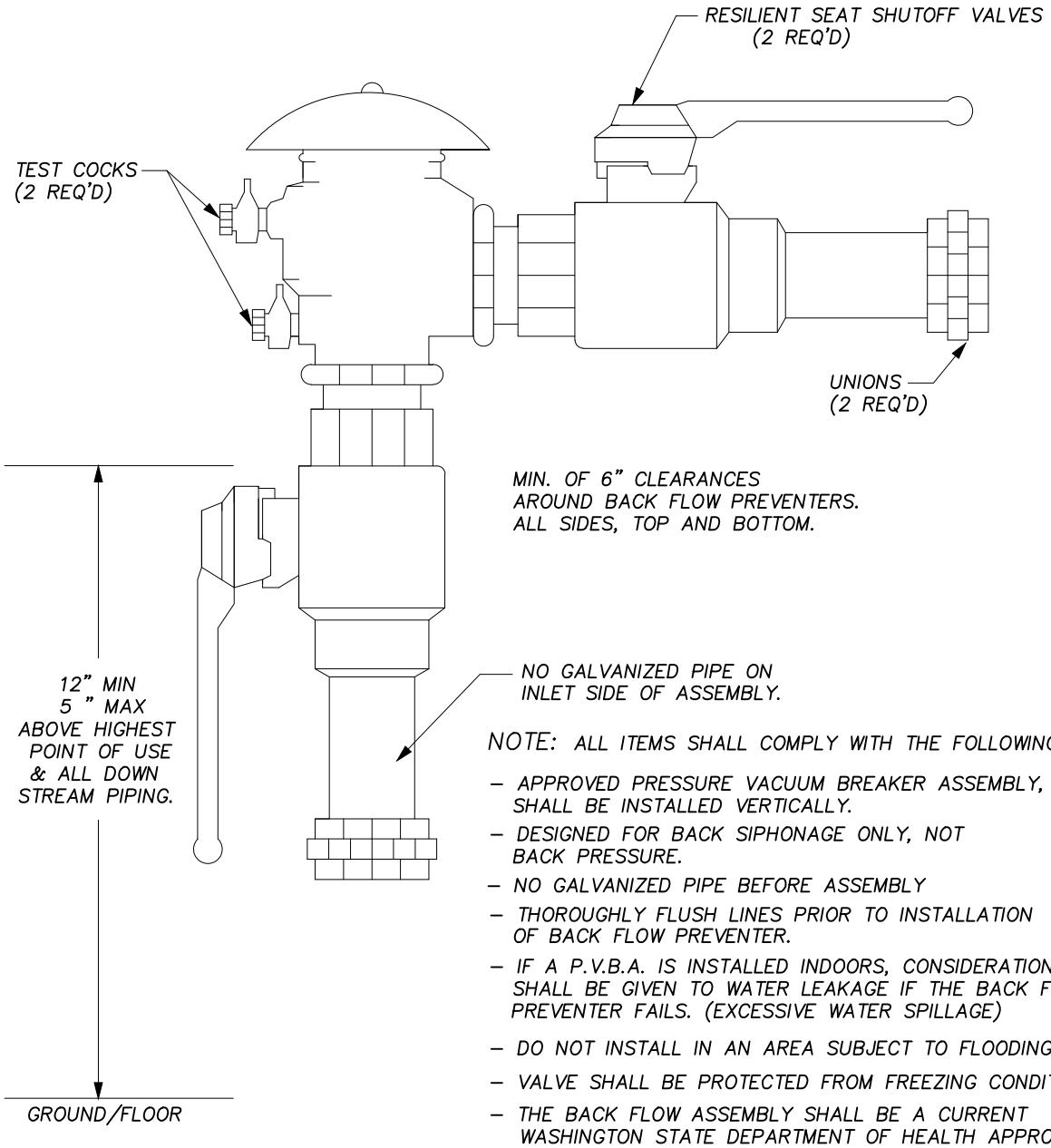
NOTE: ALL ITEMS SHALL COMPLY WITH THE FOLLOWING

- APPROVED BY THE WASHINGTON STATE DEPARTMENT OF HEALTH.
- APPROVED REDUCED PRESSURE BACK FLOW ASSEMBLY TO LAY HORIZONTAL ONLY.
- DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
- THE WATER LINE SHALL BE DISINFECTED, FLUSHED, AND PRESSURE TESTED PRIOR TO INSTALLING THE BACK FLOW ASSEMBLY. THE BACK FLOW ASSEMBLY SHALL BE PROTECTED FROM FREEZING AND FLOODING.
- ALL PIPE, VALVES, AND FITTING JOINTS, FROM SUPPLY MAIN, SHALL BE FLANGED AND RESTRAINED.
- ALL ENCLOSURES AND AIR–GAP DRAINS SHALL BE PRE APPROVED PRIOR TO INSTALLATION.
- ALL LOCATIONS SHALL BE PRE APPROVED PRIOR TO INSTALLATION.
- ENCLOSURES SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
- THE BACK FLOW ASSEMBLY SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE AND ALSO YEARLY THEREAFTER BY A CERTIFIED BACK FLOW ASSEMBLY TESTER OR THE CITY OF OLYMPIA CROSS CONNECTION SPECIALIST. TEST RESULTS SHALL BE SENT TO THE CITY OF OLYMPIA WATER SECTION.
- FIRE SERVICES REQUIRE DETECTOR TYPE BACK FLOW PROTECTION ASSEMBLIES.

(ABOVE GROUND INSTALLATION)

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	REDUCED PRESSURE BACK FLOW ASSEMBLY 2 1/2" AND LARGER	6–22B

6–22B.dwg



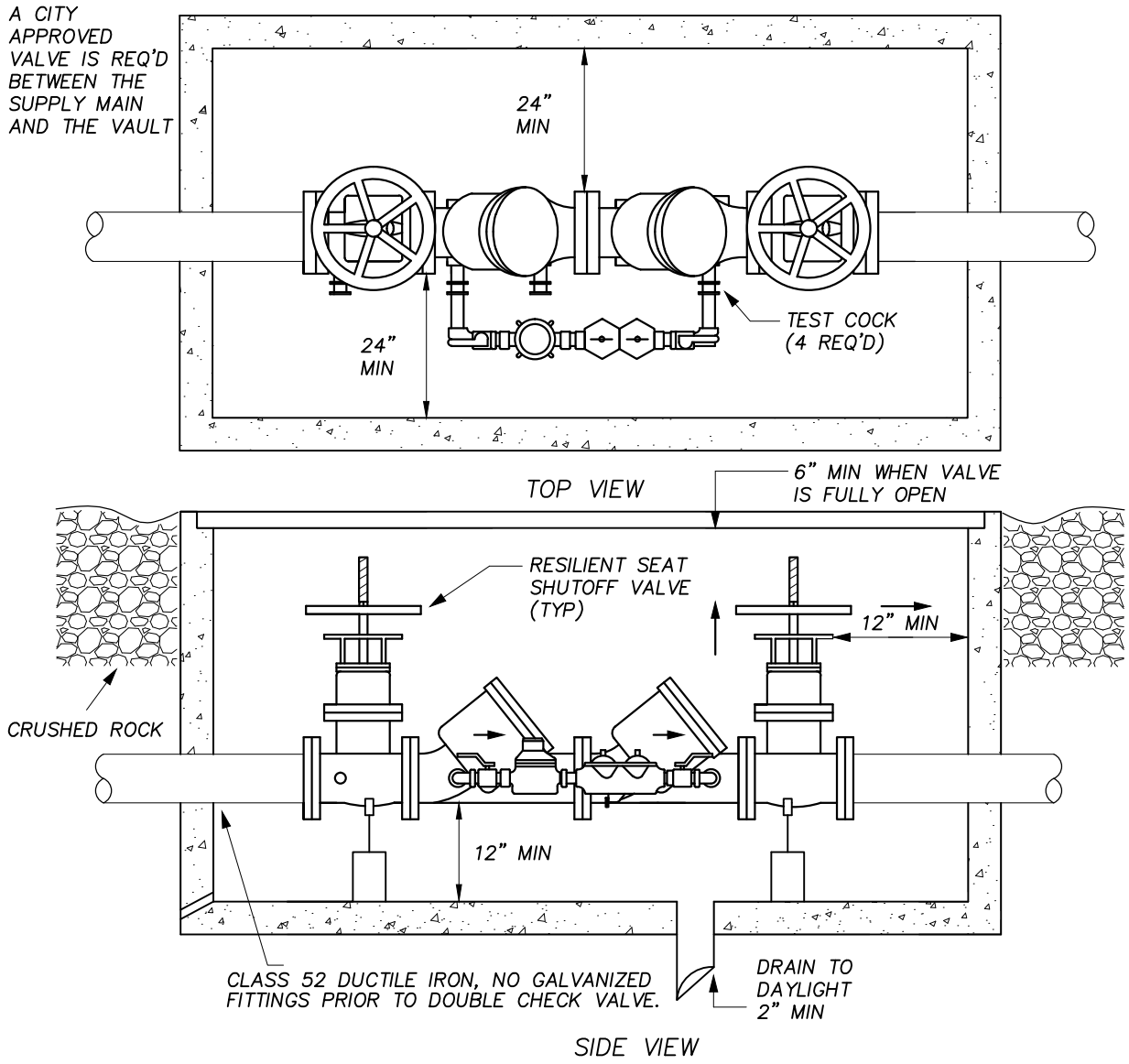
NOTE: ALL ITEMS SHALL COMPLY WITH THE FOLLOWING

- APPROVED PRESSURE VACUUM BREAKER ASSEMBLY, SHALL BE INSTALLED VERTICALLY.
- DESIGNED FOR BACK SIPHONAGE ONLY, NOT BACK PRESSURE.
- NO GALVANIZED PIPE BEFORE ASSEMBLY
- THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACK FLOW PREVENTER.
- IF A P.V.B.A. IS INSTALLED INDOORS, CONSIDERATION SHALL BE GIVEN TO WATER LEAKAGE IF THE BACK FLOW PREVENTER FAILS. (EXCESSIVE WATER SPILLAGE)
- DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
- VALVE SHALL BE PROTECTED FROM FREEZING CONDITIONS.
- THE BACK FLOW ASSEMBLY SHALL BE A CURRENT WASHINGTON STATE DEPARTMENT OF HEALTH APPROVED MODEL.
- A PLUMBING PERMIT IS REQUIRED.
- SHALL BE TESTED AFTER INSTALLATION AND YEARLY THEREAFTER BY A WASHINGTON STATE CERTIFIED BACK FLOW ASSEMBLY TESTER OR CITY OF OLYMPIA CROSS CONNECTION SPECIALIST. TEST RESULTS SHALL BE SENT TO THE CITY OF OLYMPIA WATER SECTION.

(ABOVE GROUND INSTALLATION)

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/08	PRESSURE VACUUM BREAKER ASSEMBLY	6-23

6-23.dwg



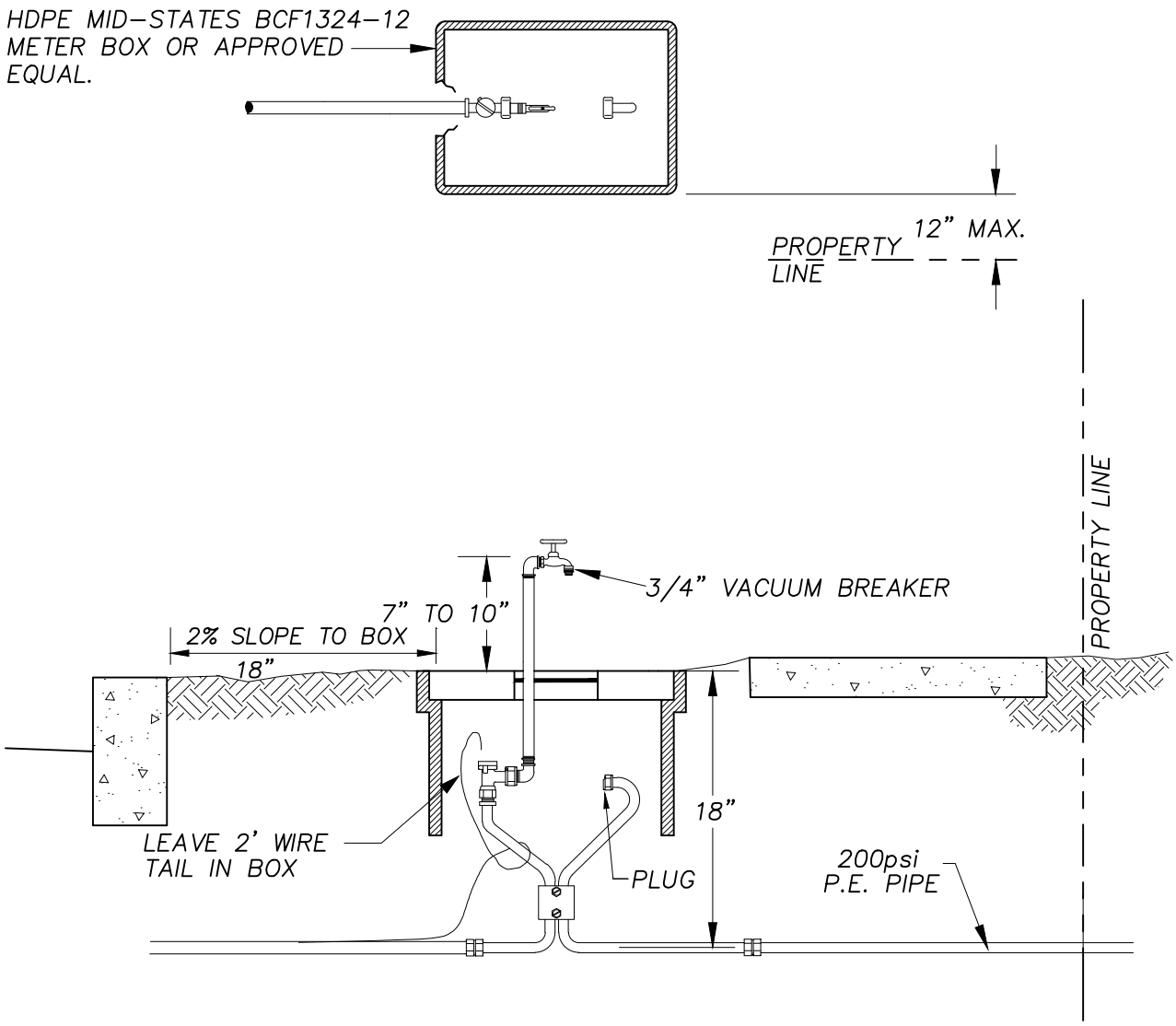
NOTE: ALL ITEMS SHALL COMPLY WITH THE FOLLOWING

- DOUBLE CHECK DETECTOR CHECK VALVE ASSEMBLY SHALL BE A MODEL APPROVED BY THE WASHINGTON STATE DEPARTMENT OF HEALTH
- BACK FLOW ASSEMBLY SHALL BE AN APPROVED MODEL W/4 TEST COCKS AND A RESILIENT SEATED SHUT OFF VALVE MOUNTED AT EACH END AND MEET MINIMUM STATE STANDARDS FOR BACK FLOW PROTECTION.
- THE WATER LINE SHALL BE DISINFECTED, FLUSHED, AND PRESSURE TESTED PRIOR TO INSTALLING THE BACK FLOW ASSEMBLY. THE BACK FLOW ASSEMBLY SHALL BE PROTECTED FROM FLOODING.
- THE BACK FLOW ASSEMBLY SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE AND ALSO YEARLY THEREAFTER BY A CERTIFIED BACK FLOW ASSEMBLY TESTER OR CITY OF OLYMPIA CROSS CONNECTION SPECIALIST. TEST RESULTS SHALL BE SENT TO THE CITY OF OLYMPIA WATER SECTION.
- ALL PIPE VALVE AND FITTING JOINTS, FROM THE SUPPLY MAIN, SHALL BE FLANGED AND RESTRAINED.
- GROUT PIPE ENTRANCE AND EXIT, IN VAULT, WITH WATERTIGHT GROUT.
- ALL VAULTS SHALL BE PRE-APPROVED PRIOR TO INSTALLATION.
- VAULTS SHALL BE INSTALLED AT PROPERTY LINE OR EASEMENT LINE AND ON OWNERS PROPERTY.
- VAULTS SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
- REQUIRED FOR FIRE SUPPRESSION SYSTEMS.

(ABOVE GROUND INSTALLATION)

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	2 1/2" AND LARGER DOUBLE CHECK DETECTOR CHECK VALVE ASSEMBLY	6-24

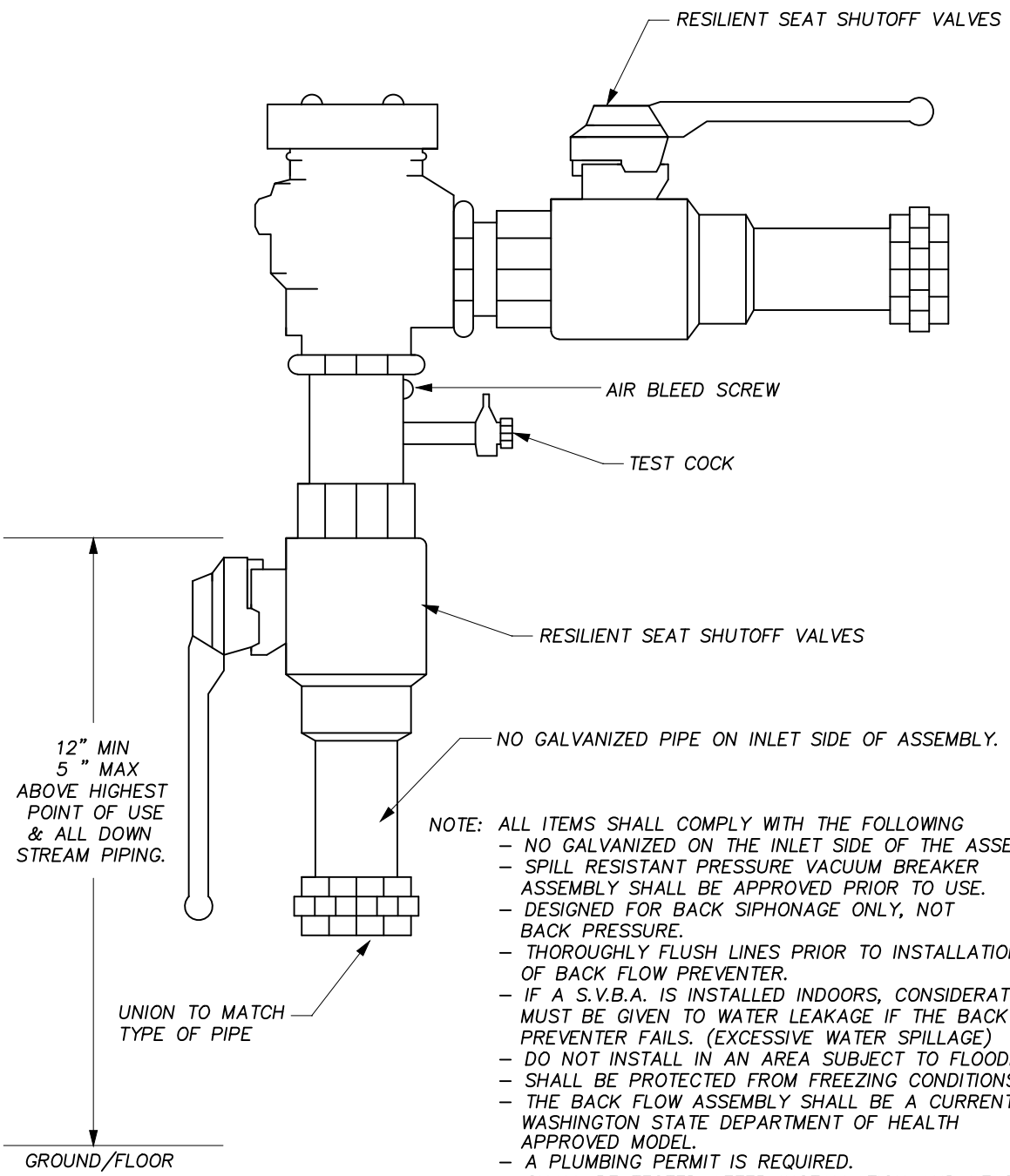
6-24.dwg



NOTE:
1. SETTER SHALL BE CENTERED IN BOX.
2. NO CONNECTIONS ON (PLUGGED) DOWN STREAM SIDE OF SETTER.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	TEMPORARY RESIDENTIAL CONSTRUCTION WATER HOOKUP	6-25

6-25.dwg



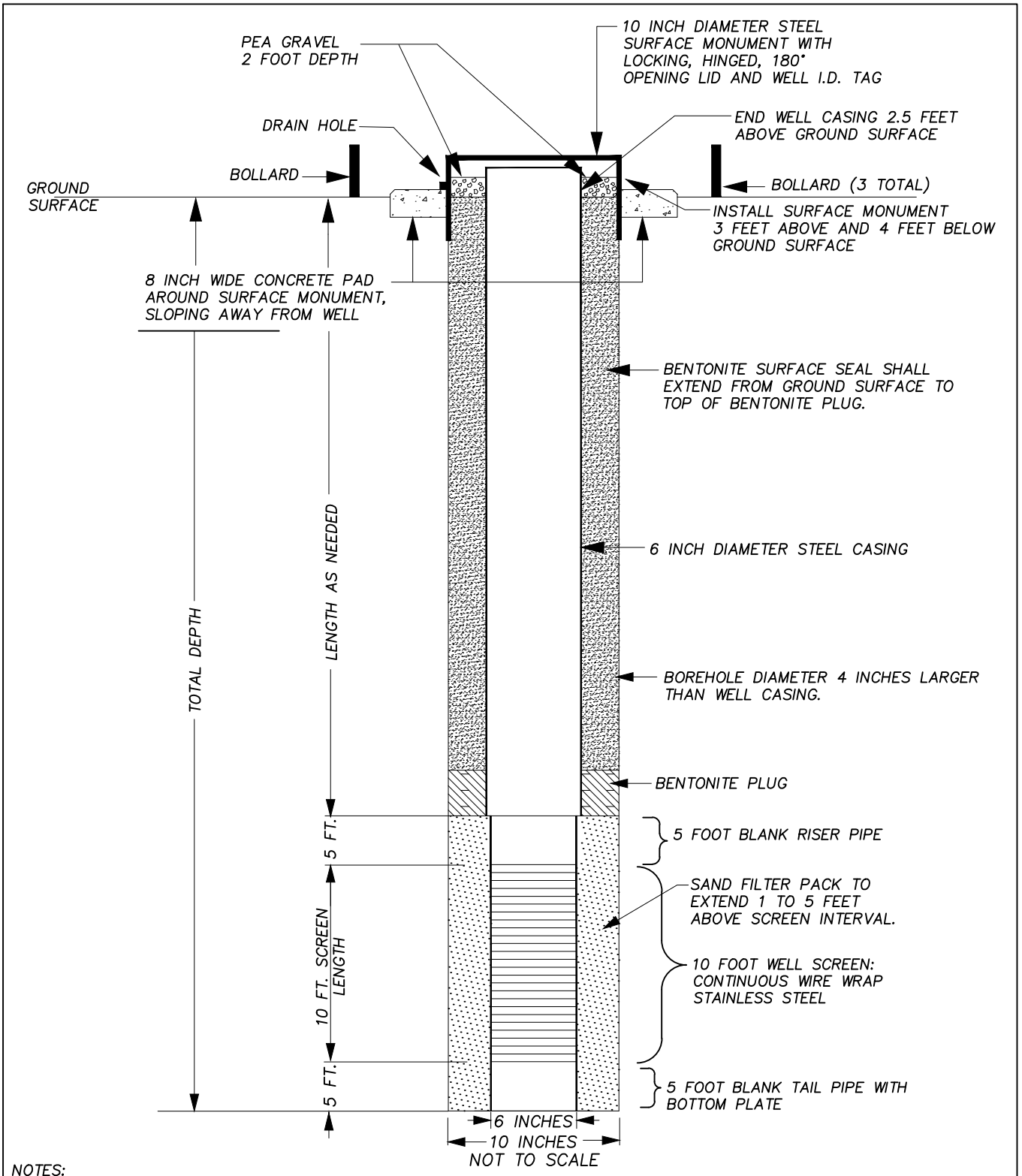
NOTE: ALL ITEMS SHALL COMPLY WITH THE FOLLOWING

- NO GALVANIZED ON THE INLET SIDE OF THE ASSEMBLY
- SPILL RESISTANT PRESSURE VACUUM BREAKER ASSEMBLY SHALL BE APPROVED PRIOR TO USE.
- DESIGNED FOR BACK SIPHONAGE ONLY, NOT BACK PRESSURE.
- THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACK FLOW PREVENTER.
- IF A S.V.B.A. IS INSTALLED INDOORS, CONSIDERATION MUST BE GIVEN TO WATER LEAKAGE IF THE BACK FLOW PREVENTER FAILS. (EXCESSIVE WATER SPILLAGE)
- DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
- SHALL BE PROTECTED FROM FREEZING CONDITIONS.
- THE BACK FLOW ASSEMBLY SHALL BE A CURRENT WASHINGTON STATE DEPARTMENT OF HEALTH APPROVED MODEL.
- A PLUMBING PERMIT IS REQUIRED.
- SHALL BE TESTED AFTER INSTALLATION AND YEARLY THEREAFTER BY A WASHINGTON STATE CERTIFIED BACK FLOW ASSEMBLY TESTER OR CITY OF OLYMPIA CROSS CONNECTION SPECIALIST. TEST RESULTS SHALL BE SENT TO THE CITY OF OLYMPIA WATER SECTION.

(ABOVE GROUND INSTALLATION)

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/08	SPILL RESISTANT PRESSURE VACUUM BREAKER ASSEMBLY	6-26

6-26.dwg

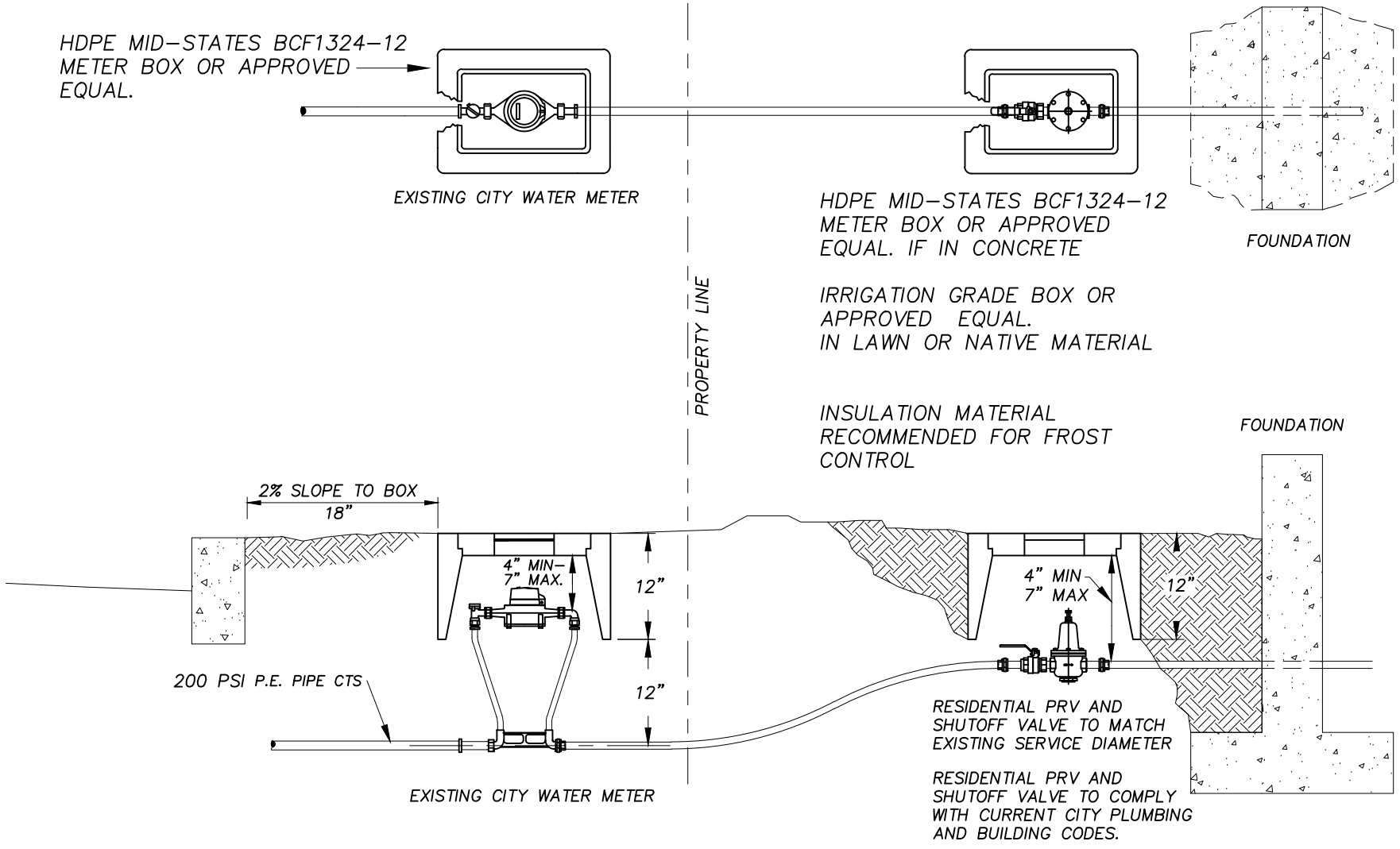


NOTES:

1. THIS WELL DESIGN IS FOR GUIDANCE PURPOSES ONLY. THE DEVELOPER/DRILLER SHALL ENSURE THE FINAL DESIGN MEETS REQUIREMENTS AS PER WAC 173-160.
2. INSTALL A GRUNDFOS 2-INCH SUBMERSIBLE DEDICATED PUMP SYSTEM INSIDE WELL CASING.
3. INSTALL A 6-INCH CAMPBELL WELL SEAL WITH A 1.5-INCH PVC DROP PIPE AND TWO ADDITIONAL ACCESS PORTS INSIDE WELL CASING.
4. SAND FILTER PACK AND WELL SCREEN SPECIFICATIONS WILL BE DESIGNED AS NEEDED FOR SUBSURFACE GEOLOGIC MATERIALS.

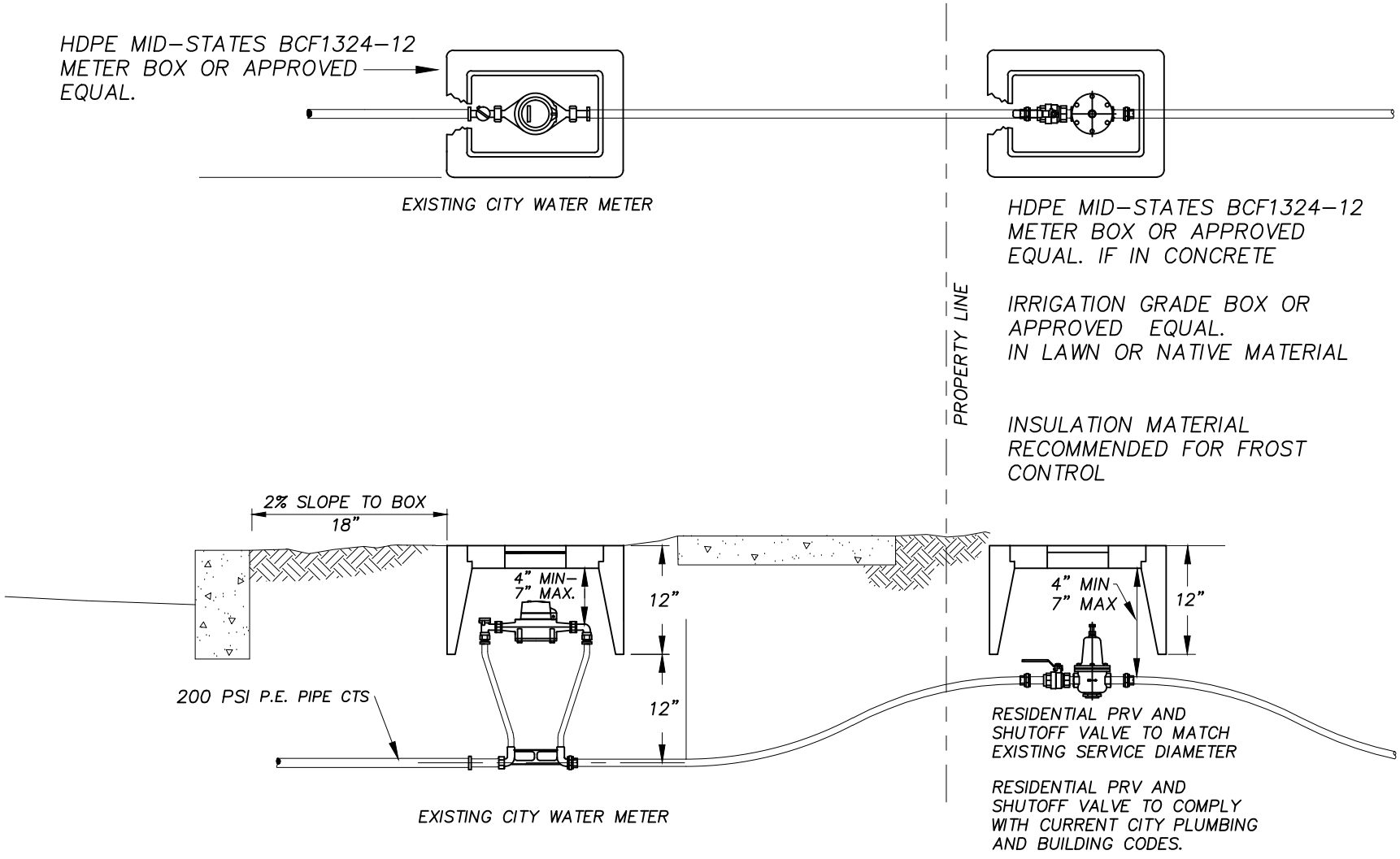
APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	RESOURCE PROTECTION MONITORING WELL DESIGN	6-27

6-27.dwg



APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	NEAR BUILDING RESIDENTIAL PRV ASSEMBLY	6-28

6-28.dwg



APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	2/26/2013	NEAR STREET RESIDENTIAL PRV ASSEMBLY	6-28A

6-28A.dwg