1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST CURRENT VERSIONS OF THE FOLLOWING:
  1.1. EAST WENATCHEE WATER DISTRICT DEVELOPER EXTENSION AGREEMENT (when applicable).
  1.2. EAST WENATCHEE WATER DISTRICT STANDARD DETAILS. IF ANY DETAIL IS REVISED AFTER PLAN APPROVAL, THE DISTRICT WILL DETERMINE IF THE REVISION MUST BE INCORPORATED INTO THE WORK.
  1.3. EAST WENATCHEE WATER DISTRICT SERVICE POLICIES AND CONSTRUCTION STANDARDS.
  1.4. WA. STATE DEPT. OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION.

2. ALL METAL PRODUCTS (VALVE BOXES & CASING PIPES EXCLUDED) & FITTING COMPONENTS (e.g. BOLTS, GLANDS, ETC) SHALL BE OF DOMESTIC FABRICATION & CONSTRUCTION. TEMPORARY MATERIALS NOT PART OF THE PERMANENT FACILITY NEED NOT BE DOMESTIC.

3. ONLY FORD, MCDONALD, & MUELLER PRODUCTS ARE APPROVED FOR SERVICE BRASS, UNLESS OTHERWISE NOTED IN THESE DETAILS.

4. A PRECONSTRUCTION CONFERENCE IS REQUIRED PRIOR TO CONSTRUCTION AND 48 HOURS ADVANCE NOTIFICATION OF THE LOCAL MUNICIPALITY, THE EAST WENATCHEE WATER DISTRICT, AND ALL AFFECTED UTILITY COMPANIES PRIOR TO THE ACTUAL START OF WORK.

5. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF THE RIGHT-OF-WAY/STREET CONSTRUCTION PERMIT AS ISSUED BY THE DOUGLAS COUNTY DEPT. OF TRANSPORTATION AND LAND SERVICES, CITY OF EAST WENATCHEE, AND/OR WA. STATE DOT FRANCHISE FOR THIS PROJECT. TRAFFIC CONTROL SHALL FOLLOW THE ROAD AGENCY'S CODES AND STANDARDS.

6. LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE ESTIMATED UNLESS STATED OTHERWISE. THE CONTRACTOR SHALL VERIFY, LOCATE AND PROTECT ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL REPLACE OR REPAIR ANY UTILITIES DAMAGED DURING CONSTRUCTION. SHOW ALL ENCOUNTERED UTILITIES ON THE AS-BUILTS.

7. LOCATION AND EXTENT OF IRRIGATION PIPELINES WITHIN THE PROJECT LIMITS ARE UNKNOWN. CONTRACTOR SHALL CONTACT PROPERTY OWNERS ADJACENT TO THE PROJECT FOR LOCATING PRIVATE IRRIGATION SYSTEMS. CONTRACTOR IS RESPONSIBLE FOR LOCATING IRRIGATION MAINS AND REPLACING OR REPAIRING PIPELINES DAMAGED DURING CONSTRUCTION. SHOW IRRIGATION ON THE AS-BUILTS.

8. WATER MAIN TRENCH SECTION AND ALL EXCAVATED AREAS SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE STANDARD DETAILS AND WITH SECTIONS 7-9.3(10) AND 7-9.3(11) OF THE STANDARD SPECIFICATIONS. COMPACTION TESTING IS REQUIRED DURING BACKFILLING OPERATIONS AT THE DISCRETION OF THE WATER DISTRICT. IF TRENCH BACKFILL DOES NOT MEET COMPACTION REQUIREMENTS, CONTRACTOR SHALL EXCAVATE, RECOMPACT AND RETEST MATERIAL AT CONTRACTOR'S EXPENSE.

9. RESTORATION OF DAMAGED ROAD SURFACING SHALL BE IN ACCORDANCE WITH THE LOCAL MUNICIPALITY'S REQUIREMENTS. ALL OTHER AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR AS DIRECTED BY THE DISTRICT. THIS INCLUDES SHOULDERS, LANDSCAPING, WALLS, FENCES AND OTHER IMPROVEMENTS.

10. ALL SERVICES, FIRE HYDRANTS, AND THRUST BLOCKING SHALL BE INSPECTED BY THE DISTRICT BEFORE BURY.

11. DISTRICT APPROVED THRUST RESTRAINTS ARE REQUIRED FOR ALL UNRESTRAINED FITTINGS. RESTRAINED JOINTS ARE ALLOWED INSTEAD OF THRUST BLOCKING WHERE APPROPRIATE, AND ARE REQUIRED FOR MAINS THAT MAY BE EXTENDED LATER.

12. PROVIDE A SANITARY GAP BETWEEN THE EXISTING AND NEW WATER SYSTEMS. CONNECTION TO THE EXISTING WATER SYSTEM SHALL BE PERFORMED BY THE CONTRACTOR ONLY AFTER COMPLETING AN ACCEPTABLE HYDROSTATIC PRESSURE TEST AND THE PIPELINE IS DISINFECTED, FLUSHED, AND RECEIPT OF APPROVAL OF WATER QUALITY TEST RESULTS FROM THE HEALTH DISTRICT OR LAB.

13. PERFORM PRESSURE TEST AT 250psi. THE DISTRICT INSPECTOR HAS DISCRETION TO MODIFY THE TESTING REQUIREMENTS.
  13.1. PRESSURE WASHERS ARE NOT ALLOWED FOR PRESSURE TESTING. DISTRICT HAS THE RIGHT TO REJECT ANY PUMP SYSTEM THAT IN THE DISTRICT'S SOLE OPINION MAY BE UNSAFE.
  13.2. PRESSURE TEST INCLUDES MAINLINE, HYDRANTS, SERVICE LINES, SETTERS, AND CUSTOMER SERVICE SIDE TAILPIPE.
  13.3. TEST MAINLINE IN SECTIONS OF NO MORE THAN 1,500 FEET. PRESSURE DROP SHALL NOT EXCEED 5 psi IN 60 MINUTES.
  13.4. ASSEMBLE AND TEST VALVE CLUSTERS OUTSIDE OF THE TRENCH PRIOR TO INSTALLATION.
  13.5. TEST GAUGE RANGE SHALL NOT EXCEED 160% OF TEST PRESSURE (400 psi MAX FOR 250 psi TEST).

14. AN INFLATABLE PIPE PLUG SHALL BE USED ON EACH JOINT DURING INSTALLATION TO PROTECT AGAINST SOIL INTRUSION AND FLOODING OF THE PIPE. OPEN ENDS OF VALVES SHALL BE PLUGGED OR BAGGED UNTIL EXTENDED WITH PIPE.

15. NO OTHER PARALLEL UTILITIES SHALL BE INSTALLED WITHIN 36" HORIZONTALLY OF ANY ACTIVE WATER LINE UNLESS OTHERWISE APPROVED BY THE DISTRICT.

16. CONTRACTOR SHALL POTHOLE A SUFFICIENT DISTANCE AHEAD OF PIPELAYING TO VERIFY DEPTH OF EXISTING WATER MAINS AND CROSSING UTILITIES AND TO ANTICIPATE ANY NECESSARY CHANGES IN FITTINGS OR ALIGNMENT.

17. HDPE SERVICE PIPE SHALL BE 200 psi RATED (DR9) CTS (Copper Tube Size). ONLY "QUICK-JOINT" OR EQUAL FITTINGS ALLOWED FOR HDPE OR COPPER PIPE CONNECTIONS, NO PACK JOINTS.

CONTINUED ON W-30 . . .

East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **CONSTRUCTION NOTES PAGE 1 of 2**

File: EWDTW12 | Revised: MAY 3, 2021 | Printed: MAY 3, 2021 | DRAWING NO. W-01 | SHEET NO. 1

18. AN AS-BUILT RECORD MUST BE SUBMITTED TO THE DISTRICT BEFORE WATER SERVICE WILL BE PROVIDED.

19. DEFLECTION AT PIPE AND FITTING JOINTS WILL BE ALLOWED UP TO 3.0° PER JOINT (11" OVER 18', WHICH IS 350' RADIUS) OR AS RECOMMENDED BY MANUFACTURER, WHICHEVER IS LESS.

20. CONTRACTOR SHALL ONLY DISPOSE OF WASTE MATERIAL AT SITES APPROVED BY DOUGLAS COUNTY TRANSPORTATION AND LAND SERVICES. STOCKPILE MATERIALS ONLY ON DISTRICT APPROVED SITES.

21. ALL PIPE 3" AND LARGER SHALL BE DUCTILE IRON. PIPE SHALL BE MINIMUM CLASS 50 EXCEPT WHERE TRENCH BACKFILL AND LOADING DICTATE A STRONGER CLASS PIPE. CLASS 52 SHALL BE USED FOR HYDRANT RUNS AND IN AREAS WHERE PRESSURE EXCEEDS 150 PSI.

22. CONTRACTORS WORKING WITHIN THE RIGHT OF WAY OR ON EXISTING DISTRICT INFRASTRUCTURE SHALL BE LICENSED, BONDED AND HAVE EXPERIENCE INSTALLING PUBLIC DOMESTIC WATER SYSTEMS AND BE PREPARED TO PRESENT EXAMPLES OF 5 SUCH PROJECTS UPON REQUEST BY THE DISTRICT.

23. VAULT LID NOTE: FOR ALL TAPER-TOP STYLE VAULTS FOR WATER SERVICES, AIR VALVES, PERMANENT BLOW-OFFS AND OTHER PURPOSES, CONTRACTOR TO PURCHASE LID AND FRAME EQUAL TO EAST JORDAN IRONWORKS' EAST WENATCHEE WATER DISTRICT SPECIFICATION, FRAME/LID 3620Z/3620C FOR NON-TRAFFIC AREAS, AND 3619Z/3619C FOR DRIVEWAYS AND TRAFFIC AREAS.
  23.1. ANCHOR FRAME TO VAULT USING NON-SHRINK GROUT. FRAME AND LID TO BE RATED FOR TRAFFIC LOADING IN TRAFFIC AREAS.
  23.2. WATER SERVICE VAULT LIDS TO INCLUDE ONE INTEGRAL 2-3/16" DIAMETER HOLE WITH 4-1/4" DIAMETER x 9/16" DEEP RECESS FOR RADIO.
  23.3. FOR AIR VALVES AND BLOW-OFFS, DO NOT DRILL HOLE IN LIDS, NOR PROVIDE "METER" TEXT ON FRAME.
  23.4. LID SURFACE TO HAVE A STATIC COEFFICIENT OF FRICTION NO LESS THAN 0.60 AS DETERMINED BY ASTM C-1028.

24. REPAIR EXISTING IRRIGATION SYSTEMS DAMAGED DURING CONSTRUCTION WITH PRODUCTS OF NO LESSER QUALITY THAN SCH 40 PVC.

25. CONTRACTOR TO PROVIDE NO LESS THAN 48 HOURS NOR MORE THAN 72 HOURS NOTICE TO THE DISTRICT PRIOR TO ANY REQUESTED SHUTDOWN OR CUSTOMER OUTAGE. DISTRICT WILL PROVIDE NOTICE TO CUSTOMERS 24 HOURS IN ADVANCE OF OUTAGE.

26. RESTRAINTS, GASKETS, OR RESTRAINED PIPES (PORTIONS GOUGED BY RESTRAINTS) MAY NOT BE REUSED ONCE ASSEMBLED.

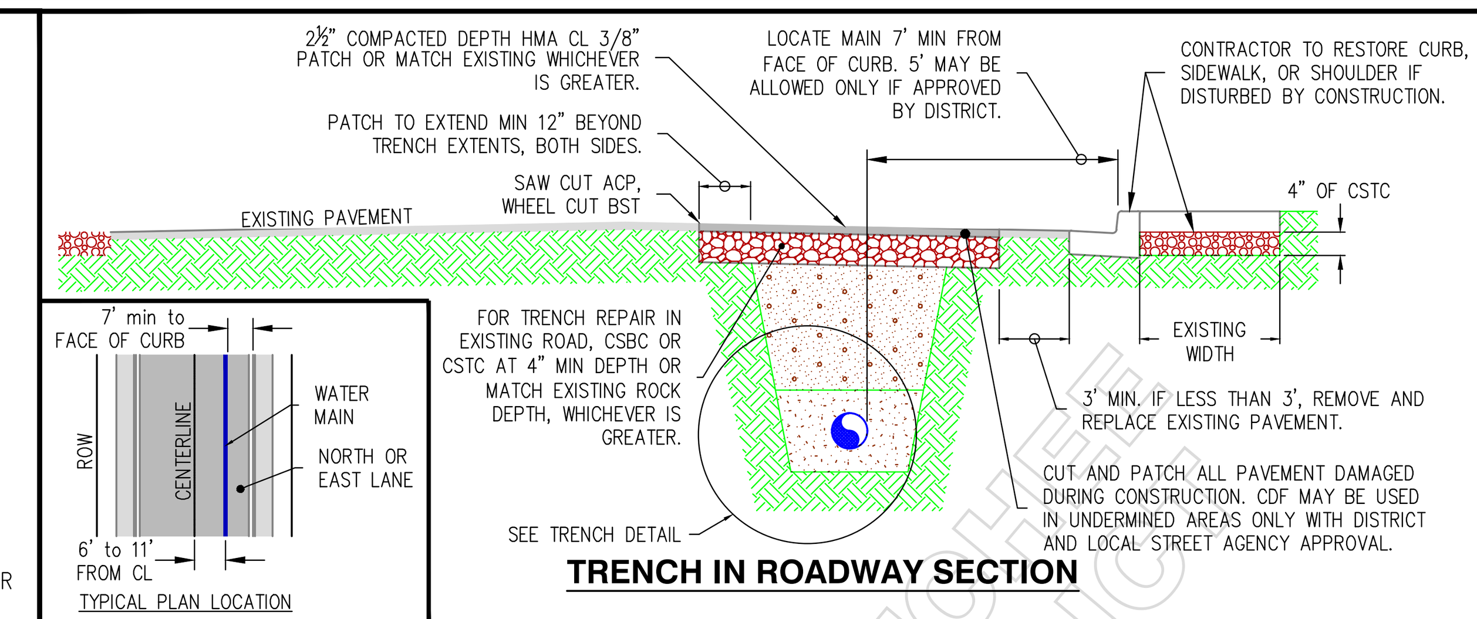
27. FLANGE GASKETS MUST BE RING TYPE (NOT FULL FACE) AND MINIMUM 1/8" THICK. FLANGE BOLTS ASTM A307 GRADE A OR B. STEEL BOLTS, NUTS AND WASHERS TO BE ZINC PLATED.

28. BURIED VALVES SMALLER THAN 4" DIAMETER TO BE CURB STOP OR CORP STOP PER DETAILS, OR STYLE AT THE DISCRETION OF THE DISTRICT. BURIED VALVES SMALLER THAN 4" SHALL NOT BE GATE VALVES.

29. CONTRACTOR SHALL MAINTAIN AND RETURN ANY TEMPORARY EQUIPMENT PROVIDED BY THE DISTRICT. CONTRACTOR SHALL REIMBURSE THE DISTRICT FOR ANY DAMAGE OR LOSS OF EQUIPMENT.

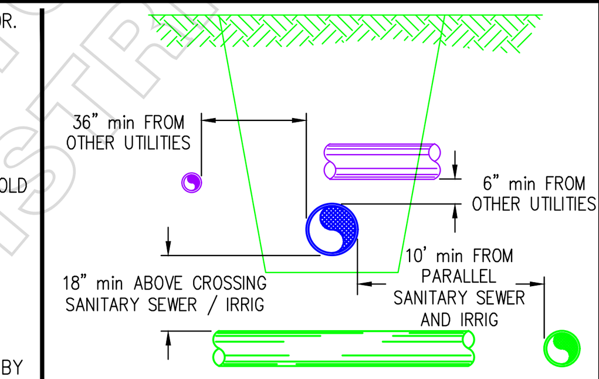
East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **CONSTRUCTION NOTES PAGE 2 of 2**

File: EWDTW19 | Revised: JAN 20, 2021 | Printed: JAN 20, 2021 | DRAWING NO. W-30 | SHEET NO. 2



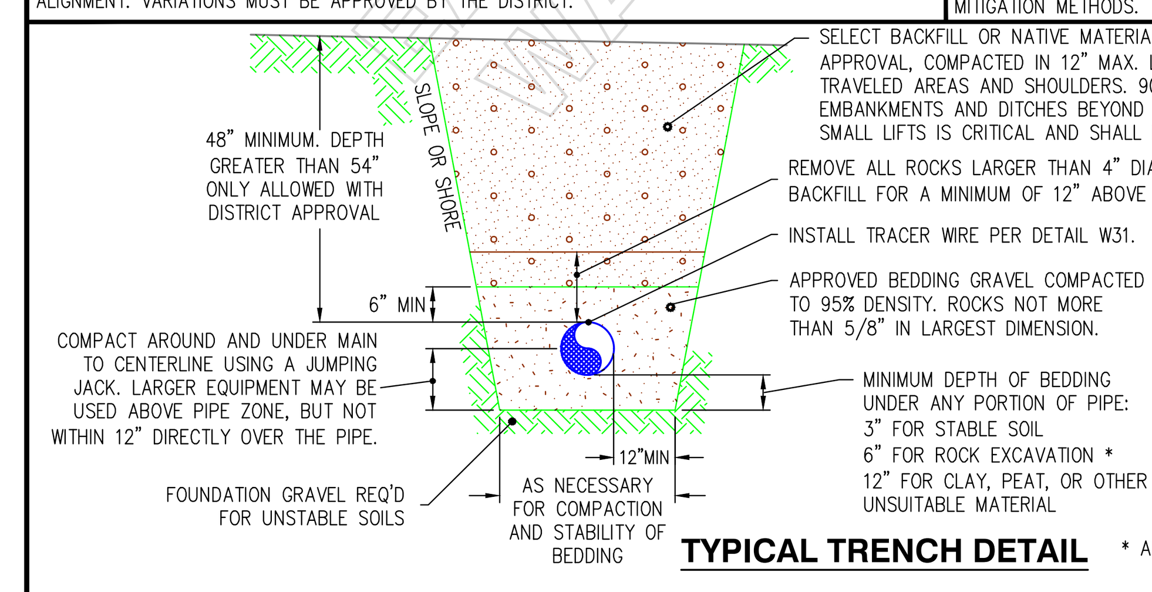
TRENCH IN ROADWAY SECTION

1. WATER TO OBTAIN OPTIMUM MOISTURE CONTENT AS DETERMINED BY COMPACTION TESTING PROCTOR.
2. RESTORE SHOULDERS WITH 6" OF ⅝" MINUS CRUSHED ROCK IF DISTURBED.
3. RESTORE DITCHES DISTURBED DURING CONSTRUCTION TO ORIGINAL CONDITION.
4. PLACE A TEMPORARY PATCH OVER TRENCH CUTS AT THE END OF EACH WORKING DAY SO THAT TRAFFIC IS NOT AFFECTED. TEMPORARY PATCHING MATERIAL SHALL BE ⅝" MINUS CRUSHED ROCK. COLD MIX MAY BE REQUIRED BY THE COUNTY OR CITY AS A TEMPORARY PATCH IN SOME AREAS.
5. ALL TRENCHING TO BE DONE IN ACCORDANCE WITH OSHA AND WISHA STANDARDS.
6. CROSSINGS OF INTERSECTIONS SHALL BE RESTORED BY THE END OF THE DAY EITHER WITH PERMANENT PATCH OR TEMPORARY COLD MIX.
7. NO TRENCH IN PAVED AREAS SHALL BE LEFT UNPAVED FOR MORE THAN 12 CALENDAR DAYS OR BY THE SECOND FRIDAY, WHICHEVER COMES FIRST.
8. POLY PIPE FOR WATER SERVICES, AIR VALVES, ETC. SHALL BE BEDDED IN SAND A MINIMUM OF 6" ABOVE AND BELOW THE PIPE.
9. CITY OR COUNTY RESTORATION STANDARDS SHALL GOVERN IF MORE STRINGENT THAN SHOWN HERE.
10. INSTALL MAINS TO WITHIN 6-INCHES HORIZONTAL AND 2-INCHES VERTICAL OF THE APPROVED PLAN ALIGNMENT. VARIATIONS MUST BE APPROVED BY THE DISTRICT.



CLEARANCES

IF 18" VERTICAL CLEARANCE IS AVAILABLE ABOVE PARALLEL SEWER/IRRIG, SEPARATION MAY BE REDUCED TO 5 FT HORIZONTAL, WALL TO WALL, ONLY IF APPROVED BY THE DISTRICT. D.O.H. *WATER SYSTEM DESIGN MANUAL* SECTION 8.4 AND D.O.E. *CRITERIA FOR SEWAGE WORKS DESIGN* SECTION C1-9 SHALL BE ADHERED TO FOR CLEARANCES AND FOR MITIGATION METHODS.



TYPICAL TRENCH DETAIL

* ANY ROCK OR GRANULAR MATERIAL OVER 3" DIAMETER

East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **TRENCH SECTION AND RESTORATION**

File: EWDTW22 | Revised: MAY 3, 2021 | Printed: MAY 3, 2021 | DRAWING NO. W-03 | SHEET NO. 3

CONSTRAINTS

1. SOIL CONDITIONS AND BEARING CHARACTERISTICS ARE TO BE DETERMINED BY THE DISTRICT.
2. THIS STANDARD DETAIL IS FOR HORIZONTAL THRUST RESTRAINT ONLY.
3. CONCRETE BLOCKING SHALL BE PER DOT/APWA SPECIFICATION 7-09.3(21), CURRENT EDITION.
4. MAINTAIN 18" MINIMUM GROUND COVER OVER THE TOP OF ALL CONCRETE BLOCKING.
5. ALL THRUST BLOCKS TO BE FORMED AND FITTINGS COVERED IN PLASTIC.
6. ANY TEMPORARY BLOCKING USED TO SUPPORT FITTINGS DURING CONSTRUCTION SHALL BE REMOVED PRIOR TO BACKFILLING.

PROCEDURE

1. DETERMINE BEARING FACTOR IN TABLE 1 CORRESPONDING TO APPROPRIATE PIPE SIZE AND TYPE OF FITTING.
2. MULTIPLY THE BEARING FACTOR DETERMINED IN TABLE 1 BY THE MULTIPLICATION FACTOR IN TABLE 2 FOR THE APPROPRIATE SOIL CLASSIFICATION.

THE RESULT IS THE REQUIRED AREA OF CONCRETE (IN SQ. FT.) WHICH MUST BEAR AGAINST UNDISTURBED SOIL.

3. USING TABLE 3 LOCATE THE MINIMUM DEPTH OF CONCRETE (Dmin) CORRESPONDING TO THE REQUIRED BEARING AREA.
4. USING Dmin, THE HEIGHT AND LENGTH OF THE THRUST BLOCKING CAN BE DETERMINED FROM THE DIMENSION RELATIONSHIPS ILLUSTRATED IN FIGURE 1 AND DESCRIBED BELOW:
   A. "H" EQUALS "D"
   B. MAX. "L" EQUALS 2 x "H"
   C. MIN. "L" EQUALS "H"

TABLE 1 - BEARING FACTOR

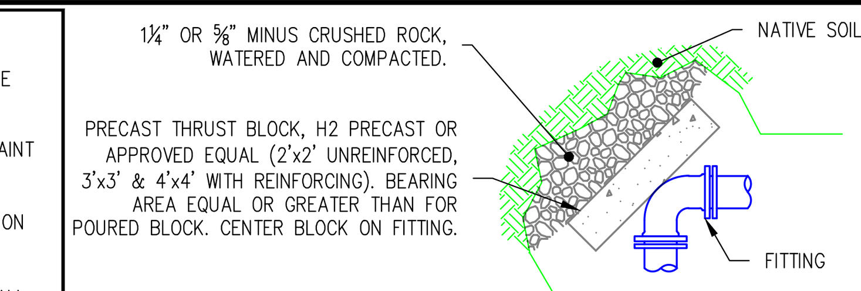
SIZE	TEST PRESSURE	TEES DEAD ENDS	90° BEND	45° BEND	22½° BEND	11¼° BEND
3	300	2.3*	2.6	2.3*	2.3*	2.3*
4	300	2.3*	3.8	2.3*	2.3*	2.3*
6	300	5.6	7.9	4.3	2.3*	2.3*
8	300	9.6	13.6	7.4	3.8	2.3*
10	300	14.5	20.5	11.1	5.7	2.8
12	300	20.5	29.0	15.7	8.0	4.0
14	300	27.6	39.0	21.1	10.8	5.4
16	300	35.7	50.4	27.3	13.9	7.0
18	300	44.8	63.4	34.3	17.5	8.8
20	300	55.0	77.7	42.1	21.4	10.8
24	300	78.4	111.0	60.0	30.6	15.4

* 2.3 BASED ON GEOMETRIC FACTORS

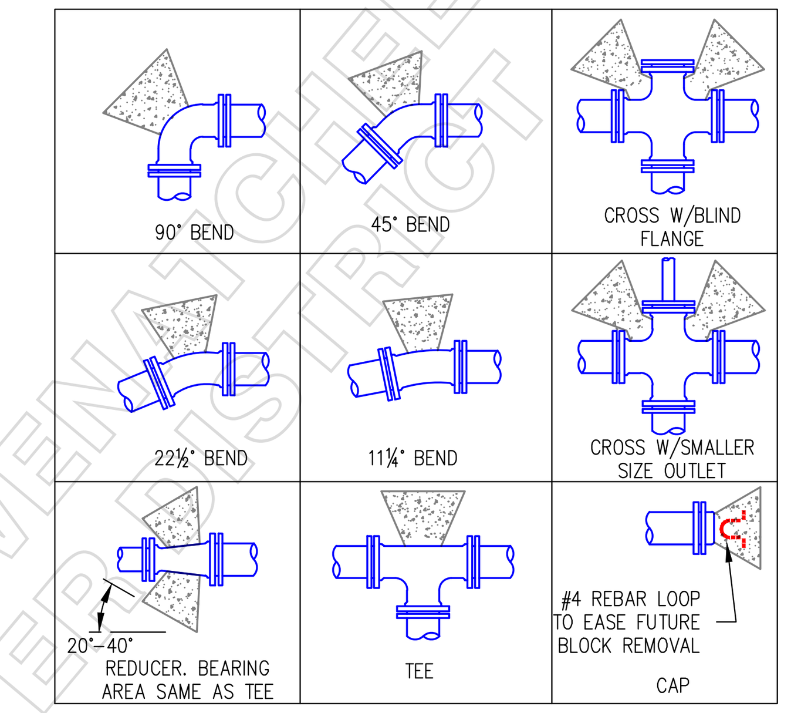
TABLE 2 - MULTIPLICATION FACTOR

SOIL CONDITION	MULTIPLICATION FACTOR
*MUCK, PEAT, etc.	–
SOFT CLAY	2.0
SILT	1.3
SAND OR SANDY SILT	1.0
SAND AND GRAVEL	0.7
SAND AND GRAVEL CEMENTED W/ CLAY	0.5
HARD SHALE	0.2

* RESTRAINT SHALL BE DESIGNED BY ENGINEER



PRECAST THRUST BLOCK



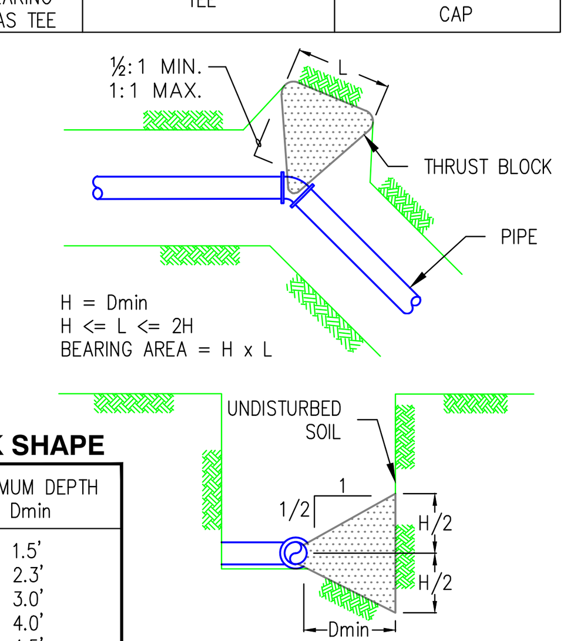


FIGURE 1

TABLE 3 - BLOCK SHAPE

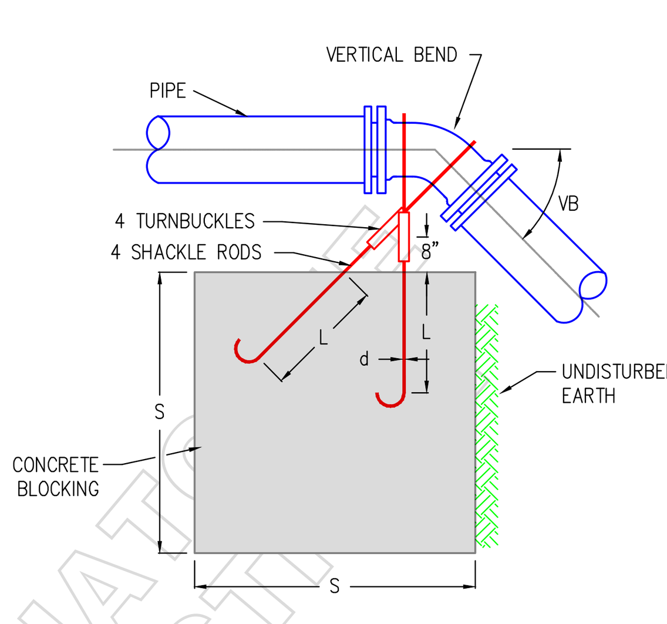
REQ'D BEARING AREA (SQ. FT.)	MINIMUM DEPTH Dmin
2.25 MIN.- 5.0	1.5'
5.01 - 10.0	2.3'
10.01 - 15.0	3.0'
15.01 - 30.0	4.0'
30.01 - 40.0	4.5'
40.01 - 50.0	5.0'
50.01 - 70.0	6.0'

East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **HORIZONTAL THRUST BLOCKING**

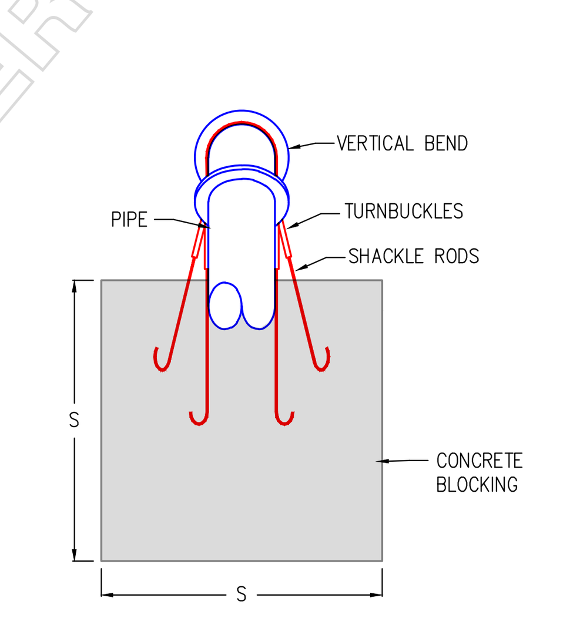
File: EWDTW6 | Revised: JAN 22, 2021 | Printed: JAN 22, 2021 | DRAWING NO. W-04 | SHEET NO. 4

VERTICAL THRUST BLOCKING FOR 11.25°, 22.5°, AND 45° BENDS

PIPE SIZE NOM. DIAMETER - INCHES	TEST PRESSURE PSI	VERTICAL BEND DEGREES (VB)	AMOUNT CONCRETE BLOCKING - CU FT	LENGTH OF SIDE FEET (S)	SHACKLE ROD DIA. INCHES (d)	DEPTH OF ROD IN CONCRETE INCHES (L)	NUMBER OF TIE ROD SETS (2 EMBEDDED RODS PER SET)
3"	300	11 1/4	5.8	1.8	5/8	12"	2
		22 1/2	11.5	2.3	5/8	12"	2
		45	22.6	2.8	5/8	12"	2
4"	300	11 1/4	8.5	2.0	5/8	12"	2
		22 1/2	17.0	2.6	5/8	12"	2
		45	33.2	3.2	5/8	12"	2
6"	300	11 1/4	17.6	2.6	5/8	12"	2
		22 1/2	35.0	3.3	5/8	12"	2
		45	68.7	4.1	5/8	12"	2
8"	300	11 1/4	30.3	3.1	3/4	12"	2
		22 1/2	60.2	3.9	3/4	12"	2
		45	118	4.9	3/4	12"	4
10"	300	11 1/4	45.5	3.6	3/4	12"	2
		22 1/2	90.6	4.5	3/4	12"	2
		45	178	5.6	3/4	24"	4
12"	300	11 1/4	64.4	4.0	3/4	12"	2
		22 1/2	128	5.1	3/4	12"	4
		45	251	6.3	3/4	12"	6
14"	250	11 1/4	86.5	4.4	3/4	12"	2
		22 1/2	172	5.6	3/4	24"	4
		45	338	7.0	1"	24"	6
16"	250	11 1/4	112	4.8	3/4	12"	3
		22 1/2	223	6.1	3/4	12"	6
		45	436	7.6	1"	12"	6
18"	250	11 1/4	141	5.2	3/4	24"	4
		22 1/2	280	6.5	1"	24"	4
		45	549	8.2	1-1/4"	24"	6



BLOCKING FOR VERTICAL BENDS



1. RESTRAINED JOINTS ARE PREFERRED OVER VERTICAL THRUST BLOCKING UNLESS RESTRAINTS ARE NOT PRACTICAL.
2. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.
3. SHACKLE RODS SHALL BE PER W-07.

VERTICAL THRUST BLOCKING

East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **VERTICAL THRUST BLOCKING**

File: EWDTW13 | Revised: APR 13, 2007 | Printed: JUL 18, 2008 | DRAWING NO. W-05 | SHEET NO. 5

1. RESTRAINED JOINTS ARE ACCEPTABLE INSTEAD OF THRUST BLOCKS, WHERE APPROPRIATE. THE DISTRICT WILL BE THE SOLE DETERMINER IF THE APPLICATION IS APPROPRIATE. THE FOLLOWING APPLICATIONS MUST USE RESTRAINED JOINTS UNLESS IMPRACTICAL:
  1.1. DEAD END MAINS THAT MAY BE EXTENDED IN THE FUTURE.
  1.2. SOFT OR SATURATED SOILS, FITTINGS NEAR TOP OF SLOPE, OR BEARING AGAINST AN ADJACENT UTILITY.
  1.3. VERTICAL BENDS WITH FORCE DIRECTION UPWARDS ARE NOT COVERED HERE. MUST BE DESIGNED BY ENGINEER FOR EACH CASE.

2. MECHANICAL JOINT RESTRAINTS SHALL BE COATED WITH FUSION BONDED POLYESTER, OR ZINC & EPOXY COATING. EBAA MEGABOND, ROMAC ROMABOND, FORD ARMORGUARD E-COAT, OR APPROVED EQUAL.

3. TYLER TUFGRIP RESTRAINTS ARE NOT ALLOWED. SET-SCREW STYLE RESTRAINTS ARE NOT ALLOWED.

4. THE FOLLOWING TABLES ARE BASED ON EQUATIONS FROM THE ***DUCTILE IRON PIPE RESEARCH ASSOCIATION'S 2016 THRUST RESTRAINT FOR DUCTILE IRON PIPE***. THE FOLLOWING CONDITIONS MUST BE MET FOR THESE RESULTS TO BE VALID. IF ANY OF THESE CONDITIONS CANNOT BE MET, PROJECT SPECIFIC CALCULATIONS MUST BE PROVIDED:
  4.1. THESE TABLES ONLY FOR BARE (UNWRAPPED) DUCTILE IRON OR PVC PIPE.
  4.1. PIPE LAYING CONDITION TYPE 4 or 5, DEFINED AS:
    4.1.1. SELECT GRANULAR BEDDING MATERIAL BELOW PIPE.
    4.1.2. PIPE ZONE BEDDING EXTENDING TO TOP OF PIPE MECHANICALLY COMPACTED IN LIFTS.
  4.2. PIPE RESTING DIRECTLY ON NATIVE TRENCH BOTTOM IS NOT ACCEPTABLE.
  4.3. SANDY SILT BEDDING. FOR IMPORT CLEAN SAND OR 5/8" TOP COURSE, LENGTHS MAY BE REDUCED BY 25%.
  4.4. DEPTH OF COVER IS 3.5 FEET MINIMUM AT THE TIME OF PRESSURE TESTING.
  4.5. 250psi TEST PRESSURE MAXIMUM. FOR HIGHER TEST PRESSURE, MULTIPLY "L" BY THE PROPORTIONAL DIFFERENCE.
    4.5.1. EXAMPLE: FOR 300psi, 300/250=1.2 THEREFORE, LENGTHS MUST BE MULTIPLIED BY 120%.

THE LENGTH "**L**" GIVEN BELOW IS THE DISTANCE THAT PIPE MUST BE RESTRAINED PAST THE FITTING JOINT. ALL JOINTS WITHIN THIS DISTANCE MUST BE RESTRAINED, INCLUDING THE FITTING.

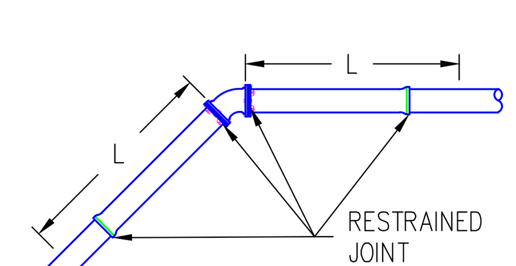
DIA.	11¼° BEND	22½° BEND	33¾° BEND	45° BEND	67½° BEND	90° BEND	DEAD END	REDUCER *
4"	3'	5'	8'	10'	17'	25'	61'	20'
6"	4'	7'	11'	14'	23'	34'	86'	58'
8"	5'	9'	14'	19'	30'	44'	112'	81'
10"	6'	11'	16'	22'	36'	53'	135'	83'
12"	7'	13'	19'	26'	41'	62'	158'	84'
16"	8'	16'	24'	33'	53'	78'	203'	86'
18"	9'	18'	27'	36'	58'	86'	224'	121'
PVC**	1.2x	1.2x	1.2x	1.2x	1.2x	1.2x	1.4x	1.4x

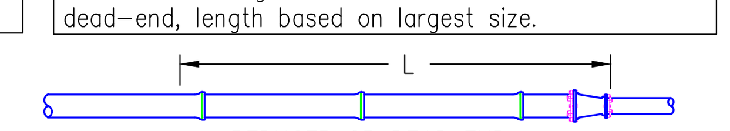
* Assumes reducer down 2 sizes. (example 12"x8"). Larger reductions shall be treated as a tee.
** For PVC or poly-bagged pipe, multiply the lengths by the value shown in the PVC row.

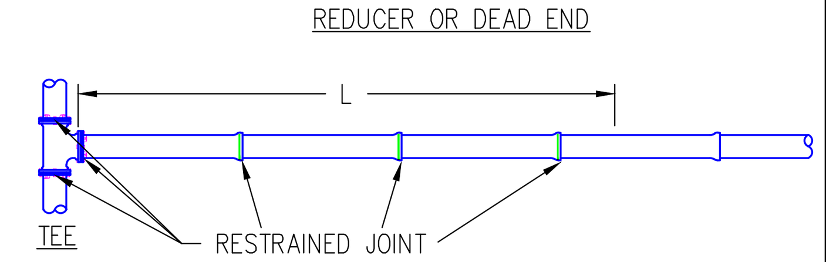
BRANCH REDUCING TEE TABLE (1.4x for PVC)

BRANCH DIAMETER	RUN DIAMETER 4"	6"	8"	10"	12"	16"	18"
4"	46'	39'	31'	23'	15'	1'	1'
6"	–	70'	65'	60'	55'	43'	37'
8"	–	–	97'	93'	89'	80'	75'
10"	–	–	–	119'	116'	109'	105'
12"	–	–	–	–	143'	137'	133'
16"	–	–	–	–	–	187'	184'
18"	–	–	–	–	–	–	207'

Restrain tee/cross run legs with a minimum 5' stick of pipe in each leg.
Branch increasing or "bullhead" tees restrained as a dead-end, length based on largest size.

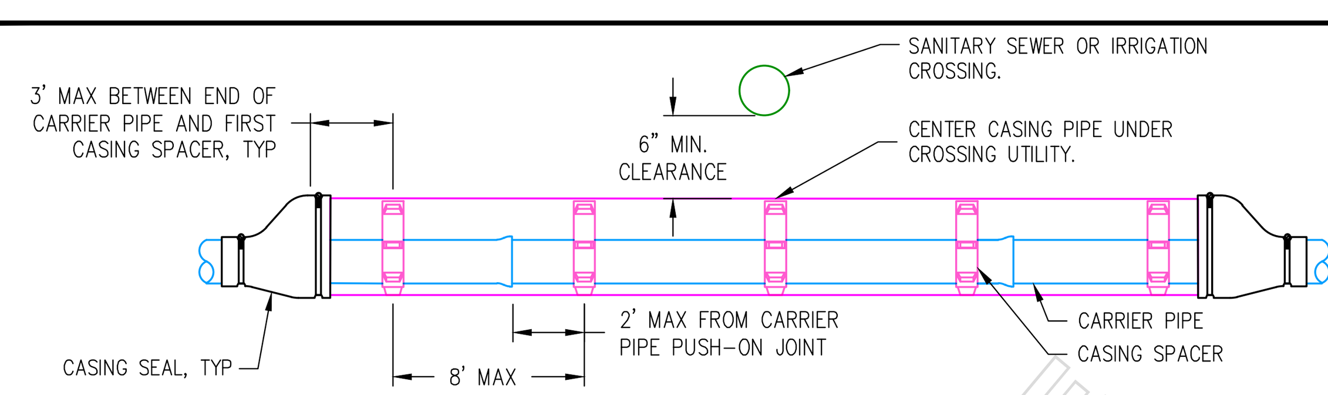




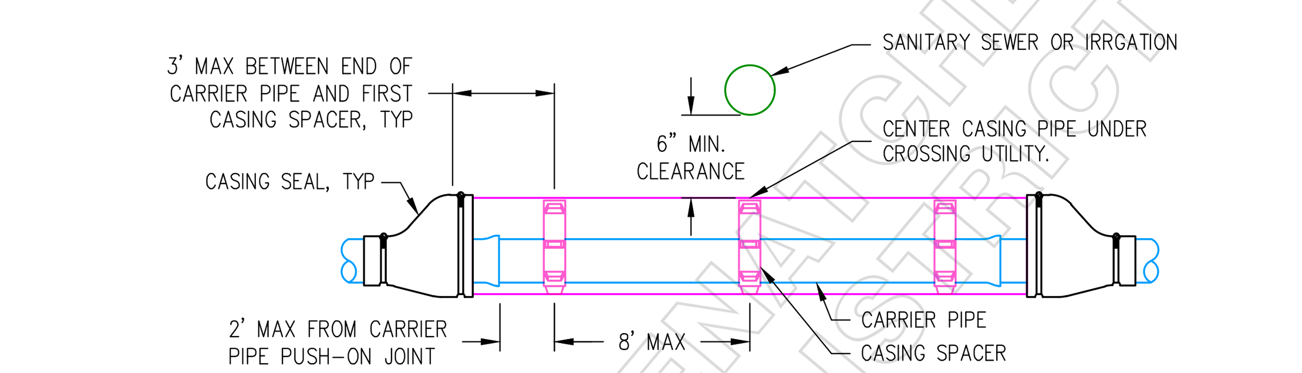


East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **RESTRAINED JOINT PIPE**

File: EWDTW16 | Revised: JAN 22, 2021 | Printed: JAN 22, 2021 | DRAWING NO. W-16 | SHEET NO. 6



CASING PIPE LONGER THAN 20' DETAIL



20' CASING PIPE DETAIL

1. CASING TO BE USED WHEN
   • WATERMAIN CROSSES UNDER SANITARY SEWER OR IRRIGATION.
   • WATERMAIN CROSSES OVER SANITARY SEWER OR IRRIGATION WITH LESS THAN 18" CLEARANCE.
   • AT THE DISCRETION OF THE DISTRICT.
   • ALTERNATELY, SANITARY SEWER OR IRRIGATION MAY BE CASED OR CONSTRUCTED OF WATERMAIN CLASS MATERIALS (DI, C900 PVC, ETC.)
2. CASINGS SHALL BE NEW STEEL, DI, HDPE OR C900/C905 PVC; MATERIAL AND WALL THICKNESS AT THE DISCRETION OF THE DISTRICT.
3. PIPE THROUGH CASINGS SHALL BE SUPPORTED WITH RUNNERS SPACED MEETING THE FOLLOWING REQUIREMENTS:
   • NO FARTHER THAN 8 FEET BETWEEN RUNNERS
   • A RUNNER NO FARTHER THAN 3 FEET FROM EACH END OF THE CASING
   • A RUNNER NO FARTHER THAN 2 FEET FROM EACH CARRIER PIPE PUSH-ON JOINT.
4. RUNNERS SHALL BE MANUFACTURED PRODUCTS (PSI, CALPICO, OR APPROVED EQUAL), NO BLOCKS AND STRAPS. CASING ENDS SHALL BE CAPPED WITH MANUFACTURED CASING END SEALS.
5. CASING LENGTH AS NECESSARY TO EXTEND 10 FEET PAST THE UTILITY CROSSING, BOTH SIDES, OR AS DIRECTED BY THE DISTRICT.
6. CASING RUNNERS TO BE SELECTED SO CLEARANCE BETWEEN TOP RUNNER LEG AND CASING DOES NOT EXCEED 1".
7. MINIMUM CASING SIZE (INSIDE DIAMETER) ASSUMING PUSH-ON JOINT DI CARRIER PIPE.
   • 6" PIPE - 12" CASING
   • 8" PIPE - 14" CASING
   • 12" PIPE - 18" CASING
   • 16" PIPE - 24" CASING
   • OTHER SIZES OR TYPES OF CARRIER PIPE, CONFIRM WITH DISTRICT.

East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **PIPE CASING**

File: EWDTW32 | Revised: MAY 2, 2018 | Printed: MAY 2, 2018 | DRAWING NO. W-32 | SHEET NO. 7

TIE ROD SELECTION TABLES

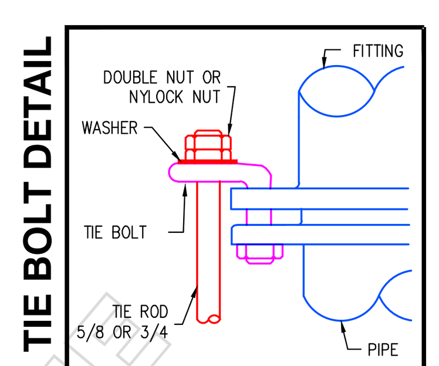
ASTM A242 (COR-TEN® OR EQUAL) STEEL — ROD DIAMETER: 5/8" OR (3/4")

PIPE DIAMETER	NUMBER OF TIE RODS PER JOINT: TEE DEAD END VALVE 90° BEND	45° BEND	22.5° BEND	11.25° BEND	MAXIMUM TIE ROD LENGTH, FEET: TEE DEAD END 90° BEND VALVE	45° BEND	22.5° BEND	11.25° BEND
3	2 –	2 –	2 –	2 –	100 --	100 --	100 --	100 --
4	2 (2)	2 (2)	2 (2)	2 (2)	100 (100)	100 (100)	100 (100)	100 (100)
6	2 (2)	2 (2)	2 (2)	2 (2)	60 (90)	80 (100)	100 (100)	100 (100)
8	4 (3)	2 (2)	2 (2)	2 (2)	50 (50)	50 (70)	90 (100)	100 (100)
10	6 (4)	4 (2)	2 (2)	2 (2)	40 (60)	60 (50)	60 (80)	100 (100)
12	8 (6)	4 (4)	2 (2)	2 (2)	60 (60)	60 (80)	50 (80)	100 (100)
14	10 (5)	6 (4)	4 (2)	2 (2)	60 (70)	60 (60)	80 (60)	80 (100)
16	12 (8)	8 (6)	4 (3)	2 (2)	60 (50)	60 (70)	60 (70)	60 (90)
18	16 (12)	8 (6)	6 (3)	3 (2)	50 (50)	50 (60)	70 (50)	70 (70)

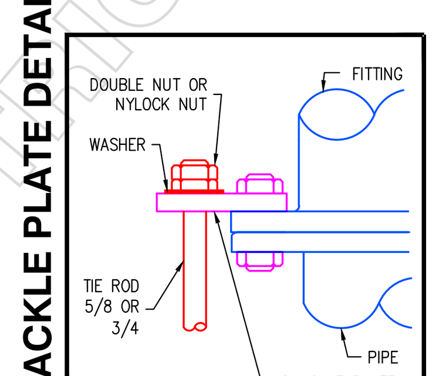
304SS OR OTHER STEELS — ROD DIAMETER: 5/8" OR (3/4")

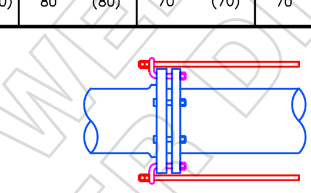
PIPE DIAMETER	NUMBER OF TIE RODS PER JOINT: TEE DEAD END VALVE 90° BEND	45° BEND	22.5° BEND	11.25° BEND	MAXIMUM TIE ROD LENGTH, FEET: TEE DEAD END 90° BEND VALVE	45° BEND	22.5° BEND	11.25° BEND
3	2 –	2 –	2 –	2 –	100 --	100 --	100 --	100 --
4	2 (2)	2 (2)	2 (2)	2 (2)	100 (100)	100 (100)	100 (100)	100 (100)
6	2 (2)	2 (2)	2 (2)	2 (2)	60 (90)	80 (100)	100 (100)	100 (100)
8	4 (3)	3 (2)	2 (2)	2 (2)	50 (50)	70 (70)	90 (100)	100 (100)
10	6 (4)	4 (4)	2 (2)	2 (2)	70 (60)	60 (90)	60 (80)	100 (100)
12	8 (6)	6 (4)	4 (2)	2 (2)	80 (90)	80 (80)	100 (80)	100 (100)
14	12 (8)	8 (6)	4 (4)	2 (2)	70 (90)	80 (90)	80 (100)	80 (100)
16	16 (10)	10 (6)	4 (4)	3 (2)	70 (80)	80 (70)	90 (90)	90 (90)
18	– (14)	12 (8)	6 (4)	3 (2)	-- (80)	80 (80)	70 (70)	70 (70)

TIE BOLT DETAIL



SHACKLE PLATE DETAIL





TIE BOLT
STAR SUPPLY CORPORATION OR APPROVED EQUAL

GENERAL NOTES

1) TIE RODS SHALL BE "ALL THREAD" ROD OF ONE OF THE APPROVED MATERIALS:
 • ASTM A242 (COR-TEN)
 • 304 STAINLESS STEEL
 • ASTM F3125 A325 TYPE 3
 • ASTM A588
 • ASTM A709 GR 50W
MILD STEEL WILL NOT BE ALLOWED. ASTM A307 GRADE A OR B ROD IS ALLOWED, BUT MUST BE FIELD COATED AFTER ASSEMBLY WITH EPOXY, COAL-TAR OR RUBBER.

2) TIE RODS SHALL HAVE "NATIONAL-COARSE" THREAD WITH EITHER TWO NUTS OR ONE SELF-LOCKING NUT AT EACH END. NUTS ARE TO BE STAR NATIONAL TIENUT OR NUT OF EQUIVALENT OR GREATER OUTER DIAMETER.

3) NUMBER OF TIE RODS PER JOINT SHALL BE IN ACCORDANCE WITH TIE ROD SELECTION TABLES ABOVE UNLESS OTHERWISE SHOWN ON APPROVED DESIGN PLANS.

5) TIE RODS SHALL BE ASSEMBLED SYMMETRICALLY ABOUT EACH JOINT (IF AN EVEN NUMBER OF RODS ARE USED THEN EACH ROD SHALL HAVE A ROD LOCATED ON THE DIRECT OPPOSITE SIDE OF JOINT. IF 3 OR 6 RODS ARE USED THEN AN EQUAL NUMBER OF UNSHACKLED BOLT HOLES SHALL BE LEFT BETWEEN ANY TWO TIE RODS.)

6) TIE ROD NUTS SHALL BE TIGHTENED UNIFORMLY AT EACH JOINT.

7) TIE ROD LENGTHS SHALL NOT EXCEED THOSE LISTED IN ABOVE TABLES, UNLESS SPECIFICALLY SHOWN ON APPROVED PLANS.

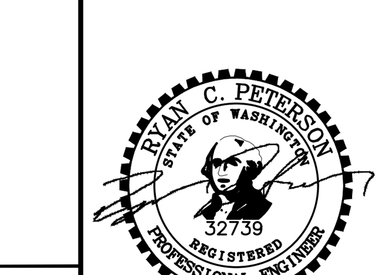
8) TIE ROD COUPLINGS SHALL BE GALVANIZED "STAR NATIONAL PRODUCTS TIECOUPLING" OR APPROVED EQUAL.

9) TIE RODS SHALL BE ATTACHED TO JOINTS WITH TIE BOLTS, EXCEPT FOR FIRE HYDRANT INSTALLATIONS WHICH SHALL USE TIE BOLTS ON LUGS. TIE BOLTS SHALL BE GALVANIZED "STAR NATIONAL PRODUCTS TIEBOLT" OR APPROVED EQUAL. "DUC-LUGS" ARE NOT ALLOWED.

10) 20" FITTINGS AND LARGER SHALL HAVE TIE ROD DESIGN INCLUDED ON DESIGN PLANS.

East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **TIE RODS**

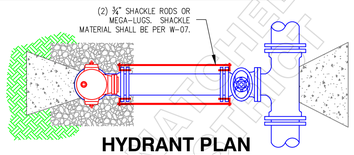
File: EWDTW7 | Revised: MAY 2, 2018 | Printed: MAY 2, 2018 | DRAWING NO. W-07 | SHEET NO. 8



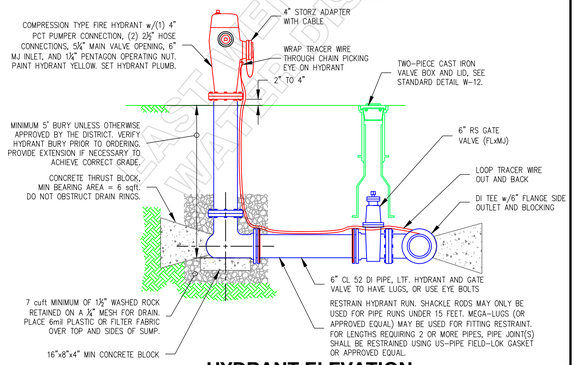
SIGNED: 01/22/2021

EWDTSHT1.DWG
MAY 5, 2021

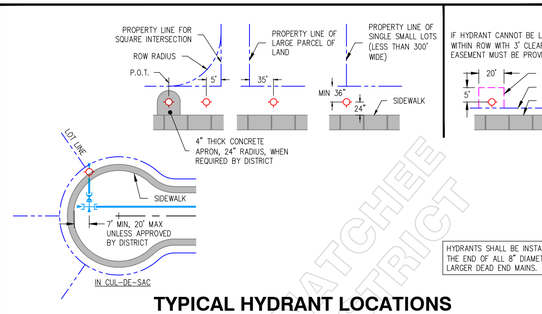
1. SEE STANDARD DETAIL W-23 FOR ADDITIONAL DETAILS INCLUDING LOCATION REQUIREMENTS.
2. ALL HYDRANTS SHALL BE DOUBLE RESTRAINED. WHERE THRUST BLOCKING IS NOT PRACTICAL, SHACKLES AND MEGA-LUG EQUIVALENTS ARE REQUIRED.
3. APPROVED HYDRANTS:
   - MUELLER A423
   - M & H 129, 129S or 929
   - CLOW F2500
   - WATEROUS W867-250
   - KENNEDY K81A OR K81D
4. IF THERE IS AN EXISTING HYDRANT IN THE VICINITY THAT WILL BE DEACTIVATED, REMOVE AND DELIVER HYDRANT TO DISTRICT SHOP. CONFIRM WITH DISTRICT AND REFER TO DETAIL W-15 FOR METHODS.
5. COVER HYDRANTS THAT ARE NOT YET IN SERVICE WITH BLACK 3-MIL POLY BAGS.



HYDRANT PLAN



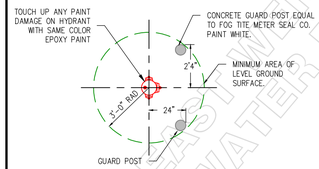
HYDRANT ELEVATION



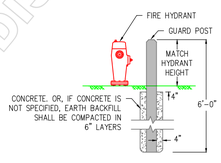
IF HYDRANT CANNOT BE LOCATED WITHIN ROW WITH 3' CLEAR, AN EASEMENT MUST BE PROVIDED.

HYDRANTS SHALL BE INSTALLED AT THE END OF ALL 8" DIAMETER AND LARGER DEAD END MAINS.

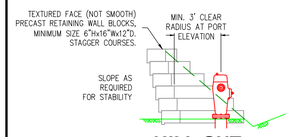
TYPICAL HYDRANT LOCATIONS



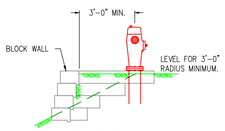
GUARD POST PLAN



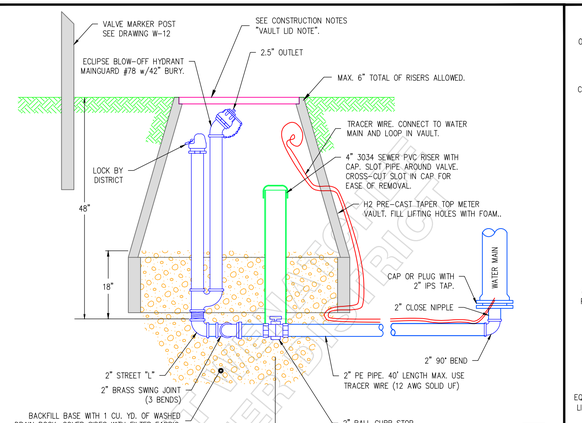
GUARD POST ELEVATION



HILL CUT

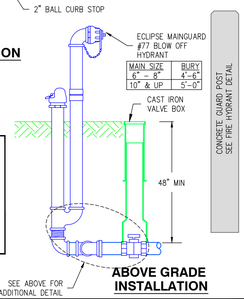


SLOPE FILL

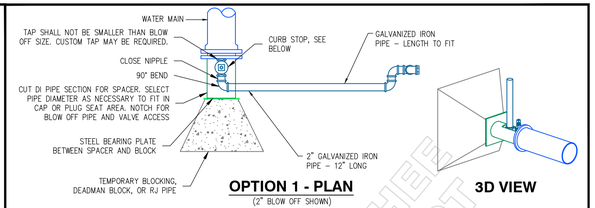


BELOW GRADE INSTALLATION

1. SEE DETAIL W-29 FOR VAULT INSTALLATION REQUIREMENTS.
2. CAP OR PLUG ON WATER MAIN TO BE RESTRAINED PER W-16, BY STANDARD THRUST BLOCK, OR DEADMAN THRUST BLOCK AS APPROVED BY THE DISTRICT.
3. CONTACT WATER DISTRICT TO DETERMINE WHETHER THE ABOVE GRADE OR BELOW GRADE HYDRANT IS TO BE USED FOR EACH INSTANCE.
4. PLACEMENT OF HYDRANT TO BE VERIFIED WITH DISTRICT PRIOR TO INSTALLATION. DISTRICT MAY REQUIRE A MINIMUM 3' RADIUS CLEAR ZONE AROUND HYDRANT AND THE INSTALLATION OF GUARD POSTS. DETERMINATION WILL BE MADE PER INSTALLATION.

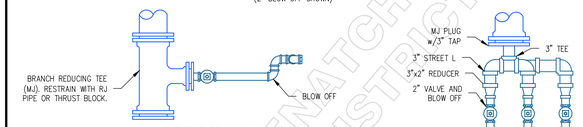


ABOVE GRADE INSTALLATION



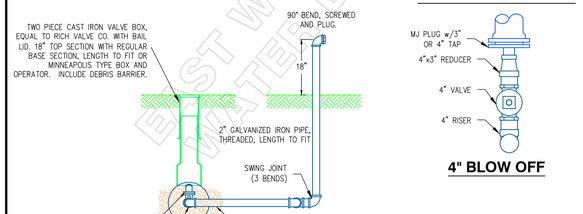
OPTION 1 - PLAN
(2" BLOW OFF SHOWN)

3D VIEW



OPTION 2 - PLAN

MULTIPLE BLOW OFF



ELEVATION
FOR INSTALLATIONS LONGER THAN 6 MONTHS 2" BLOW OFF SHOWN

4" BLOW OFF

1. THIS DETAIL IS NOT TO BE USED IN SITUATIONS WHERE THE BLOW-OFF MAY STAY IN THE GROUND FOR A PERIOD OF MORE THAN ONE YEAR.
2. MINIMUM BLOW OFF SIZE SHALL BE 2" FOR 8" AND SMALLER MAINS. 3" OR DOUBLE 2" BLOW OFF FOR 10" AND 12" MAINS. 4" BLOW OFF ON 14" AND LARGER MAINS. LARGER BLOW OFFS MAY BE REQUIRED DEPENDING ON AVAILABLE SYSTEM PRESSURE.
3. PE PIPE AND FITTINGS MAY BE USED ON ONE SIDE OF CURB STOP. GALV MUST BE USED ON AT LEAST ONE SIDE.

East Wenatchee Water District	File: EWDTW5	Revised: JAN 20, 2021	Printed: JAN 20, 2021

WATER SYSTEM STANDARD DETAIL
FIRE HYDRANT
DRAWING NO. W-02 SHEET NO. 9

East Wenatchee Water District	File: EWDTW8	Revised: JAN 7, 2020	Printed: JAN 7, 2020

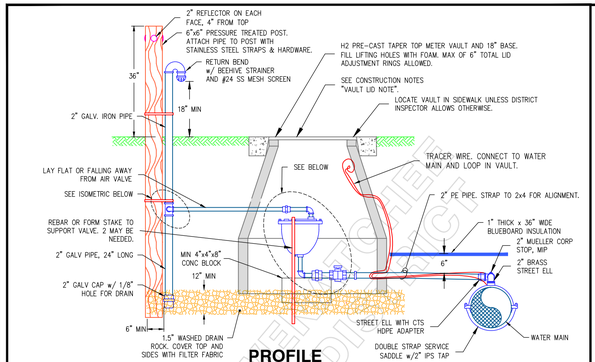
WATER SYSTEM STANDARD DETAIL
HYDRANT LOCATIONS
DRAWING NO. W-23 SHEET NO. 10

East Wenatchee Water District	File: EWDTW1	Revised: JAN 20, 2021	Printed: JAN 20, 2021

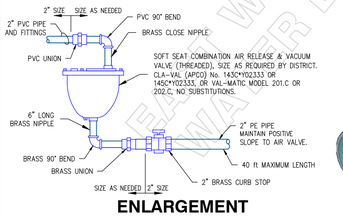
WATER SYSTEM STANDARD DETAIL
PERMANENT BLOW-OFF HYDRANT
DRAWING NO. W-08 SHEET NO. 11

East Wenatchee Water District	File: EWDTW11	Revised: JAN 22, 2021	Printed: JAN 22, 2021

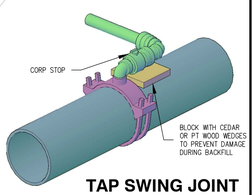
WATER SYSTEM STANDARD DETAIL
CONSTRUCTION BLOW-OFF ASSEMBLY
DRAWING NO. W-09 SHEET NO. 12



PROFILE

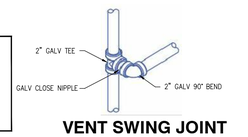


ENLARGEMENT

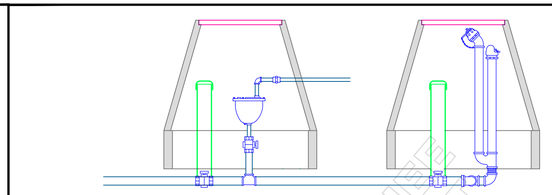


TAP SWING JOINT

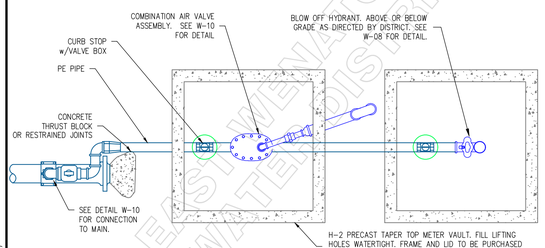
1. AIR VALVE ASSEMBLIES SHALL BE INSTALLED AT EVERY HIGH POINT.
2. COMBINATION AIR RELEASE AND VACUUM VALVE SHALL BE A 1" SIZE FOR 6" OR 8" MAINS WHEN SPACED AT 1,500' MAX. ALL OTHER INSTALLATIONS SHALL BE 2" SIZE.
3. FOR 1" COMBINATION VALVE, INSTALL 2"x1" BRASS REDUCER BETWEEN CURB STOP AND UNION.
4. SEE DETAIL W-29 FOR VAULT INSTALLATION REQUIREMENTS.
5. ALL METAL FITTINGS TO BE DOMESTIC MADE. ALL PVC PIPE & FITTINGS TO BE SCHEDULE 40 MINIMUM.



VENT SWING JOINT

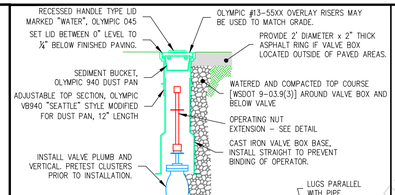


ELEVATION
SEE COMBINATION AIR VALVE DETAIL AND BLOW OFF DETAIL FOR MORE INFORMATION.



PLAN VIEW

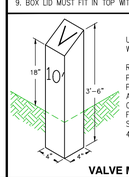
NOTES:
1. INSTALL STD. MARKER POST IDENTIFYING VALVE LOCATION
2. SET METER BOX FLUSH WITH SIDEWALK OR CURB IN LOCATED IN LAWN AREA. SET METER BOX APPROX. 2" ABOVE FINISHED GRADE IF IN LANDSCAPING AREA.
3. ALL FITTINGS TO BE COPPER OR BRASS UNLESS OTHERWISE NOTED.



ELEVATION VIEW

BOX LID PLAN VIEW

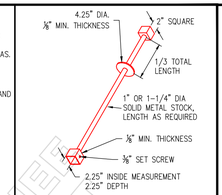
1. INSTALL VALVES AT NO MORE THAN 1,000 FT SPACING. PROVIDE (3) VALVES ON ALL TEES THAT LOOP OR ARE 6" OR LARGER.
2. VALVES 4" AND LARGER TO BE NRS RESILIENT SEAT GATE VALVES MEETING AWWA C509 OR C515. OTHER TYPES OF VALVES (BUTTERFLY OR ECCENTRIC) ARE ONLY ALLOWED WHEN APPROVED FOR SPECIFIC LOCATIONS BY THE DISTRICT.
3. COMPACT BACKFILL AROUND VALVE BOXES USING A JUMPING JACK.
4. OLYMPIC FOUNDRY VALVE BOX MODEL NUMBERS SHOWN. OWNER APPROVED EQUALS WILL BE ALLOWED. SIGMA PRODUCTS ARE NOT ALLOWED DUE TO CLEARANCE ISSUES.
5. RESTRAIN IN-LINE VALVES WITH DEVICES SHOWN IN DETAIL W-16 FOR A DISTANCE EQUAL TO A DEAD-END MAIN ON BOTH SIDES OF THE VALVE.
6. SUPPLY EACH VALVE WITH VALVE BOX, LID, AND DUST PAN. LID SHALL HAVE RECESSED HANDLE. ALIGN VALVE BOX RISER LUGS PARALLEL TO WATER FLOW.
7. PRE-PRESSURE TEST ALL VALVES. TEST THOSE THAT ARE PART OF A CUT-IN CONNECTION OR HOT TAP ON AN EXISTING MAIN ON BOTH SIDES OF THE CLOSED SEAT PRIOR TO INSTALLATION.
8. FOR VALVES LEFT TEMPORARILY EXPOSED DURING CONSTRUCTION, BLOCK THE OPEN END WITH A PLUG, OR COVER TIGHTLY WITH POLY BAG TO PROTECT THE VALVE SEAT FROM DAMAGE.
9. BOX LID MUST FIT IN TOP WITH NO MORE THAN 1/16" CLEARANCE.



USE MARKER POST WHEN VALVE IS LOCATED OUT OF TRAVELED WAY, IN GRAVEL, OR AT THE DIRECTION OF THE DISTRICT.

RENTON CONCRETE PRODUCTS NO. VM-1 OR APPROVED EQUAL. PAINT WITH TWO COATS OF NO. 43-114 (INTERNATIONAL YELLOW) PAINT AS SPECIFIED BY THE PRESERVATIVE PAINT CO. OR APPROVED EQUAL. LOCATE POST IN A SAFE AND REASONABLY CONSPICUOUS LOCATION AT A RIGHT ANGLE TO THE ROADWAY FROM THE VALVE. DISTANCE TO THE VALVE SHALL BE NEATLY STENCILED ON THE POST WITH TWO-INCH NUMBERS WITH NO. 43-102 (BLACK) PAINT AS SPECIFIED BY PRESERVATIVE PAINT CO.

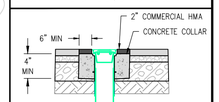
VALVE MARKER POST



OPERATING NUT EXTENSION

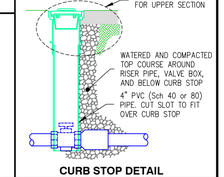
EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN 3.5 FEET BELOW FINISHED GRADE. EXTENSIONS NO LESS THAN ONE (1) FT LONG, ONLY ONE EXTENSION PER VALVE. EXTENSIONS MADE OF STEEL SIZED AS NOTED, PAINTED WITH TWO COATS OF CARBON ELASTIC (ATCO NO. 2221) BY PRESERVATIVE PAINT CO. OR APPROVED EQUAL.

FOR EXTENSIONS LONGER THAN 4 FT AND/OR VALVES LARGER THAN 12" DIAMETER, BAR SHALL BE 1¼" DIA.

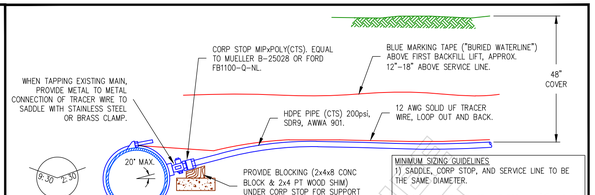


1. SET LID TOP 0" TO 1/8" BELOW SURFACE.
2. CURE CONCRETE 3 DAYS PRIOR TO PLACING HMA.
3. CUT HMA ROUGHLY CIRCULAR, NO LESS THAN 8 EDGES.

VALVE BOX IN PAVED ROAD

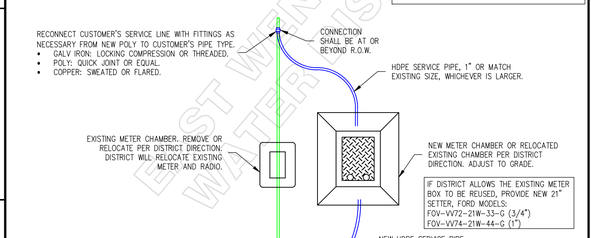


CURB STOP DETAIL



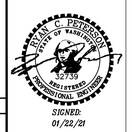
MINIMUM SIZING GUIDELINES
1) SADDLE, CORP STOP, AND SERVICE LINE TO BE THE SAME DIAMETER.
2) 1½" DIAMETER SERVICE LINE FOR ALL ¾" AND 1" SINGLE AND DOUBLE METERS.
3) 1½" DIAMETER MINIMUM SERVICE LINE FOR 1½" METERS.
4) 2" DIAMETER MINIMUM SERVICE LINE FOR 2" METERS.
5) LARGER SIZES MAY BE REQUIRED DEPENDING ON FIRE SPRINKLER DEMANDS, AVAILABLE PRESSURE, OR LONG PIPE RUNS.

WATER SERVICE TAP AND PIPE



IF DISTRICT ALLOWS THE EXISTING METER BOX TO BE REUSED, PROVIDE NEW 21" SETTER, FORD MODELS:
FOV-VV72-21W-33-G (3/4")
FOV-VV74-21W-44-G (1")

EXISTING SERVICE RECONNECTION



East Wenatchee Water District	File: EWDTW2	Revised: JAN 22, 2021	Printed: JAN 22, 2021

WATER SYSTEM STANDARD DETAIL
COMBINATION AIR VALVE ASSEMBLY
DRAWING NO. W-10 SHEET NO. 13

East Wenatchee Water District	File: EWDTW17	Revised: JUL 18, 2008	Printed: JUL 18, 2008

WATER SYSTEM STANDARD DETAIL
COMBINATION AIR VALVE & BLOW-OFF ASSEMBLIES
DRAWING NO. W-11 SHEET NO. 14

East Wenatchee Water District	File: EWDTW9	Revised: JAN 22, 2021	Printed: JAN 22, 2021

WATER SYSTEM STANDARD DETAIL
ISOLATION VALVE INSTALLATION DETAILS
DRAWING NO. W-12 SHEET NO. 15

East Wenatchee Water District	File: EWDTW14	Revised: APR 8, 2021	Printed: APR 8, 2021

WATER SYSTEM STANDARD DETAIL
CUSTOMER SERVICE CONNECTIONS
DRAWING NO. W-14 SHEET NO. 16

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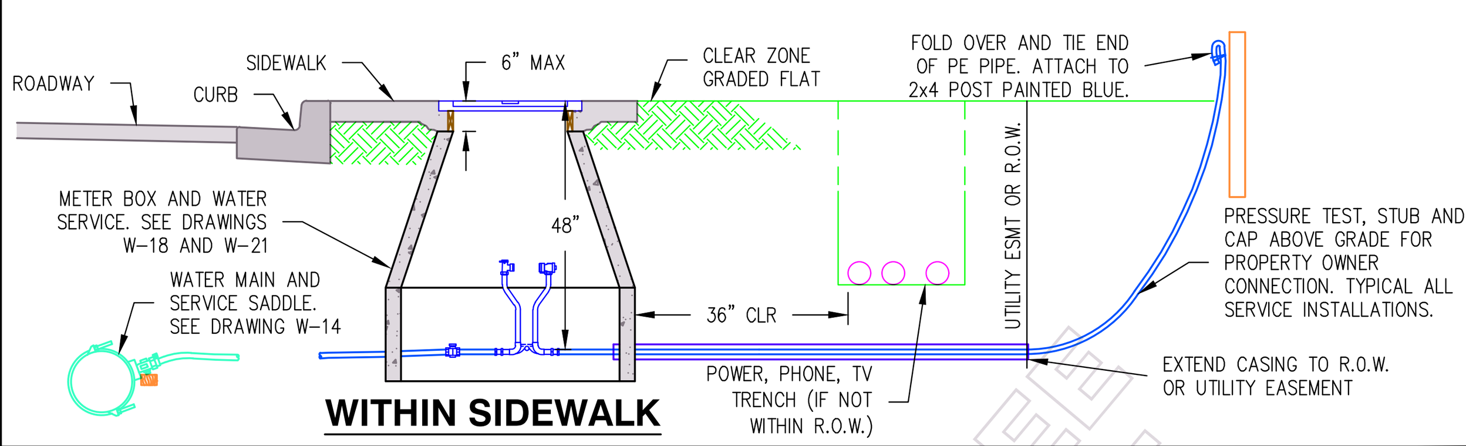
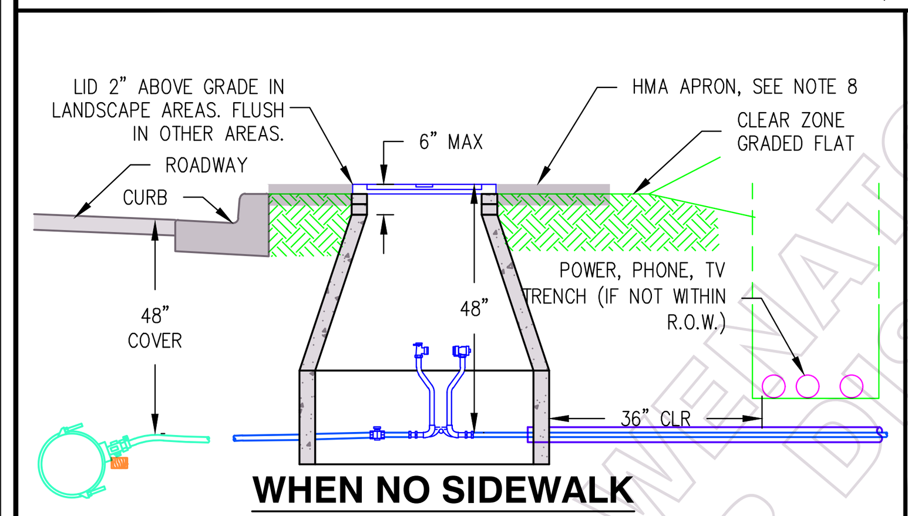
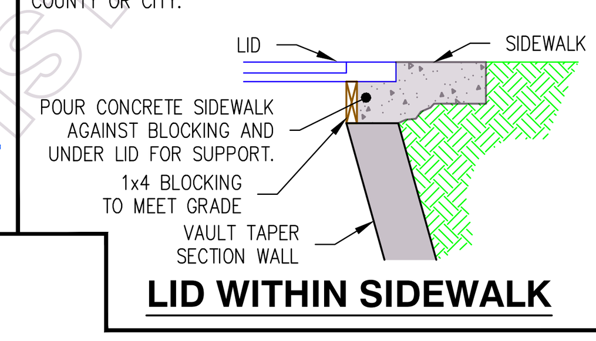




A. WHERE SIDEWALKS WILL BE INSTALLED BUT ARE DEFERRED, INSTALL ONE FULL PANEL OF WALK AROUND EACH VAULT LID.

B. GROUT LIDS TO FINISHED GRADE BEFORE SIDEWALKS ARE POURED. SLOPE LID WITH SIDEWALK FOR DRAINAGE, 1.5% MINIMUM. SCORE WALK WITH CONSTRUCTION JOINT AT EACH LID CORNER.

C. SIDEWALK PANEL 4" THICK x 5' WIDE x 4' LONG WITH 1.5% TO 2% DRAINAGE CROSS SLOPE, BROOM FINISH WITH SMOOTH TROWELED PERIMETER, UNLESS DIRECTED OTHERWISE BY THE COUNTY OR CITY.



1. INSTALL VAULT IN RIGHT OF WAY OR UTILITY EASEMENT. EASEMENT MUST EXTEND A MINIMUM OF 3ft BEYOND VAULT.

2. WHERE VAULT IS IN CURRENT OR FUTURE SIDEWALK, LID ELEVATION MUST BE SURVEYED & SET AT SIDEWALK FINISHED GRADE. SET LID TO WITHIN 1" OF FINISHED GRADE WITH H2-PRECAST RISERS. H2 RISERS MUST BE USED FOR ADJUSTMENTS 2" OR MORE. USE GROUT FOR FINAL LEVELING. IN LANDSCAPE AREAS, SET LID 2" ABOVE FINISHED GRADE.

3. 6" MAX LID ADJUSTMENT (MEASURED FROM TOP OF LID TO TOP OF VAULT).

4. FOR VAULTS INSTALLED ON SLOPES, CONSTRUCT A 6'x6' PAD WITH RETAINING STRUCTURES REQUIRED TO MAINTAIN STABLE INSTALLATION AND APPROPRIATE COVER OVER PIPE. SEE DETAIL W-23 FOR RETAINING WALLS.

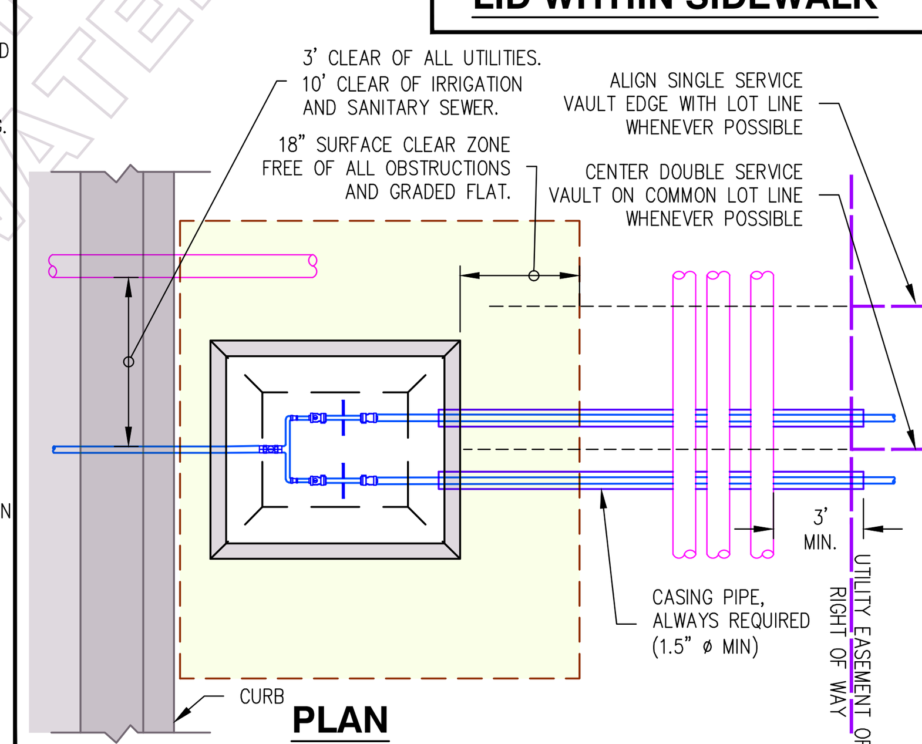
5. INSTALL MASTIC BETWEEN VAULT SECTIONS.

6. LOCATE VAULTS 5ft MIN FROM POWER HAND-HOLES. TRANSFORMERS SHALL BE ON OPPOSITE LOT CORNER.

7. EXTEND SERVICE LINE TO PROPERTY LINE FOR CONNECTION BY PROPERTY OWNER.

8. IN UNPAVED TRAVELED AREAS, INCLUDING GRAVELED SHOULDERS, DRIVES, AND ROADS, INSTALL 2" DEEP, 4'x4' HMA APRON CENTERED ON THE LID. SLOPE TO DRAIN AWAY FROM LID.

9. OUTSIDE OF SIDEWALKS, SECURE LID FRAME TO VAULT WITH LIQUID NAILS POLYURETHANE CONSTRUCTION ADHESIVE, LN-950

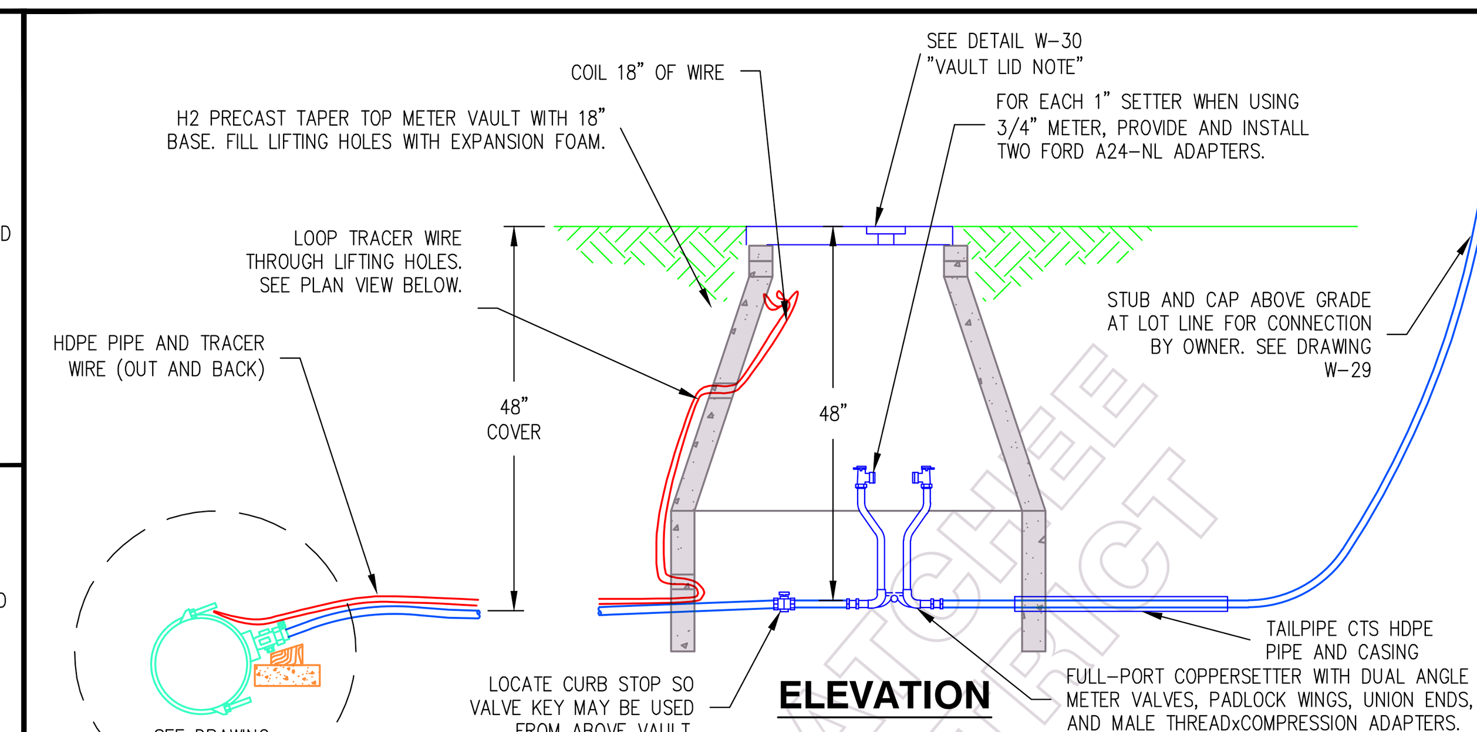


East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

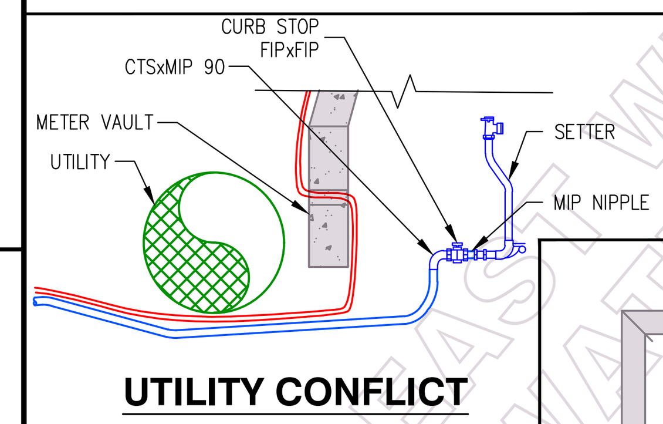
WATER SERVICE, AIR VALVE, BLOW OFF VAULT INSTALLATION DETAILS

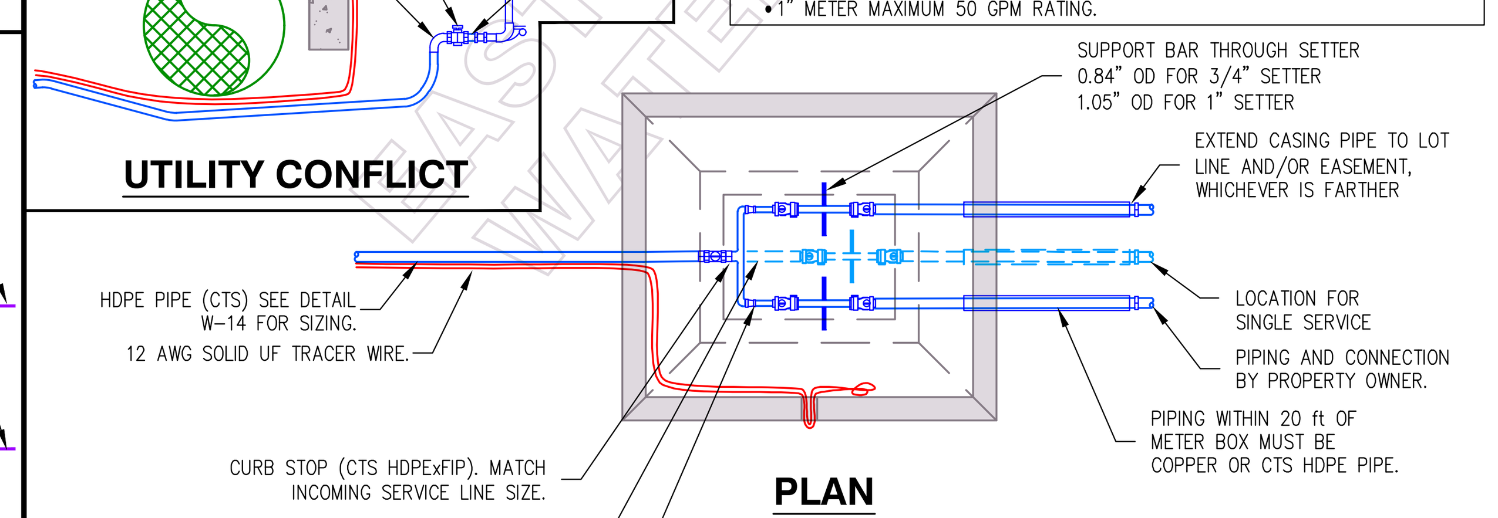
File: EWDTW3	Revised: JAN 22, 2021	Printed: JAN 22, 2021	DRAWING NO.	W-29	SHEET NO.	17



SIZE	FORD	McDONALD	MUELLER
⅝"x¾"	VBB73-8W-11-33-7-5-FP-NL	20-D207-JJ-DD-33	⅝x¾x8 B-2404N
1"	VBB74-10W-11-44-FP-NL	20-412-JJ-DD-44	1x10 B-2404N
	ADAPTERS C84-xx-Q		ADAPTER H-14222

NOTES:
- SETTER MODEL NUMBERS CHANGE FREQUENTLY. CONFIRM WITH SUPPLIER AND DISTRICT.
- SETTERS SHALL BE FULL SIZE (FULL-PORT) THROUGHOUT. e.g. A ⅝"x¾" SETTER SHALL HAVE ¾" ID PIPE (1.05" OD), VALVES, AND FITTINGS. 1" SHALL HAVE 1" ID PIPE AND FITTINGS.
- 3/4" METER MAXIMUM 20 GPM RATING.
- 1" METER MAXIMUM 50 GPM RATING.





1) COMPACT SOIL UNDER AND AROUND VAULT ASSEMBLY TO 90% OF MAXIMUM DENSITY FOR UNTRAVELED AREAS, AND 95% IN ROADS, DRIVES AND SIDEWALKS.

2) SEE DRAWING W-29 FOR METER VAULT INSTALLATION DETAILS.

3) PRESSURE TEST ENTIRE SERVICE THROUGH SETTER AND TAILPIPE AT 250 psi. TEMPORARY SETTER JUMPERS AND TAILPIPE CAPS FOR TESTING CAN BE PROVIDED BY THE DISTRICT. RETURN TO DISTRICT AFTER TESTING.

East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

3/4" AND 1" SINGLE AND DOUBLE WATER SERVICES

File: EWDTW26	Revised: APR 8, 2021	Printed: APR 8, 2021	DRAWING NO.	W-21	SHEET NO.	18

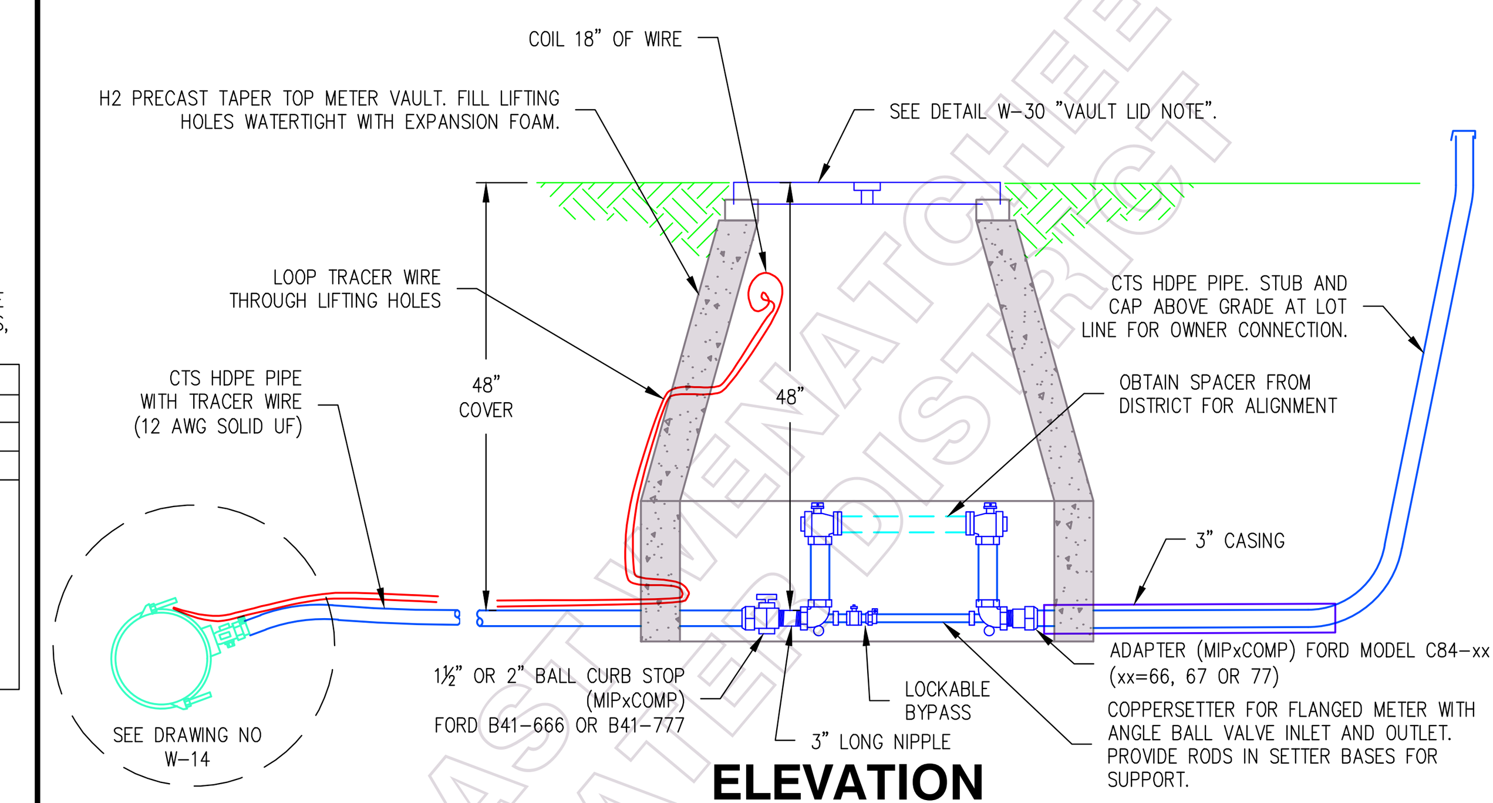
1) ALL PIPE TO BE HDPE (NOT INCLUDING SETTER).

2) SEE DETAIL W-14 FOR SERVICE LINE AND TAP SIZING.

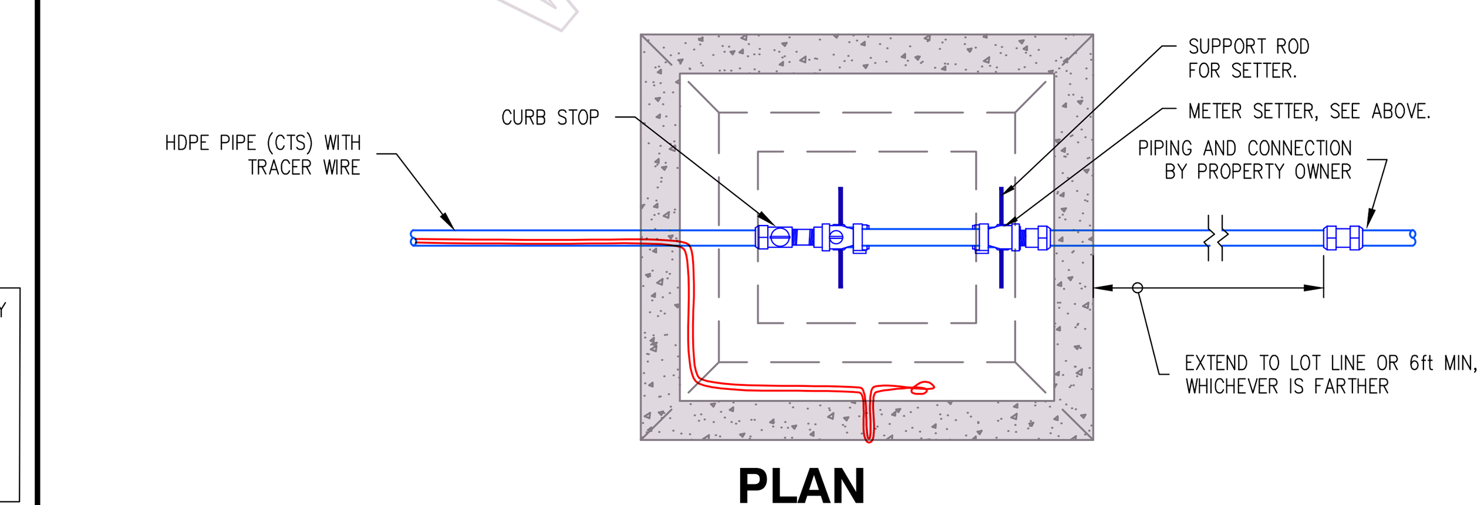
3) SEE DETAIL W-29 FOR METER VAULT INSTALLATION DETAILS.

4) PRESSURE TEST ENTIRE SERVICE THROUGH SETTER AND TAILPIPE AT 250 psi. TEMPORARY SETTER JUMPERS AND TAILPIPE CAPS FOR TESTING PROVIDED BY DISTRICT. RETURN TO DISTRICT AFTER TESTING.

5) MAXIMUM METER RATINGS: 1.5" = 160 GPM, 2" = 200 GPM.



SIZE	FORD	McDONALD	MUELLER
1½"	VBB76-12B-11-66-NL	20-B612-WW-FF-665	1½x12 695-B-2423N
2"	VBB77-12B-11-77-NL	20-B712-WW-FF-775	2x12 105-B-2423N

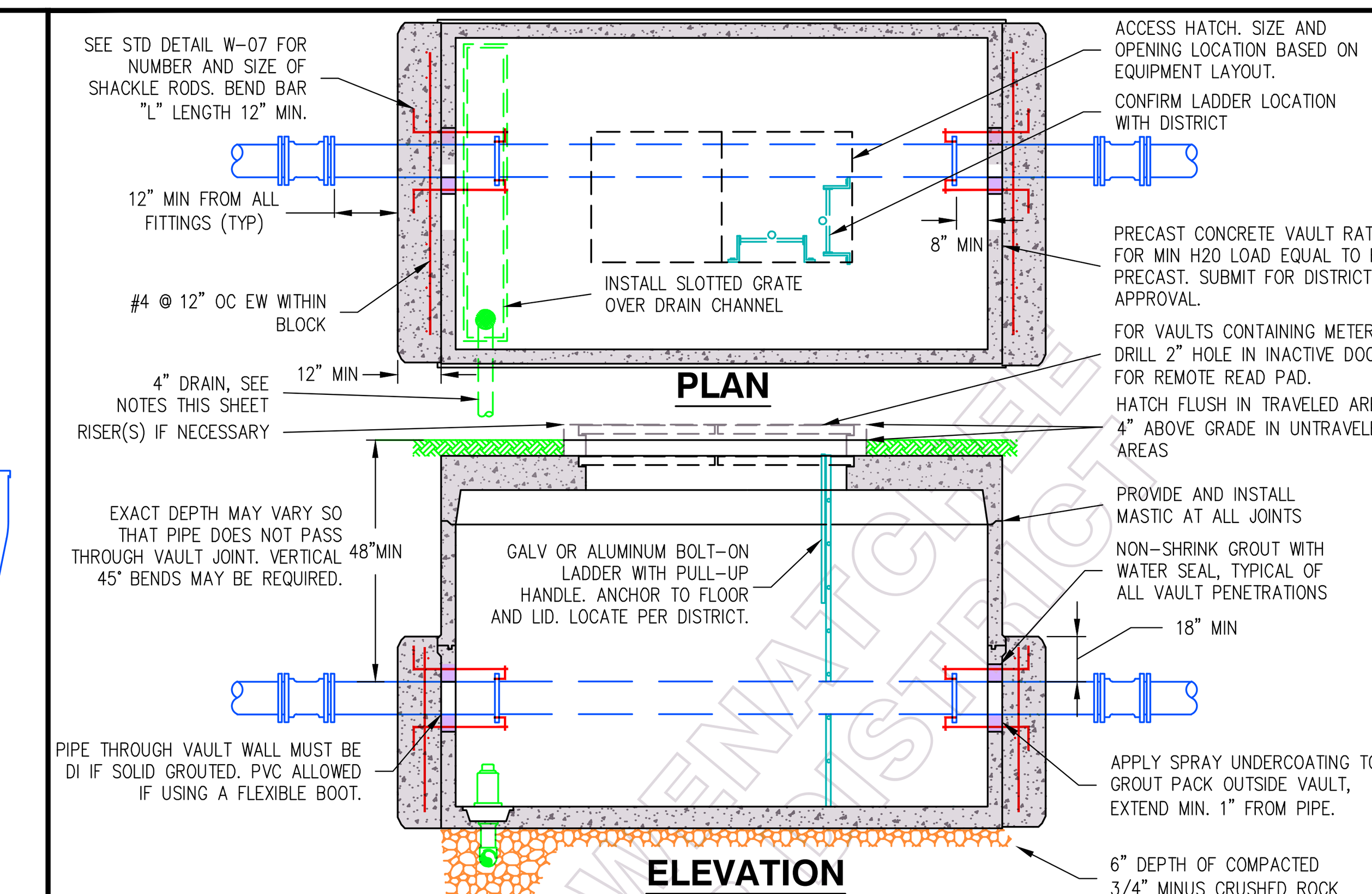


East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

1½" AND 2" WATER SERVICE

File: EWDTW23	Revised: FEB 13, 2020	Printed: FEB 13, 2020	DRAWING NO.	W-18	SHEET NO.	19



1. INSTALL PIPE CONTINUOUS THROUGH THE VAULT TO ENSURE ALIGNMENT. MORE THAN ONE STICK MAY BE NEEDED FOR LONG VAULTS, IN WHICH CASE LOCATE BELL APPROXIMATELY AT CENTER OF VAULT.
2. EXTERNAL CONCRETE BLOCKING SHALL BE INSTALLED AT THE DISCRETION OF THE DISTRICT. INSTALL BLOCKS BEFORE INTERNAL PIPING IS CUT OUT. BLOCKING SHALL BE FORMED, NOT DIRECTLY POURED AGAINST DIRT WALLS. BLOCKING SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION, MINIMUM 1" DIAMETER STINGER HEAD.
3. ALL HATCHES 2'x2' OR LARGER SHALL BE HINGED, SPRING OR GAS SHOCK ASSIST OPENING, RECESSED PADLOCK HASP, DRAINAGE COLLECTION FRAME (U CHANNEL WITH PIPE CONNECTION), H20 RATED MINIMUM, ALUMINUM OR GALVANIZED STEEL. IF HATCH WILL BE LOCATED IN A TRAVELED AREA (ROAD OR DRIVEWAY), SUBMIT MANUFACTURER'S STATEMENT THAT HATCH IS RATED FOR CONTINUOUS AND DELIBERATE H20 TRAFFIC SERVICE. HATCHES SHALL BE CAST INTO VAULT LID OR RISER. FRAME DRAIN PLUMBED THROUGH LID TO SURFACE IF LID IS AT LEAST 4" ABOVE GRADE. OTHERWISE, INSTALL 1" OR LARGER SCH 40 PVC PIPE AND FITTINGS FROM THE FRAME DRAIN, ROUTED NEATLY AND SECURED ALONG THE CEILING AND WALLS TO THE FLOOR.
4. SLOPE VAULT FLOOR TO THE DRAIN. A DRAIN SYSTEM MUST BE PROVIDED. TYPE OF DRAIN AT THE DISTRICT'S DISCRETION.
   - 4.1. 4" DRAIN (MIN) TO DAYLIGHT OR STORM SYSTEM, OR
   - 4.2. 2cy DRAIN ROCK WRAPPED IN FILTER FABRIC, OR
   - 4.3. 120VAC SUMP PUMP WITH 15' CORD & 15' HOSE (ONLY WITH DISTRICT APPROVAL)
   - 4.4. FOR DOUBLE CHECK VALVE RP DEVICES, INSTALLATION MUST BE ABOVE GRADE OR VAULT DRAIN BORESIGHTED (LANTERNED) TO DAYLIGHT.
5. DRAIN CHANNEL SHALL HAVE KNOCKOUTS FOR BOTH BOTTOM AND SIDE DRAINAGE.
6. AT THE DISCRETION OF THE DISTRICT, COAT VAULT INTERIOR WITH WHITE EPOXY PAINT.
7. COAT BURIED VAULT EXTERIOR WITH 20mil COAL TAR EPOXY. DO NOT COAT EXTERIOR OF EXPOSED SURFACES. COAT EXTERIOR OF ALL GROUT PATCHES WITH 20mil COAT-TAR EPOXY OR RUBBER.
8. CRACKED OR DAMAGED VAULTS WILL BE REJECTED AT THE DISCRETION OF THE DISTRICT.
9. ALL VAULTS MUST BE SUBMITTED TO THE DISTRICT FOR REVIEW. SUBMITTALS MUST INCLUDE DIMENSIONS, HATCH LAYOUT, AND HATCH MATERIALS.
10. INSTALL A SPRING LOADED, "LADDER-UP" EXTENSION ON ALL LADDERS. SECURE WITH AT LEAST 2 SUPPORT BRACKETS. LADDER-UP TO BE ALUMINUM, SS, OR POWDER COATED STEEL.

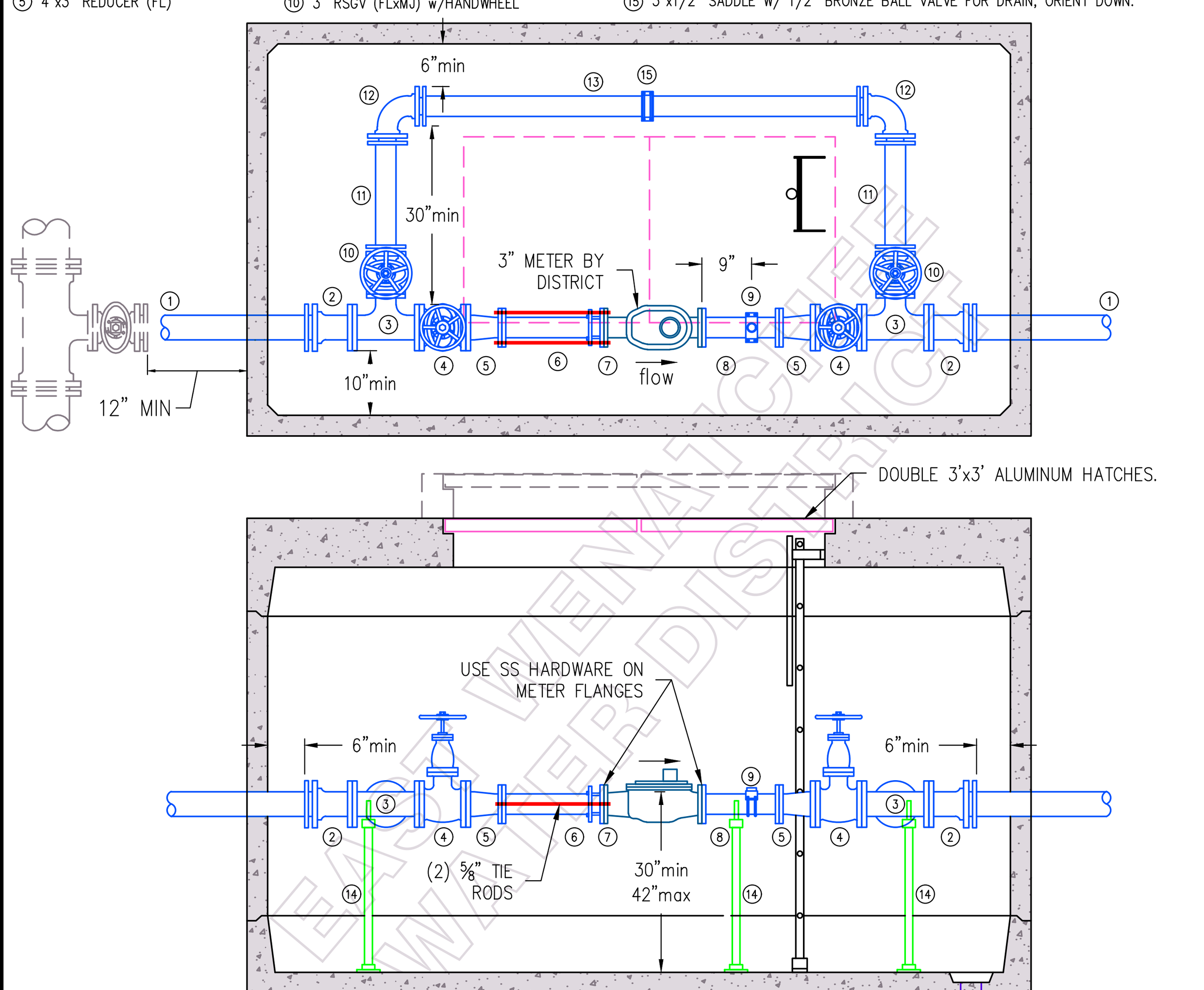
East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

LARGE VAULTS

File: EWDTW20	Revised: MAY 5, 2021	Printed: MAY 5, 2021	DRAWING NO.	W-26	SHEET NO.	20

(1) 4" DI PIPE
(2) 4" FLxRJ ADAPTER
(3) 4"x3" TEE (FL)
(4) 4" RSGV w/HANDWHEEL (FL)
(5) 4"x3" REDUCER (FL)
(6) 3" DI PIPE FLxPE, 20" LENGTH
(7) 3" FCA, DO NOT "PUSH HOME" PIPE
(8) 3" DI PIPE FL, 15" LENGTH
(9) 2"x3" SADDLE w/2" PLUG
(10) 3" RSGV (FLxMJ) w/HANDWHEEL
(11) 3" DI PIPE, 24" LENGTH
(12) 3" 90° BEND (MJ)
(13) 3" DI PIPE, 90" LENGTH
(14) STANDON OR GRINNELL PIPE SUPPORT (5 total)
(15) 3"x1/2" SADDLE W/ 1/2" BRONZE BALL VALVE FOR DRAIN, ORIENT DOWN.



1. SEE W-26 FOR ADDITIONAL VAULT INSTALLATION DETAILS
2. SENSUS OMNI C2 METER LAY LENGTH = 17"
3. TIE ROD MATERIAL TO BE PER W-07.
4. ALL MECHANICAL JOINTS SHALL BE RESTRAINED PER DETAIL W-16.
5. USE ONE FULL LENGTH OF 4" PIPE THROUGH THE VAULT TO INSURE ALIGNMENT. CUT OUT FOR INSTALLATION OF ASSEMBLY.
6. VAULT MINIMUM INSIDE DIMENSIONS OF 12'Lx6'Wx6.5'H, UTILITY VAULT 612LA OR APPROVED EQUAL.
7. 3" OMNI C2 METER CAPACITY = 500 GPM x 80% = 400 GPM
8. ALL JOINTS SHALL BE RESTRAINED BETWEEN THE WATERMAIN AND THE METER ASSEMBLY. ALL JOINTS ON THE DOWNSTREAM (CUSTOMER) SIDE OF THE METER SHALL BE RESTRAINED TO NO LESS THAN 50 FEET PAST THE VAULT.

East Wenatchee Water District

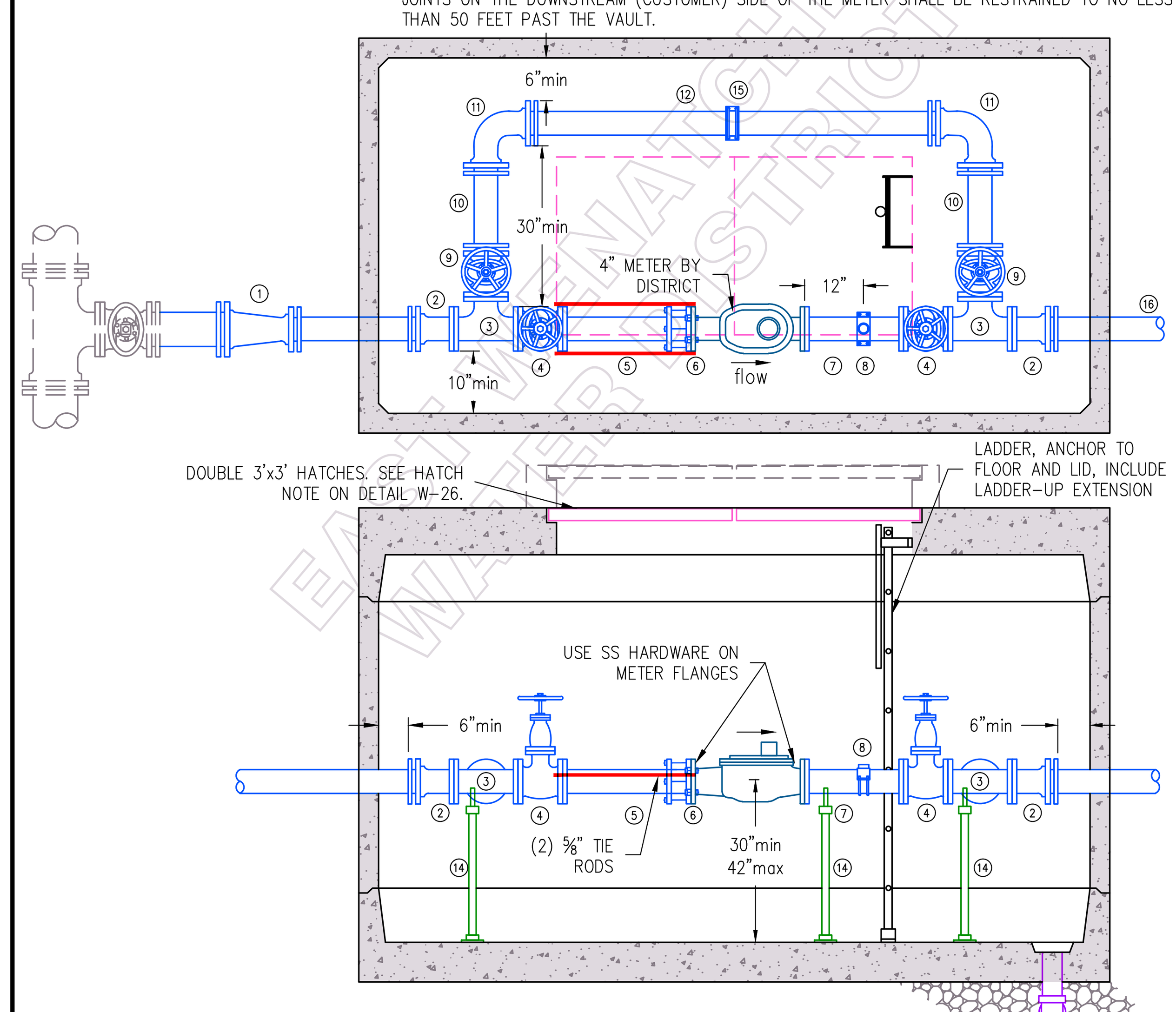
WATER SYSTEM STANDARD DETAIL

3" METER ASSEMBLY

File: EWDTW25	Revised: MAY 2, 2018	Printed: MAY 2, 2018	DRAWING NO.	W-20	SHEET NO.	21

(1) 6"x4" REDUCER (RJ)
(2) 4" FLxRJ ADAPTER
(3) 4" TEE (FL)
(4) 4" RSGV w/HANDWHEEL (FL)
(5) 4" DI PIPE FLxPE, 26" LENGTH
(6) 4" FCA, DO NOT "PUSH HOME" PIPE
(7) 4" DI PIPE FLxFL, 20" LENGTH
(8) 2"x4" SADDLE w/2" PLUG
(9) 4" RSGV (FLxMJ) w/HANDWHEEL
(10) 4" DI PIPE, 20" LENGTH
(11) 4" 90° BEND (MJ)
(12) 4" DI PIPE, 84" LENGTH
(13) 4" FLxMJ ADAPTER
(14) STANDON OR GRINNELL PIPE SUPPORT (5 total)
(15) 4"x1/2" SADDLE W/ 1/2" BRONZE BALL VALVE FOR DRAIN, ORIENT DOWN.
(16) 4" DI PIPE

1. SEE W-26 FOR ADDITIONAL VAULT INSTALLATION DETAILS
2. SENSUS OMNI C2 METER LAY LENGTH = 20"
3. TIE ROD MATERIAL SHALL BE PER W-07.
4. ALL MECHANICAL JOINTS SHALL BE RESTRAINED PER DETAIL W-16.
5. USE ONE FULL LENGTH OF 4" PIPE THROUGH THE VAULT TO INSURE ALIGNMENT. CUT OUT FOR INSTALLATION OF ASSEMBLY.
6. VAULT MINIMUM INSIDE DIMENSIONS OF 12'Lx6'Wx6.5'H, UTILITY VAULT 612LA OR APPROVED EQUAL.
7. 4" METER CAPACITY = 1000 GPM X 80% = 800 GPM
8. ALL JOINTS SHALL BE RESTRAINED BETWEEN THE WATERMAIN AND THE METER ASSEMBLY. ALL JOINTS ON THE DOWNSTREAM (CUSTOMER) SIDE OF THE METER SHALL BE RESTRAINED TO NO LESS THAN 50 FEET PAST THE VAULT.

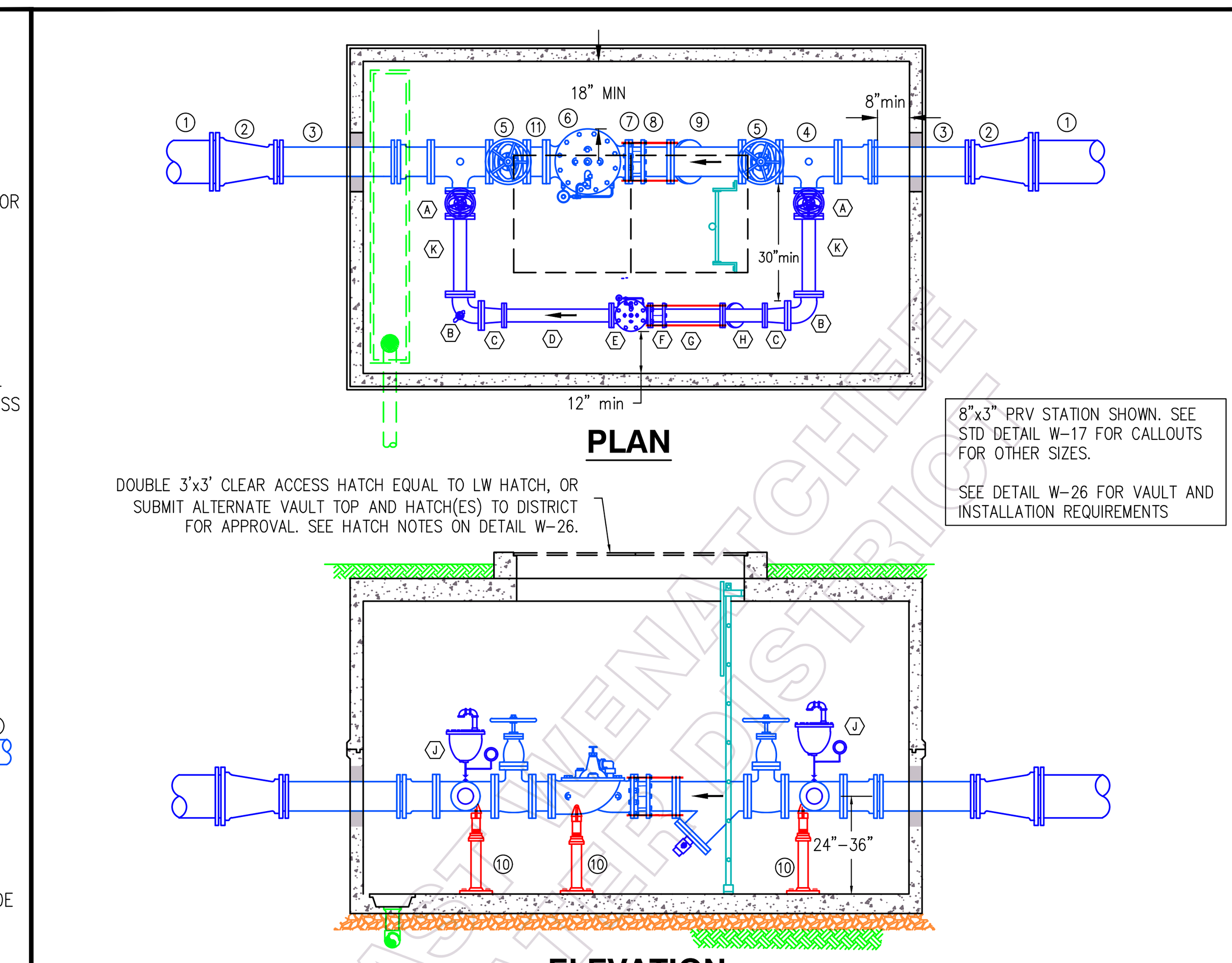


East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

4" METER ASSEMBLY

File: EWDTW30	Revised: MAY 5, 2021	Printed: MAY 5, 2021	DRAWING NO.	W-24	SHEET NO.	22



(1) DI PIPE, LENGTH TO FIT
(2) DI REDUCER (RJ) IF NEEDED
(3) DI SPOOL (FLxPE) LTF
(4) DI REDUCING TEE (FLxFLx4"FL) w/TAPPED BOSS
(5) RS GATE VALVE (FLxFL) w/HAND WHEEL
(6) PRESSURE REDUCING VALVE (FLxFL) EQUAL TO CLA-VAL 90G-01ABCS OR DISTRICT APPROVED EQUAL, EPOXY LINING, VALVE POSITION INDICATOR, POLY PILOT LINES.
(7) FCA w/SHACKLE RESTRAINT (OR ROMAC DJ400 DISMANTLING JOINT)
(8) DI PIPE (FLxPE) APPROX. 12" LENGTH
(9) STRAINER (FLxFL) EQUAL TO WATTS 77F-D-FDA, EPOXY LINED, BRASS BALL VALVE FOR BLOW OUT
(10) ADJUSTABLE SADDLE PIPE SUPPORT, RISER PIPE, AND BASE EQUAL TO GRINNEL FIGURE 264. ALSO PROVIDE (2) UNDER BYPASS LINE
(11) FLxFL SPOOL, 7" LENGTH
(A) 4" RS GATE VALVE (FL)
(B) 4" DI 90° BEND (FL) W/1" TAP ON SIDE AND HOSE BIB
(C) 4"x3" DI REDUCER (FL)
(D) 3" DI PIPE (FL) 36" LENGTH
(E) PRESSURE REDUCING VALVE (FLxFL) EQUAL TO CLA-VAL, 90G-01ABS. EPOXY LINING, VALVE POSITION INDICATOR, POLY PILOT LINES.
(F) FCA w/SHACKLE RESTRAINT (OR ROMAC DJ400)
(G) 4" DI PIPE (FLxPE) LTF
(H) STRAINER (FL) EQUAL TO WATTS 77F-D-FDA AND BRONZE BALL VALVE FOR BLOW OUT
(J) PRESSURE GAUGE AND COMB. AIR VALVE, SEE W-17
(K) 4" DI PIPE (FLxFL) LTF

SEE SIZING TABLE ON STD DETAIL W-17 FOR PIPE AND FITTING SIZES.

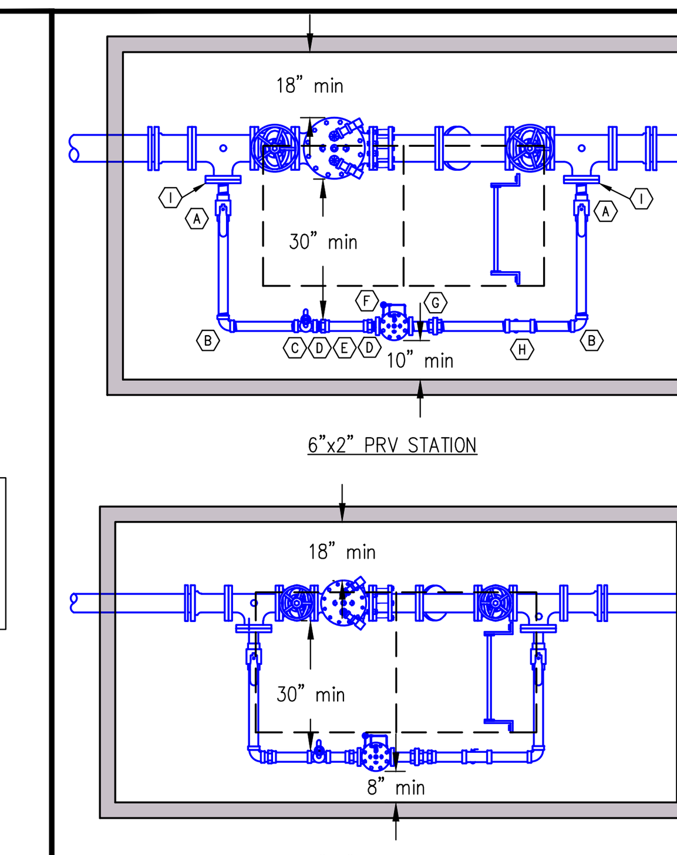
AN ADDITIONAL PRESSURE RELIEF VALVE MAY BE REQUIRED AT THE DISTRICT'S DISCRETION. CONFIGURATION AND SIZE TO BE DETERMINED PER INSTALLATION.

East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

PRESSURE REDUCING STATION

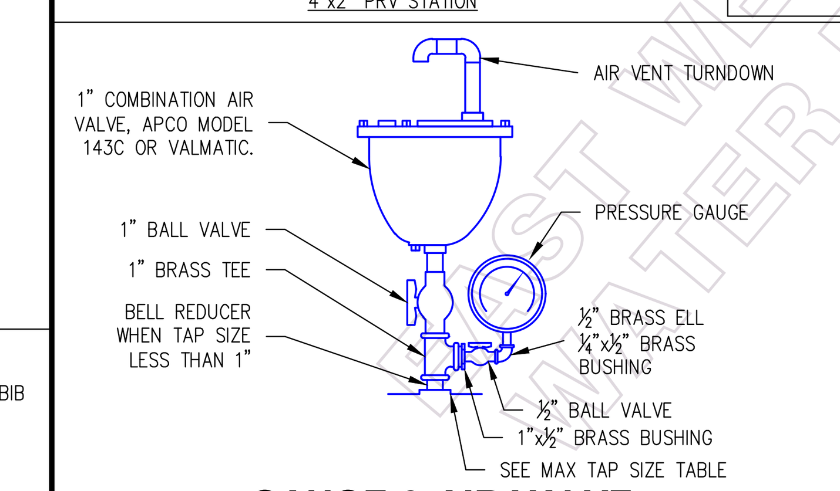
File: EWDTW24	Revised: MAY 5, 2021	Printed: MAY 5, 2021	DRAWING NO.	W-19	SHEET NO.	23



SIZING TABLE (MIN SIZES)

Main Line	Main PRV	Bypass Line	Utility Vault
12"	8"	3"	712-LA
10"	8"	3"	712-LA
8"	6"	2"	612-LA
6"	4"	2"	5106-LA

1. SEE STD DETAIL W-19 FOR ADDITIONAL STATION INFORMATION.
2. PREP ALL SURFACES PER PAINT MANUFACTURER'S INSTRUCTIONS PRIOR TO APPLICATION. REMOVE ALL DIRT, GREASE, SCALE AND RUST. FACTORY COATINGS SHALL BE ROUGHENED TO PROVIDE ADEQUATE PROFILE FOR TOP COATS.
3. COAT DI PIPE, FITTINGS AND STEEL FASTENERS WITH POLYMIDE EPOXY PAINT, 2 COATS AT 5 DRY MILS EACH. COLOR: LIGHT BLUE. PIPE SHALL BE EMPTY DURING COATING.
4. ALL BALL VALVES AND CURB STOP SHALL BE FULL-PORT.
5. ALL SHACKLE SYSTEMS SHALL BE PER W-07.
6. SEE W-26 FOR ADDITIONAL VAULT INSTALLATION DETAILS



NOTES:
- GAUGE & AIR VALVE COMBO SHALL BE INSTALLED ON BOTH SIDES OF THE PRV.
- BRASS NIPPLES NOT CALLED OUT, PROVIDE AS NECESSARY.
- PRESSURE GAUGE WITH 4.5" FACE, GLYCERINE FILLED, SCALE RANGE NO LESS THEN 1.2x NOR MORE THAN 2x WORKING PRESSURE.

MAX TAP SIZE TABLE
- 0.5" FOR 3" TEE
- 0.75" FOR 4"-6" TEE
- 1" FOR 8" AND LARGER TEES

(A) 2" BRASS BALL VALVE (THREADED)
(B) 2" BRASS 90° BEND (THREADED)
(C) 2" BRASS TEE (THREADED) ¾" HOSE BIB
(D) 2" BRASS THREADxSWEAT ADAPTER
(E) 2" COPPER PIPE, LTF
(F) PRESSURE REDUCING VALVE (THREADED) EQUAL TO CLA-VAL, 90G-01ABS. EPOXY LINING, VALVE POSITION INDICATOR, POLY PILOT LINES.
(G) 2" BRASS UNION
(H) STRAINER (THREADED) EQUAL TO WATTS 777S AND BRONZE BALL VALVE FOR BLOW OUT
(I) 4" DI BLIND FLANGE w/2" TAP

USE THREADED BRASS NIPPLES (NOT CALLED OUT) ON BYPASS PIPING. USE CLOSE NIPPLES WHEREVER POSSIBLE.

East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

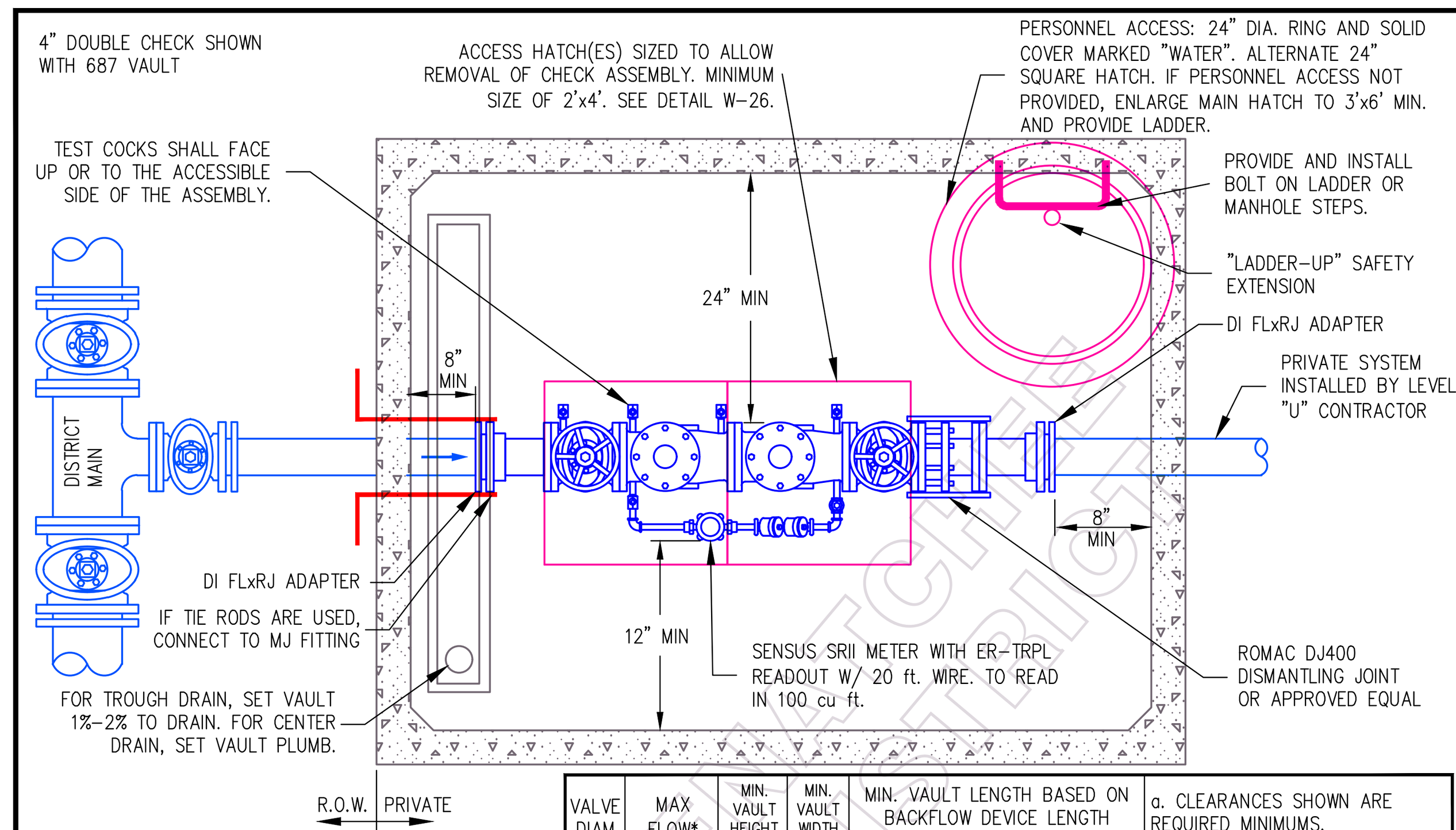
PRESSURE REDUCING STATION DETAILS

File: EWDTW5	Revised: MAY 2, 2018	Printed: MAY 2, 2018	DRAWING NO.	W-17	SHEET NO.	24

RYAN C. PETERSON — STATE OF WASHINGTON — 32739 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/22/21

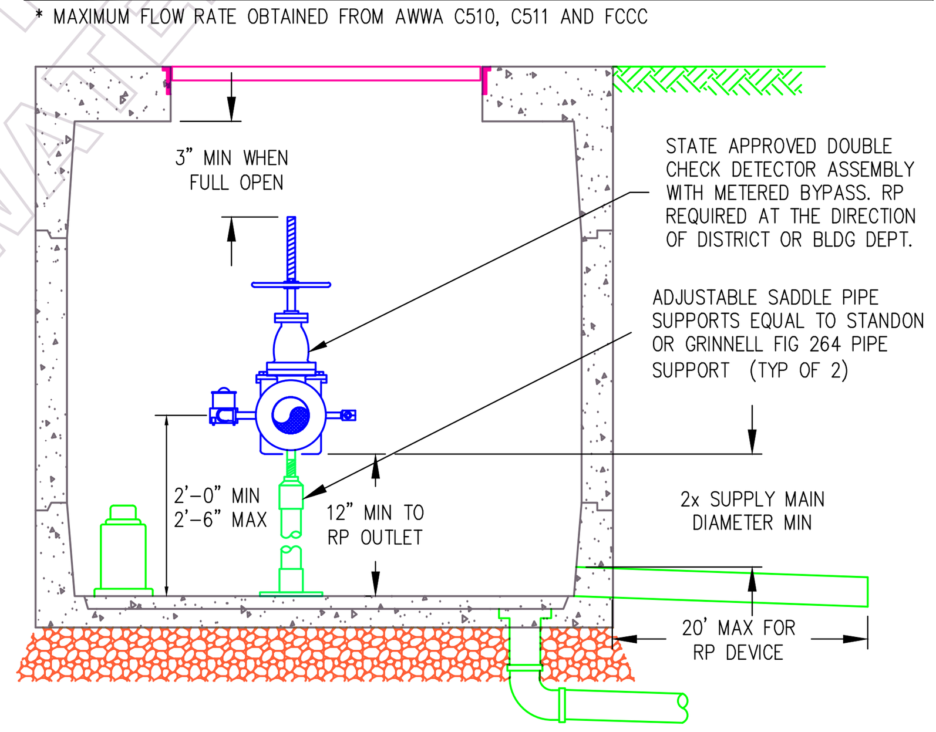
EWDTSHT3.DWG
MAY 5, 2021



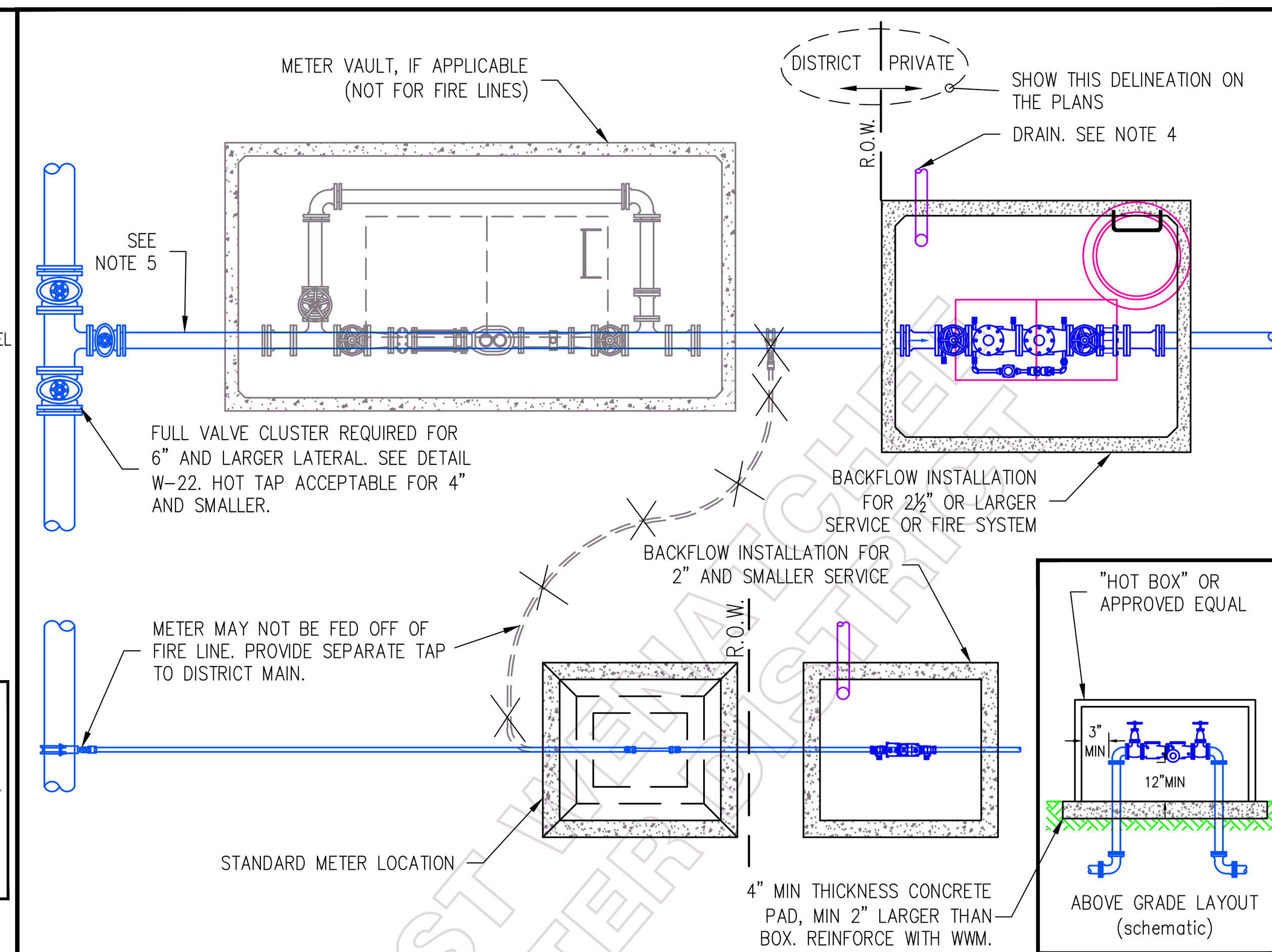
VALVE DIAM	MAX FLOW*	MIN. VAULT HEIGHT	MIN. VAULT WIDTH	MIN. VAULT LENGTH BASED ON BACKFLOW DEVICE LENGTH	
2½"	225 gpm	72"	50"	ALL 2.5" DIA. DEVICES, VAULT 5' DEVICE < 41", VAULT 7' DEVICE 41" TO 47", VAULT 7.5' DEVICE 47" TO 50", VAULT 8' DEVICE 50" TO 66", VAULT 10' DEVICE > 66", VAULT 12'	a. CLEARANCES SHOWN ARE REQUIRED MINIMUMS. b. VAULT DIMENSIONS ARE INTERIOR MINIMUMS AND A LARGER VAULT MAY BE REQUIRED. c. DESIGN ENGINEER TO CONFIRM SIZING. d. ALTERNATE VAULT SIZES REQUIRE DIMENSIONED LAYOUT FOR REVIEW.
3"	320 gpm	72"	54"		
4"	500 gpm	72"	58"		
6"	1000 gpm	72"	60"		
8"	1600 gpm	72"	62"		
10"	2300 gpm	74"	66"		
12"	3000 gpm	82"	66"		

* MAXIMUM FLOW RATE OBTAINED FROM AWWA C510, C511 AND FCCC

1. DEVICE TO BE MAINTAINED BY OWNER. ANNUAL TESTING IS REQUIRED.
2. WATER MAIN SHALL NOT BE PLACED IN SERVICE UNTIL AFTER DEVICE IS APPROVED BY A DISTRICT INSPECTOR.
3. RESTRAIN ALL JOINTS BETWEEN THE WATERMAIN AND THE DEVICE. RESTRAIN ALL JOINTS ON THE DOWNSTREAM (CUSTOMER) SIDE OF THE DEVICE PER DEAD-END LENGTH CALLOUTS ON STANDARD DETAIL W-16, OR AS APPROVED BY THE DISTRICT.
4. DISTRICT OWNERSHIP TERMINATES AT R.O.W. OR VAULT WALL, WHICHEVER IS REACHED FIRST.
5. THIS PLAN IS SHOWN FOR GENERAL LAYOUT ONLY. DESIGN ENGINEER MUST VERIFY EACH INSTALLATION INCLUDING HATCH AND LADDER LOCATIONS. SUBMITTAL OF LAYOUT FOR DISTRICT REVIEW IS ENCOURAGED.
6. DESIGN ENGINEER TO VERIFY SIZE OF DEVICE REQUIRED PER MANUFACTURER AND FIRE DISTRICT CRITERIA. SUBMIT SIZING TO DISTRICT FOR REVIEW.
7. SEE STANDARD DETAIL W-25 FOR MORE INFO.
8. RP=REDUCED PRESSURE PRINCIPAL.
9. NOTHING ON THESE DETAILS SHALL BE INTERPRETED AS WAIVING STATE CROSS CONNECTION CONTROL REQUIREMENTS.
10. SEE W-26 FOR ADDITIONAL VAULT INSTALLATION DETAILS. "HOT-BOX" MAY ALSO BE ACCEPTABLE.

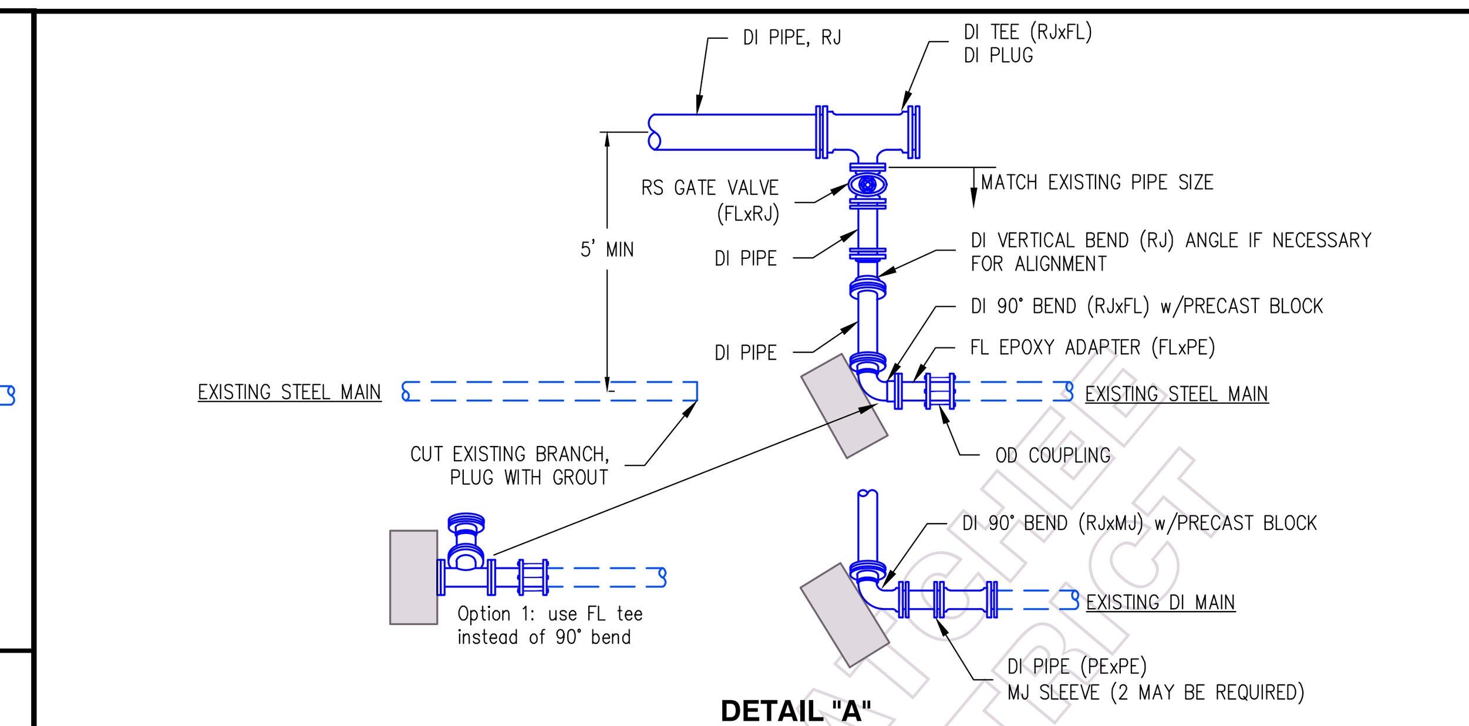


East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **BACKFLOW PREVENTION ASSEMBLY**
File: EWDTW4 | Revised: MAY 5, 2021 | Printed: MAY 5, 2021 | DRAWING NO. W-13 | SHEET NO. 25

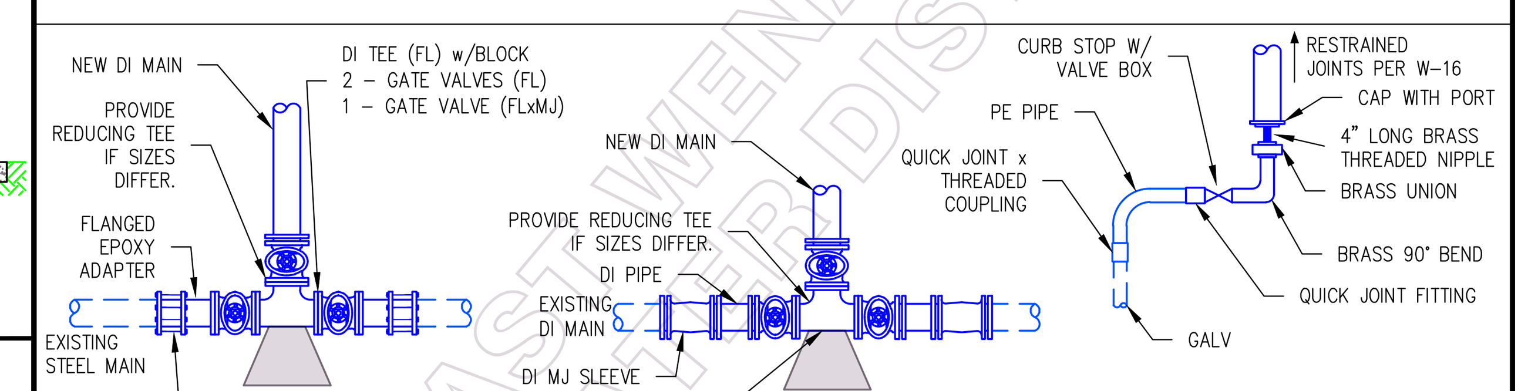


1. THIS DETAIL IS A GENERAL REFERENCE FOR COMMON CROSS CONNECTION CONTROL STANDARDS. EACH PROJECT WILL BE REVIEWED BY THE DISTRICT ON A CASE-BY-CASE BASIS AND MAY REQUIRE ADDITIONAL ACTIONS.
2. FOLLOW THE REQUIREMENTS OF WAC 246-290-490 AND THE PNWS-AWWA CROSS CONNECTION CONTROL MANUAL.
3. HEATED ABOVE-GRADE ENCLOSURES ARE ALLOWED. "HOT-BOX" OR APPROVED EQUAL.
4. IF A BURIED VAULT IS USED, A DRAIN MUST BE PROVIDED.
   - 4.1. FOR A NON-RPBA, THE DRAIN MAY GO TO DAYLIGHT OR A SUMP.
   - 4.2. FOR AN RPBA DEVICE, THE DRAIN MUST BE BORESIGHTED TO DAYLIGHT AND SIZED TO PASS THE DUMP-VALVE FLOW AS STATED BY THE MANUFACTURER'S DATA. MAXIMUM LENGTH OF DRAIN IS 20 FEET (Chapter 6 of the PNW-AWWA CCC Manual).
   - 4.3. DAYLIGHT DRAIN OUTLET MUST INCLUDE AIR GAP OF AT LEAST 2x DRAIN DIAMETER.
5. LATERAL PIPE BETWEEN MAIN AND VAULT TYPICALLY SIZED TO NOT EXCEED 8.0 fps VELOCITY AT THE RATED FLOW. THE DISTRICT MAY ALLOW UP TO 10.0 fps IF LATERAL PIPE IS CLASS 52 DUCTILE IRON. THE CUSTOMER IS RESPONSIBLE FOR DETERMINING THE MINIMUM SIZING FOR PIPE, VALVES, AND FITTINGS TO MEET THEIR PERFORMANCE REQUIREMENTS.
6. BACKFLOW DEVICE SHALL INCLUDE DETECTOR ASSEMBLY IF MAINLINE IS NOT OTHERWISE METERED.
7. IN-PREMISE BACKFLOW PREVENTION IS THE JURISDICTION OF THE CITY OR COUNTY BUILDING DEPARTMENT AND DETERMINATION OF ANY ADDITIONAL BACKFLOW PREVENTION SHALL BE MADE BY THAT AGENCY. RCW 19.27.
8. DETERMINATION OF THE NEED FOR AN RPBA SHALL REST SOLELY WITH THE DISTRICT. RPBA=REDUCED PRESSURE PRINCIPAL BACKFLOW ASSEMBLY.

East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **BACKFLOW ASSEMBLY INSTALLATION**
File: EWDTW10 | Revised: APR 8, 2021 | Printed: APR 8, 2021 | DRAWING NO. W-25 | SHEET NO. 26



DETAIL "A"
CONNECTION TO EXISTING BRANCH MAIN

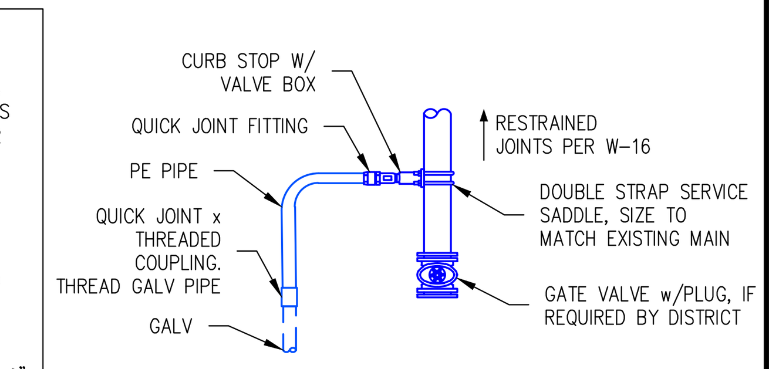


DETAIL "B"
CONNECTION TO EXISTING STEEL MAIN

DETAIL "C"
CONNECTION TO EXISTING D.I. MAIN

DETAIL "D"
CONNECTION TO 2" OR SMALLER LOOPED MAIN

1. DISTRICT WILL SELECT WHICH DETAIL TO USE AT EACH CONNECTION.
2. OD COUPLINGS 3" DIAMETER AND LARGER SHALL BE ROMAC 511 OR EQUAL, WITH 7" CENTER RING LENGTH MINIMUM. CUT PIPE SUCH THAT NO GAP OCCURS BETWEEN NEW AND EXISTING PIPE INSIDE COUPLING. CUT AND INSTALL SPACER PIPE IF GAP LARGER THAN ½" OCCURS.
3. RJ = RESTRAINED JOINT: MEGALUGS, FIELD-LOK GASKETS OR DISTRICT APPROVED EQUAL. SEE STANDARD DETAIL W-16.
4. PRE-PRESSURE TEST TEE/CROSS/VALVE ASSEMBLIES BEFORE CUTTING INTO EXISTING MAINS.
5. FLANGED EPOXY ADAPTER IS A FLxPE STEEL SPOOL, EPOXY OR POWDER COATED INSIDE AND OUT. STEEL PIPE TO BE NOMINAL O.D. SIZE (e.g. 6" = 6.0" O.D.). COATING TO BE NSF61 CERTIFIED. SPOOL TO BE 3/16" MIN. WALL THICKNESS.



DETAIL "E"
CONNECTION TO 2" OR SMALLER DEAD END MAIN

East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **CONNECTIONS TO EXISTING MAINS**
File: EWDTW28 | Revised: MAY 3, 2021 | Printed: MAY 3, 2021 | DRAWING NO. W-22 | SHEET NO. 27

ABANDONMENT, REMOVAL, AND TERMINATION NOTES

DISTRICT SHALL BE SOLE DETERMINER OF APPROPRIATE ABANDONMENT PROCEDURES AND METHODS. RESTORE ALL DISTURBED SURFACES TO ORIGINAL CONDITION AND TO THE SATISFACTION OF THE DISTRICT. DELIVER, UNDAMAGED, ALL REMOVED EQUIPMENT (HYDRANTS, SERVICE BRASS, VALVES, ETC., NOT PIPE) TO THE DISTRICT AT THE 15TH STREET AND EASTMONT SHOP WITHIN ONE WEEK OF REMOVAL. THE DISTRICT OWNS ALL EXISTING MATERIALS AND HAS THE RIGHT OF SALVAGE FOR ANY EQUIPMENT AT THEIR DISCRETION. ANY EQUIPMENT THE DISTRICT DOES NOT WISH RETURNED SHALL BE DISPOSED OF BY THE CONTRACTOR. SHOULD THE CONTRACTOR UNNECESSARILY DAMAGE ANY EXISTING FUNCTIONAL EQUIPMENT, SAID EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR AT THEIR COST. THE FOLLOWING METHODS ARE APPROVED ABANDONMENT PROCEDURES FOR TERMINATED EQUIPMENT.

ABANDONED HYDRANTS, SERVICES, BRANCH MAINS, ETC. SHALL BE TERMINATED AT THE FACILITY LOCATION AND AT THE MAINLINE. THE LATERAL SHALL NOT BE LEFT CONNECTED TO THE MAINLINE.

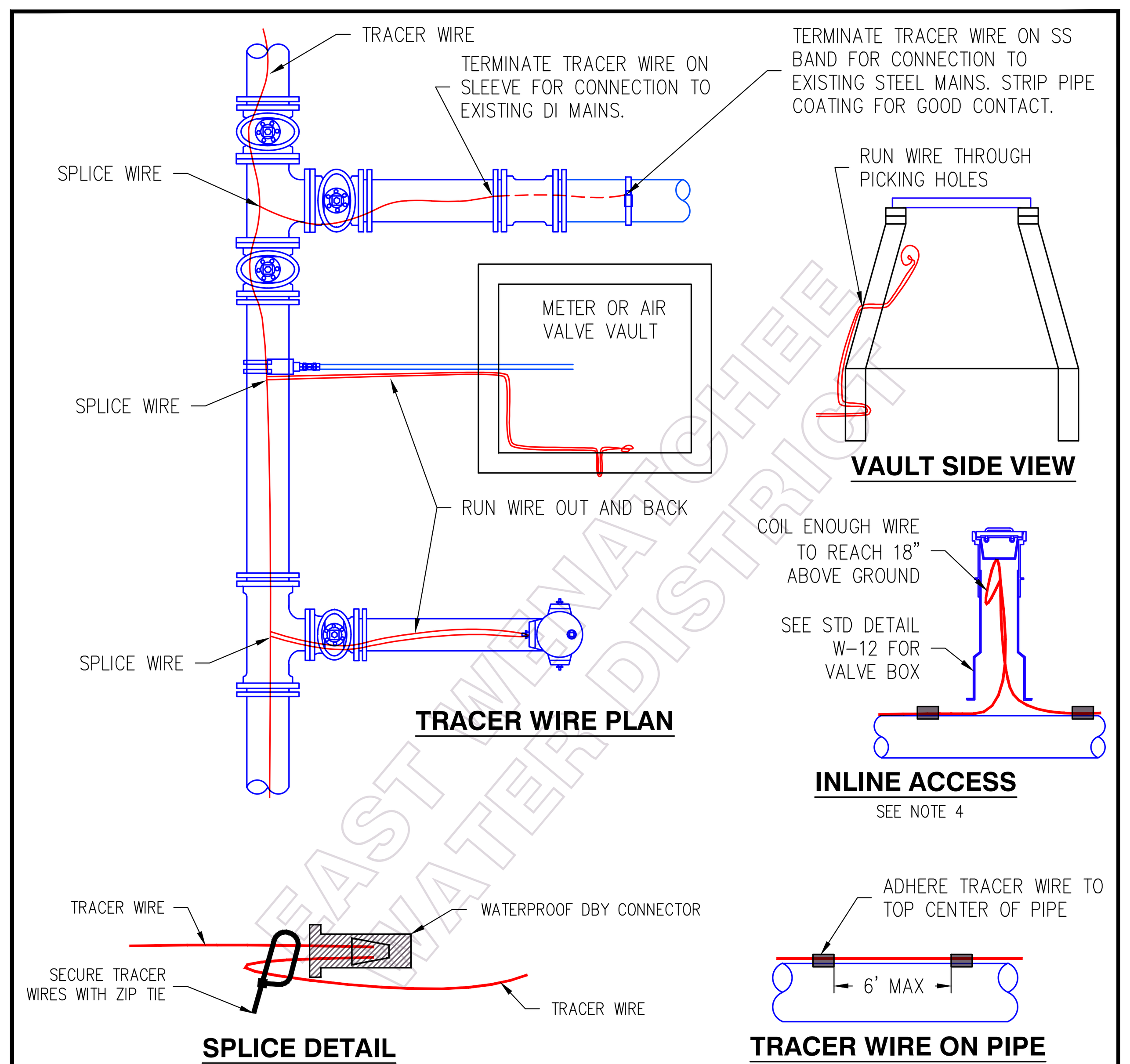
VALVES
1. REMOVE VALVES AND VALVE BOXES. PLUG OR BLIND FLANGE THE WATER MAIN.
2. AN ALTERNATIVE METHOD OF ABANDONMENT IS ACCEPTABLE IF, AT THE DISCRETION OF THE DISTRICT, THE VALVE CANNOT BE REMOVED. PLUG AND CLOSE THE VALVE, THEN REMOVE THE VALVE BOX.

WATER MAINS
1. CUT AND DRAIN THE ABANDONED WATER MAIN WHERE EXPOSED DURING CONSTRUCTION AND AT ALL LOW POINTS.
2. REMOVE MAINS IN THE WAY OF NEW CONSTRUCTION. SAW CUT AND REMOVE SHORT SECTIONS OF PIPE. MAINS SHALL NOT BE FORCIBLY REMOVED WITH HEAVY EQUIPMENT DUE TO POTENTIAL DAMAGE TO SURROUNDING UTILITIES.
3. MAINS THAT WILL BE TERMINATED BUT NOT ENCOUNTERED DURING NEW TRENCHING MAY BE LEFT IN PLACE, BUT ALL VALVES MUST BE REMOVED OR ABANDONED AS DESCRIBED UNDER "VALVES".
4. PLUG ENDS OF ABANDONED MAINS EXPOSED DURING CONSTRUCTION WITH GROUT PLUG, BLIND FLANGE, OR CAP AS DIRECTED BY THE DISTRICT DEPENDING ON THE TYPE OF PIPE AND SOIL CONDITIONS.

WATER SERVICES AND AIR VALVE ASSEMBLIES
1. REMOVE ALL VAULTS, SETTERS AND MISCELLANEOUS FITTINGS. BACKFILL WITH CRUSHED ROCK AND COMPACT. NATIVE SOILS MAY BE USED FOR BACKFILL ONLY IF APPROVED BY THE DISTRICT.
2. CUT SERVICE AT MAIN AND REMOVE STUB FROM CORP STOP. CLOSE CORP STOP AND INSTALL THREADED CAP.
3. REMOVE ENTIRE SERVICE LINE BACK TO WATER MAIN (EXCAVATE OR PULL).
4. AT THE DISCRETION OF THE DISTRICT, THE SERVICE LINE MAY REMAIN IN PLACE, BUT MUST BE TERMINATED AT THE MAINLINE AS DESCRIBED IN ITEM 2.

HYDRANTS
1. REMOVE ENTIRE HYDRANT. REMOVE OR ABANDON LATERAL PIPE AND ISOLATION VALVE AS DETAILED ABOVE.
2. REMOVE ANY BOLLARDS.
3. BACKFILL WITH CRUSHED ROCK, OR NATIVE MATERIAL IF APPROVED BY THE DISTRICT.

East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **ABANDONMENT AND REMOVAL OF TERMINATED FACILITIES**
File: EWDTW29 | Revised: JAN 7, 2020 | Printed: JAN 7, 2020 | DRAWING NO. W-15 | SHEET NO. 28



1. INSTALL TRACER WIRE ON ALL WATERMAINS, HYDRANTS, SERVICE PIPES, AIR VALVE PIPES, AND BLOW OFF PIPES. DO NOT WRAP WIRE AROUND PIPE.
2. TRACER WIRE TO BE SOLID COPPER CORE, UF, BLUE COLOR, 12 AWG FOR LENGTHS 2,000 FEET AND LESS, OR 10 AWG FOR LENGTH OVER 2,000 FEET.
3. SEE STANDARD DETAILS W-14, W-18 AND W-21 FOR TRACER WIRE LAYOUT AT WATER SERVICES, W-08 AT BLOW-OFFS, AND W-10 AT AIR VALVES.
4. IF SPACING IS GREATER THAN 1,000 FEET BETWEEN WIRE ACCESS POINTS, PROVIDE A VALVE BOX FOR TERMINATION. INCLUDE MARKER POST IF VALVE BOX IS NOT IN PAVED ROAD.
5. FOR SPLICES, USE A WATERPROOF DBY SPLICE KIT AND SECURE WITH ZIP TIES.

East Wenatchee Water District | WATER SYSTEM STANDARD DETAIL | **TRACER WIRE**
File: EWDTW31 | Revised: JAN 22, 2021 | Printed: JAN 22, 2021 | DRAWING NO. W-31 | SHEET NO. 29

REVISION HISTORY

JULY 2014
- W-07 DEFINED MATERIAL FOR ALL TIE/SHACKLE RODS. UPDATED DETAILS (W02, W05, W17, W20, W24) TO REFERENCE BACK TO W-07 FOR ROD MATERIAL.
- W-10 ADDED TRACER WIRE TO SUPPLY LINE. ADDED #24 MESH SCREEN TO VENT.
- W-12 ADDED DETAIL FOR CURB STOP RISER PIPE.
- W-13 UPDATED BYPASS METER REGISTER MODEL.
- W-14 ADDED CONCRETE BLOCKING AND PT WOOD SHIM CALLOUT.
  - CHANGED SERVICE LINE SIZE FOR ¾" METER BASED ON WHICH SIDE OF THE STREET.
  - ADDED FOR CONNECTION TO EXISTING SERVICE BE AT OR BEHIND ROW.
- W-17 CHANGED ½" AIR RELEASE VALVE TO 1" COMBINATION AIR VALVE, UPDATED PIPING. ADDED AIR VALVE TO BOTH SIDES OF PRV.
  - ADDED NOTE TO ADDRESS THE LOCATION OF GAUGE & AIR VALVE.
- W-18 UPDATED FORD METER SETTER MODEL NUMBERS. ADDED A 3" LONG BRASS NIPPLE BETWEEN CURB STOP AND SETTER.
- W-19 UPDATED LINE WORK FOR AIR VALVE PER CHANGE TO W-17.
- W-20 REMOVED BASKET STRAINER.
- W-21 UPDATED FORD METER SETTER MODEL NUMBERS. ADDED 6" BRASS NIPPLE BETWEEN CURB STOP AND SETTER.
- W-22 CHANGED VALVE ON 2" AND SMALLER DETAIL TO CURB STOP, ADDED MINIMUM WALL THICKNESS TO FLANGED EPOXY ADAPTER. ADDED DETAIL FOR CONNECTION TO EXISTING 2" AND SMALLER DEAD END MAIN.
- W-24 REMOVED BASKET STRAINER.
- W-26 CREATED NEW DETAIL FOR COMMON LARGE VAULT INFORMATION.
  - ADDED NOTE THAT ALL EXTERIOR THRUST BLOCKS ON LARGE VAULTS SHALL BE INSTALLED PRIOR TO THE PIPE INSTALLED THROUGH THE VAULT BEING CUT OUT.
  - ADDED A NOTE THAT REINFORCED THRUST BLOCKS SHALL BE FORMED USING WOOD FORMS NOT POURED DIRECTLY AGAINST SOIL.
  - ADDED NOTE THAT REINFORCED THRUST BLOCKS SHALL BE CONSOLIDATED USING VIBRATION.
- W-29 ADDED NOTE THAT CUSTOMER SIDE CASINGS ARE ALWAYS REQUIRED.
- W-30 ADDED NOTE TO DELIVER SALVAGED VALVES WITHIN ONE WEEK AND UNDAMAGED.
- W-30 ADDED NOTE THAT RESTRAINTS AND AFFECTED PIPE MAY NOT BE REUSED ONCE ASSEMBLED.

NOVEMBER 2014
- W-20 REVISED METER LAY LENGTH AND MODEL FROM NEPTUNE TO SENSUS.
- W-24 REVISED METER LAY LENGTH AND MODEL FROM NEPTUNE TO SENSUS.
- W-30 ADDED NOTE FOR FLANGE GASKET AND BOLT MATERIALS.

JUNE 2015
- W-07 REMOVED ASTM A36 STEEL FROM TABLE HEADING.
- W-08 REVISED NOTE TO SEE DETAIL W29 FOR VAULT INSTALLATION REQUIREMENTS.
- W-10 REVISED NOTE TO SEE DETAIL W29 FOR VAULT INSTALLATION REQUIREMENTS.
- W-10 CHANGED VAULT LOCATION TO BE IN SIDEWALK.
- W-13 REVISED VAULT DRAINS TO CONFORM TO DETAIL W-26.
- W-15 REVISED FIRST PARAGRAPH.
- W-26 REVISED NOTE REGARDING PIPE LENGTHS TO ACCOMMODATE LONG VAULTS.
- W-26 ADDED REQUIREMENT OF 2 SUPPORTS FOR LADDER-UP EXTENSIONS.
- W-21 ADDED PRESSURE TESTING TO PE PIPE SERVICE CONNECTION.
- W-21 ADDED LENGTHS FOR BRASS NIPPLE BASED ON SINGLE OR DOUBLE SERVICE.
- W-23 ADDED PRESSURE TESTING TO PE PIPE SERVICE CONNECTION.
- W-29 CHANGED DETAIL TITLE TO "WATER SERVICE, AIR VALVE, BLOW OFF VAULT INSTALLATION PLACEMENT".
- W-29 ADDED PRESSURE TESTING TO PE PIPE SERVICE CONNECTION.
- W-29 CHANGED NOTE ON THE LIDS INSTALLATION WITHIN SIDEWALK DETAIL TO REQUIRING A FULL PANEL OF SIDEWALK AROUND VAULT WHEN SIDEWALK IMPROVEMENTS ARE DEFERRED.
- W-29 DETAIL NOTE CHANGES:
  - ADDED TO NOTE TO SET LID 2" ABOVE FINISHED GRADE IN LANDSCAPE AREAS.
  - ADDED NEW NOTE TO INSTALL MASTIC BETWEEN VAULT SECTIONS
  - ADDED NEW NOTE REQUIRING A HMA APRON AROUND THE LID IN UNPAVED TRAVEL AREAS.
- W-30 RE-ADDED VAULT LID NOTE ACCIDENTALLY DELETED DURING 2014 REVISIONS.

W-30 MOVED NOTE REGARDING SALVAGED EQUIPMENT TO DETAIL W-15.

June 2016
- W-13 REVISED MINIMUM VAULT SIZE REQUIREMENTS
- W-14 REVISED SADDLE FIT RANGE
- W-18 ADDED MUELLER PRODUCT INFORMATION TO TABLE
- W-21 ADDED MUELLER PRODUCT INFORMATION TO TABLE
- W-30 ADDITIONAL SPACING REQUIREMENTS FOR CASING RUNNERS

January 2017
- W-01 REVISED WATER MAIN COVERAGE DEPTH NOTE
- W-01 REVISED THE THRUST RESTRAINT NOTE
- W-01 INCLUDED SETTERS AND TAILPIPE IN PRESSURE TEST NOTE
- W-01 INCLUDED OPEN END OF VALVES IN PIPE PLUG NOTE
- W-06 REMOVED DEADMAN THRUST BLOCK DETAIL
- W-07 REVISED ATTACHMENT DETAIL TO INCLUDE A WASHER AND DOUBLE NUT OR NYLOCK NUT
- W-10 CLARIFIED CMU BLOCK SIZE REQUIRED AND ELIMINATED CMU BLOCK UNDER CURB STOP
- W-10 CLARIFIED MATERIAL ALLOWED FOR CORP STOP BLOCKING.
- W-12 ADDED NOTE 8 AND ADDED PLAN VIEW OF BOX LID
- W-13 UPDATED NOTE 3 TO CLARIFY RESTRAINED PIPE REQUIREMENTS
- W-13 REMOVED THRUST BLOCKS AND SHACKLES
- W-13 CHANGED THE FCA TO A FLxRJ ADAPTER
- W-13 ADDED DISMANTLING JOINT
- W-13 UPDATED VAULT MIN INTERIOR DIMENSION REQUIREMENTS TO MATCH NEW PIPE LAYOUT
- W-13 INCLUDED IPERL IN TYPE OF METER ALLOWED
- W-15 INCLUDED AIR VALVE ASSEMBLIES IN WATER SERVICE SECTION TITLE
- W-19 REMOVED WALL COLLARS FROM DETAIL
- W-20 REMOVED EXTERIOR BLOCKS AND SHACKLES, ADDED NOTE 8, UPDATED FITTING NO. 2 FROM MJ TO RJ
- W-21 REMOVED NOTE 4 REGARDING MASTIC BETWEEN CHAMBER TOP AND BASE
- W-21 ADDED NOTE REGARDING PRESSURE TESTING SERVICE
- W-21 ADDED NOTE IN ELEVATION REGARDING REQUIRED ADAPTER IN 1" SETTERS
- W-24 REMOVED EXTERIOR BLOCKS AND SHACKLES, ADDED NOTE 8, UPDATED FITTING NO. 2 FROM MJ TO RJ WITH NO FCA OPTION
- W-26 REMOVED ALL WALL COLLARS
- W-26 UPDATED NOTE 2 TO HAVE THE DISTRICT DECIDE IF EXTERNAL BLOCKS ARE REQUIRED.
- W-26 CLARIFIED IN NOTE 3 TO NEATLY ROUTE DRAIN PIPING IN VAULT
- W-26 CREATED A NEW NOTE 7 ALLOWING THE DISTRICT TO REQUIRE INTERIOR PAINT
- W-26 UPDATED NOTE 8 (WAS PREVIOUSLY 7) TO REQUIRE EXTERIOR COAT ON GROUT PATCHES
- W-30 RELOCATED CASING NOTE TO CASING DETAIL, W-32
- W-30 UPDATED CONTRACTOR SHUTDOWN REQUIREMENT NOTE
- W-30 INCLUDED ASTM A307 GRADE B FOR FLANGE BOLTS
- W-31 NEW DETAIL CREATED FOR TRACER WIRE INSTALLATION
- W-32 NEW DETAIL CREATED FOR CASING PIPES

September 2017
- W-01 RELOCATED DOMESTIC-MADE REQUIREMENT NOTE FROM NOTE 15 TO NOTE 1.
- W-01, W-30 SPLIT NOTE 15 INTO SEPARATE NOTES 1, 2, AND 17. RENUMBERED OTHER NOTES ACCORDINGLY.

JUNE 2018
- W-01 CLARIFIED CUSTOMER SIDE TAILPIPE IN PRESSURE TESTING NOTE.
- W-01 REVISED DOMESTIC MADE REQUIREMENT NOTE TO EXCLUDE CASING PIPES
- W-02 UPDATED THE APPROVED M&H MODEL NUMBERS
- W-02 ADDED TRACER WIRE TO ELEVATION VIEW
- W-03 ADDED NOTE TO TRENCH DETAIL ABOUT TRACER WIRE INSTALLATION.
- W-04 ADDED A ROW FOR SILT IN TABLE 2.
- W-07 ADDED ATTACHMENT DETAIL FOR SHACKLE PLATES
- W-07 ADDED A BULLET LIST OF APPROVED MATERIALS FOR THE TIE RODS IN THE GENERAL NOTES.

JUNE 2018 (CONTINUED)
- W-08 REVISED THE TRACER WIRE TO NOT WRAP AROUND THE PIPE.
- W-10 REVISED TRACER WIRE ROUTING.
- W-10 CREATED AN ISOMETRIC OF THE BLOW-OFF TEE.
- W-10 UPDATED THE MODEL NUMBERS FOR THE APCO AIR RELEASE/VACUUM VALVE.
- W-10 CALLED OUT THE LENGTH OF THE NIPPLE UNDERNEATH THE AIR RELEASE/VACCUM VALVE.
- W-12 ADDED TRACER WIRE TO ISOLATION VALVE DETAIL
- W-12 UPDATED VALVE NOTE TO INCLUDE VALVES ON TEES.
- W-12 REVISED ISOLATION VALVE NOTE TO 4" AND LARGER.
- W-12 CLARIFIED PRE-PRESSURE TEST NOTE TO SAY CLOSED SEAT.
- W-12 ADDED TO MARKER POST NOTE TO INCLUDE WHEN VALVE IS IN GRAVEL AREA.
- W-13 ADDED 12" VALVE SIZE DATA TO THE VAULT MIN. INSIDE TABLE
- W-14 ADDED 1" MIN SIZE TO PE SERVICE PIPE
- W-14 REVISED TRACER WIRE TO NOT WRAP AROUND PIPE
- W-14 INCLUDED "WHEN TAPPING EXISTING MAIN" TO NOTE ABOUT TRACER WIRE CONNECTION.
- W-16 ADDED A FUSION BONDED POLYESTER COATING REQUIREMENT TO THE MECHANICAL JOINT RESTRAINTS
- w-16 UPDATED THE REQUIRED RESTRAINED LENGTHS FOR ALL FITTINGS
- W-17 ADDED A BELL REDUCER ON THE GAUGE & AIR VALVE DETAIL
- W-17 ADDED A MAX TAP SIZE TABLE
- W-18 REVISED TRACER WIRE TO NOT WRAP AROUND PIPE
- W-18 ADDED DETAIL TO SHOW SERVICE LINE GOING UNDER CROSSING UTILITY
- W-18 ADDED 3" CASING TO ELEVATION DETAIL FOR SERVICE PIPE
- W-19 ADDED FLxRJ ADAPTERS TO EACH END OF THE MAIN PIPE IN THE VAULT
- W-19 ADDED A SPOOL OF PIPE TO SEPARATE THE PRV'S AND MOVE THE LADDER
- W-19 REVISED ITEM NO. 4, REDUCING TEE, TO COME WITH A TAPPED BOSS
- W-20 ADDED A VALVE AND DRAIN ON THE BYPASS
- W-21 REVISED TRACER WIRE TO NOT WRAP AROUND PIPE
- W-21 UPDATED THE MUELLER MODEL NUMBER
- W-22 REMOVED NOTES AND PIPING THAT WAS REDUNDANT TO DETAIL W-15
- W-22 UPDATED GENERAL NOTE 1 TO READ WATERMAIN INSTEAD OF BRANCH
- W-22 UPDATED COUPLING NOTE TO INCLUDE ROMAC 511 COUPLING OR EQUAL WITH A 7" CENTER RING LENGTH MINIMUM.
- W-24 ADDED A VALVE AND DRAIN ON THE BYPASS
- W-26 CLARIFIED NOTE ABOUT DRILLING 2" HOLE IN DOOR. ONLY IF VAULT HAS METER
- W-26 ADDED NOTE ABOUT A SPRAY UNDERCOAT TO THE GROUT PACK
- W-26 REVISED LADDER-UP TO BE SPRING LOADED AND INCLUDED APPROVED MATERIALS FOR THE LADDER
- W-29 ADDED REFERENCE TO RETAINING WALL DETAIL TO GENERAL NOTE 4
- W-30 UPDATED THE DIMENSIONS FOR THE RECESSED HOLE FOR THE RADIO.
- W-30 ADDED NOTE STATING THE TYPE OF VALVES TO BE USED WHEN SMALLER THAN 4".
- W-31 UPDATED TRACER WIRE TO COME IN BETWEEN TWO PARTS OF VALVE BOX
- W-31 UPDATED DETAIL TO SHOW TRACER WIRE TERMINATING ON SLEEVE OR COUPLING
- W-31 REVISED THE WATERPROOF NUT TO A WATERPROOF DBY CONNECTOR
- W-31 REMOVED TRACER WIRE WRAPPING DETAIL
- W-31 ADDED GENERAL NOTE 6
- W-32 ADDED DETAIL FOR CASINGS LONGER THAN 20'
- W-32 INCLUDED A CROSS SECTION OF THE CROSS UTILITY FOR EACH CASING DETAIL.
- W-32 ADDED NOTE ABOUT CASING RUNNER SELECTION SIZE.
- W-32 ADDED NOTE LISTING CASING SIZE NEEDED FOR VARIOUS PUSH-ON JOINT DI CARRIER PIPE SIZES.
- W-14, W-18, W-21, W-29 CHANGED SERVICE LINE DEPTH CALLOUT TO 48" COVER.

MARCH 2019
- W-01 (NOTE 1) ADDED TO USE MOST CURRENT VERSION OF STANDARDS.
- W-01 (NOTE 13) ADDED TO PRETEST VALVES PRIOR TO INSTALLATION.
- W-13 ADDED MAXIMUM DRAIN PIPE LENGTH OF 20 FEET.
- W-16 ADDED MULTIPLIER FOR PVC PIPE. ADDED THAT SET-SCREW RESTRAINTS NOT ALLOWED. ADDED TYLER TUFGRIP RESTRAINTS ARE NOT ALLOWED (DUE TO QUALITY CONTROL ISSUES).
- W-25 ADDED MAXIMUM DRAIN PIPE LENGTH OF 20 FEET.
- W-30 (NOTE 23) ADDED COEFFICIENT OF FRICTION REQUIREMENT.
- W-31 REMOVED TRACER WIRE IN VALVE BOXES.

JULY 2019
- W-12 (NOTE 13) ADDED MAXIMUM GAUGE SCALE REQUIREMENT.
- W-29 CLARIFIED MAXIMUM 6" VERTICAL ADJUSTMENT.
- W-30 (NOTE 23) UPDATED LID/FRAME MODEL NUMBERS.
- W-30 (NOTE 29) ADDED NEW NOTE ABOUT DISTRICT LOANED EQUIPMENT.

JANUARY 2020
- W-02, W-14, W-18, W-21, W-31 REVISED TRACER WIRE CONFIGURATION
- W-04 REVISED PRECAST BLOCK CALLOUT LISTING AVAILABLE SIZES.
- W-12 SIGMA BOX TOPS NO LONGER ALLOWED DUE TO CLEARANCE ISSUES.
- W-12 REMOVED TRACER WIRE FROM VALVE BOX.
- W-12 ADDED VALVE BOX COLLAR.
- W-18 UPDATED METER SETTER MODEL NUMBERS.
- W-23 CHANGED HILLHOLDER WALLS FROM ROCKS TO PRECAST BLOCK.
- W-26 ADDED GAS SHOCK OPTION FOR HATCH.
- W-29 NOW GRAPHICALLY SHOWS LID ADJUSTMENT RISERS.

JANUARY 2021
- W-01 REVISED NOTE 11 THAT RESTRAINED JOINTS ARE NOW GENERALLY ALLOWED INSTEAD OF THRUST BLOCKS.
- W-02 4" STORZ ADAPTER NOW REQUIRED FOR ALL HYDRANTS.
- W-04 REVISED TABLES SO SAND AND SANDY SILT ARE THE DEFAULT MATERIAL (1.0 MULTIPLIER).
- W-08 CHANGED SWING JOINT FROM STEEL TO BRASS.
- W-11 ADDED MULTIPLE AND 4" BLOW OFF CONFIGURATION OPTIONS
- W-12 INCREASED INLINE VALVE RESTRAINED JOINT LENGTH REQUIREMENT (NOTE 5).
- W-13 REVISED VAULT SIZES
- W-16 ADDED LENGTHS FOR COMBINED BENDS.
- W-29 ADDED REQUIREMENT TO INSTALL SIDEWALK PANEL AROUND LID WHEN SIDEWALKS ARE DEFERRED.
- W-31 ADDED ACCESS BOX DETAIL.

APRIL 2021
- W-14 SADDLES, CORP STOPS, AND SERVICE LINES FOR ALL 3/4" AND 1" SINGLE AND DOUBLE METERS ARE NOW 1.5" DIAMETER.
- W-25 DISTRICT MAY ALLOW LATERAL PIPE VELOCITY UP TO 10 FPS WITH CL52 DI.

MAY 2021
- W-01 ADDED THAT PRESSURE WASHERS NOT ALLOWED FOR PRESSURE TESTING.
- W-03 CHANGED PAVEMENT PATCH MATERIAL FROM CLASS B TO HMA CL 3/8". ADDED PIPE ALIGNMENT TOLERANCES.
- W-13 REVISED VAULT LENGTH CRITERIA.

RYAN C. PETERSON, STATE OF WASHINGTON, 32739, REGISTERED PROFESSIONAL ENGINEER
SIGNED: 01/22/21

EWDTSHT4.DWG
MAY 5, 2021