

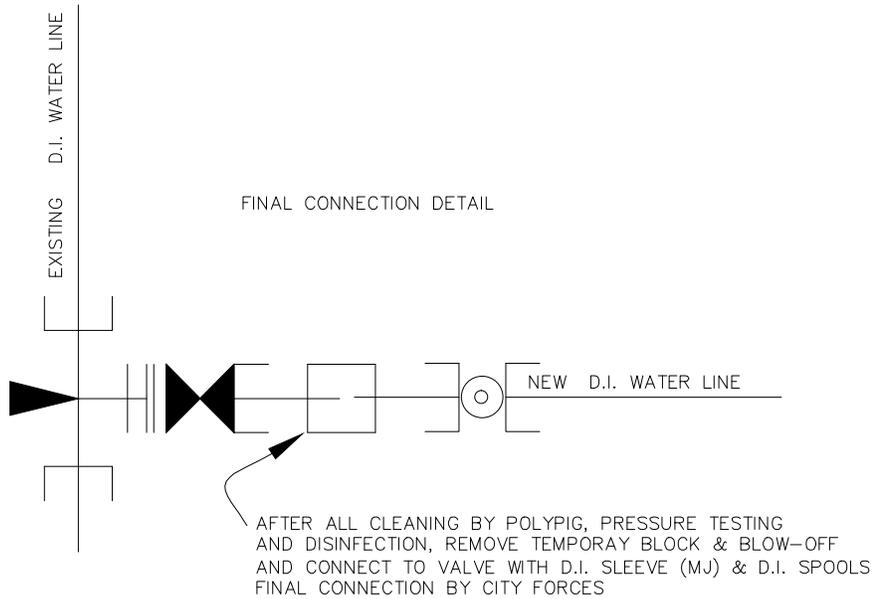
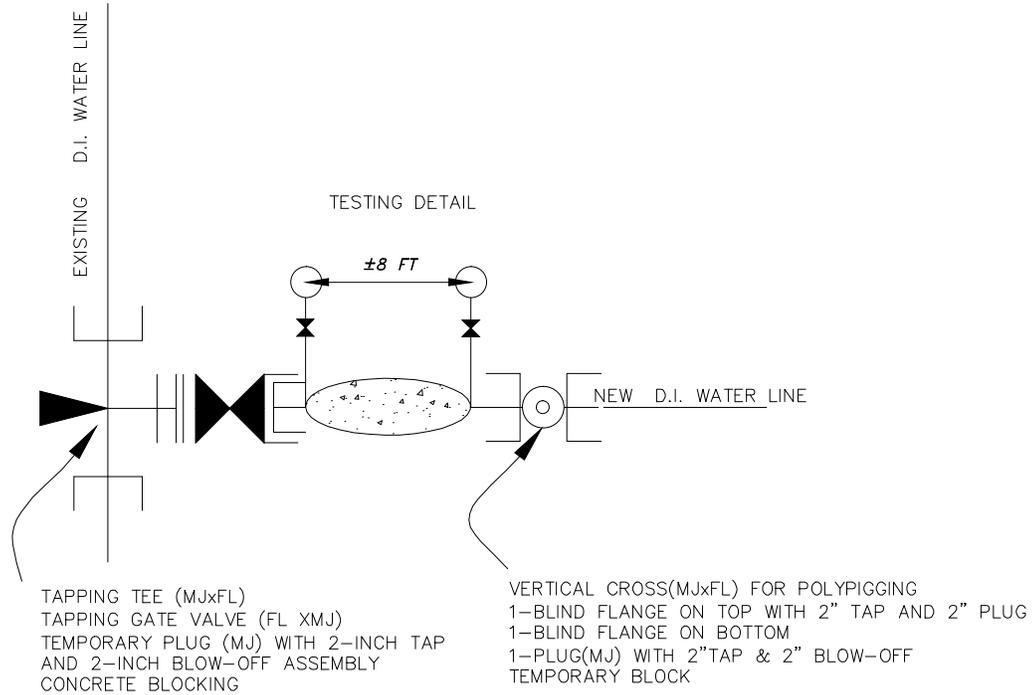
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WATER PLAN GENERAL NOTES Standard Plan No. 300

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF RENTON PUBLIC WORKS STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS AND WSDOT / APWA STANDARD SPECIFICATIONS, LATEST EDITION AS AMENDED BY THE CITY OF RENTON. A SET OF CITY APPROVED PLANS SHALL BE KEPT AT THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR AND OR DEVELOPER SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
2. ALL EXISTING UTILITIES SHALL REMAIN IN SERVICE DURING CONSTRUCTION UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL CALL 1-800-424-5555 TO VERIFY UTILITY LOCATIONS BEFORE BEGINNING EXCAVATION.
3. ALL MATERIALS USED FOR THE CONSTRUCTION OF WATER SYSTEM IMPROVEMENTS SHALL BE NEW AND UNDAMAGED, AND "CATALOG CUTS" FOR ALL MATERIALS SHALL BE APPROVED IN WRITING BY THE CITY OF RENTON PRIOR TO BRINGING ANY MATERIALS ON-SITE.
4. ALL WATER MAIN PIPE MATERIALS SHALL BE CEMENT LINED DUCTILE IRON PIPE, THICKNESS CLASS 52 PER AWWA C 151 AND C 104. PIPE JOINTS SHALL BE PUSH-ON OR MECHANICAL JOINT. CAST IRON OR DUCTILE IRON PIPE FITTINGS SHALL BE CLASS 250 AS PER ANSI/AWWA C110/A21.10-82. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH 8-MIL BLACK, TUBE-TYPE, POLYETHYLENE PLASTIC PER AWWA C105 STANDARDS.
5. MINIMUM COVER FROM TOP OF WATER MAINS TO FINISHED GRADE SHALL BE 36 INCHES FOR PIPE DIAMETER OF 10-INCH OR LESS AND 48 INCHES FOR PIPE DIAMETER OF 12-INCH AND LARGER. MAXIMUM COVER FOR ALL WATER MAINS SHALL BE 60 INCHES. ANY DEVIATIONS MUST BE APPROVED BY THE CITY OF RENTON PRIOR TO CONSTRUCTION. WHERE UTILITY CONFLICTS OCCUR, THE PROFILE OF THE WATER MAIN SHALL BE ADJUSTED AS NECESSARY TO CLEAR CONFLICTS AND TO PROVIDE MINIMUM COVER. PIPE DEFLECTION SHALL NOT EXCEED ONE-HALF OF PIPE MANUFACTURER'S SPECIFICATION FOR SIZE OF PIPE USED. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST METHOD (MDD) IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PRISM AND DRIVEWAYS, AND 85 PERCENT MDD IN UNPAVED AREAS. ALL PIPE ZONE COMPACTION SHALL BE 95 MDD.
6. CONCRETE BLOCKING FOR WATER MAINS SHALL BE DESIGNED, INSTALLED AND POURED IN PLACE IN ACCORDANCE WITH CITY OF RENTON STANDARD DETAILS AND SPECIFICATIONS AND SHALL BE INSTALLED AT ALL VERTICAL AND HORIZONTAL BENDS, FITTINGS AND BASE OF HYDRANTS. MEGA-LUGS (OR SIMILAR PRODUCT) MAY BE REQUIRED ON ALL MECHANICAL JOINTS IN ADDITION TO CONCRETE BLOCKING.
7. ALL NEW WATER MAIN PIPES AND FITTINGS SHALL HAVE A FOAM PIPE PIG RUN THROUGH THEM PRIOR TO BEING FLUSHED, DISINFECTED, AND TESTED. CLEANING, PRESSURE AND PURITY TESTING SHALL BE DONE IN THE PRESENCE OF AND UNDER THE SUPERVISION OF A CITY OF RENTON UTILITY INSPECTOR. THE CONTRACTOR SHALL SUPPLY, INSTALL AND REMOVE PLUGS, CORPORATION STOPS, BLOW-OFF ASSEMBLIES, AND THRUST RESTRAINT / BLOCKING FOR TESTING AND PURITY ACCEPTANCE. NO CONNECTION SHALL BE MADE BETWEEN THE NEW MAIN OR BETWEEN THE NEW WET-TAP VALVE TO AN EXISTING MAIN UNTIL THE NEW PIPING HAS BEEN FOAM-PIGGED, DISINFECTED, FLUSHED, AND PASSED BOTH PRESSURE AND PURITY TESTING.
8. NEW WATER MAINS INCLUDING SERVICE LATERALS SHALL BE TESTED AT A STATIC PRESSURE OF 150 PSI ABOVE WORKING PRESSURE WITH A MINIMUM OF 225 PSI TEST PRESSURE FOR 120 MINUTES WITH A MAXIMUM OF 5 PSI PRESSURE DROP DURING THE ENTIRE TEST PERIOD. UPON SATISFACTORY COMPLETION OF THE PRESSURE TEST, THE LINE SHALL BE DISINFECTED, FLUSHED, AND THEN WATER SAMPLES SHALL BE TAKEN FOR PURITY TESTING BY THE PUBLIC WORKS INSPECTOR.
9. THE CONTRACTOR SHALL NOTIFY THE CITY OF RENTON WATER UTILITY AND MAINTENANCE DEPARTMENTS AT LEAST 10 WORKING DAYS PRIOR TO MAKING CONNECTIONS TO THE EXISTING WATER SYSTEM. THE CONTRACTOR SHALL EXPOSE THE EXISTING WATER MAIN AND FITTINGS AT THE CONNECTION POINT BEFORE ORDERING THE NECESSARY ADAPTORS AND FITTINGS REQUIRED FOR THE FINAL CONNECTION. THE CONTRACTOR SHALL EXCAVATE, REMOVE ALL SURFACE MATERIALS, AND PROVIDE SHORING AND ALL MATERIALS REQUIRED FOR THE CITY OF RENTON TO PERFORM THE CONNECTION TO THE EXISTING WATER SYSTEM. THE CONTRACTOR SHALL PROVIDE AND INSTALL BACKFILL, CONCRETE BLOCKING, AND COMPLETE SURFACE RESTORATION.





NOTES:

1. TAPPING TEES SHALL BE MADE OF CAST IRON, DUCTILE IRON OR EPOXY-COATED STEEL. BOLTS AND NUTS SHALL BE COR-TEN. ALL TEES AND VALVES SHALL BE WATER TESTED BEFORE TAP
2. NO SIZE ON SIZE TAPS ON CAST-IRON WATER LINES. TAP SHALL BE AT LEAST 2" SMALLER DIAMETER THAN THE EXISTING MAIN.
3. NO WET TAP ON ASBESTOS CEMENT LINE OR STEEL LINE
4. WET-TAPPING OF EXISTING CITY OF RENTON WATER MAINS WILL BE DONE BY SPEER TAP OR SUPERIOR TAPPING INC.
5. CONTRACTOR SHALL POTHOLE AND VERIFY THE HORIZONTAL AND VERTICAL ALIGNMENT OF EXISTING LINE OR STUB AND SHALL START LAYING THE NEW LINE AT THE SAME HORIZONTAL AND VERTICAL ALIGNMENT OF THE EXISTING STUB.
6. CITY FORCES WILL PERFORM THE FINAL CONNECTION FROM THE WATER LINE TO THE TAPPING VALVE WITH D.I. SLEEVE AND D.I. SPOOL.

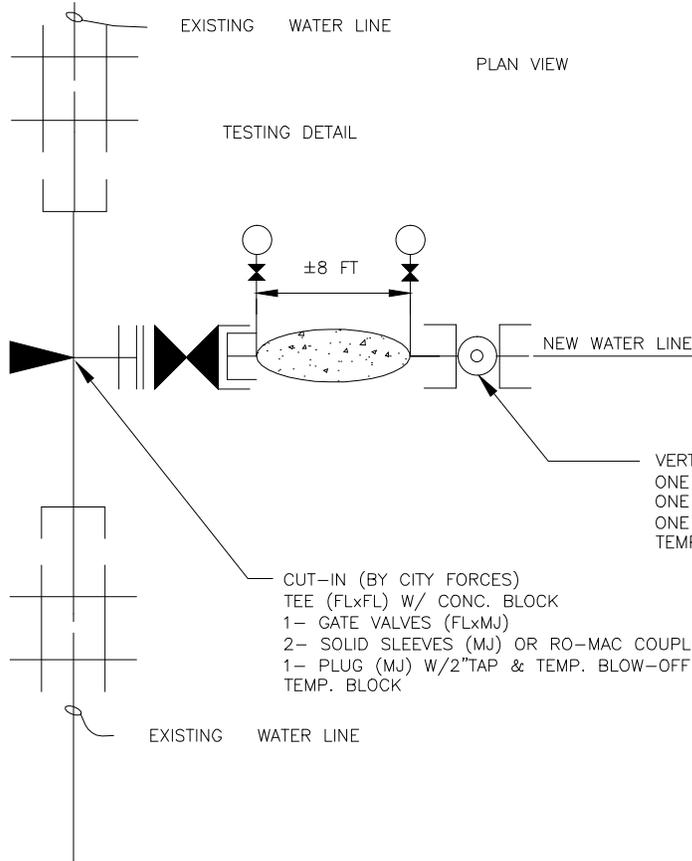


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CONNECTION TO WATER MAIN WITH
TAPPING TEE & VALVE

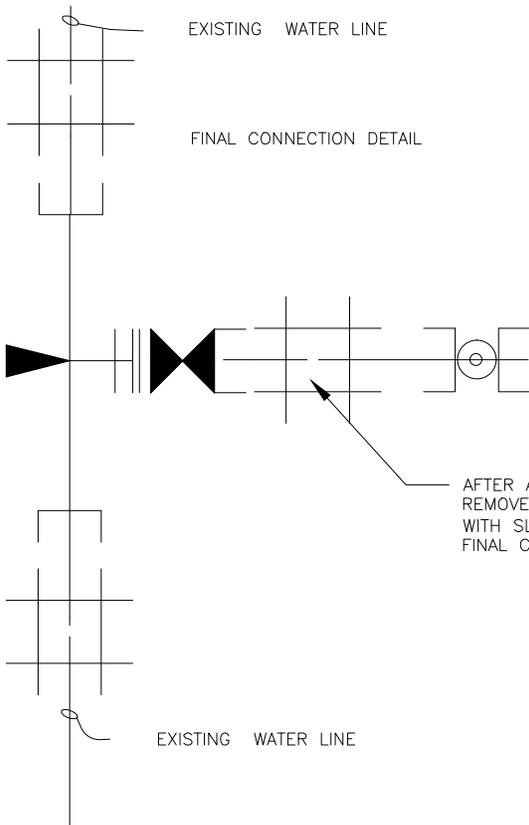
STD. PLAN - 300.1

MARCH 2010



VERTICAL CROSS(MJxFL) FOR POLYPIGGING
 ONE BLIND FLANGE ON TOP WITH 2" TAP & 2" PLUG
 ONE BLIND FLANGE ON BOTTOM
 ONE (MJ) PLUG WITH 2" TAP & 2" TEMPORARY BLOW-OFF
 TEMPORARY BLOCK

CUT-IN (BY CITY FORCES)
 TEE (FLxFL) W/ CONC. BLOCK
 1- GATE VALVES (FLxMJ)
 2- SOLID SLEEVES (MJ) OR RO-MAC COUPLINGS
 1- PLUG (MJ) W/2" TAP & TEMP. BLOW-OFF
 TEMP. BLOCK



AFTER ALL TESTING, CLEANING BY POLYPIG, AND DISINFECTION,
 REMOVE TEMP. BLOCK & BLOW-OFF & CONNECT
 WITH SLEEVE (MJ) & D.I. SPOOLS
 FINAL CONNECTION BY CITY FORCES

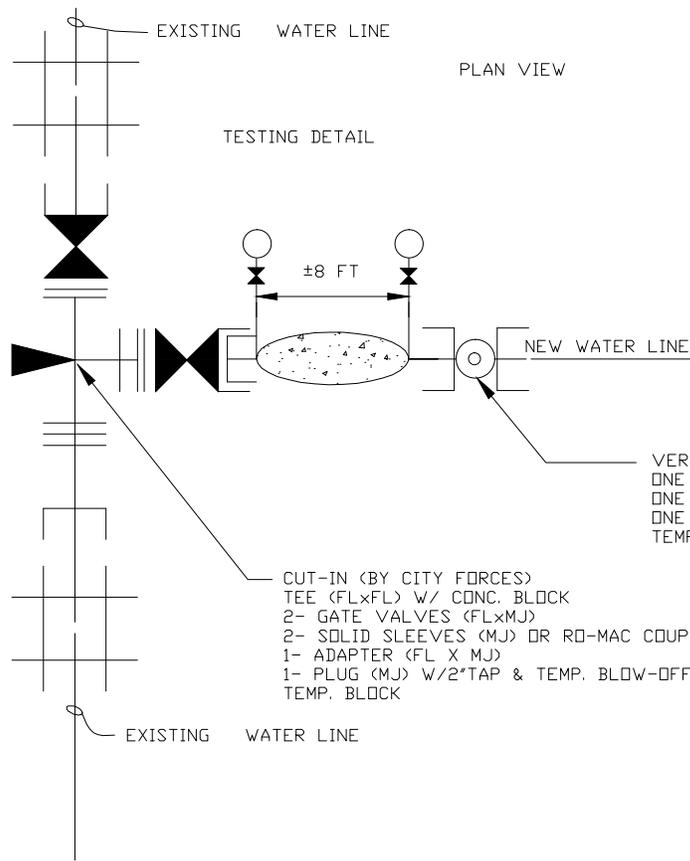


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CONNECTION TO WATER MAIN CUT
 IN-LINE TEE & ONE VALVE

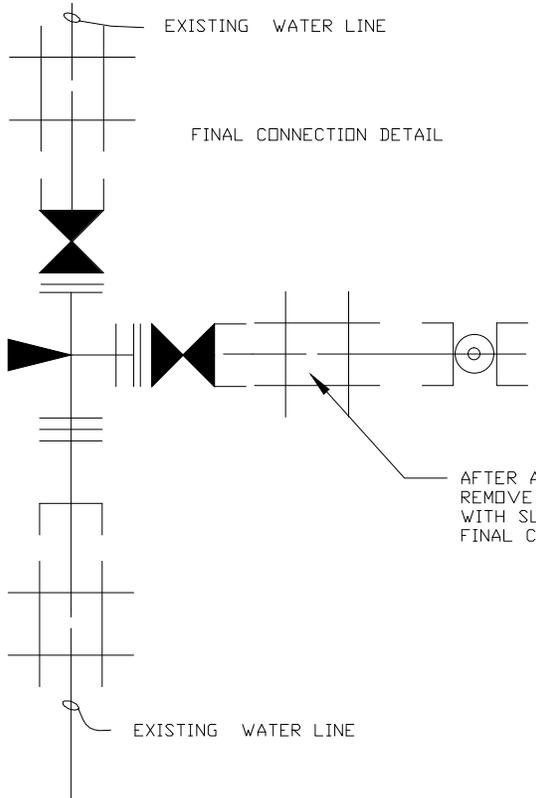
STD. PLAN - 300.2

MARCH 2010



VERTICAL CROSS(MJxFL) FOR POLYPIGGING
 ONE BLIND FLANGE ON TOP WITH 2" TAP & 2" PLUG
 ONE BLIND FLANGE ON BOTTOM
 ONE (MJ) PLUG WITH 2" TAP & 2" TEMPORARY BLOW-OFF
 TEMPORARY BLOCK

CUT-IN (BY CITY FORCES)
 TEE (FLxFL) W/ CONC. BLOCK
 2- GATE VALVES (FLxMJ)
 2- SOLID SLEEVES (MJ) OR RO-MAC COUPLINGS
 1- ADAPTER (FL X MJ)
 1- PLUG (MJ) W/2" TAP & TEMP. BLOW-OFF
 TEMP. BLOCK



AFTER ALL TESTING, CLEANING BY POLYPIG, AND DISINFECTION,
 REMOVE TEMP. BLOCK & BLOW-OFF & CONNECT
 WITH SLEEVE (MJ) & D.I. SPOOLS
 FINAL CONNECTION BY CITY FORCES

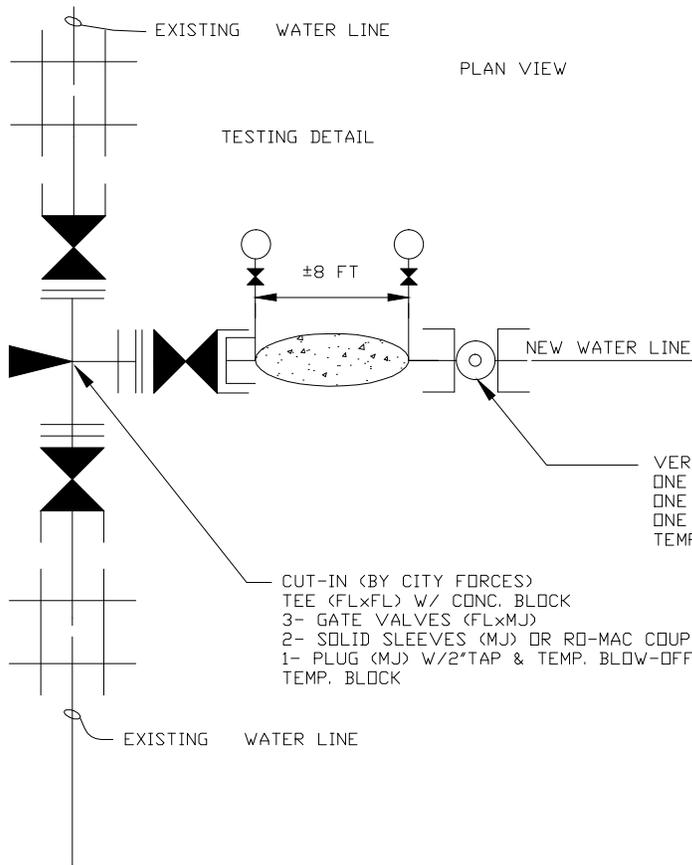


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 DEPARTMENT

CONNECTION TO WATER MAIN CUT
 IN-LINE TEE & TWO VALVES

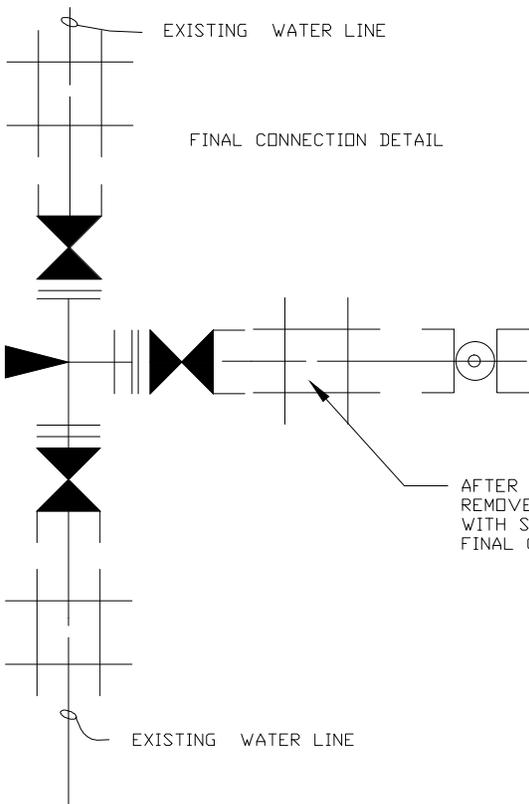
STD. PLAN - 300.3

MARCH 2010



VERTICAL CROSS(MJxFL) FOR POLYPIGGING
 ONE BLIND FLANGE ON TOP WITH 2" TAP & 2" PLUG
 ONE BLIND FLANGE ON BOTTOM
 ONE (MJ) PLUG WITH 2" TAP & 2" TEMPORARY BLOW-OFF
 TEMP. BLOCK

CUT-IN (BY CITY FORCES)
 TEE (FLxFL) W/ CONC. BLOCK
 3- GATE VALVES (FLxMJ)
 2- SOLID SLEEVES (MJ) OR RD-MAC COUPLINGS
 1- PLUG (MJ) W/2" TAP & TEMP. BLOW-OFF
 TEMP. BLOCK



AFTER ALL TESTING, CLEANING BY POLYPIG, AND DISINFECTION,
 REMOVE TEMP. BLOCK & BLOW-OFF & CONNECT
 WITH SLEEVE (MJ) & D.I. SPOOLS
 FINAL CONNECTION BY CITY FORCES



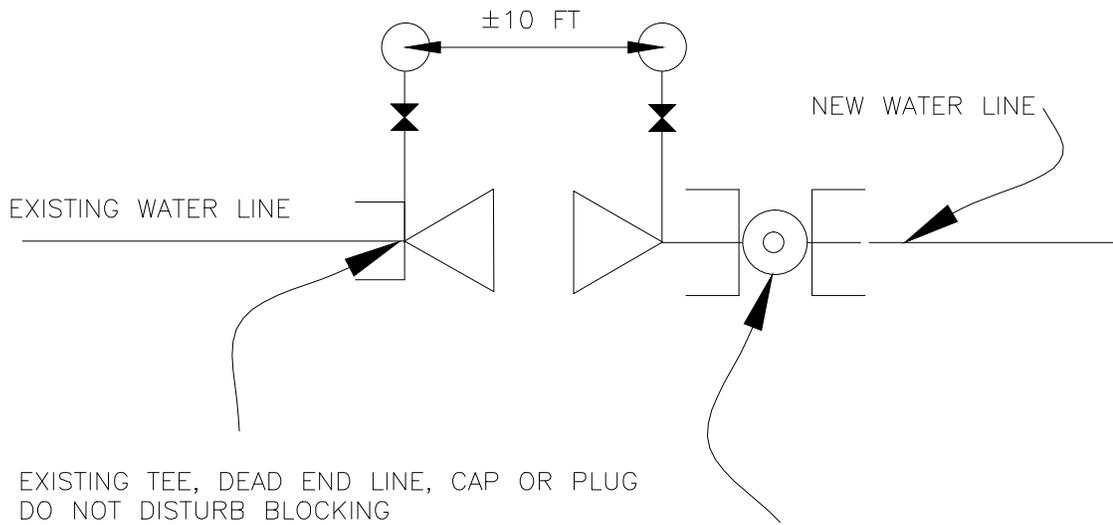
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CONNECTION TO WATER MAIN
 CUT IN-LINE TEE & THREE VALVES

STD. PLAN - 300.4

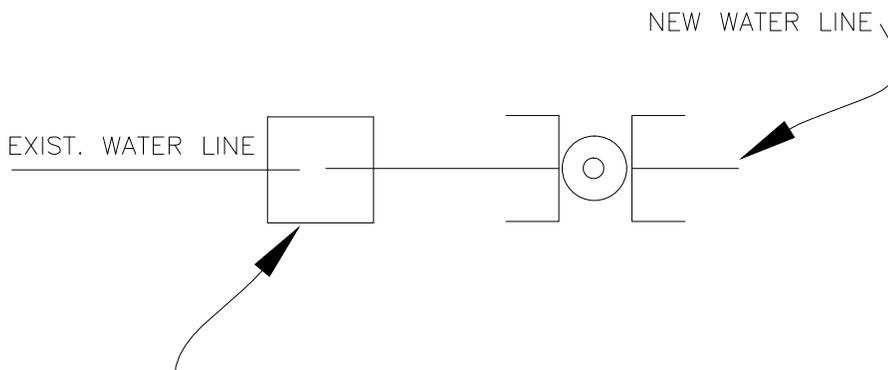
MARCH 2010

TESTING DETAIL



VERTICAL CROSS (MJxFL) FOR POLYPIGGING
 1-BLIND FLANGE ON TOP WITH 2" TAP & 2" PLUG
 1-BLIND FLANGE ON BOTTOM
 1-PLUG (MJ) W/ 2" TAP & 2" BLOW-OFF
 TEMP. BLOCK

FINAL CONNECTION DETAIL



AFTER ALL TESTING, CLEANING BY POLYPIG AND DISINFECTION,
 REMOVE TEMP. BLOCK & BLOW-OFF & CONNECT
 TO EXISTING WATER LINE WITH SLEEVE (MJ)
 AND D.I. SPOOLS
 FINAL CONNECTION BY CITY FORCES

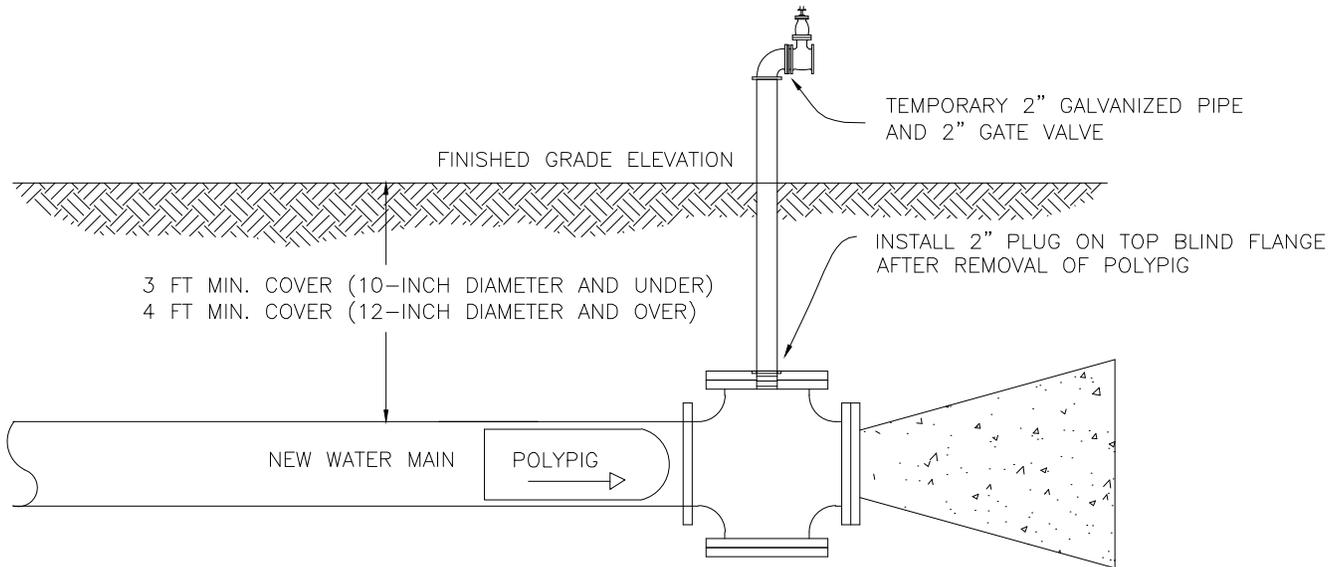


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CONNECTION TO WATER MAIN
 EXISTING TEE OR END LINE CAP

STD. PLAN - 300.5

MARCH 2010



VERTICAL CROSS FOR POLYPIGGING STATION:

- SIZE OF VERTICAL CROSS SHALL BE THE SAME AS SIZE OF MAIN LINE
- VERTICAL CROSS (MJ X FL)
- ONE BLIND FLANGE ON TOP OF CROSS WITH 2" TAP & 2" TEMPORARY BLOW-OFF ASSEMBLY
(REMOVE BLOW-OFF ASSEMBLY AND INSTALL 2" PLUG AFTER REMOVAL OF CLEANING "POLY-PIG")
- ONE BLIND FLANGE ON BOTTOM OF CROSS
- ONE PLUG (MJ) ON END OF CROSS
- CONCRETE BLOCKING
- ALL DEBRIS AND POLYPIGS SHALL BE REMOVED FROM SUMP OF VERTICAL CROSS BEFORE
DISINFECTION OF NEW WATER MAIN



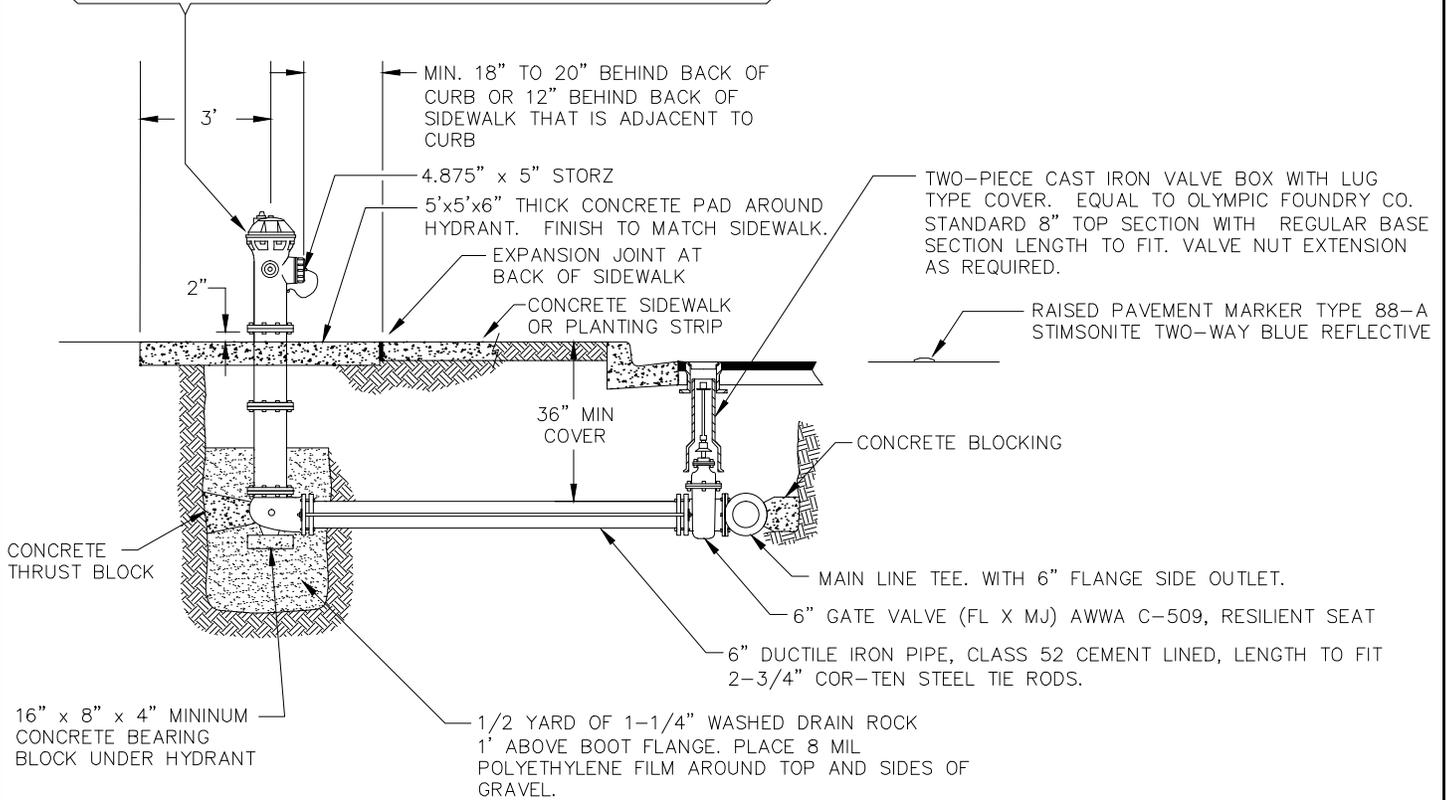
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DEPARTMENT

**POLY PIG STATION FOR CLEANING OF
WATER MAINS**

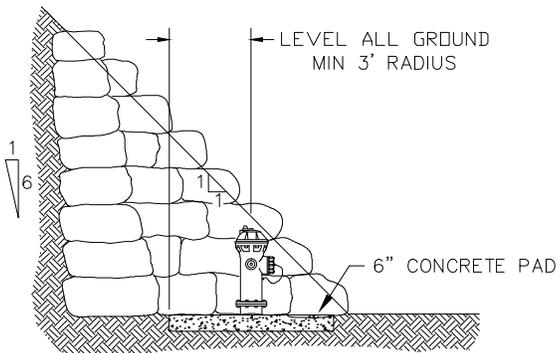
STD. PLAN - 300.6

MARCH 2010

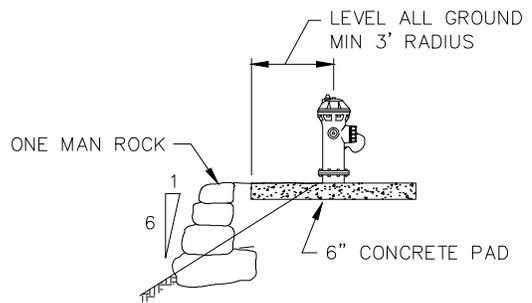
FIRE HYDRANT SHALL BE COREY-TYPE EQUAL TO IOWA F-5110 OR COMPRESSION TYPE SUCH AS CLOW MEDALLION; M & H 929, MUELLER SUPER CENTURION 200, AND WATEROUS PACER WITH 6" MECHANICAL JOINT INLET WITH LUGS. 5-1/4" MAIN VALVE OPENING. TWO 2-1/2" HOSE CONNECTIONS NATIONAL STANDARD THREADS. 4" PUMPER CONNECTION CITY OF SEATTLE THREADS WITH A STORZ ADAPTOR, 4.875" SEATTLE THREAD X 5" STORZ, ATTACHED WITH 1/8" STAINLESS STEEL CABLE. 1-1/4" PENTAGON OPERATING NUT. FIRE HYDRANT TO BE PAINTED WITH TWO COATS OF PAINT. KELLY-MOORE/PRESERVATIVE PAINT No. 5780-563 DTM ACRYLIC GLOSS, SAFETY YELLOW OR APPROVED EQUAL. PUMPER CONNECTION TO FACE ROADWAY OR AS DIRECTED BY RENTON FIRE DEPARTMENT. FIRE HYDRANT EXTENSION TO BE USED IF REQUIRED.



FIRE HYDRANT ASSEMBLY



CUT



FILL

HYDRANT LOCATION IN CUT OR FILL

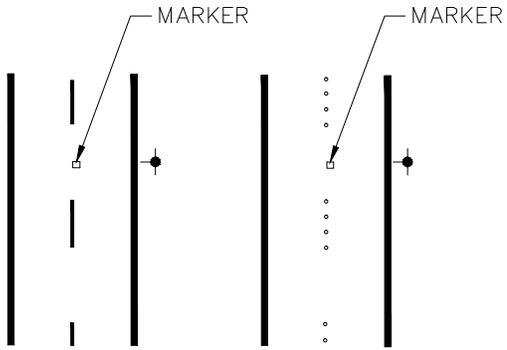


PUBLIC WORKS DEPARTMENT

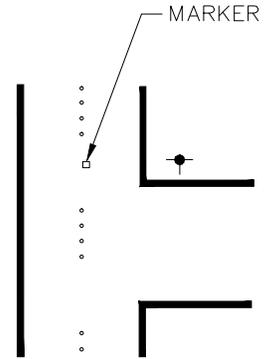
FIRE HYDRANT ASSEMBLY

STD. PLAN - 310.1

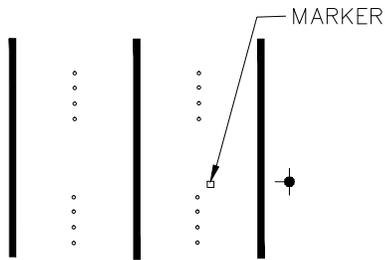
MARCH 2010



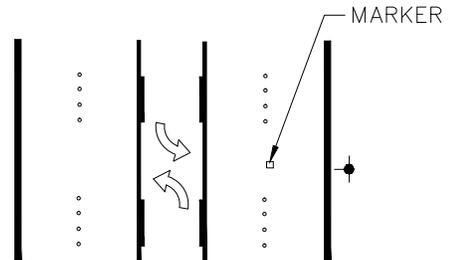
TWO LANE ROAD OFFSET MARKER TO INDICATE WHICH SIDE OF STREET HYDRANT IS ON (4" FROM DOTS OR PAINTED LINE)



ON SIDE STREETS WHERE THE HYDRANT IS WITHIN 20' OF A MAIN TRAVELED STREET, THE MARKER IS TO BE INSTALLED ON THAT MAIN STREET

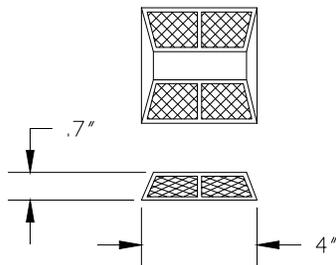


FOUR LANE ROAD OFFSET MARKER TO INDICATE WHICH SIDE OF STREET HYDRANT IS ON (4" FROM DOTS OR PAINTED LANE DIVIDER)



FIVE LANE ROAD OFFSET MARKER TO INDICATE WHICH SIDE OF STREET HYDRANT IS ON (4" FROM DOTS OR PAINTED LANE DIVIDER)

HYDRANT MARKERS



RAISED PAVMENT MARKER TYPE 88 AB STIMSONITE TWO-WAY (BLUE)



PUBLIC WORKS DEPARTMENT

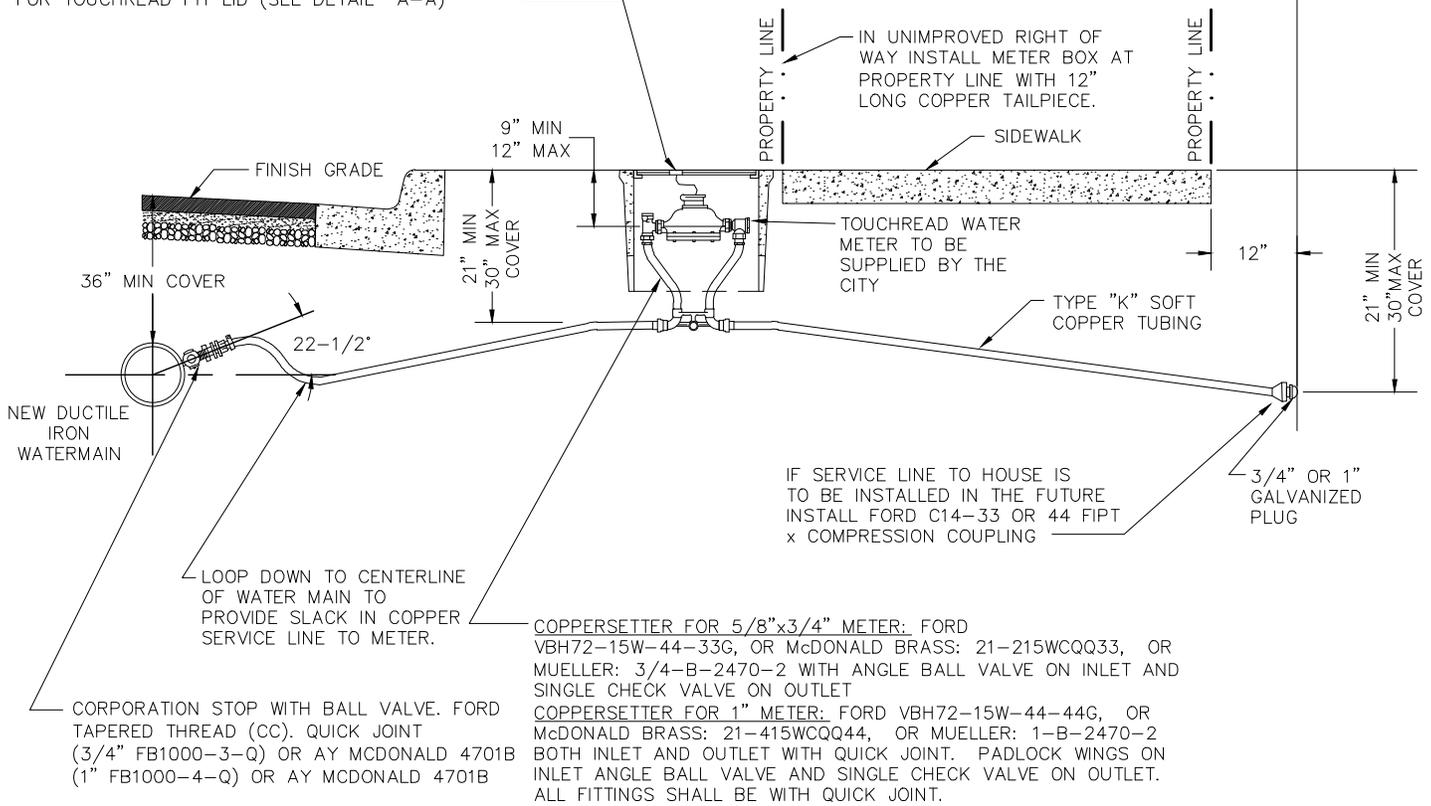
HYDRANT MARKER LAYOUT

STD. PLAN - 310.3

MARCH 2010

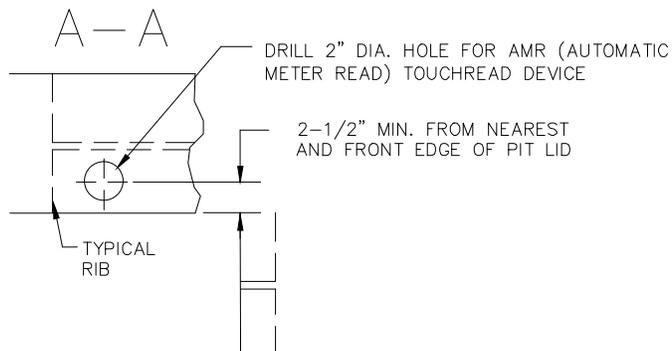
13"x24" PLASTIC METER BOX EQUAL TO MID-STATES PLASTIC, INC. BCF SERIES MSBCF 1324-18 WITH 1.75" THICK DUCTILE IRON DIAMOND PLATE COVER EQUAL TO MID-STATES PLASTICS, INC. MSCBC-1324-R WITH READER LID AND 2" DRILLED HOLE FOR TOUCHREAD PIT LID (SEE DETAIL A-A)

CITY	PRIVATE
PIPING	PIPING



NOTE:

ALL METER BOXES INSTALLED WITHIN CONCRETE OR PAVED DRIVEWAYS SHALL BE CAST-IRON EQUAL TO OLYMPIC FOUNDARY. EXPANSION JOINTS MUST BE INSTALLED ON BOTH SIDES OF METER BOX.



NOTE:

THE CENTER OF THE HOLE MUST BE AT LEAST 1" FROM UNDERNEATH RIBS UNLESS THE RIB SPACING ALLOWS THE NUT TO TIGHTEN AGAINST THE OPEN SIDE OF MORE THAN ONE RIB.



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DEPARTMENT

3/4" AND 1" WATER SERVICE

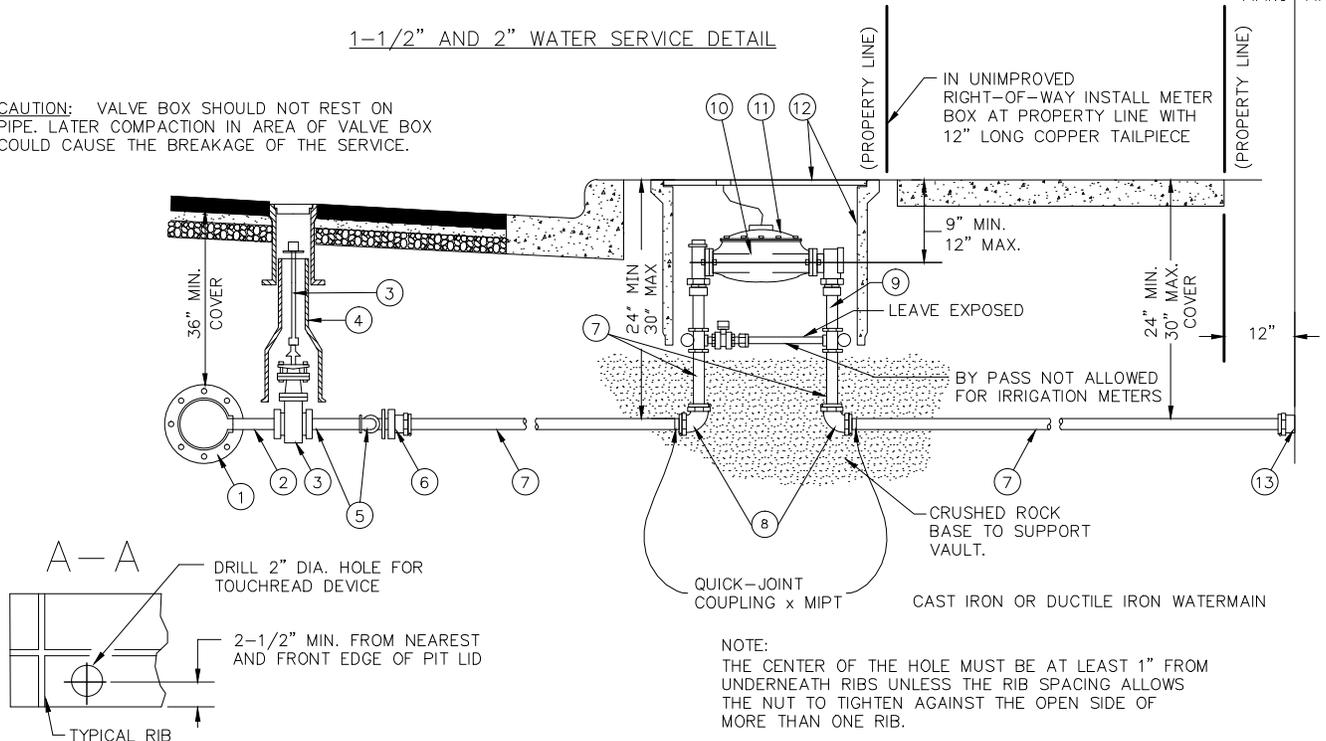
STD. PLAN - 320.1

NOVEMBER 2009

1-1/2" AND 2" WATER SERVICE DETAIL

CITY PIPING ←
PRIVATE PIPING →

CAUTION: VALVE BOX SHOULD NOT REST ON PIPE. LATER COMPACTION IN AREA OF VALVE BOX COULD CAUSE THE BREAKAGE OF THE SERVICE.



MATERIAL LIST FOR 2" SERVICE: METER LOCATED IN PLANTING STRIP BETWEEN CURB & SIDEWALK

1. 2" tapped tee, on new water main.
2. 4" long X 2" brass nipple with threaded ends (MIPT).
3. 2" resilient seat gate valve with threaded ends, square operating nut, and valve nut extension if required (see standard detail 330.1).
4. Two piece cast iron valve box. Standard 8" top section with regular base section, length to fit, "lug" type cover. 2" brass bushing (MIPT x FIPT).
5. 2 each 2" brass or bronze nipples 6" length, threaded ends. 2 each 2"-90° brass or bronze elbows (FIPT x FIPT).
6. 2" (MIPT) x compression fitting, Ford C84-66 or equal.
7. 2" soft copper tubing type K or brass nipples (MIPT x MIPT), length to fit.
8. 2" threaded brass 90° ell.
9. 2" Customsetter with by-pass Ford: VBH 86-12B-11-77 (x 17-3/16"), McDonald Brass: 30B715WDF775 or Mueller B-1427-2", with flanged angle ball valve and padlock wings on inlet, and angle check valve outlet, ball valve on bypass with padlock wings. Customsetter shall have vertical inlet and outlet.
10. Rigid meter spreader to be supplied and installed in meter setter by contractor.
11. Water meter shall be supplied and installed by City of Renton upon payment of all related water meter fee and satisfactory pressure and purity tests.
12. 17"x30" Plastic meter box equal to Mid-States Plastics, Inc. BCF Series MSBCF 1730-18 with 2" thick Ductile iron diamond plate cover 18"x31" equal to Mid-States Plastics, Inc. MSCBC-1730-R with 2" drilled hole for touchread pit lid, and meter read lid.
13. 2" coupling (compression x FIPT) with 2" plug (MIPT), Ford C-14-66 or equal. The property owner is responsible for any necessary adaptation or extension of water service.

MATERIAL LIST FOR 1-1/2" SERVICE: METER LOCATED IN PLANTING STRIP BETWEEN CURB & SIDEWALK

1. 2" tapped tee on new water main.
2. 4" long X 2" brass nipple with threaded ends (MIPT).
3. 2" resilient seat gate valve with threaded ends, square operating nut, and valve nut extension if required (see standard detail 330.1).
4. Two piece cast iron valve box. Standard 8" top section with regular base section, length to fit, "lug" type cover.
5. 2" X 1-1/2" hex brass bushing (MIPT x FIPT). 2 each 1-1/2" brass or bronze nipples 6" length, threaded ends. 2 each 1-1/2"-90° brass or bronze elbows (FIPT x FIPT).
6. 1-1/2" (MIPT) x compression fitting, Ford C84-66 or equal.
7. 1-1/2" soft copper tubing type K or brass nipples (MIPT x MIPT), length to fit.
8. 1-1/2" threaded brass 90° ell, for Ford L44-77 or equal.
9. 1-1/2" Customsetter with by-pass Ford: VBH 86-12B-11-66 (x 13-3/16"), McDonald Brass: 30B612WDF665 or Mueller B-1427-1 1/2", with flanged angle ball valve and padlock wings on inlet, and angle check valve outlet, ball valve on bypass with padlock wings. Customsetter shall have vertical inlet and outlet.
10. Rigid meter spreader to be supplied and installed in meter setter by contractor.
11. Water meter shall be supplied and installed by City of Renton upon payment of all related water meter fee and satisfactory pressure and purity tests.
12. 17"x30" Plastic meter box equal to Mid-States Plastics, Inc. BCF Series MSBCF 1730-18 with 2" thick Ductile iron diamond plate cover 18"x31" equal to Mid-States Plastics, Inc. MSCBC-1730-R with 2" drilled hole for touchread pit lid.
13. 1-1/2" coupling (compression x FIPT) with 1-1/2" plug (MIPT), Ford C-14-66 or equal. The property owner is responsible for any necessary adaptation or extension of water service.

NOTE:

ALL METER BOXES INSTALLED IN CONCRETE OR PAVED DRIVEWAYS SHALL BE CAST-IRON EQUAL TO OLYMPIC FOUNDARY.

EXPANSION JOINTS MUST BE INSTALLED 12" MINIMUM ON BOTH SIDES OF METER BOX.



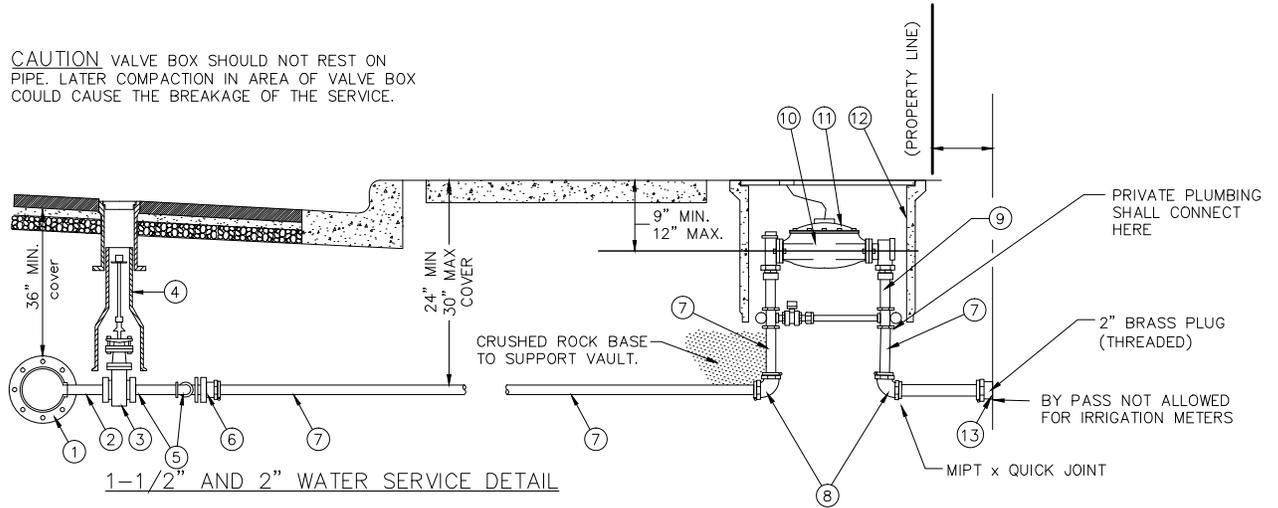
PUBLIC WORKS
DEPARTMENT

**1 1/2" AND 2" WATER SERVICE LOCATED
IN PLANTING STRIP**

STD. PLAN - 320.2

MARCH 2010

CAUTION VALVE BOX SHOULD NOT REST ON PIPE. LATER COMPACTION IN AREA OF VALVE BOX COULD CAUSE THE BREAKAGE OF THE SERVICE.

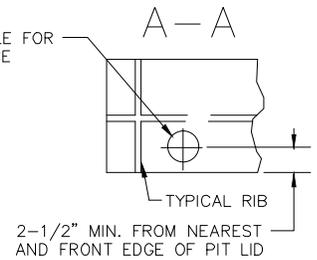


1-1/2" AND 2" WATER SERVICE DETAIL

MATERIAL LIST FOR 2" SERVICE WITH METER LOCATED IN RIGHT-OF-WAY BEHIND SIDEWALK

1. 2" tapped tee on new water meter.
2. 4" long X 2" brass nipple with threaded ends (MIPT).
3. 2" resilient seat valve with threaded ends, square operating nut and valve nut extension if required (see standard detail 330.1).
4. Two piece cast iron valve box. Standard 8" top section with regular base section, length to fit, "lug" type cover.
5. 2" brass bushing (MIPT x FIPT) 2 each 2" brass or bronze nipples 6" length, threaded ends 2 each 2"-90° brass or bronze elbows (FIPT x FIPT)
6. 2" (MIPT) x compression fitting, Ford C84-66 or equal.
7. 2" soft copper type K or brass nipples, length to fit.
8. 2" threaded brass 90° ell.
9. 2" Customsetter with by-pass Ford VBH 86-128-11-77 (17-3/16") or McDonald brass 30B715WDF775, with flanged angle ball valve and padlock wings on inlet, and angle check valve outlet, ball valve on bypass with padlock wings. Customsetter shall have vertical inlet and outlet.
10. Rigid meter spreader to be supplied and installed in meter setter by contractor.
11. Water meter shall be supplied and installed by City of Renton upon payment of all related water meter fee and satisfactory pressure and purity tests.
12. 17"x30" equal to Mid-States Plastics, Inc. BCF Series MSBCF 1730-18 with 2" thick Ductile iron diamond plate cover 18"x31" equal to Mid-States Plastics, Inc. MSCBC-1730-R with 2" drilled hole for touchread pit lid, and meter read lid.
13. 2" coupling (compression x FIPT) with 2" plug (MIPT), Ford C-14-66 or equal. The property owner is responsible for any necessary adaptation or extension of water service.

DRILL 2" DIA. HOLE FOR TOUCHREAD DEVICE



MATERIAL LIST FOR 1-1/2" SERVICE WITH METER LOCATED IN RIGHT-OF-WAY BEHIND SIDEWALK

1. 2" tapped tee on new water main
2. 4" long X 2" brass nipple with threaded ends (MIPT).
3. 2" resilient seat valve with threaded ends, square operating nut and valve nut extension if required (see standard detail 330.1).
4. Two piece cast iron valve box. Standard 8" top section with regular base section, length to fit, "lug" type cover.
5. 2" X 1-1/2" hex brass bushing (MIPT x FIPT), 2 each 1-1/2" brass or bronze nipples 6" length (threaded ends), 2 each 1-1/2"- 90° brass or bronze elbows (FIPT x FIPT)
6. 1-1/2" (MIPT) x compression fitting, Ford C84-66 or equal.
7. 1-1/2" soft copper type K or brass nipples, length to fit.
8. 1-1/2" pack-joint 90° ell, for Ford L44-77 or equal.
9. 1-1/2" Customsetter with by-pass Ford VBH 66-12B x 13-3/16" or McDonald brass, with flanged angle ball valve and padlock wings on inlet, and angle check valve outlet, ball valve on bypass with padlock wings. Customsetter shall have vertical inlet and outlet.
10. Rigid meter spreader to be supplied and installed in meter setter by contractor.
11. Water meter shall be supplied and installed by City of Renton upon payment of all related water meter fee and satisfactory pressure and purity tests.
12. 17"x30" equal to Mid-States Plastics, Inc. BCF Series MSBCF 1730-18 with 2" thick Ductile iron diamond plate cover 18"x31" equal to Mid-States Plastics, Inc. MSCBC-1730-R with 2" drilled hole for touchread pit lid and meter read lid.
13. 1-1/2" coupling (compression x FIPT) with 1-1/2" plug (MIPT), Ford C-14-66 or equal. The property owner is responsible for any necessary adaptation or extension of water service.

NOTE:

ALL METER BOXES INSTALLED IN CONCRETE OR PAVED DRIVEWAYS SHALL BE CAST-IRON EQUAL TO OLYMPIC FOUNDARY.

EXPANSION JOINTS MUST BE INSTALLED 12" MINIMUM ON BOTH SIDES OF METER BOX.



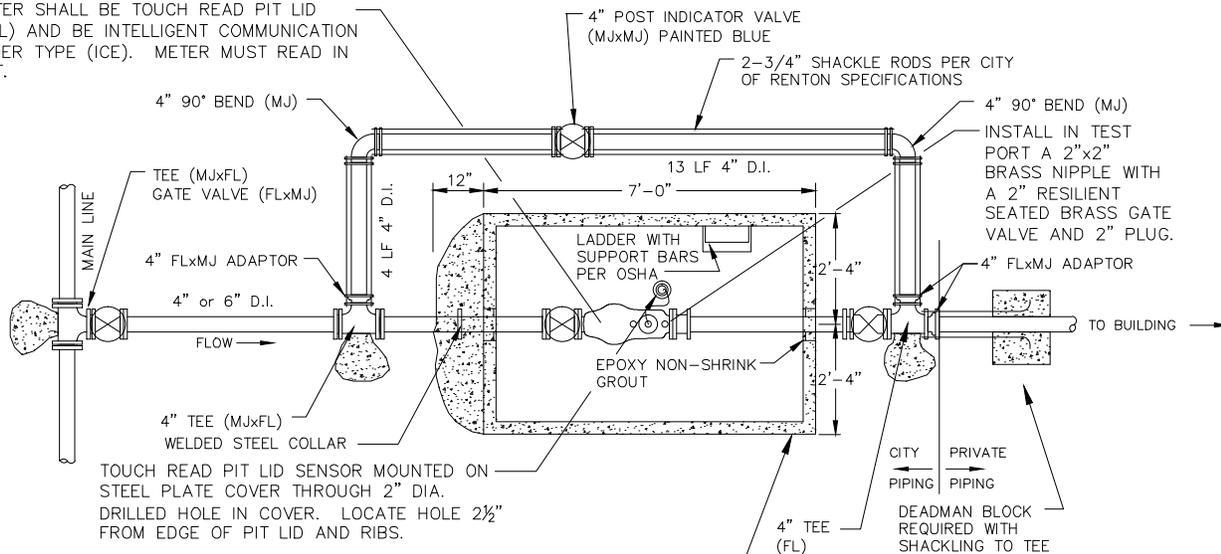
PUBLIC WORKS
DEPARTMENT

**2 AND 1 1/2" WATER SERVICE LOCATED
IN RIGHT OF WAY BEHIND SIDEWALK**

STD. PLAN - 320.3

FEBRUARY 2010

REGISTER SHALL BE TOUCH READ PIT LID (TR-PL) AND BE INTELLIGENT COMMUNICATION ENCODER TYPE (ICE). METER MUST READ IN CU. FT.



TOUCH READ PIT LID SENSOR MOUNTED ON STEEL PLATE COVER THROUGH 2" DIA. DRILLED HOLE IN COVER. LOCATE HOLE 1/2" FROM EDGE OF PIT LID AND RIBS.

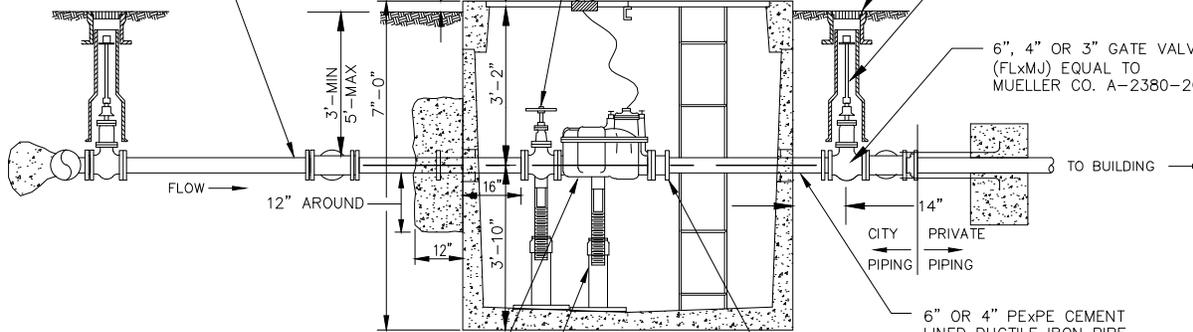
PRECAST CONCRETE VAULT WITH 2 3"x3" HINGED STEEL PLATE COVER. OUTSIDE DIMENSIONS 4'-8"x7'-0". (EQUAL TO PIPE INC., OR UTILITY VAULT WITH 57-7L-B, 2 3'x3' DIAMOND PLATE DOORS)

6", 4" OR 3" GATE VALVE (FLxFL) NON-RISING STEM WITH HAND WHEEL EQUAL TO MUELLER CO. A-2380-6.

SENSUS MODEL 520R RADIO READ PIT SET SENSOR MOUNTED ON STEEL PLATE COVER THROUGH 2" DIA. DRILLED HOLE IN COVER

TWO PIECE CAST IRON VALVE BOX, EQUAL TO OLYMPIC FOUNDRY CO. STANDARD 8" TOP SECTION, WITH REGULAR BASE SECTION LENGTH TO FIT

6" OR 4" (FLxPE) CEMENT LINED DUCTILE IRON PIPE CLASS 52 3'-6" LONG WITH COLLAR 20" FROM P.E. EQUAL TO THOSE SUPPLIED BY PACIFIC WATER WORKS CO. INC.



6", 4" OR 3" COMPOUND WATER METER (FL) EQUAL TO SENSUS SRII COMPOUND METER WITH TOUCHREAD PITLID I.C.E. REGISTER & SENSOR WITH 4 WHEEL HIGH RESOLUTION (100 CUBIC FEET) REGISTER. FOR 3" METER, REDUCE AT METER WITH 4"x3" FLxFL CONCENTRIC REDUCER.

ADJUSTABLE STEEL PIPE SUPPORT STANCHION BOLTED TO FLOOR

6" OR 4" FLEXIBLE FLANGED COUPLING ADAPTOR, ROMAC OR APPROVED EQUAL.

GENERAL NOTES:

ALL METERS AND BACKFLOW PREVENTION DEVICE COMBINATIONS ARE NOT SHOWN OR INCLUDED IN THE STANDARD DETAIL DRAWINGS. IF YOUR PARTICULAR COMBINATION IS NOT SHOWN, AN APPROVED DRAWING WILL BE REQUIRED BY THE UTILITY ENGINEERING DEPT. FOR ITS INSTALLATION.

THE PRINCIPAL REQUIREMENTS REGARDING VAULT SIZING ARE THE LENGTH OF FITTINGS OR THEIR CLEARANCE FROM THE VAULT WALLS, (WHICH CLEARANCE SHALL BE A MINIMUM OF 12" FROM THE ENDS AND THE SIDE CLEARANCE SHOULD BE AS TYPICALLY SHOWN ON THE VARIOUS STANDARD DETAILS).

NOTE: DEADMAN BLOCK SHALL BE DESIGNED AND INSTALLED SO IT BEARS AGAINST SUFFICIENT UNDISTURBED EARTH SO AS TO SUPPORT THE DESIGNED THRUST.

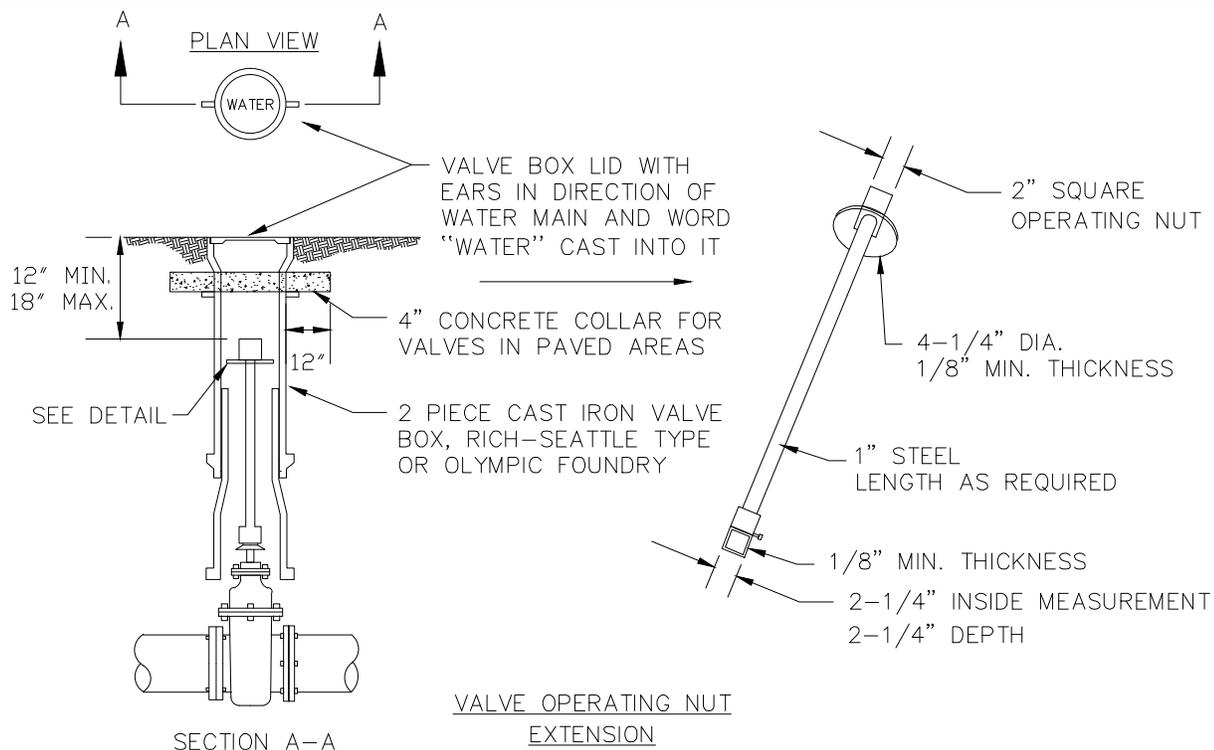


PUBLIC WORKS DEPARTMENT

3", 4" & 6" COMPOUND DOMESTIC WATER METER ASSEMBLY

STD. PLAN - 320.4

MARCH 2010



VALVE OPERATION NUT EXTENSION NOTE:

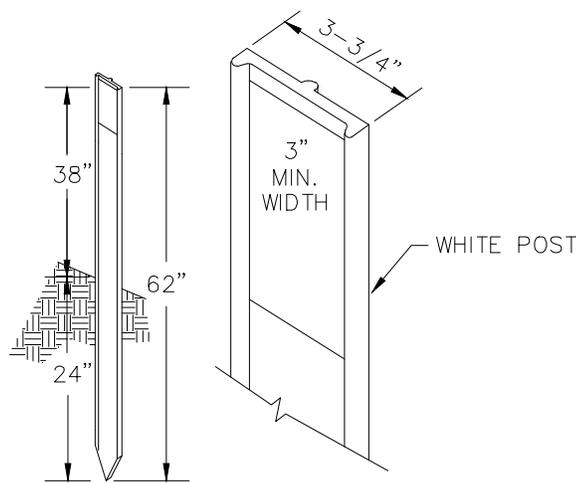
EXTENSIONS ARE REQUIRED WHEN VALVE NUT IS MORE THAN THREE (3) FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG. ONLY ONE EXTENSION TO BE USED PER VALVE.

NOTE: ALL EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH TWO COATS OF METAL PAINT.

VALVE MARKER NOTES:

VALVE MARKERS SHALL BE EQUAL TO CARSONITE UTILITY MARKER

VALVE MARKER POST TO BE USED FOR ALL MAIN LINE VALVES OUTSIDE PAVED AREAS



VALVE MARKER POST

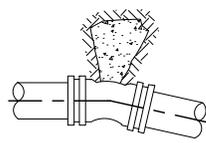


PUBLIC WORKS DEPARTMENT

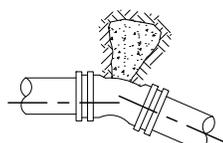
VALVE BOX, MARKER & OPERATING NUT EXTENSION

STD. PLAN - 330.1

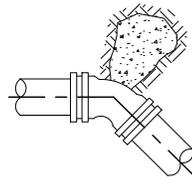
MARCH 2010



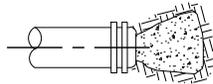
11-1/4° BEND



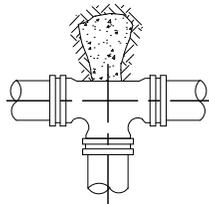
22-1/2° BEND



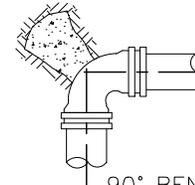
45° BEND



CAP



TEE



90° BEND

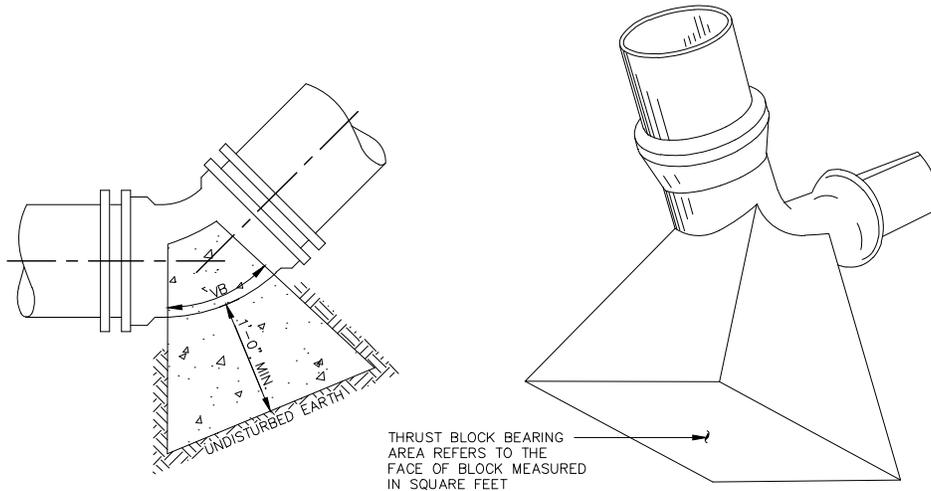
THRUST BLOCK BEARING AREA IN SQUARE FEET (SEE NOTES) FOR HORIZONTAL AND DOWNWARD VERTICAL BENDS

PIPE SIZE	SOIL	FIRM SILT OR FIRM SILTY SAND				COMPACT SAND				COMPACT SAND & GRAVEL			
		90° BEND	TEE	45° BEND CAP OR PLUG	11 1/4° & 22 1/2° BEND	90° BEND	TEE	45° BEND CAP OR PLUG	11 1/4° & 22 1/2° BEND	90° BEND	TEE	45° BEND CAP OR PLUG	11 1/4° & 22 1/2° BEND
4"		7.0	4.2	4.2	1.7	2.9	2.1	2.1	1.0	2.2	1.6	1.6	1.0
6"		13.3	9.4	9.4	3.8	6.7	4.7	4.7	1.9	5.0	3.5	3.5	1.4
8"		23.3	16.7	16.7	6.7	11.7	8.4	8.4	3.4	8.8	6.3	6.3	2.5
12"		53.0	37.5	37.5	15.0	26.5	18.8	18.8	7.5	20.0	14.0	14.0	5.6

AREAS CALCULATED ON 300 PSI TEST PRESSURE. 3'-0" MIN. COVER FOR WATERMAIN LESS THAN 12".
 4'-0" MIN. COVER FOR WATERMAIN 12" OR GREATER.

MAX. HEIGHT OF THRUST BLOCK (FT) = 0.5 x DEPTH OF TRENCH

MIN. HEIGHT OF THRUST BLOCK (FT) = O.D. PIPE + 1.0'



THRUST BLOCK BEARING AREA REFERS TO THE FACE OF BLOCK MEASURED IN SQUARE FEET

NOTES:

1. LOCATION AND SIZE OF BLOCKING FOR PIPE LARGER THAN 12" DIAMETER AND FOR SOIL TYPES DIFFERENT THAN SHOWN SHALL BE DETERMINED BY THE ENGINEER.
2. ALL BLOCKING SHALL BE POURED IN PLACE AGAINST UNDISTURBED NATIVE GROUND.
3. ALL POURED THRUST BLOCKS SHALL BE BACKFILLED AFTER MIN. 1 DAY. PRESSURE TESTING SHALL OCCUR AFTER CONCRETE HAS REACHED NOMINAL COMPRESSIVE STRENGTH.
4. ALL BLOCKING SHALL BE CONCRETE CL 5 (1-1/2").
5. BLOCKING AGAINST FITTINGS SHALL BEAR AGAINST THE GREATEST FITTING SURFACE AREA POSSIBLE, BUT SHALL NOT COVER OR ENCLOSE BELL ENDS, JOINT BOLTS OR GLANDS. REASONABLE ACCESS TO BOLTS AND GLANDS SHALL BE PROVIDED.

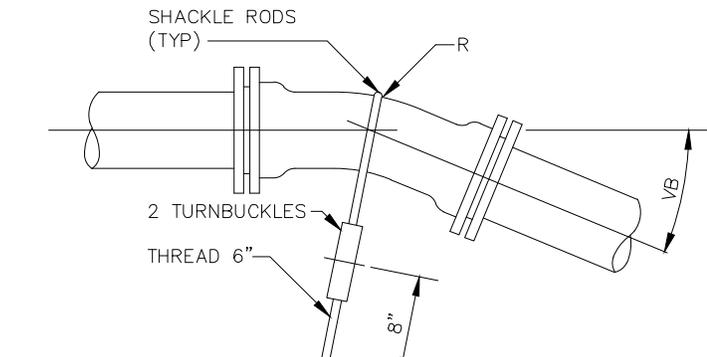


PUBLIC WORKS DEPARTMENT

CONCRETE BLOCKING FOR HORIZONTAL AND DOWNWARD VERTICAL BENDS

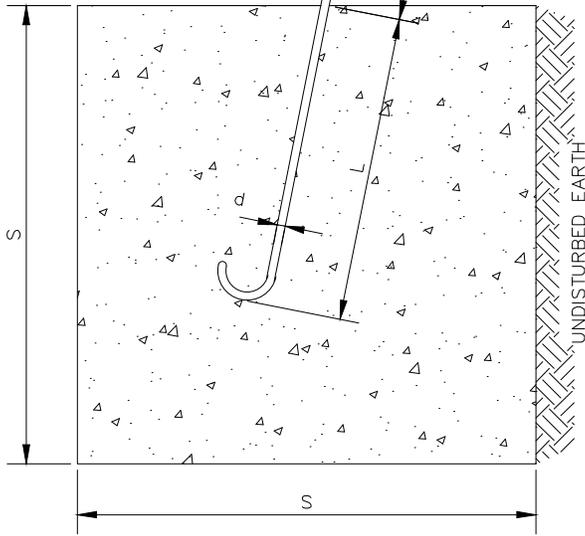
STD. PLAN - 330.2

MARCH 2010

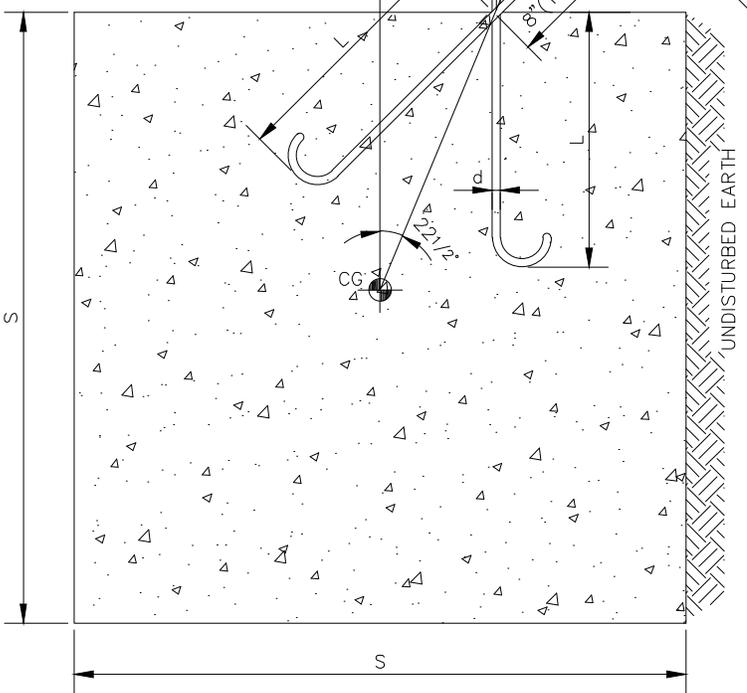
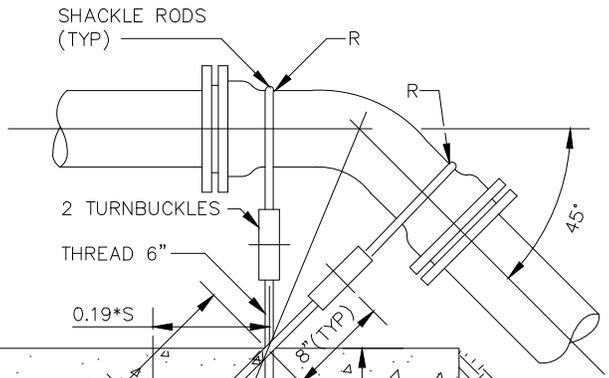


TYPE A BLOCKING FOR 11 1/4° & 22 1/2° VERTICAL BENDS						
PIPE SIZE NOM DIA INCHES	TEST PRESSURE PSI	VB VERTICAL BEND DEGREES	NO OF CU FT OF CONC BLOCKING	S SIDE OF CUBE FEET	d DIA OF SHACKLE RODS (2) INCHES	L DEPTH OF RODS IN CONCRETE INCHES
4"	300	11 1/4	8	2	3/4	18
		22 1/2	12	2 1/4		24
6"	300	11 1/4	12	2 1/4	3/4	24
		22 1/2	27	3		24
8"	300	11 1/4	16	2 1/2	3/4	24
		22 1/2	43	3 1/2		24
12"	300	11 1/4	64	4	1	24
		22 1/2	125	5	1	36

R = INSIDE RADIUS OF SHACKLE ROD BEND



TYPE A



TYPE B

TYPE B BLOCKING FOR 45° VERTICAL BENDS						
PIPE SIZE NOM DIA INCHES	TEST PRESSURE PSI	VB VERTICAL BEND DEGREES	NO OF CU FT OF CONC BLOCKING	S SIDE OF CUBE FEET	d DIA OF SHACKLE RODS (4) INCHES	L DEPTH OF RODS IN CONCRETE INCHES
4"	300	45	27	3	3/4	20
6"			64	4		
8"			125	5		
12"			216	6		



PUBLIC WORKS DEPARTMENT

CONCRETE BLOCKING FOR VERTICAL FITTINGS

STD. PLAN - 330.3

MARCH 2010

Where shown on the plans or in the specifications or required by the Engineer, joint restraint system (shackle rods) shall be used. All joints restraint materials used shall be those manufactured by Star National Products, 1323 Holly Avenue, PO Box 258, Columbus, Ohio 43216 unless an equal alternate is approved in writing by the Engineer.

Materials

Steel Types:

High strength low-alloy steel (cor-ten),
ASTM A588 heat-treated.

1. Tiebolt:

ASTM A588, Grade B, Cor-Ten, equal to SuperStar Tielbolt
SST 7 : 5/8" for 2" and 3" mechanical joints (M.J.) with eye for 5/8" rod
SST 7 : 3/4" for 4" to 12" M.J. with eye for 3/4" rod
SST 756 : 3/4" for 14" to 24" M.J. with eye for 3/4" rod
SST 747 : 3/4" for 4" to 12" M.J. with eye for 7/8" and 1" rod
SST 757 : 3/4" for 14" to 24" M.J. with eye for 7/8" and 1" rod
SST 778: 1" for 30" to 36" M.J. with eye for 1" rod

2. Tienut: Hex Nut

ASTM A588, Grade B, Cor-Ten, equal to SuperStar Tienut
SS8 for 5/8", 3/4", 7/8", 1" Tiebolt and Tierod

3. Tieceoupling with Tiestop Pin

ASTM A588, Grade B, Cor-Ten, equal to SuperStar Tieceoupling
SS10 for 5/8", 3/4", 7/8", 1" Tierod

4. Tierod:

Continuous threaded rod for cutting to desired lengths
ASTM A588, Grade B, Cor-Ten, equal to SuperStar Tierod
SS12 for 5/8", 3/4", 7/8", 1"

5. Tiewasher

ASTM A588, Grade B, Cor-Ten, equal to SuperStar Tiewasher
SS17 for 5/8", 3/4", 7/8", 1" round flat washer

Installation:

Install the joint restraint system in accordance with the Manufacturer's instructions so all joints are mechanically locked together to prevent joint separation.

Tiebolts shall be installed to pull against the mechanical joint body and not the M.J. follower. Torque nuts at 75-90 foot pounds for 3/4" nuts.

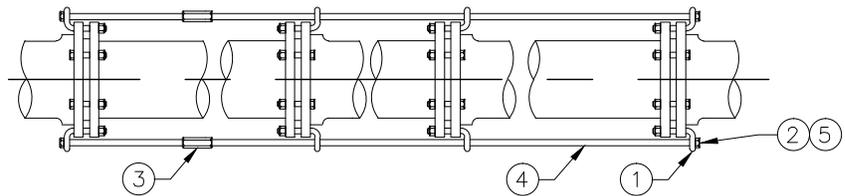
Install tiecouplings with both rods threaded equal distance into tiecouplings. Arrange tierods symmetrically around the pipe.

Where a Manufacturer's mechanical joint valve or fitting is supplied with slots for "T" bolts instead of holes, a flanged valve with a flange by mechanical joint adaptor shall be used instead, so as to provide adequate space for locating tiebolt.

Where a continuous run of pipe is required to be restrained, no run of restrained pipe shall be greater than 60 feet in length betwee fittings. Insert long body solid sleeves as required on longer runs to keep tierod lengths to the 60 foot maximum.

Pipe used in continuously restrained runs shall be mechanical joint pipe and tiebolts shall be installed as rod guides at each joint.

Pipe Size Inches	Test Pressure PSI	Number and Size of Rods							
		2	4	6	8	10	12	14	24
2	250	3/4"							
3	250	3/4"							
4	250	3/4"							
6	250	3/4"							
8	250		3/4"						
10	250		3/4"						
12	250		3/4"						
14	250				3/4"				
16	250				3/4"				
18	250				3/4"				
20	250					3/4"			
24	250						3/4"		
30	200						3/4"		
36	200							1"	
42	200								1"
48	200								1"

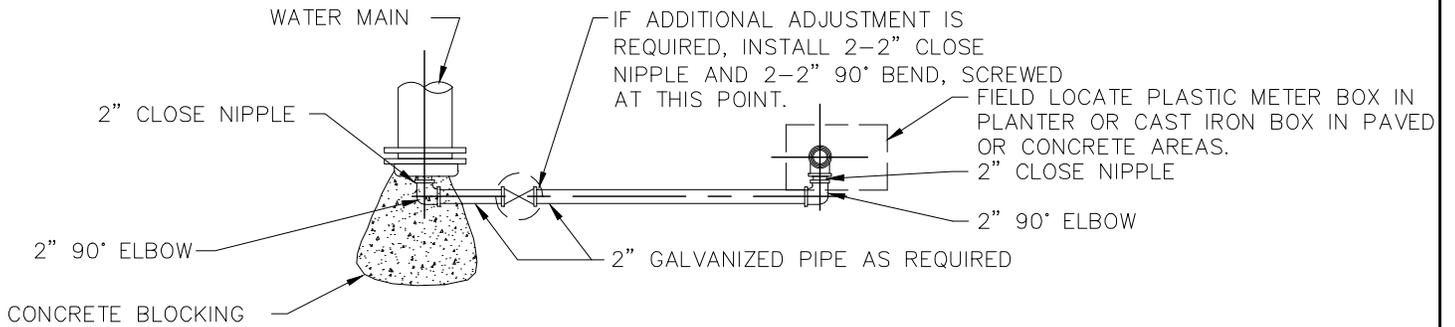


PUBLIC WORKS
DEPARTMENT

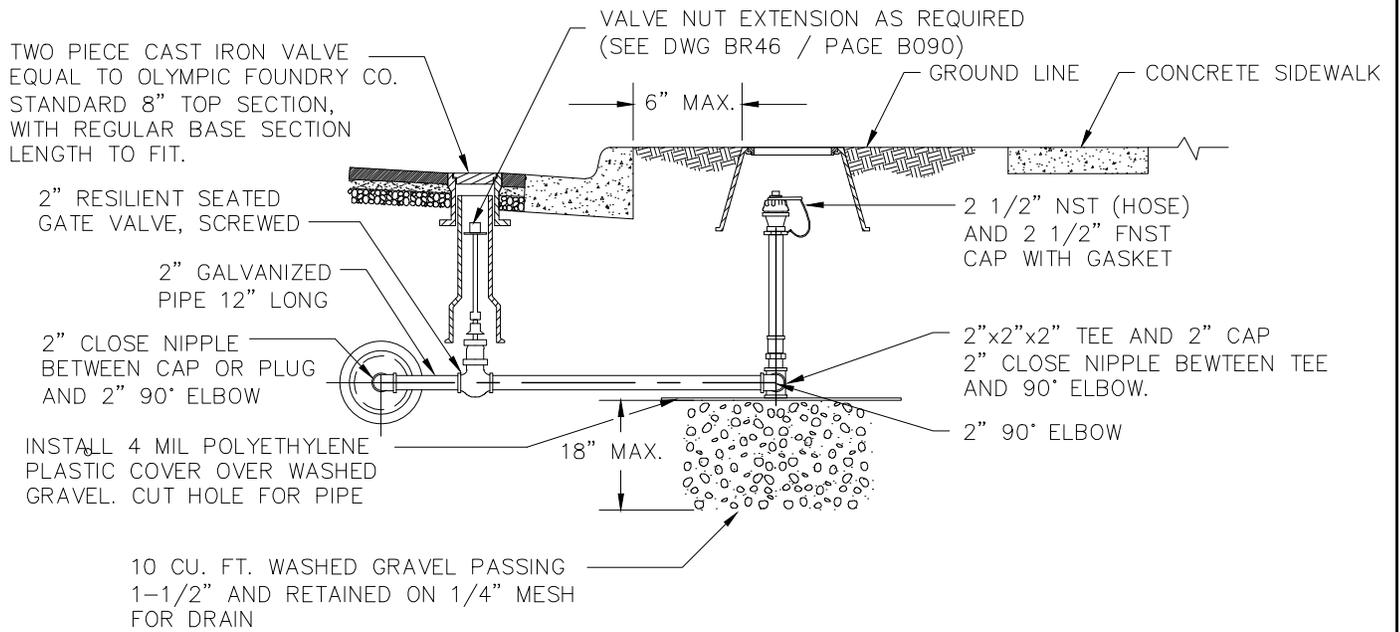
SHACKLE RODDS
AND TIE BOLTS

STD. PLAN - 330.5

MARCH 2010



PLAN



ELEVATION

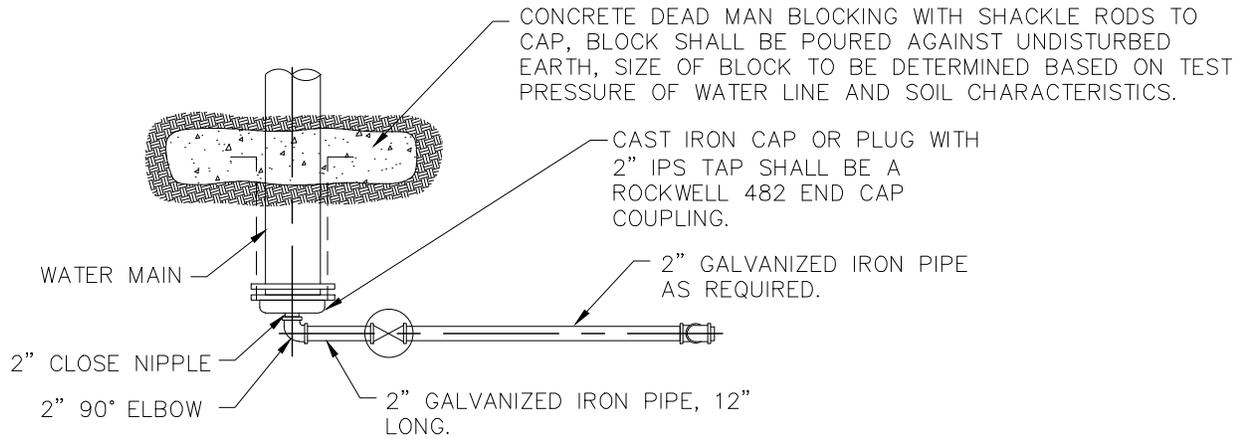


PUBLIC WORKS
DEPARTMENT

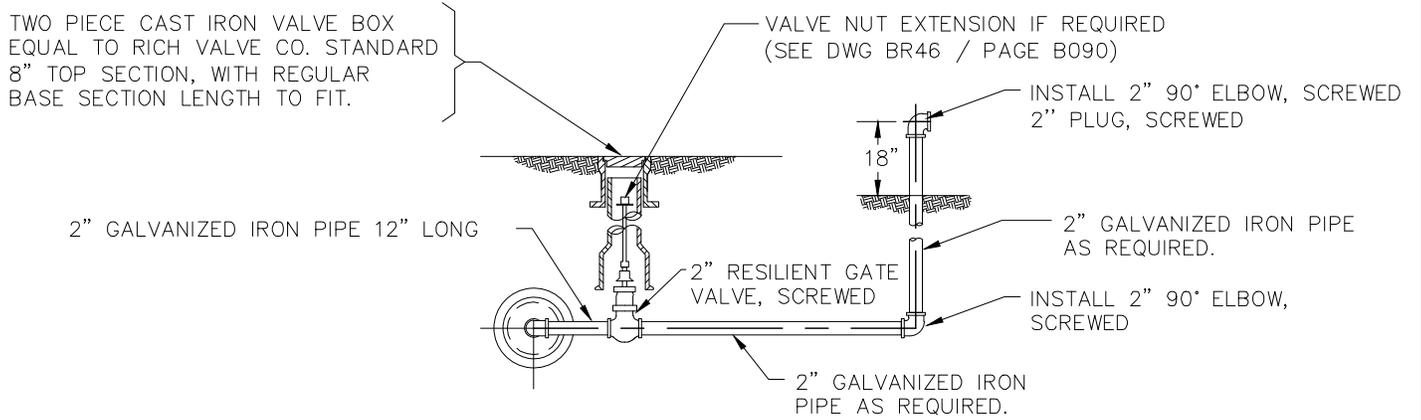
2" BLOW-OFF
PERMANENT ASSEMBLY

STD. PLAN - 340.1

MARCH 2010



PLAN



ELEVATION

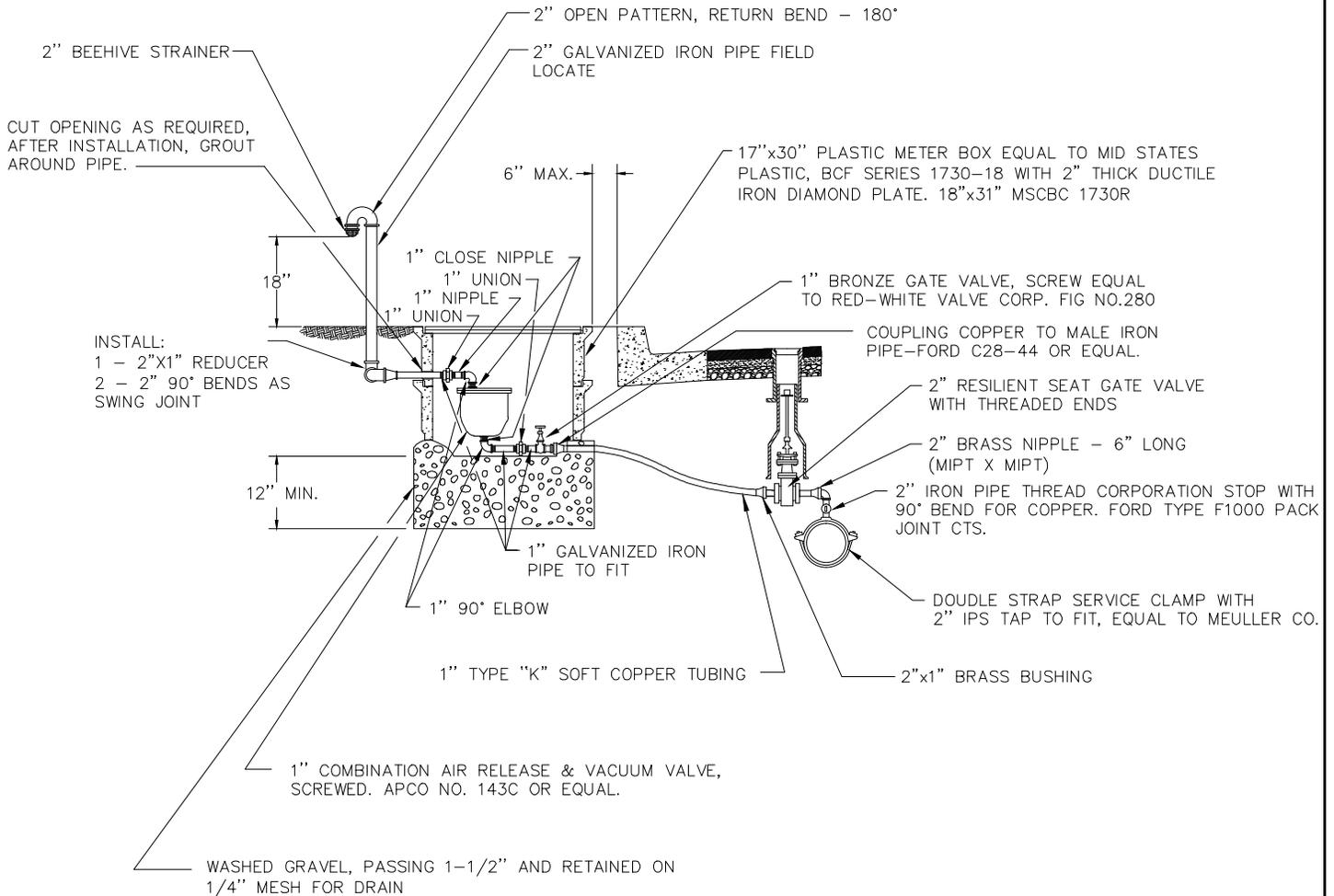


PUBLIC WORKS
DEPARTMENT

**2" BLOW-OFF
TEMPORARY ASSEMBLY**

STD. PLAN - 340.2

MARCH 2010



NOTE:

AIR AND VACUUM RELEASE VALVE ASSEMBLY SHALL BE INSTALLED AT HIGHEST POINT OF LINE. IF HIGH POINT FALLS IN A LOCATION WHERE ASSEMBLY CANNOT BE INSTALLED, PROVIDE ADDITIONAL DEPTH OF LINE TO CREATE A HIGH POINT AT A LOCATION WHERE ASSEMBLY CAN BE INSTALLED.

LOCATE ARE-VACUUM METER BOX OUTSIDE OF TRAFFIC AREAS, IN PLANTING STRIPS, BEHIND CURB OR SIDEWALK.

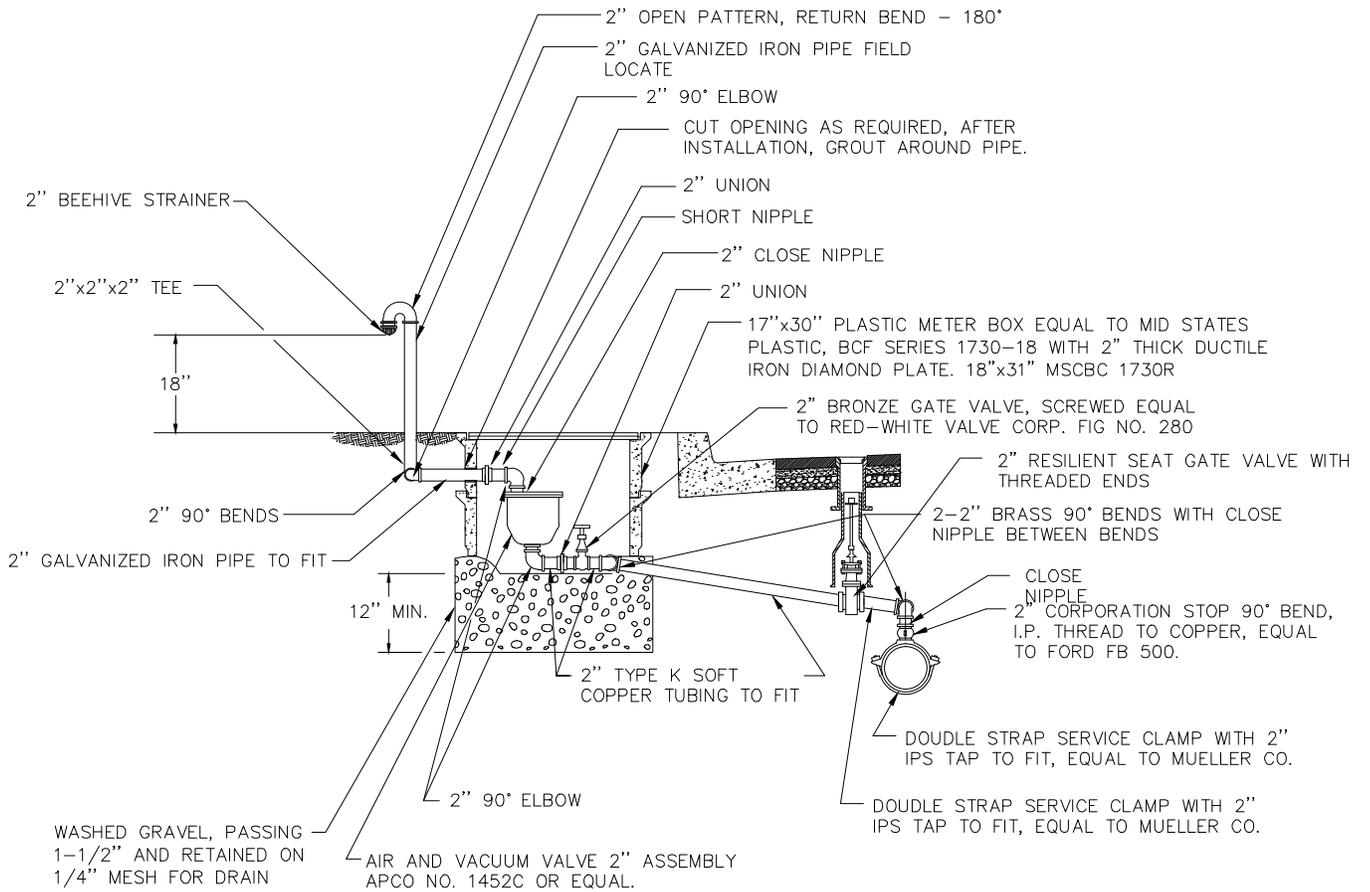


PUBLIC WORKS
DEPARTMENT

**1" AIR & VACUUM RELEASE
ASSEMBLY**

STD. PLAN - 340.3

MARCH 2010



NOTE:

AIR AND VACUUM RELEASE VALVE ASSEMBLY SHALL BE INSTALLED AT HIGHEST POINT OF LINE. IF HIGH POINT FALLS IN A LOCATION WHERE ASSEMBLY CANNOT BE INSTALLED, PROVIDE ADDITIONAL DEPTH OF LINE TO CREATE A HIGH POINT AT A LOCATION WHERE ASSEMBLY CAN BE INSTALLED.

LOCATE AIR VACUUM METER BOX OUTSIDE OF TRAFFIC AREAS, IN PLANTING STRIPS, BEHIND CURB AND SIDEWALK.

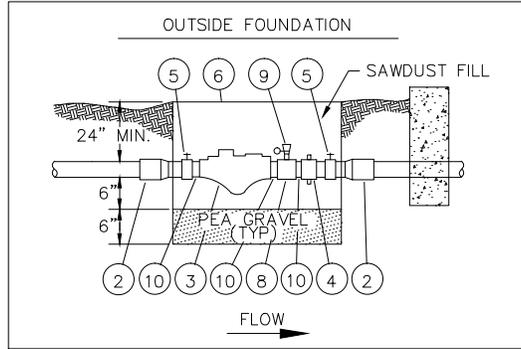
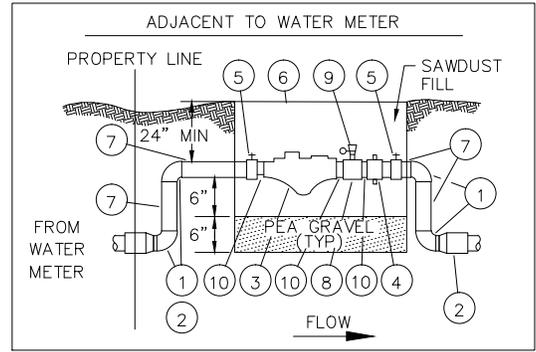
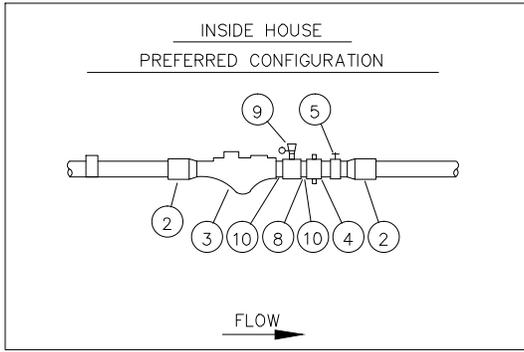


PUBLIC WORKS
DEPARTMENT

**2" AIR & VACUUM RELEASE
ASSEMBLY**

STD. PLAN - 340.4

MARCH 2010



FOR 3/4" AND 1" SERVICE (3/4" SHOWN)

#	ITEM	AMT
1	90° GALVANIZED STEEL ELBOW	4 EA.
2	3/4" PACKING JOINT COUPLING W/MALE IRON PIPE THREAD FOR COPPER PIPE SERVICE: FORD C84-33 OR EQUIVALENT FOR GALVANIZED PIPE SERVICE: FORD C85-33 OR EQUIVALENT	2 EA.
3	PRESSURE REDUCING VALVE W/STRAINER - 3/4" WITH UNION COUPLINGS AT INLET AND OUTLET, WILKINS 600 SERIES OR EQUAL (WITH INTERNAL BYPASS AND STRAINER)	1 EA.
4	3/4" CLOSE UNION - BRASS (M X F)	1 EA.
5	3/4" BRASS VALVE	VARIABLE
6	12" STANDARD METER BOX W/SOLID COVER CONCRETE: 17 1/4 X 28 5/8 INSIDE DIMENSIONS, EQUAL TO FOG TITE METER SEAL CO. +2 PLASTIC: 13 X 24 3/4 INSIDE DIMENSIONS, EQUAL TO BROOKS METER BOX	1 EA.
7	3/4" GALVANIZED STEEL PIPE, THREADED, LENGTH AS REQUIRED	VARIABLE
8	3/4" X 1/4" X 3/4" STD. BRASS TEE	1 EA.
9	1/4" PETCOCK (M X F)	1 EA.
10	3/4" BRASS NIPPLE	VARIABLE

FUNCTION

THE FUNCTION OF A PRESSURE REDUCING VALVE IS TO REDUCE HIGH-WATER PRESSURES IN THE SERVICE CONNECTION TO AN ACCEPTABLE RANGE OF 55 TO 75 PSI. INSTALLATION OF A PRESSURE REDUCING VALVE IS REQUIRED WHERE THE SERVICE CONNECTION PRESSURE EXCEEDS 80 POUNDS PER SQUARE INCH IN ACCORDANCE TO THE UNIFORM PLUMBING CODE.

INSTALLATION

THE PRESSURE REDUCING VALVE SHALL BE LOCATED ON THE CUSTOMER'S PROPERTY "DOWNSTREAM" OF THE METER BOX. RESPONSIBILITY FOR PROPER INSTALLATION, OPERATION, AND MAINTENANCE OF THE VALVE SHALL BE ASSUMED BY THE CUSTOMER. THREE POSSIBLE CONFIGURATIONS FOR INSTALLATION OF THE VALVE ARE SHOWN ABOVE. A BUILDING DEPARTMENT PLUMBING PERMIT IS REQUIRED PRIOR TO INSTALLATION.

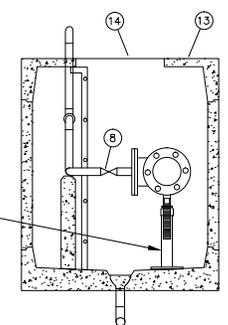
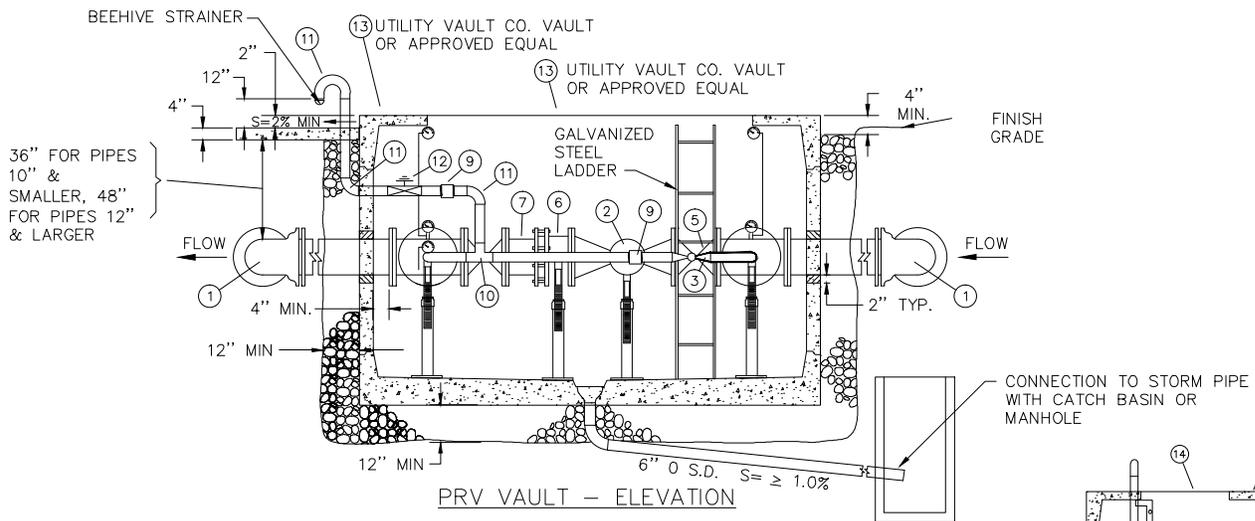
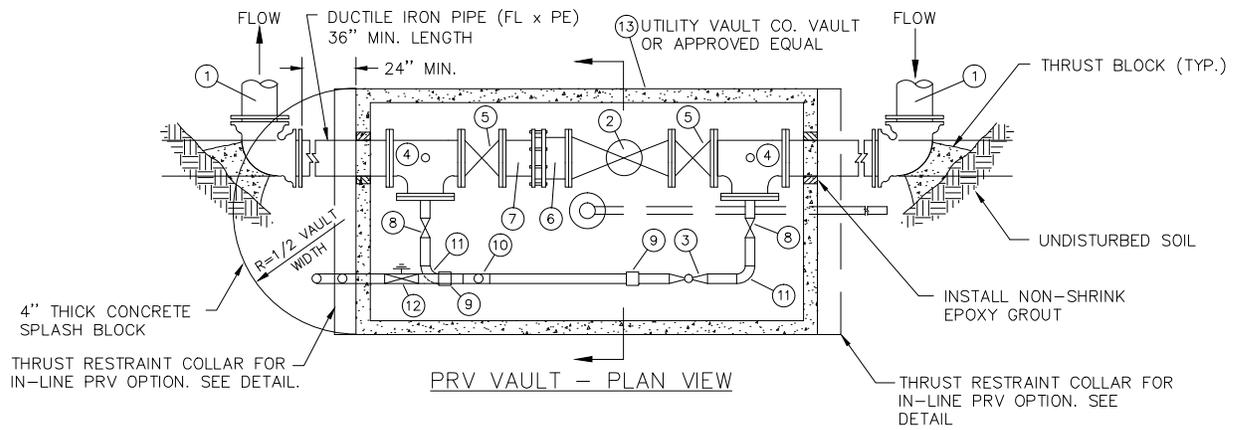


PUBLIC WORKS
DEPARTMENT

3/4" & 1" INDIVIDUAL PRESSURE REDUCING
VALVE ASSEMBLY

STD. PLAN - 340.5

MARCH 2010



NOTE:

SUBMERSIBLE PUMP 12VDC WARREN-RUPP SPA 1-1/2 E
 WHERE STORM DRAIN IS ABOVE FLOOR ELEVATION OF PRV
 VAULT.
 PLAN FOR ELECTRICAL CONDUIT SHALL BE SUBMITTED FOR
 SPECIFIC USAGE.

ADJUSTABLE STEEL PIPE SUPPORT,
 STANCHIONS BOLTED TO FLOOR.

PRV VAULT - SECTION

INLET & OUT-LET PIPE SIZE (IN)	PREV SIZE (IN)	AUZILLARY PREV SIZE (IN)	TEE (FLxFLxFL) SIZE (IN)	ISOLATION GATE VALVE (FLxFL) @ FLANGED COUPLING ADAPTOR SIZE (IN)	D.I. PIPE CL 52 (FL x PE) LENGTH (IN)	GATE VALVE, UNION, TEE & BEND SIZE (IN)	PRESSURE RELIEF VALVE SIZE (IN)	UTILITY VAULT CO. VAULT MODEL NO. (OR APPROVED EQUAL)	UTILITY VAULT CO. VAULT COVER (QTY) @ MODEL n.o. (OR APPROVED EQUAL)
①	②	③	④	⑤ ⑥	⑦	⑧ ⑨ ⑩ ⑪	⑫	⑬	⑭
6	6	1-1/2	6x4	6	36	1-1/2 (SE)	1-1/2 (SE)	5106-LA	3-332P
8	8	2	8x4	8	24	2 (SE)	2 (SE)	5106-LA	3-332P
10	10	2-1/2	10x6	10	24	2-1/2 (SE)	2-1/2 (SE)	612-LA	3-332P
12	12	3	12x6	12	16	3 (SE)	3 (SE)	612-LA	3-332P
14	14	4	14x4	14	24	4 (FL) (NO UNION)	4 (FL)	814-LA	3-332P
16	16	4	16x4	16	18	4 (FL) (NO UNION)	4 (FL)	814-LA	3-332P

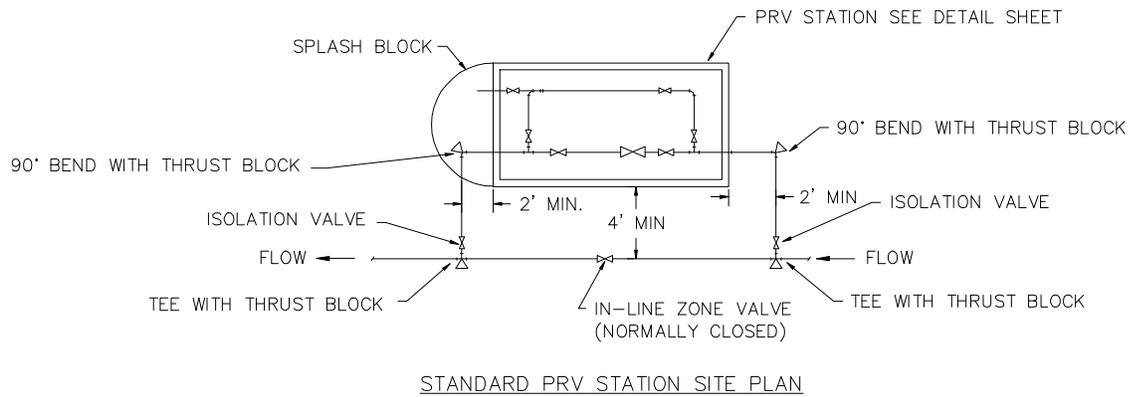


PUBLIC WORKS
 DEPARTMENT

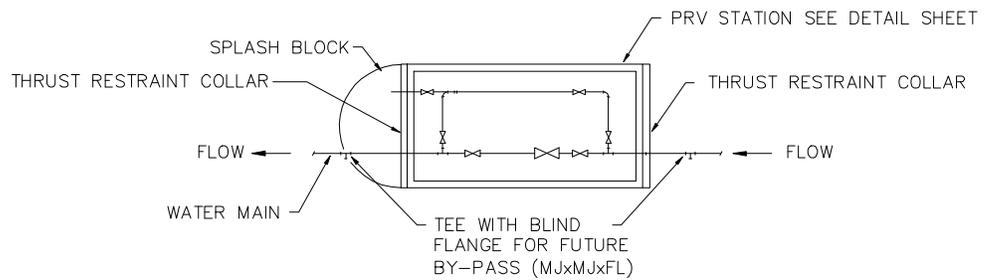
**PRESSURE REDUCING STATION
 IN-VAULT STANDARD**

STD. PLAN - 340.6

MARCH 2010



STANDARD PRV STATION SITE PLAN



PRV STATION SITE PLAN IN-LINE OPTION

GENERAL NOTES

1. The concrete vault shall be either a precast vault made by Utility Vault Co. or equal as specified in the Standard Details, or shall be cast-in-place with 8" walls and slabs. All joints shall be sealed so vault will remain watertight.
2. The vault cover shall be three 3' x 3' spring loaded hinged steel plate, lockable doors with recessed lift handles, as made by Utility Vault Co. or approved equal.
3. Pipe supports shall be adjustable steel pipe support Stanchions bolted to floor of vault.
4. The vault shall contain one ladder constructed of galvanized steel. A detail plan of location and construction shall be submitted to City prior to installation.
5. The exterior of the vault shall be sealed with two coats of ATCO Bitumastic No. 2221.
6. The interior walls and ceiling of the vault shall be painted with two coats of Koppers Ramuc Utility Enamel Flat, or approved equal. The floor shall not be painted.
7. The piping and equipment in the vault shall be given a complete field coat of Inertol Rust Penetrating Primer No. 621 or approved equal. Two finish coats of Torex 800 Enamel, or approved equal, shall be applied over the field coated primer.
8. The Standard PRV Station Site Plan shall be used for all new PRV station construction except when limited right-of-way or existing buildings are restrictive. In such cases, and with City approval, the in-line option may be used.
9. All isolation and zone valves outside the vault shall be provided with a valve box when valves are 10" in size or smaller or a valve chamber when valves are 12" in size or larger.
10. Pressure gauges shall be provided on both inlet and outlet pipes in the PRV vault. Secondary gauges shall be mounted on the ceiling in easy view to be read from outside the vault. Gauges shall read from 0-300 psi. Gauge installation shall include petcock between pipe and gauge.
11. Joints on all valves and fittings outside the vault shall be mechanical joints unless otherwise specified. Joints on valves and fittings inside vault shall be flanged or screwed as specified.
12. Vault drain shall be piped to the nearest storm drain sewer or open drainage ditch in lieu thereof. If no storm drain or drainage ditch is available, vault shall be constructed with a sump on the outlet side of the vault. A sump pump shall be installed and the discharge from the pump released onto a concrete pad outside the vault.
13. Cut 3" thick x 5" wide ethafoam 220 or equal to a length necessary to fit the size of pipe installed and compressed into place. The contractor shall make sure the foam is compacted tightly between pipe and vault wall with no voids. Lightly grout interior around pipe.
14. Pipe extending through vault shall be ductile iron, class 53, cement lined.



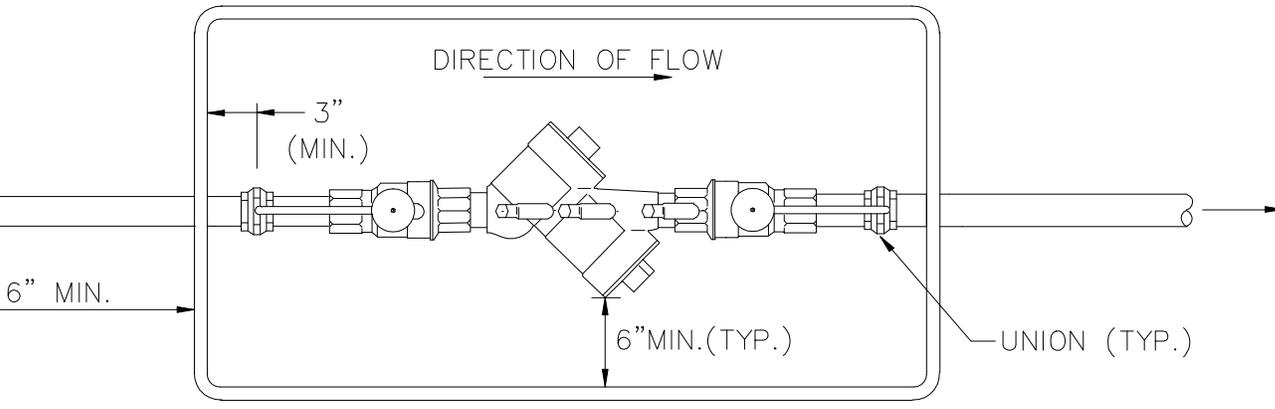
PUBLIC WORKS
DEPARTMENT

**PRESSURE REDUCING STATION
IN-VAULT WITH IN-LINE VALVE**

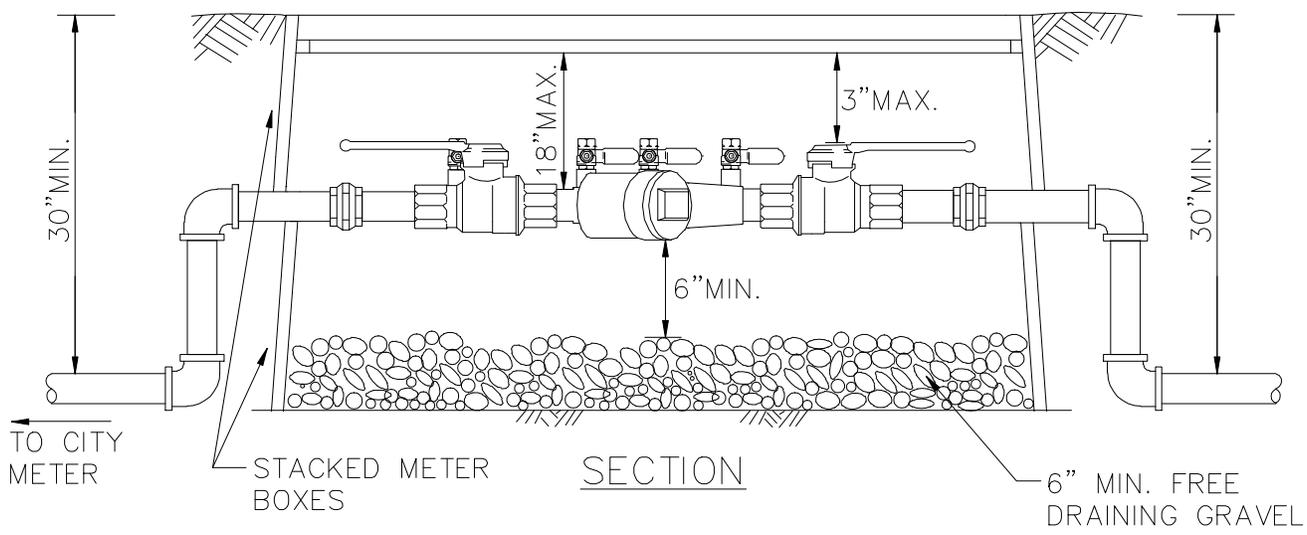
STD. PLAN - 340.7

MARCH 2010

RIGHT-OF-WAY
OR PROPERTY LINE



PLAN



SECTION

NOTES:

1. ALL DOUBLE CHECK VALVE ASSEMBLIES (DCVA's) MUST BE LISTED ON LATEST LIST OF "BACKFLOW PREVENTION ASSEMBLIES APPROVED FOR INSTALLATION IN WASHINGTON STATE", PUBLISHED BY STATE OF WASHINGTON DEPARTMENT OF HEALTH.
2. THE OWNER/APPLICANT MUST OBTAIN A SEPARATE CITY OF RENTON PLUMBING PERMIT FOR THE INSPECTION OF THE INSTALLATION OF THE DCVA AND PIPING. THE OWNER SHALL FURNISH, INSTALL AND MAINTAIN THE DCVA AND ALL PIPING AND APPURTENANCES SHOWN ON THIS PLAN.
3. THE DCVA MUST BE TESTED BY A STATE CERTIFIED BACKFLOW ASSEMBLY TESTER AFTER ITS INITIAL INSTALLATION, AFTER REPAIRS AND ANNUALLY THEREAFTER AT OWNER'S EXPENSE. A COPY OF THE TEST REPORT SHALL BE SENT OR FAXED TO CITY OF RENTON WATER UTILITY ENGINEERING DEPT., ATTN: WATER UTILITY CROSS-CONNECTION CONTROL SPECIALIST, FAX NO. 425-430-7241.
4. DCVA AND METER BOX SHALL BE LOCATED ON PRIVATE PROPERTY AND AS NEAR AS POSSIBLE TO THE WATER METER.

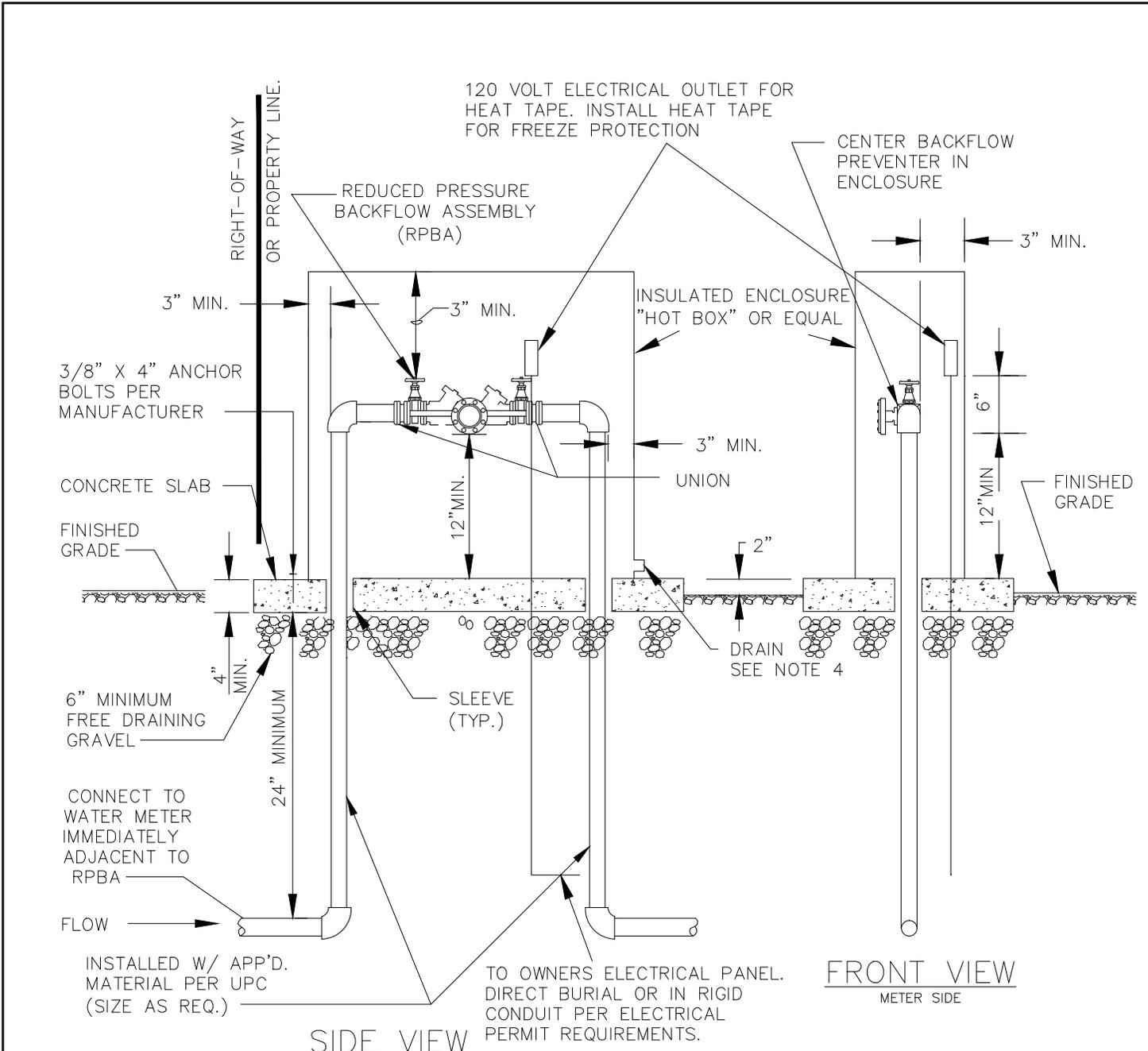


PUBLIC WORKS
DEPARTMENT

**3/4" TO 2" DOUBLE CHECK VALVE
ASSEMBLY FOR IRRIGATION OR
RESIDENTIAL FIRE SPRINKLER**

STD. PLAN - 340.8

MARCH 2010



NOTES:

1. ALL REDUCED PRESSURE BACKFLOW ASSEMBLIES (RPBA's) MUST BE LISTED ON LATEST LIST OF "BACKFLOW PREVENTION ASSEMBLIES APPROVED FOR INSTALLATION IN WASHINGTON STATE", PUBLISHED BY STATE OF WASHINGTON DEPARTMENT OF HEALTH.
2. THE OWNER/APPLICANT MUST OBTAIN A SEPARATE CITY OF RENTON PLUMBING PERMIT FOR THE INSPECTION OF THE INSTALLATION OF THE RPBA AND PIPING. THE OWNER SHALL FURNISH, INSTALL AND MAINTAIN THE RPBA AND ALL PIPING AND APPURTENANCES SHOWN ON THIS PLAN.
3. THE RPBA MUST BE TESTED BY A STATE CERTIFIED BACKFLOW ASSEMBLY TESTER AFTER ITS INITIAL INSTALLATION, AFTER REPAIRS AND ANNUALLY THEREAFTER AT OWNER'S EXPENSE. A COPY OF THE TEST REPORT SHALL BE SENT OR FAXED TO CITY OF RENTON WATER UTILITY ENGINEERING DEPT., ATTN: WATER UTILITY CROSS-CONNECTION CONTROL SPECIALIST, FAX NO. 425-430-7241.
4. DRAIN SHALL BE SIZED IN ACCORDANCE WITH AWWA CROSS CONNECTION CONTROL MANUAL STANDARDS 3" DRAIN FOR 1" OR SMALLER RPBA's, 4" DRAIN FOR 1.5" TO 2" RPBA's, 6" FOR 3" RPBA's.
5. RPBA AND ENCLOSURE SHALL BE LOCATED ON PRIVATE PROPERTY AND AS NEAR AS POSSIBLE TO THE WATER METER.

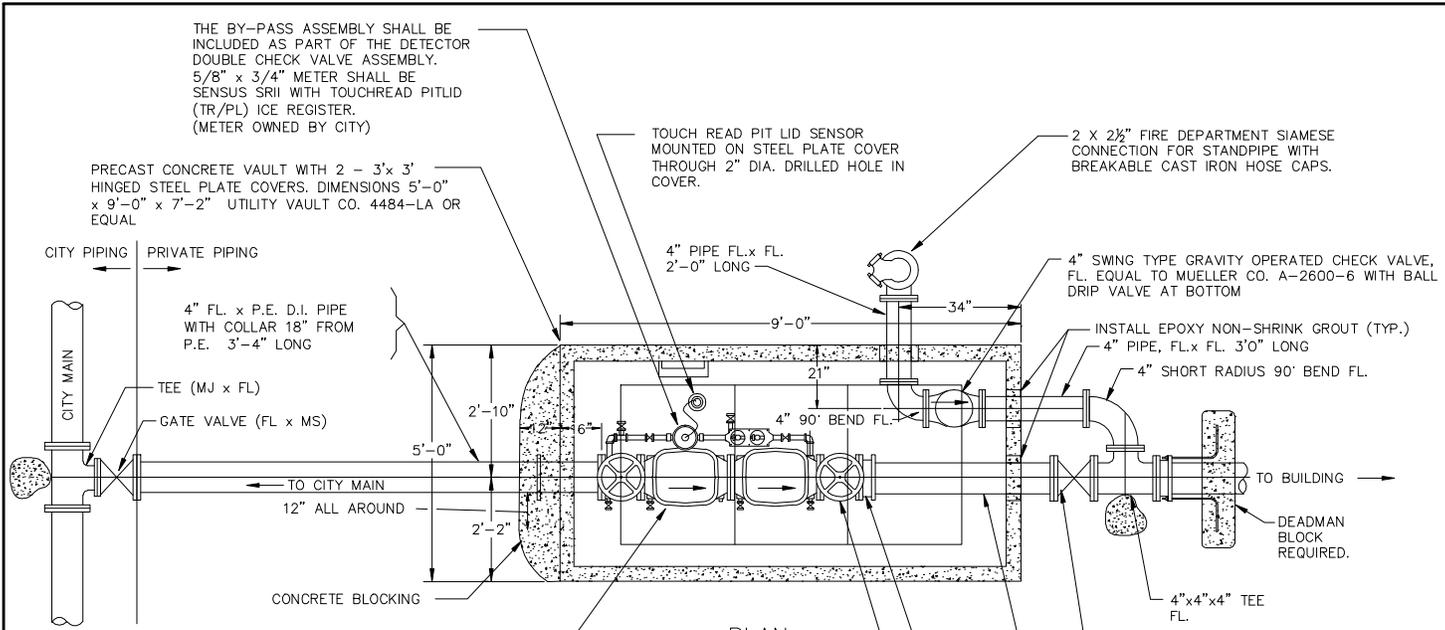


PUBLIC WORKS DEPARTMENT

REDUCED PRESSURE BACKFLOW ASSEMBLY IN HOT BOX

STD. PLAN - 350.2

MARCH 2010



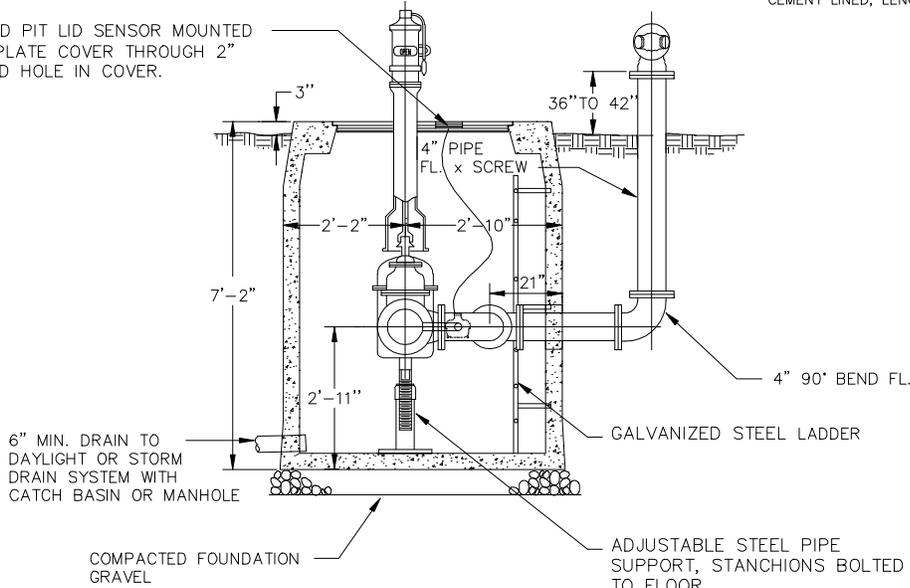
PLAN

ALL DETECTOR DOUBLE CHECK VALVE ASSEMBLIES SHALL INCLUDE RESILIENT SEATED SHUTOFF VALVES AND TEST COCKS, AND APPROVED CROSS-CONNECTION CONTROL ASSEMBLIES PER DEPARTMENT OF HEALTH LATEST APPROVED LIST.

DOUBLE CHECK VALVE ASSEMBLY INCLUDES TWO RESILIENT SEATED SHUTOFF VALVES.

4" FLANGED COUPLING ADAPTER EQUAL TO ROMAC.

TOUCH READ PIT LID SENSOR MOUNTED ON STEEL PLATE COVER THROUGH 2" DIA. DRILLED HOLE IN COVER.



END VIEW

NOTE:

1. LOCATE VAULT IN PLANTING AREA NOT IN PAVING.
2. 4" AND LARGER BENDS AND TEES TO BE CAST IRON CEMENT LINED.
3. TEMPORARY SUPPORT SHALL BE PROVIDED UNDER VALVES AT THE TIME OF INSTALLATION TO CENTER THE PIPE IN VAULT OPENING. AFTER COMPLETE INSTALLATION REMOVE THE TEMPORARY SUPPORT AND INSTALL ADJUSTABLE PIPE SUPPORT.
4. GALVANIZED LADDER FOR ACCESS.
5. AFTER FIELD INSTALLATION, MAIN DDCVA AND BY-PASS DCVA MUST BE TESTED SATISFACTORILY BY A DEPT. OF HEALTH CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST REPORT TO BE SUBMITTED TO CITY OF RENTON WATER UTILITY ENGINEERING DEPT. PRIOR TO ACTIVATION OF NEW LINE.
6. INSTALL BRASS 1/4" FLARE TEST COCKS WITH 1/4" FLARE CAPS.

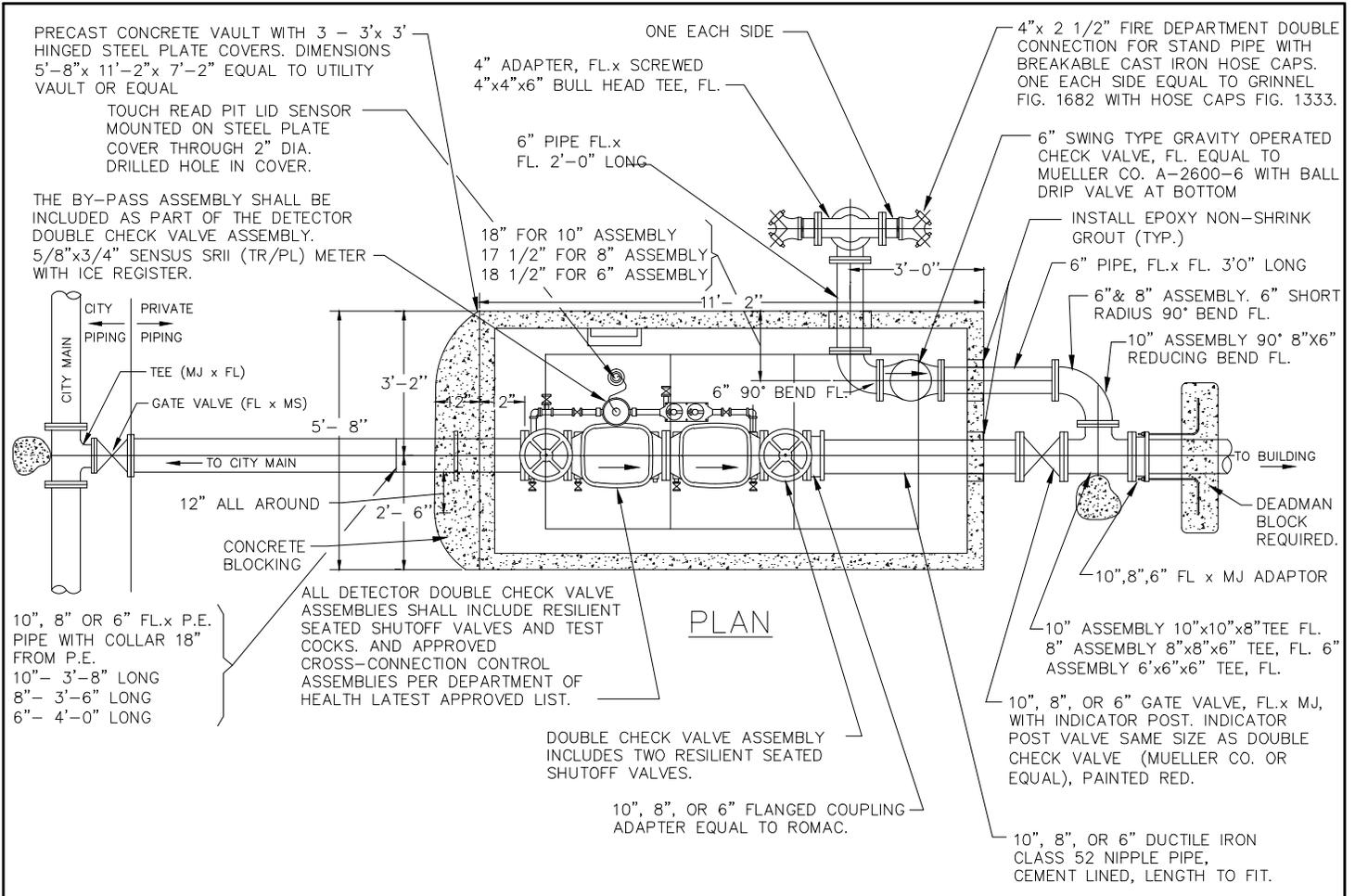


PUBLIC WORKS DEPARTMENT

4" DDCV ASSEMBLY WITH STANDPIPE OUTSIDE CONNECTION

STD. PLAN - 360.1

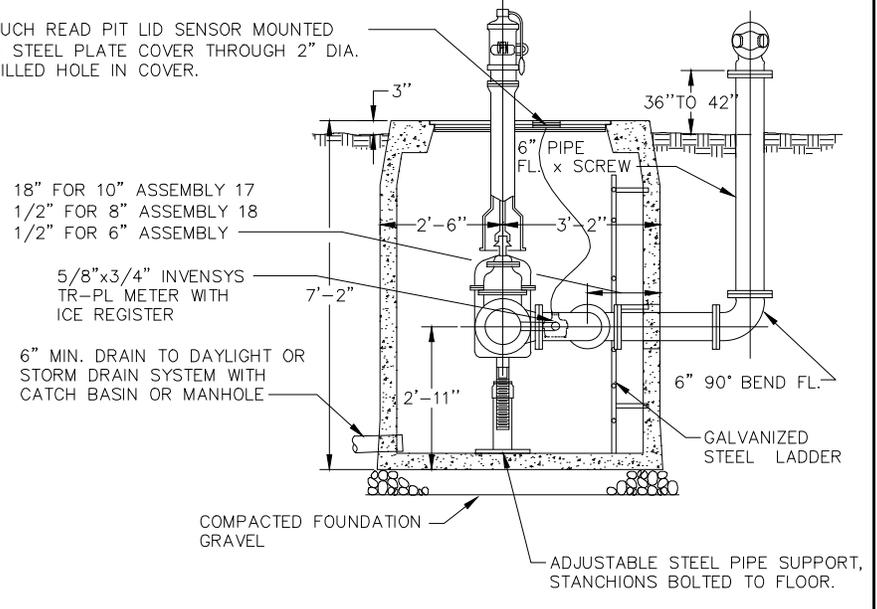
MARCH 2010



NOTE:

1. LOCATE VAULT IN PLANTING AREA, NOT IN PAVING.
2. 4" AND LARGER BENDS AND TEES TO BE CAST IRON CEMENT LINED.
3. TEMPORARY SUPPORT SHALL BE PROVIDED UNDER VALVES AT THE TIME OF INSTALLATION TO CENTER THE PIPE IN VAULT OPENING. AFTER COMPLETE INSTALLATION REMOVE THE TEMPORARY SUPPORT AND INSTALL ADJUSTABLE PIPE SUPPORT.
4. INSTALL GALVANIZED LADDER FOR ACCESS.
5. AFTER FIELD INSTALLATION, MAIN DDCVA AND BY-PASS DCVA MUST BE TESTED SATISFACTORILY BY A DEPT. OF HEALTH CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST REPORT TO BE SUBMITTED TO CITY OF RENTON WATER UTILITY ENGINEERING DEPT. PRIOR TO ACTIVATION OF NEW LINE.
6. INSTALL BRASS 1/4" FLARE TEST COCKS WITH 1/4" FLARE CAPS.

TOUCH READ PIT LID SENSOR MOUNTED ON STEEL PLATE COVER THROUGH 2" DIA. DRILLED HOLE IN COVER.

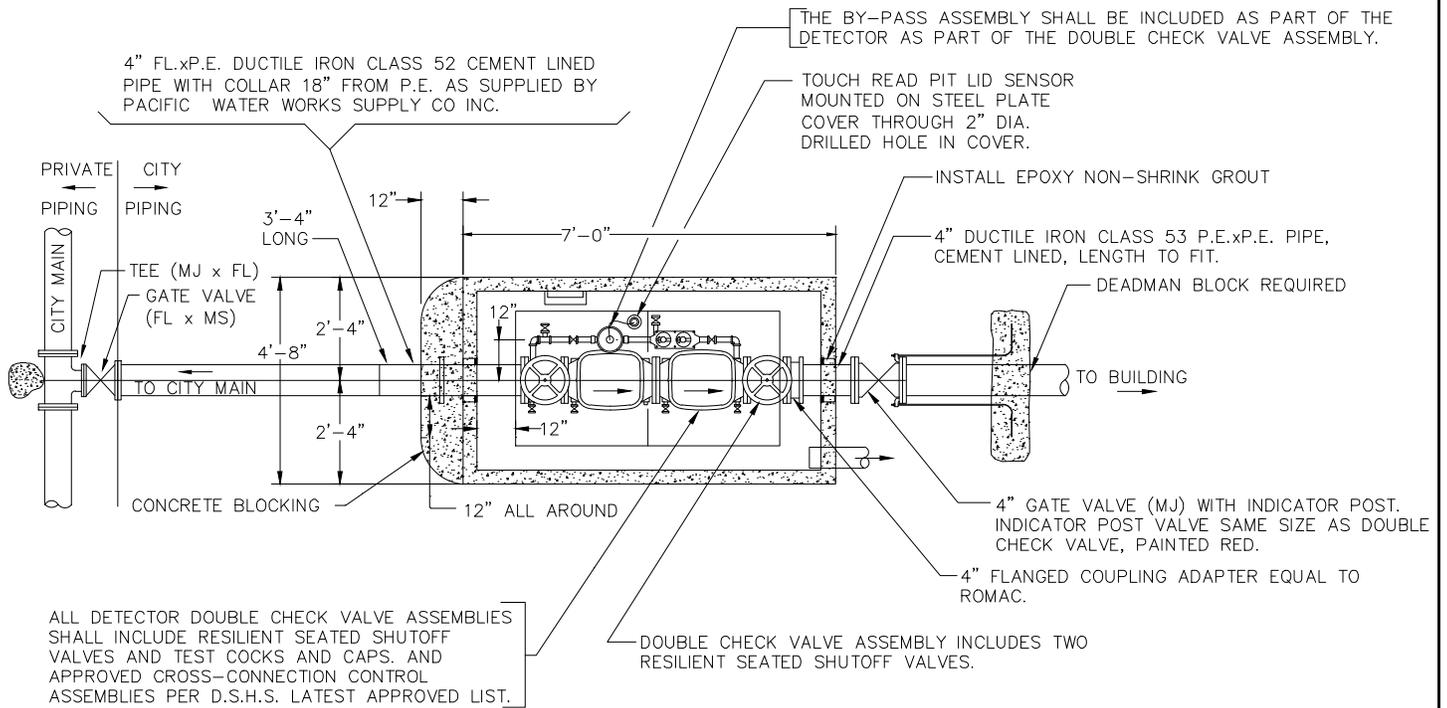


PUBLIC WORKS DEPARTMENT

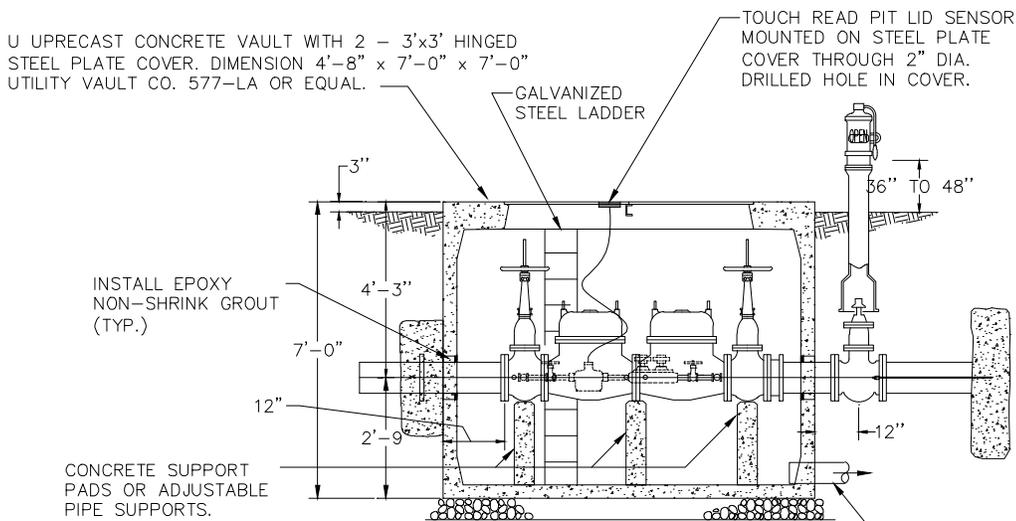
6", 8" & 10" DOUBLE DETECTOR CHECK ASSEMBLY WITH STANDPIPE OUTSIDE INSTALLATION

STD. PLAN - 360.2

MARCH 2010



PLAN



ELEVATION

NOTE:

INSTALL GALVANIZED LADDER FOR ACCESS.

AFTER FIELD INSTALLATION, MAIN DDCVA AND BY-PASS DCVA MUST BE TESTED SATISFACTORILY BY A DEPT. OF HEALTH CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST REPORT TO BE SUBMITTED TO CITY OF RENTON WATER UTILITY ENGINEERING DEPT.

PRIOR TO ACTIVATION OF NEW LINE, INSTALL 1/4" FLARE TEST COCKS WITH 1/4" FLARE CAPS.

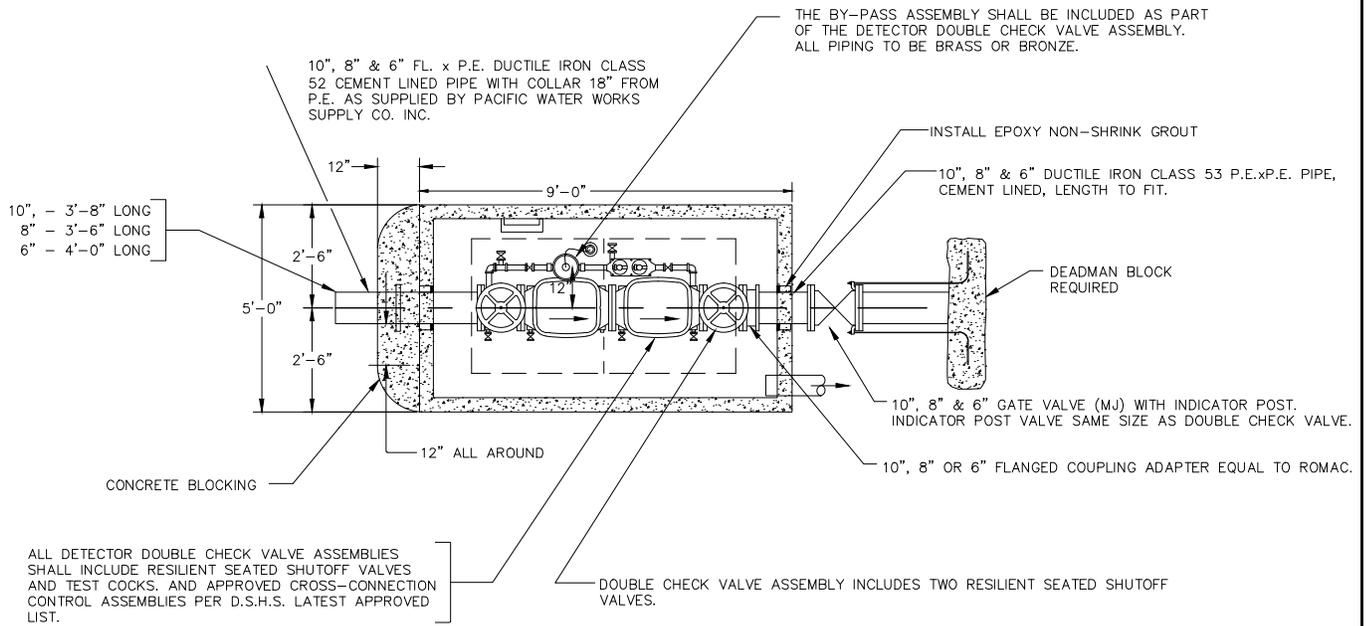


PUBLIC WORKS
DEPARTMENT

**4" DDCV ASSEMBLY WITHOUT
STANDPIPE OUTSIDE INSTALLATION**

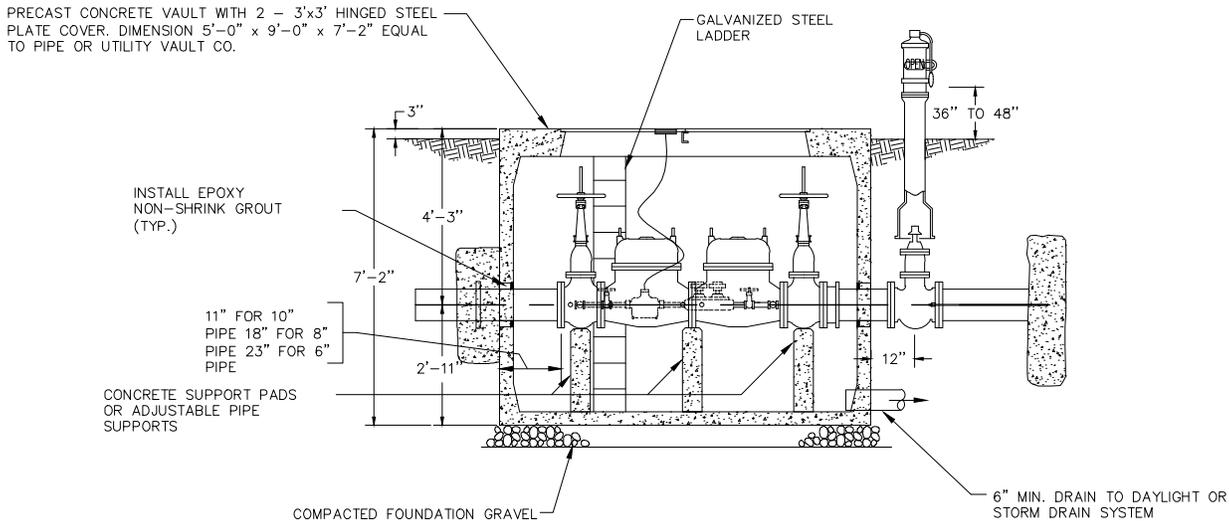
STD. PLAN - 360.3

MARCH 2010



PLAN

TOUCH READ PIT LID SENSOR MOUNTED ON STEEL PLATE COVER THROUGH 1-5/8" DIA. DRILLED HOLE IN COVER.



ELEVATION

NOTE:

INSTALL GALVANIZED LADDER FOR ACCESS.

AFTER FIELD INSTALLATION, MAIN DDCVA AND BY-PASS DCVA MUST BE TESTED SATISFACTORILY BY A DEPT. OF HEALTH CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST REPORT TO BE SUBMITTED TO CITY OF RENTON WATER UTILITY ENGINEERING DEPT. PRIOR TO ACTIVATION OF NEW LINE.

INSTALL BRASS PLUGS AT ALL TEST COCKS.

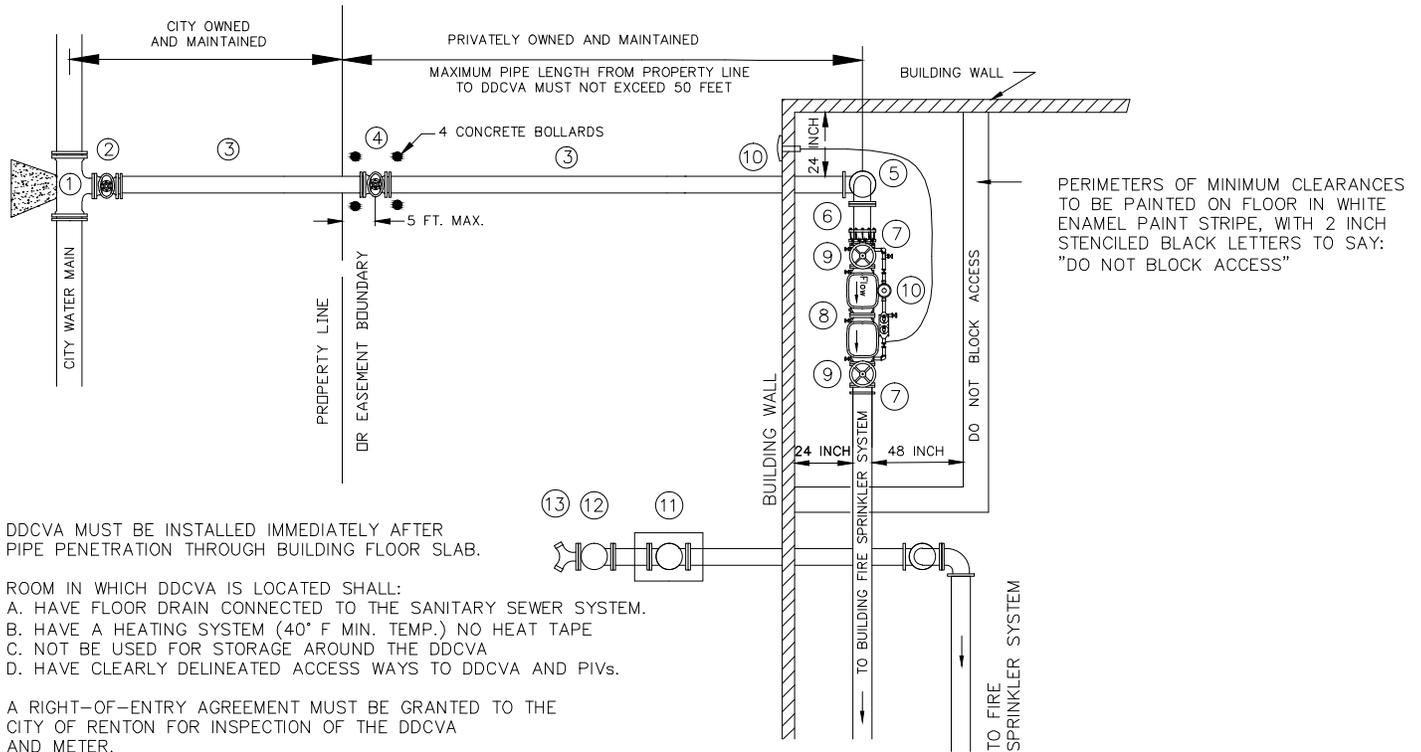


PUBLIC WORKS DEPARTMENT

6", 8", & 10" DOUBLE CHECK DETECTOR ASSEMBLY WITHOUT STANDPIPE INSTALLATION

STD. PLAN - 360.4

MARCH 2010



DDCVA MUST BE INSTALLED IMMEDIATELY AFTER PIPE PENETRATION THROUGH BUILDING FLOOR SLAB.

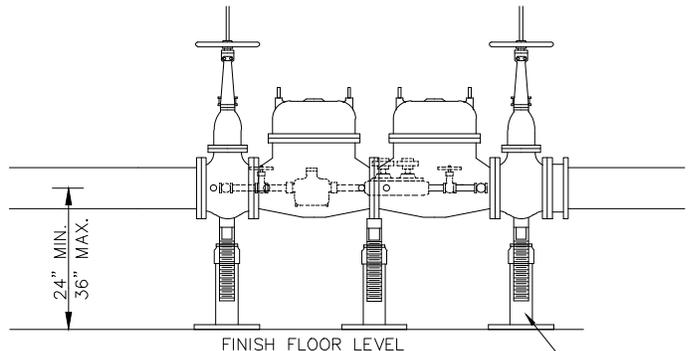
ROOM IN WHICH DDCVA IS LOCATED SHALL:

- A. HAVE FLOOR DRAIN CONNECTED TO THE SANITARY SEWER SYSTEM.
- B. HAVE A HEATING SYSTEM (40° F MIN. TEMP.) NO HEAT TAPE
- C. NOT BE USED FOR STORAGE AROUND THE DDCVA
- D. HAVE CLEARLY DELINEATED ACCESS WAYS TO DDCVA AND PIVs.

A RIGHT-OF-ENTRY AGREEMENT MUST BE GRANTED TO THE CITY OF RENTON FOR INSPECTION OF THE DDCVA AND METER.

SEPARATE FIRE SPRINKLER PLANS INCLUDING INSTALLATION OF DDCVA MUST BE SUBMITTED TO RENTON FIRE PREVENTION DEPARTMENT FOR REVIEW AND APPROVAL.
A SEPARATE FIRE SPRINKLER PERMIT IS REQUIRED.

1. MAIN LINE TEE (MJ x FL) WITH CONCRETE BLOCKING (WATER MAIN LOCATED IN EASEMENT ON PRIVATE PROPERTY SHALL NOT BE MORE THAN 50 FEET TO BUILDING)
2. BRANCH VALVE (FL x MJ) WITH VALVE BOX AND COVER
3. CLASS 52 DUCTILE IRON PIPE (4 INCH MINIMUM) ALL PIPE AND FITTINGS SHALL BE RESTRAINED WITH SHACKLE RODS AND CONCRETE THRUST BLOCKS PER NFPA AND AWWA STANDARDS.
4. POST-INDICATOR VALVE (MJ) WITH TAMPER SWITCH
5. 2-90° BENDS (FL x FL) WITH FLANGED DUCTILE IRON PIPE SPOOL
6. 18" LONG SPOOL (FL x PE)
7. FLANGE COUPLING ADAPTOR
8. APPROVED DDCVA ON MAIN LINE IN HORIZONTAL POSITION ONLY. (PER LATEST DEPT. OF HEALTH APPROVED LIST OF BACKFLOW PREVENTION DEVICES) BOTTOM OF DDCVA SHALL BE A MINIMUM OF 24 INCH ABOVE FLOOR LEVEL AND NOT HIGHER THAN 3 FEET MAXIMUM. INSTALL 3 CONCRETE PADS OR ADJUSTABLE PIPE SUPPORT COLUMNS UNDER DDCVA
9. O.S & Y VALVES TO BE RESILIENT SEATED WITH TAMPER SWITCHES. ADD WIRING IN ACCORDANCE WITH L & I
10. METERED 3/4 INCH BY-PASS DCVA - BY-PASS METER SHALL BE A 3/4 INCH "SENSUS-ECR" SR POSITIVE DISPLACEMENT METER EQUIPPED ICE REGISTER WITH A REMOTE READ SENSOR PLATE MOUNTED ON THE OUTSIDE OF THE BUILDING WALL (WALL MOUNT TYPE).
11. SWING TYPE GRAVITY CHECK VALVE, FLANGE WITH BALL DRIP IN VAULT OR OUTSIDE BUILDING
12. 4"x 4" x 6" BULL, ELBOW, THREADED
13. UL LISTED FIRE DEPT. CONNECTION, UL LISTED BREAK AWAY CAPS, LOCATE WITHIN 50 FEET MAXIMUM OF A PUBLIC FIRE HYDRANT.



ELEVATION VIEW OF DDCVA

ADJUSTABLE STEEL PIPE SUPPORT, STANCHIONS BOLTED TO FLOOR.

AFTER FIELD INSTALLATION, MAIN DDCVA AND BY-PASS DCVA MUST BE TESTED SATISFACTORILY BY A DEPARTMENT OF HEALTH CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST REPORT MUST BE SUBMITTED TO CITY OF RENTON WATER UTILITY ENGINEERING DEPARTMENT PRIOR TO ACTIVATION OF NEW LINE. INSTALL BRASS 1/4" FLARE TEST COCKS WITH 1/4" FLARE CAPS.



PUBLIC WORKS
DEPARTMENT

**INSIDE BUILDING INSTALL FOR 3" AND
LARGER DETECTOR DOUBLE CHECK
VALVE ASSEMBLY**

STD. PLAN - 360.5

MARCH 2010

Utility Specifications

Water Utility Notes and Specifications

THESE NOTES SHALL APPEAR ON PROJECTS FOR THE WATER UTILITY.

1. All work material shall be in conformance with the standards and specifications of the City of Renton Planning/Building/Public Works Department and the latest edition of the WSDOT/APWA Standards and Specifications, as approved and modified by the City of Renton in the Renton Standard Plans & Specifications. A set of approved plans shall be kept on site at all times during construction.
2. The hours of work in the street right of way shall be limited to 8:30 AM to 3:30 PM on weekdays unless otherwise approved in writing by the Public Works Department at (425) 430-7301. The Police Department, Fire Department, and 911 shall be notified 24 hours in advance of any work in the right of way.
3. All locations of existing utilities shown are approximate and it shall be the contractor's responsibility to verify the true and correct location so as to avoid damage or disturbance. For utility locates call 48-hour locators 800-424-5555.
4. An approved Traffic Control Plan is required to be submitted at the Pre-Construction meeting.
5. Datum for Vertical Control shall be North American Vertical Datum 1988 Meters, and for Horizontal Control shall be North American Datum 1983/1991 Meters unless otherwise approved by the City of Renton Public Works Department. Reference benchmark and elevations are noted on the plans.
6. All watermain pipe is to be cement lined ductile iron pipe conforming to AWWA C110 and C111 or latest revision, thickness Class 52. Cement mortar lining and seal coating shall conform to AWWA C104 or latest revision. Pipe joints to be push-on or mechanical joint. Bedding to be Class C. All ductile iron pipe and fittings shall be polyethylene wrapped per ANSI/AWWA C105/A21.5-93 Standards.
7. Cast iron and ductile iron fittings shall be cement lined, pressure rated as noted on plans, and in accordance with ANSI/AWWA C110/A21.10-87. Cement lining shall be in accordance with ANSI/AWWA C104/421/4-90. If fittings are 3 to 12 inches in diameter and have mechanical joints, the fittings shall in accordance with either ANSI/AWWA C110-A21.10-87 or ANSI/AWWA C153/A21.53-94. Three (3) inch to 12 inch diameter fittings, which have mechanical joints and/or flanged joints, shall be in accordance with ANSI/AWWA C110/A21.10.87 or a combination of ANSI/AWWA C110/A21.10.87 and ANSI/AWWA C153/A21.53-94 such that the portion of the fitting with a mechanical joint(s) may be with ANSI/AWWA C153/A21.53-94 and that portion of the fitting with flanged joint(s) shall be in accordance with AWWA C110/A21.10-87. Acceptance testing in accordance with section 53.53 of ANSI/AWWA section 10-4.3 of ANSI/AWWA C110/A21.10-87 shall be obtained by the contractor and transmitted to the owner.
8. Gate valves shall be iron body, bronzed-mounted, double disc with bronze wedging device and O-ring stuffing box (AWWA C500) or of resilient seated type (AWWA C509).

Utility Specifications

Valves shall be designed for a minimum water operating pressure of 200 psi. Gate valves shall be Clow List 14, Mueller Company NO. A2380 or M & H.

9. Fire hydrants shall be Corey type (opening with the pressure) or compression type (opening against pressure) conforming to AWWA C-502-85 with a 6 inch mechanical joint inlet and a main valve opening (M.V.O.) of 5-1/4 inch, two 2-1/2 inch hose nozzles with National Standard Threads 7-1/2 threads per inch and one 4 inch pumper nozzle with the new Seattle Pattern 6 threads per inch, 60 degrees V. Threads: outside diameter of male thread 4.875 and root diameter 4.6263. Hydrants shall have a 1-1/4 inch pentagon operating nut opened by turning counter clockwise (left).
10. The two 2-1/2 inch hose nozzles shall be fitted with cast iron threaded caps with operating nut of the same design and proportions as the hydrant stem nut. Caps shall be fitted with suitable neoprene gaskets for positive water tightness under test pressures.
11. The 4 inch pumper nozzle shall be fitted with a Storz adapter, 4 inch Seattle Thread x 5 inch Storz. Storz adapter shall be forged and/or extruded 6061-T6 aluminum alloy, hardcoat anodized. Threaded end portion shall have no lugs and two set screws 180 degrees apart. Storz face to be metal, no gasket to weather. Storz cap to have synthetic molded rubber gasket, and shall be attached to hydrant adapter with 1/8 inch, coated, stainless steel, aircraft cable.
12. Fire hydrants shall be painted with two coats of paint. Preservative paint number 43-655 safety yellow or approved equal.
13. Pumper connection to face roadway assembly.
14. Fire hydrants shall be installed per City of Renton Standard Detail for fire hydrants, latest revision.
15. All watermains 10 inches and smaller to maintain a minimum cover of 36 inches below finish grade. All watermain 12 inches and larger shall be at a minimum of 48 inches below finish grade. Where utility conflicts occur, watermains are to be lowered to clear.
16. All watermains 6 inches and larger in diameter shall be cleaned with pipe cleaning "PIGS" prior to disinfection. The "Poly pigs" shall be Girard Industries Aqua Swab-AS or approved equal, 2 lb/cu. ft. density foam with 90A durometer urethane rubber coating on the rear of "PIG" only.
17. "PIGS" shall be cylinder shaped with bullet nose or square end. The contractor will perform the cleaning operation.
18. All watermains and services shall be pressure tested to a minimum of 200 psi or 150 psi over operating pressure, in accordance with the specifications of the City of Renton and the Washington State Health Department. All pressure testing shall be done in the presence of a representative of the City of Renton. The quantity of water lost from the main shall not exceed the number of gallons per hour as listed in City of Renton

Utility Specifications

Standard Plans & Specifications 7-11.3(11). The loss in pressure shall not exceed 5 psi during the 2 hour test period.

19. All watermains and services shall be disinfected by the injection of a 50 ppm (minimum concentration) chlorine/water solution. Dry Calcium Hypochlorite shall NOT be placed in the pipe as laid. Chlorine shall be metered/injected in accordance with Section 7-11.3(12)E or 7-11.3(12)F of the Standard Specifications referenced above.
20. A pre-construction conference is required prior to any construction. A minimum of five (5) working days notice is required for scheduling.
21. Twenty-four (24) hours notice will be required prior to starting new construction.
22. It shall be the contractor's responsibility to secure all necessary permits prior to starting construction.
23. Installation of corporate stops, water services, lines and meters shall not be done until all service agreements, meter applications, construction permits, and payment of fees have been made to the City of Renton.
24. All connection to existing mains is to be accomplished by the City of Renton, except wet taps, which may be made by approved wet tap contractors with prior approval from the Public Works Department. All necessary excavation and materials are to be supplied by the contractor and be on-site prior to City notifications.
25. Inspection will be accomplished by a representative of the City of Renton. It shall be the contractor's responsibility to notify Development Services twenty four (24) hours in advance of backfilling all construction. The contractor, as well as the engineers, shall keep as-built drawings.
26. Contractor to provide plugs and temporary blow-off assemblies for testing and purity acceptance prior to final tie-in.
27. All joint restraint systems (shackle rods, nuts, bolts, etc.) shall be as manufactured by the Star Manufacturing Company of Columbus Ohio, or equal, approved in writing by the Public Works Department.
28. Asphalt and concrete street paving shall be sawcut to a minimum depth of two (2) inches. Oil mat streets may be spade cut. All surface concrete, pavement, sidewalks, curb, gutters, and driveway approaches shall be sawcut to a minimum depth of two (2) inches or removed to an existing expansion joint.
29. A temporary cold mix asphalt patch shall be placed on the day of initial excavation with a permanent, sealed patch to be placed, to City of Renton policy, within 10 days. Call for subgrade inspection prior to placement of final patch. *
30. For City projects such as telemetry conduit, the PVC pipe used shall be All chemical process lines shall be schedule 80 PVC pipe. Schedule 40 in unimproved areas and schedule 80 PVC pipe under improved areas.