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East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

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COVER SHEET

FILENAME: EWDTWO

REVISED: OCT 7, 2025

DRAWING No. W-00

SHEET No. 0

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. 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.
3. 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.
4. 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.
5. 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, REPLACING, OR REPAIRING IRRIGATION SYSTEMS DAMAGED DURING CONSTRUCTION. REPAIR IRRIGATION SYSTEMS WITH PRODUCTS OF NO LESSER QUALITY THAN SCH 40 PVC. SHOW IRRIGATION ON THE AS-BUILTS.
6. ALL EXCAVATION SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE STANDARD DETAILS AND 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.
7. 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.
8. ALL WATER SERVICES, FIRE HYDRANTS, AND THRUST BLOCKING SHALL BE INSPECTED BY THE DISTRICT BEFORE BURY.
9. 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 PRESSURE TEST AND THE PIPELINE IS DISINFECTED, FLUSHED, AND RECEIPT OF ACCEPTABLE WATER QUALITY TEST RESULTS FROM THE HEALTH DISTRICT OR LAB. SEE DETAIL W-09.
10. PERFORM PRESSURE TEST AT 250psi. THE DISTRICT INSPECTOR HAS DISCRETION TO MODIFY THE TESTING REQUIREMENTS.
 - 10.1. 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 OR UNSATISFACTORY.
 - 10.2. PRESSURE TEST INCLUDES MAINLINE, HYDRANTS, SERVICE LINES, SETTERS, AND CUSTOMER SERVICE SIDE TAILPIPE.
 - 10.3. TEST MAINLINE IN SECTIONS OF NO MORE THAN 1,500 FEET. PRESSURE DROP SHALL NOT EXCEED 5 psi IN 120 MINUTES.
 - 10.4. ASSEMBLE AND TEST VALVE CLUSTERS OUTSIDE OF THE TRENCH PRIOR TO INSTALLATION.
 - 10.5. TEST GAUGE RANGE SHALL NOT EXCEED 160% OF TEST PRESSURE (400 psi MAX FOR 250 psi TEST).
11. 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.
12. 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.
13. AN AS-BUILT RECORD MUST BE SUBMITTED TO THE DISTRICT BEFORE WATER SERVICE WILL BE PROVIDED.
14. DEFLECTION AT PIPE AND FITTING JOINTS WILL BE ALLOWED UP TO 3.0" PER JOINT OR AS RECOMMENDED BY MANUFACTURER, WHICHEVER IS LESS. 3.0" IS 11" PER 18' PIPE STICK, WHICH IS 350' RADIUS.
15. CONTRACTOR SHALL ONLY DISPOSE OF WASTE MATERIAL AT SITES APPROVED BY DOUGLAS COUNTY TRANSPORTATION AND LAND SERVICES. STOCKPILE MATERIALS ONLY ON DISTRICT APPROVED SITES.
16. CONTRACTORS WORKING WITHIN RIGHT OF WAY OR ON EXISTING DISTRICT INFRASTRUCTURE SHALL BE LICENSED, BONDED, AND HAVE EXPERIENCE INSTALLING PUBLIC DOMESTIC WATER SYSTEMS. BE PREPARED TO PRESENT EXAMPLES OF 5 SUCH PROJECTS UPON REQUEST.
17. 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. NO OUTAGES ARE ALLOWED ON MONDAYS OR FRIDAYS.

CONTINUED ON W-30 . . .



East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

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CONSTRUCTION NOTES

PAGE 1 of 2

FILENAME: EWDTW12

REVISED: OCT 7, 2025

DRAWING No. W-01

SHEET No. 1

18. CONTRACTOR SHALL MAINTAIN AND RETURN ANY TEMPORARY EQUIPMENT PROVIDED BY THE DISTRICT. CONTRACTOR SHALL REIMBURSE THE DISTRICT FOR ANY DAMAGE OR LOSS OF EQUIPMENT.
19. STAKE LOCATIONS OF WATERMAIN, BENDS, TEES, HYDRANTS, AND VAULTS PRIOR TO EXCAVATION. AT THE DISTRICT'S DISCRETION, THE CONTRACTOR MAY PROVIDE A GPS ROVER WITH LOCATIONS PRE-LOADED.
20. NO WORK THAT REQUIRES INSPECTION, OVERSIGHT, OR INPUT FROM THE DISTRICT, THE DISTRICT'S INSPECTOR OR ENGINEER WILL BE ALLOWED ON FRIDAYS, SATURDAYS, SUNDAYS. OR ON DISTRICT RECOGNIZED HOLIDAYS NOR THE PRECEDING DAY.

MATERIALS REQUIREMENTS

1. ALL PIPE, VALVES, AND FITTINGS MUST BE RATED FOR NO LESS THAN 175 PSI WORKING PRESSURE AND 250 PSI TEST PRESSURE UNLESS STATED OTHERWISE.
2. METAL PRODUCTS & METAL ACCESSORIES (e.g. MJ T-BOLTS KITS, GLANDS, ETC) SHALL BE OF DOMESTIC FABRICATION & CONSTRUCTION. THIS REQUIREMENT EXCLUDES: TEMPORARY MATERIALS NOT PART OF THE PERMANENT FACILITY, FLANGE BOLT KITS, VALVE BOXES, & CASING PIPES. THIS REQUIREMENT MAY BE SUPERCEDED BY CONTRACT REQUIREMENTS FOR STATE OR FEDERALLY FUNDED PROJECTS.
3. ALL PIPE 3" AND LARGER SHALL BE DUCTILE IRON WITH A WALL THICKNESS NO LESS THAN CLASS 50 EXCEPT WHERE TRENCH BACKFILL OR LOADING DICTATE A STRONGER PIPE. USE CLASS 52 FOR HYDRANT RUNS AND WHERE PRESSURE EXCEEDS 150 PSI.
4. HDPE SERVICE PIPE SHALL BE 250 psi RATED (DR9) CTS (Copper Tube Size). ONLY FORD "QUICK-JOINT", MUELLER "110 CONDUCTIVE COMPRESSION", OR EQUAL FITTINGS ALLOWED FOR HDPE OR COPPER PIPE CONNECTIONS, NO PACK JOINTS.
5. ONLY FORD, MCDONALD, & MUELLER PRODUCTS ARE APPROVED FOR SERVICE BRASS, UNLESS OTHERWISE NOTED IN THESE DETAILS.
6. **METER 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 WENACHEE WATER DISTRICT SPECIFICATION, FRAME/LID 3620Z/3620C FOR NON-TRAFFIC AREAS, AND 3619Z/3619C FOR DRIVEWAYS AND TRAFFIC AREAS.
 - 6.1. ANCHOR FRAME TO VAULT USING NON-SHRINK GROUT. FRAME AND LID TO BE RATED FOR TRAFFIC LOADING IN TRAFFIC AREAS.
 - 6.2. WATER SERVICE VAULT LIDS TO INCLUDE ONE 2-3/16" DIAMETER HOLE WITH 4-1/4" DIAMETER x 9/16" DEEP RECESS FOR RADIO.
 - 6.3. FOR AIR VALVES AND BLOW-OFFS, DO NOT DRILL HOLE IN LIDS, NOR PROVIDE "METER" TEXT ON FRAME.
 - 6.4. LID SURFACE TO HAVE A STATIC COEFFICIENT OF FRICTION NO LESS THAN 0.60 AS DETERMINED BY ASTM C-1028.
7. FLANGE GASKETS: MINIMUM 1/8" THICK, AND RATED FOR EITHER THE TEST PRESSURE OR 150% OF WORKING PRESSURE, WHICHEVER IS GREATER. BOTH RING TYPE AND FULL FACE ARE ALLOWED. DO NOT USE FULL FACE GASKETS ON RAISED SEAT FLANGES. GASKETS MAY NOT BE REUSED ONCE ASSEMBLED.
8. FLANGE BOLTS ASTM A307 GRADE A OR B. ALL BOLTS, NUTS AND WASHERS TO BE ZINC PLATED STEEL OR COR-TEN MATERIALS.
9. BURIED VALVES 2" AND SMALLER TO BE CURB STOP OR CORP STOP PER DETAILS, OR STYLE AT THE DISCRETION OF THE DISTRICT.
 - 9.1. CORP STOP: MUELLER 300 BALL CORP (B-25028N), FORD FB1100-Q-NL, OR APPROVED EQUAL.
 - 9.2. CURB STOP: MUELLER 300 BALL CURB (B-25122N), FORD B41-Q-NL, OR APPROVED EQUAL.
10. 3" BURIED VALVES ONLY ALLOWED WITH DISTRICT APPROVAL. IF ALLOWED, THE DISTRICT WILL DETERMINE THE TYPE OF VALVE.
11. ALL CONCRETE VAULTS AND CHAMBERS MUST BE PRECAST. CAST-IN-PLACE ARE NOT ALLOWED.
12. TAPPING TEES: FUSION BONDED EPOXY LINED AND COATED STEEL WITH 1/4" MIN. WALL THICKNESS OUTLET BRANCH, OR STAINLESS STEEL WITH FULL PERIMETER CONTINUOUS INTERNAL RUBBER LINER. WORKING PRESSURE RATING OF 200 PSI, OR 50 PSI ABOVE SYSTEM PRESSURE, WHICHEVER IS HIGHER. 1/2" MIN. THREADED TEST PLUG IN BRANCH. 2-PIECE STYLE FOR 6" AND LARGER MAINS. ROMAC FTS420, SST-III, OR APPROVED EQUAL
13. BURIED MARKING TAPE SHALL BE NON-METALLIC WHEN A LOCATE WIRE IS PRESENT, OR METALLIC WHEN THERE IS NO LOCATE WIRE.



East Wenatchee Water District
WATER SYSTEM STANDARD DETAIL

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CONSTRUCTION NOTES
PAGE 2 of 2

FILENAME: EWDTW19

REVISED: OCT 7, 2025

DRAWING No. W-30

SHEET No. 2

1. WATER TO OBTAIN OPTIMUM MOISTURE CONTENT AS DETERMINED BY COMPACTION TESTING PROCTOR.
2. ALL TRENCHING TO BE DONE IN ACCORDANCE WITH OSHA AND WISHA STANDARDS.
3. POLY PIPE FOR WATER SERVICES, AIR VALVES, ETC. SHALL BE BEDDED IN SAND A MINIMUM OF 6" ABOVE AND BELOW THE PIPE.

APPROVED WSDOT SPECIFICATION BEDDING MATERIALS. WSDOT AGGREGATE SOURCE APPROVAL DOCUMENTATION MUST BE PROVIDED.

WATER MAIN BEDDING

- 9-03.4(2) Aggregate for BST: ¾"-½", ⅝"-No. 4, ½"-No. 4.
- 9-03.8(6) HMA Proportions of Materials: ¾-inch (Only allowed for poly-bagged DI pipe. See Note 1)
- 9-03.12(4) Gravel Backfill for Drains

HDPE SERVICE PIPE BEDDING

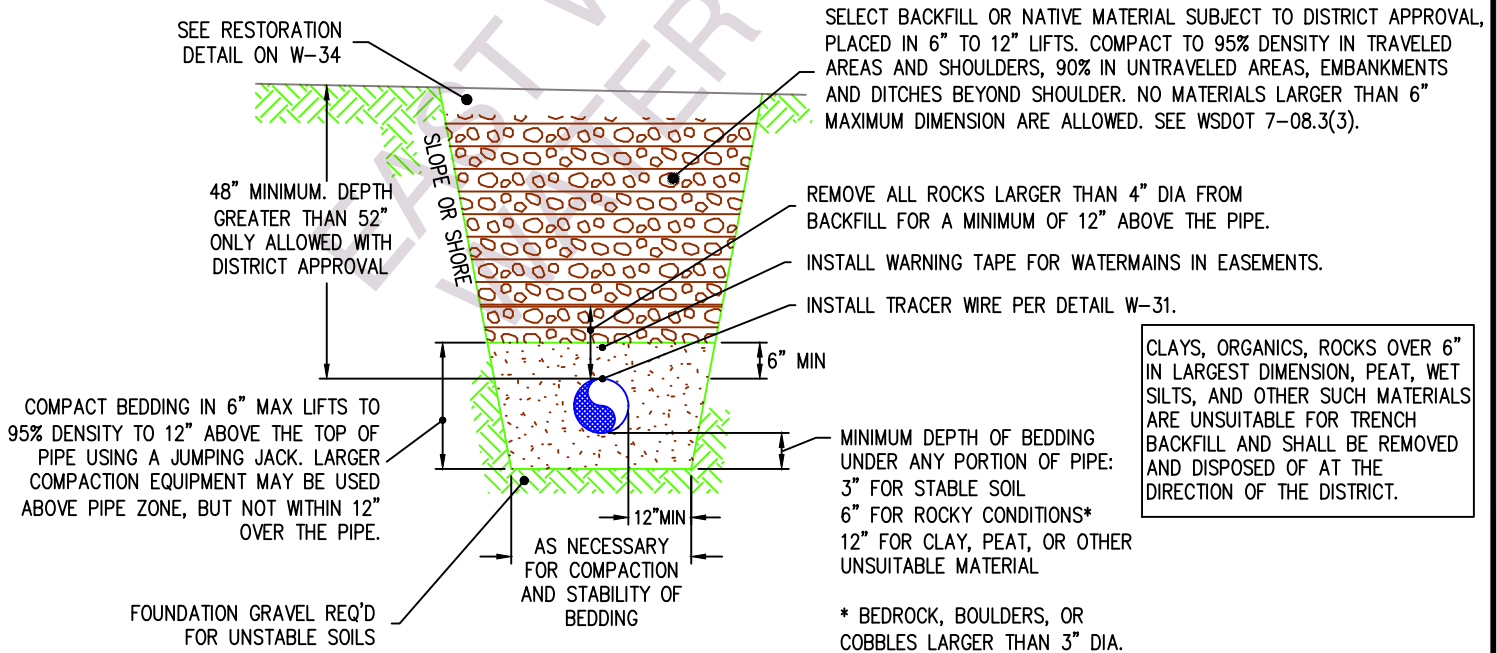
- 9-03.4(2) Aggregate for BST: ⅝"-No. 4 (HDPE service pipe)
- 9-03.9(4) Maintenance Rock (HDPE service pipe).
- 9-03.13 Backfill for Sand Drains (HDPE service pipe).

FOR NON WSDOT BEDDING MATERIALS. SIEVE ANALYSIS MUST BE PROVIDED.

- Bare water main: Table 1.
- Poly-bagged water main: Table 1 or Table 2 (See Note 1).
- HDPE service pipe: Table 1 or Table 2.

Percent Passing by Weight				
Sieve Size	Table 1		Table 2	
	Pipe >= 4"	Pipe < 4"	Pipe >= 4"	Pipe < 4"
1"	99-100	99-100	99-100	99-100
¾"	80-100	99-100	75-100	99-100
5/8"	70-100	99-100	50-100	99-100
No. 4	30-100	30-100	20-100	20-100
No. 10	15-85	15-85	10-85	10-85
No. 40	2-25	2-25	3-50	3-50
No. 200	5 max	5 max	10 max	10 max
Sand Equiv	50 min	50 min	35 min	35 min

Note 1: If either No. 40 sieve exceeds 25% or No. 200 sieve exceeds 5% then additional restrained joint pipe lengths may be required unless the restrained lengths were calculated using silty-sand or finer material.



TYPICAL TRENCH



East Wenatchee Water District
 WATER SYSTEM STANDARD DETAIL

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TRENCH SECTION

FILENAME: EWD TW22

REVISED: OCT 7, 2025

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 (D_{min}) CORRESPONDING TO THE REQUIRED BEARING AREA.

4. USING D_{min}, 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

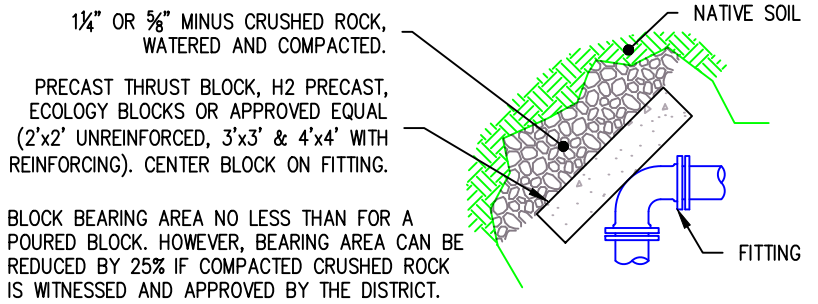
SIZE	TEST PRESSURE	TEES DEAD ENDS	90° BEND	45° BEND	22½° BEND	11¼° BEND
3	300	2.3*	2.6	2.3*	2.3*	2.3*
4	300	2.3*	3.8	2.3*	2.3*	2.3*
6	300	5.6	7.9	4.3	2.3*	2.3*
8	300	9.6	13.6	7.4	3.8	2.3*
10	300	14.5	20.5	11.1	5.7	2.8
12	300	20.5	29.0	15.7	8.0	4.0
14	300	27.6	39.0	21.1	10.8	5.4
16	300	35.7	50.4	27.3	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

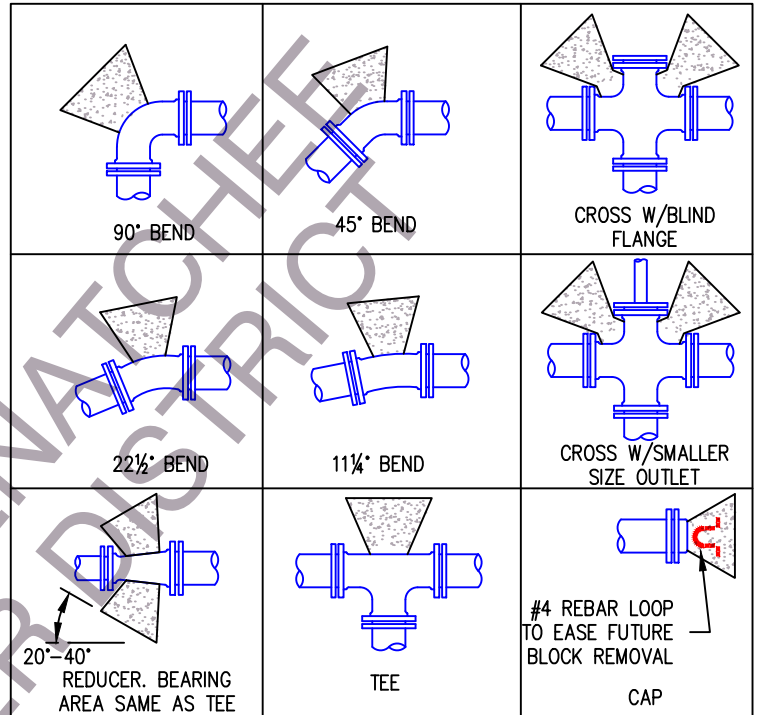
SOIL CONDITION	MULTIPLICATION FACTOR
*MUCK, PEAT, etc.	-
SOFT CLAY	2.0
SILT	1.3
SAND OR SANDY SILT	1.0
SAND AND GRAVEL	0.7
SAND AND GRAVEL CEMENTED W/ CLAY	0.5
HARD SHALE	0.2

* RESTRAINT SHALL BE DESIGNED BY ENGINEER



PRECAST THRUST BLOCK

CAST IN PLACE BLOCKS



NO PRESSURE MAY BE APPLIED TO THE CAST IN PLACE THRUST BLOCK UNTIL TEST RESULTS INDICATE THE MINIMUM OF THE 28-DAY COMPRESSIVE STRENGTH OF THE CONCRETE MIX DESIGN HAS BEEN ACHIEVED.

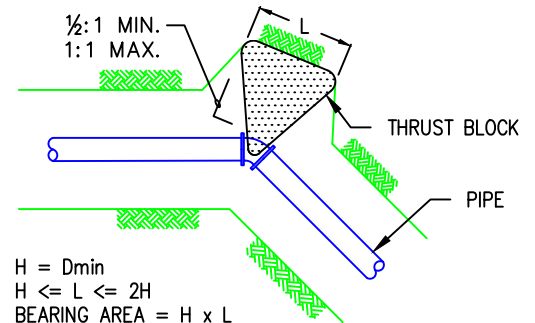


TABLE 3 - BLOCK SHAPE

REQ'D BEARING AREA (SQ. FT.)	MINIMUM DEPTH D _{min}
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'

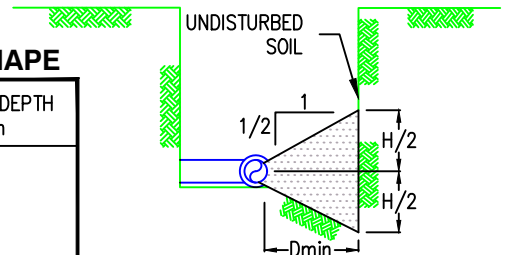


FIGURE 1



East Wenatchee Water District
WATER SYSTEM STANDARD DETAIL

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HORIZONTAL THRUST BLOCKING

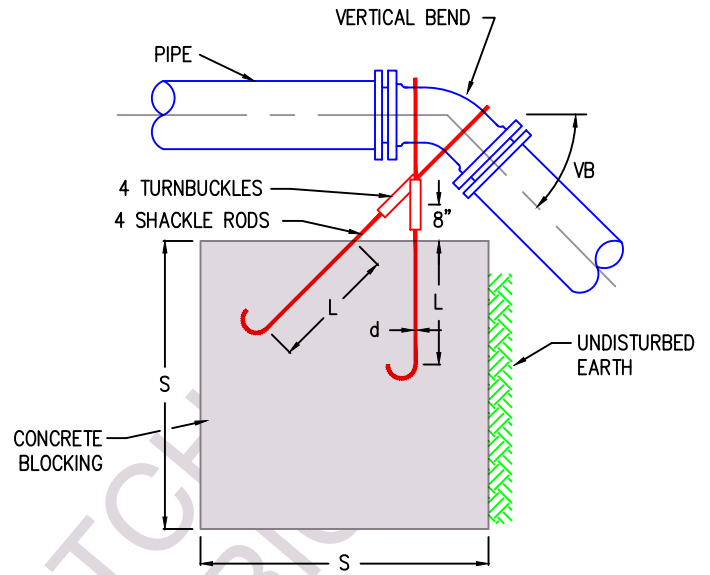
FILENAME: EWD TW6

REVISED: MAR 20, 2023

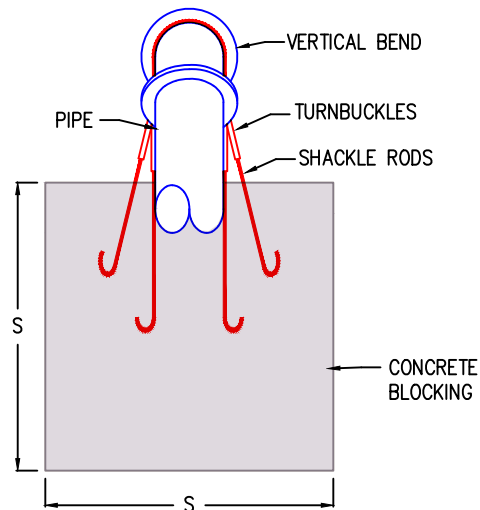
DRAWING No. W-04

SHEET No. 4

VERTICAL THRUST BLOCKING FOR 11.25°, 22.5°, AND 45° BENDS							NUMBER OF TIE ROD SETS (2 EMBEDDED RODS PER SET)
PIPE SIZE NOM. DIAMETER - INCHES	TEST PRESSURE PSI	VB VERTICAL BEND DEGREES	AMOUNT CONCRETE BLOCKING - CU FT	S LENGTH OF SIDE FEET	d SHACKLE ROD DIA. INCHES	L DEPTH OF ROD IN CONCRETE INCHES	
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



VERTICAL THRUST BLOCKING

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 PER STANDARD DETAIL W-07.



East Wenatchee Water District

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VERTICAL THRUST BLOCKING

FILENAME: EWD TW13

REVISED: APR 13, 2007

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. THE FOLLOWING PRODUCTS ARE NOT ALLOWED: SET-SCREW RESTRAINTS, TYLER/McWANE TUFGRIP, ALL GRIPPER STYLE GASKETS (FIELD-LOK, SURE-STOP, ETC.) LARGER THAN 12" DIAMETER.
4. RESTRAINTS OR RESTRAINED PIPE (PORTIONS GOUGED BY TOOTH RESTRAINTS) MAY NOT BE REUSED ONCE TIGHTENED.
5. 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:
 - 5.1. THESE TABLES ONLY FOR BARE (UNWRAPPED) DUCTILE IRON OR PVC PIPE.
 - 5.1.1. PIPE LAYING CONDITION TYPE 4 or 5, DEFINED AS:
 - 5.1.1.1. SELECT GRANULAR BEDDING MATERIAL BELOW PIPE.
 - 5.1.1.2. PIPE ZONE BEDDING EXTENDING TO TOP OF PIPE MECHANICALLY COMPACTED IN LIFTS.
 - 5.1.2. PIPE RESTING DIRECTLY ON NATIVE TRENCH BOTTOM IS NOT ACCEPTABLE.
 - 5.2. PIPE RESTING DIRECTLY ON NATIVE TRENCH BOTTOM IS NOT ACCEPTABLE.
 - 5.3. SANDY SILT BEDDING. FOR IMPORT CLEAN SAND OR 5/8" TOP COURSE, LENGTHS MAY BE REDUCED BY 25%.
 - 5.4. DEPTH OF COVER IS 3.5 FEET MINIMUM AT THE TIME OF PRESSURE TESTING.
 - 5.5. 250psi TEST PRESSURE MAXIMUM. FOR HIGHER TEST PRESSURE, MULTIPLY "L" BY THE PROPORTIONAL DIFFERENCE.
 - 5.5.1. EXAMPLE: FOR 300psi, $300/250=1.2$ THEREFORE, LENGTHS MUST BE MULTIPLIED BY 1.2.

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

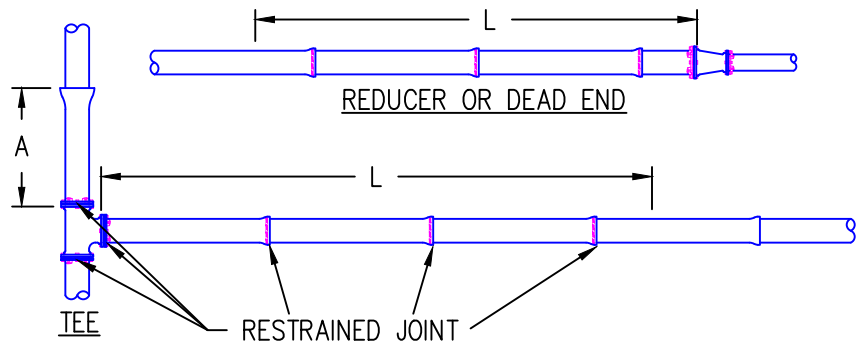
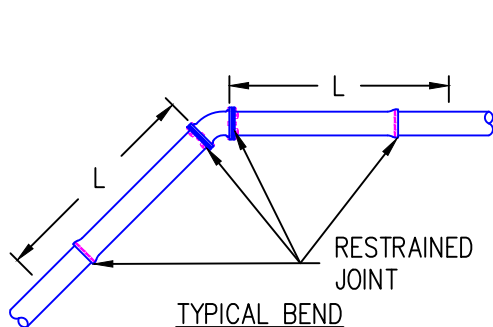
* Assumes reducer down 2 sizes. (example 12"x8"). Larger reductions shall be treated as a tee.

** For PVC or poly-bagged pipe, multiply the lengths by the value shown in the PVC row.

STANDARD & BRANCH REDUCING TEES (1.4x for PVC)								
		RUN DIAMETER						
		4"	6"	8"	10"	12"	16"	18"
BRANCH DIAMETER	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 (dimension "A").

Branch increasing (bullhead) tees are restrained as a dead-end, length based on largest size.



East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

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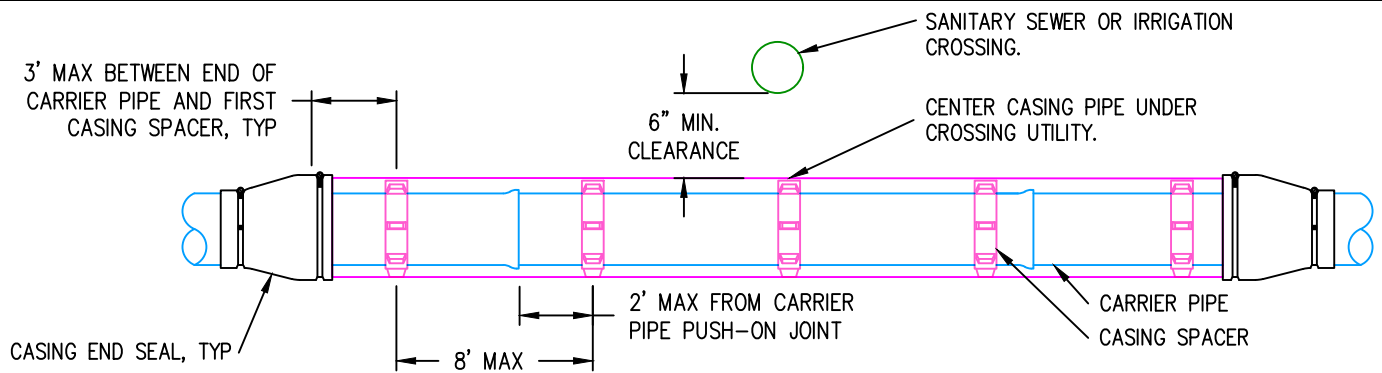
RESTRAINED JOINT PIPE

FILENAME: EWDTW16

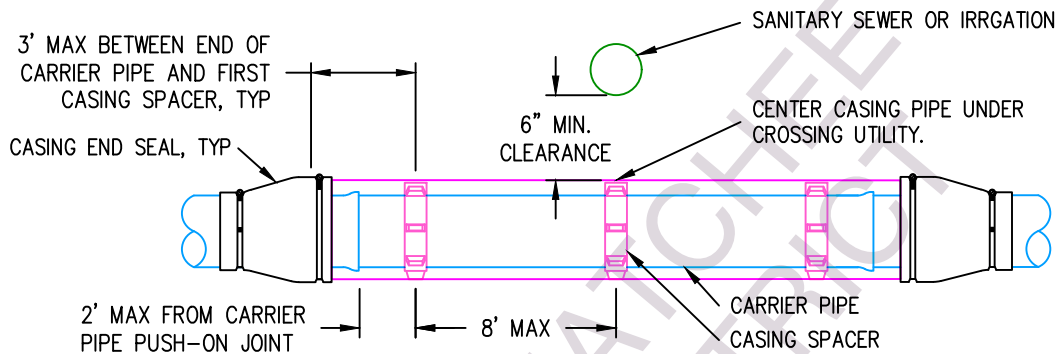
REVISED: OCT 7, 2025

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 CASIED OR CONSTRUCTED OF WATERMAIN CLASS MATERIALS (DI, C900 PVC, ETC.)
 2. CASINGS SHALL BE NEW 0.25" THICK STEEL, CL 50 DI, DR17 HDPE, OR DR21 C900 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 (APS, 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 INSIDE DIAMETER OF CASING TO BE THE LARGER OF 3" MORE THAN PIPE BELL OR 5" MORE THAN PIPE BARREL O.D.
- ASSUMING STANDARD PUSH-ON JOINT DI CARRIER PIPE:
- 6" PIPE (8.7" BELL) – 12" CASING I.D.
 - 8" PIPE (10.9" BELL) – 14" CASING I.D.
 - 12" PIPE (15.1" BELL) – 18" CASING I.D.
 - 16" PIPE (20.0" BELL) – 24" CASING I.D.
 - 18" PIPE (22.0" BELL) – 26" CASING I.D.
 - OTHER SIZES OR TYPES OF CARRIER PIPE, CONFIRM WITH DISTRICT.



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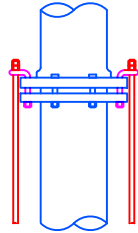
PIPE CASING

FILENAME: EWDTW32
REVISED: MAR 16, 2023

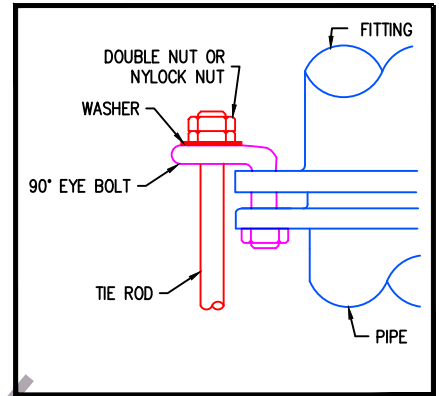
DRAWING No. W-32
SHEET No. 7

TIE ROD TABLE

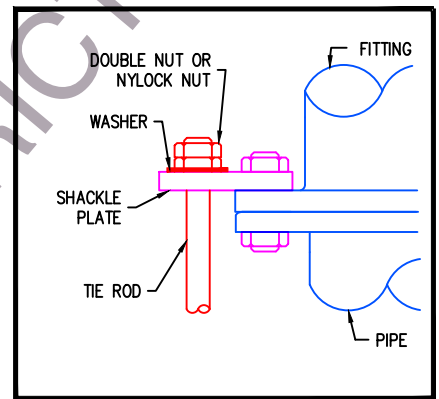
ASTM A242 (COR-TEN® OR EQUAL) STEEL (46 kpsi yield)								
PIPE DIAMETER (INCH)	No. OF 1/4" BOLT HOLES AVAILABLE	No. OF FLANGE BOLT HOLES AVAILABLE	MIN. NUMBER OF TIE RODS.				ROD DIAMETER: 5/8" OR (3/4")	
			TEE DEAD END VALVE 90° BEND	45° BEND	22.5° BEND	11.25° BEND		
4	4	8	2 (2)	2 (2)	2 (2)	2 (2)	2 (2)	
6	6	8	2 (2)	2 (2)	2 (2)	2 (2)	2 (2)	
8	6	8	3 (2)	2 (2)	2 (2)	2 (2)	2 (2)	
10	8	12	5 (3)	3 (2)	2 (2)	2 (2)	2 (2)	
12	8	12	6 (4)	5 (3)	3 (2)	2 (2)	2 (2)	
14	10	12	8 (6)	6 (4)	4 (3)	2 (2)	2 (2)	
16	12	16	11 (7)	8 (5)	5 (3)	3 (2)	2 (2)	
18	12	16	13 (9)	9 (7)	6 (4)	3 (2)	2 (2)	
304SS OR OTHER STEELS (30 kpsi yield)								
4	4	8	2 (2)	2 (2)	2 (2)	2 (2)	2 (2)	
6	6	8	3 (2)	2 (2)	2 (2)	2 (2)	2 (2)	
8	6	8	5 (3)	3 (2)	2 (2)	2 (2)	2 (2)	
10	8	12	7 (5)	5 (3)	3 (2)	2 (2)	2 (2)	
12	8	12	9 (7)	7 (5)	4 (3)	2 (2)	2 (2)	
14	10	12	12 (9)	9 (6)	5 (4)	3 (2)	2 (2)	
16	12	16	16 (12)	11 (8)	7 (5)	4 (3)	2 (2)	
18	12	16	- (14)	14 (10)	8 (6)	5 (3)	2 (2)	



TIE BOLT DETAIL



SHACKLE PLATE DETAIL



GENERAL NOTES

1. SIZES IN THE TIE ROD TABLE ARE BASED ON 300 PSI MAXIMUM PRESSURE AND 150% FACTOR OF SAFETY.
2. TIE RODS AND FASTENERS SHALL BE "ALL THREAD" ROD OF ONE OF THE APPROVED MATERIALS:
 - 2.1. ASTM A242 (COR-TEN)
 - 2.2. 304 STAINLESS STEEL
 - 2.3. ASTM F3125, A325 TYPE 3
 - 2.4. ASTM A588
 - 2.5. ASTM A709 GR 50W
 - 2.6. MILD STEEL WILL NOT BE ALLOWED. ASTM A307 GRADE A OR B ARE ALLOWED, BUT MUST BE FIELD COATED AFTER ASSEMBLY WITH EPOXY, COAL-TAR, OR RUBBER.
3. PROVIDE MANUFACTURER'S DOCUMENTATION OF TYPE OF ROD MATERIAL. THE DISTRICT HAS THE RIGHT TO REJECT MATERIALS THAT ARE NOT ACCOMPANIED WITH DOCUMENTATION ACCEPTABLE TO THE DISTRICT.
4. TIE RODS SHALL BE "NATIONAL-COARSE" THREAD WITH A WASHER AND EITHER TWO NUTS OR ONE NYLOCK NUT AT EACH END.
5. 30 FOOT MAXIMUM TIE ROD LENGTH. LONGER RUNS MUST BE APPROVED BY THE DISTRICT AND MAY REQUIRE LARGER OR ADDITIONAL RODS.
6. TIE RODS SHALL BE ASSEMBLED AS SYMMETRICALLY AS POSSIBLE AROUND EACH JOINT.
7. TIE ROD NUTS SHALL BE TIGHTENED UNIFORMLY AT EACH JOINT AND IN AN ALTERNATING PATTERN.
8. TIE ROD COUPLINGS SHALL BE THE SAME MATERIAL AND STRENGTH AS THE TIE RODS, UNLESS APPROVED OTHERWISE BY THE DISTRICT.
9. ATTACH TIE RODS TO JOINTS WITH 90° EYE BOLTS OR SHACKLE PLATES. "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

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TIE RODS

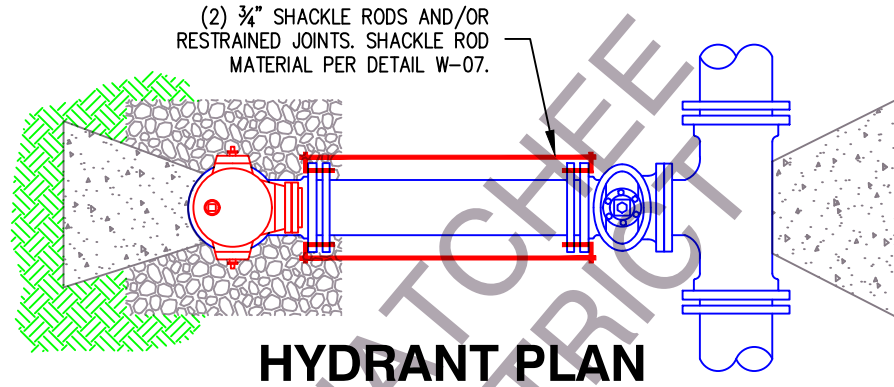
FILENAME: EWD TW7

REVISED: JUN 26, 2024

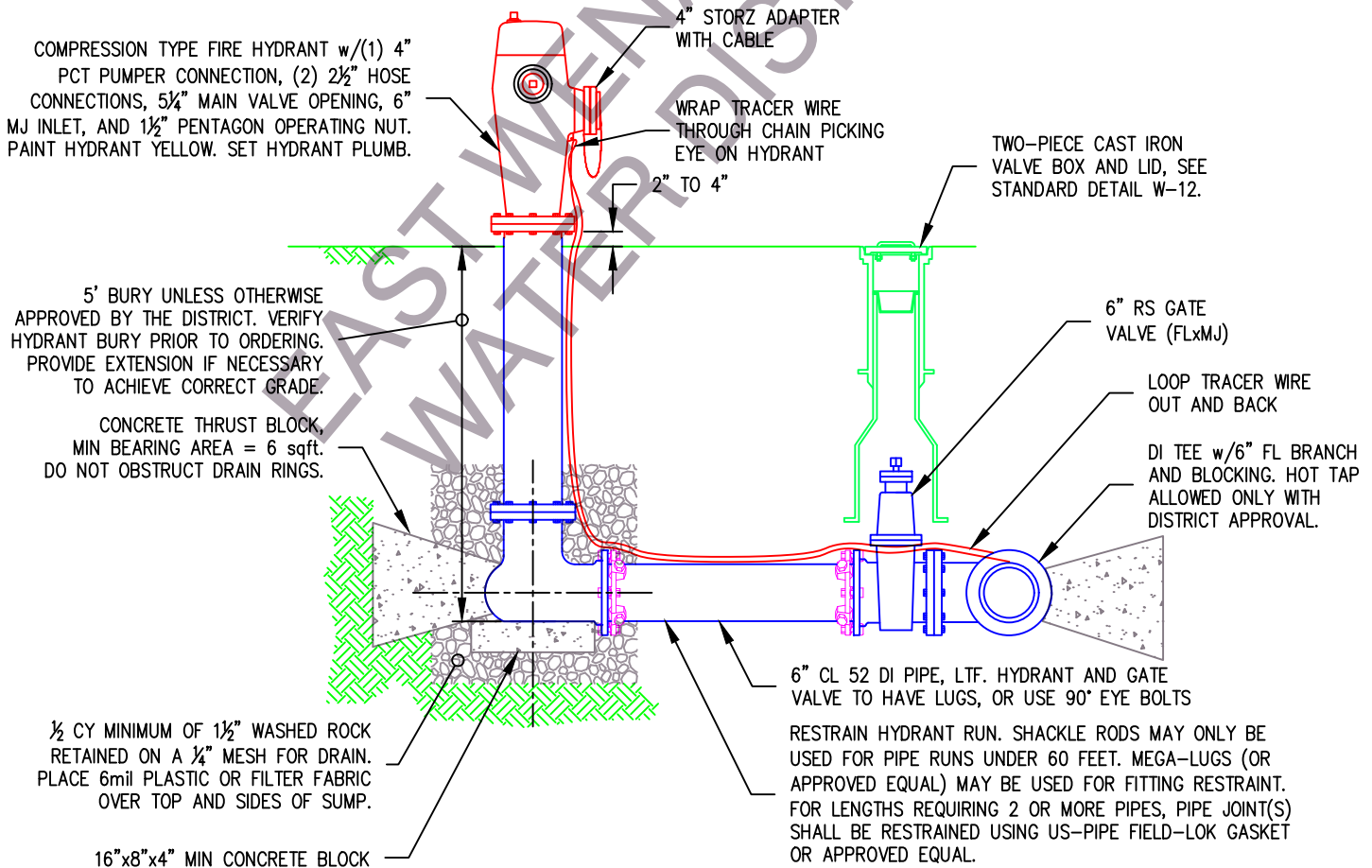
DRAWING No. W-07

SHEET No. 8

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 RESTRAINED JOINTS ARE REQUIRED.
3. APPROVED HYDRANTS:
 - MUELLER A423
 - M & H 129, 129S or 929
 - CLOW MEDALLION
 - WATEROUS WB67-250
 - 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



East Wenatchee Water District

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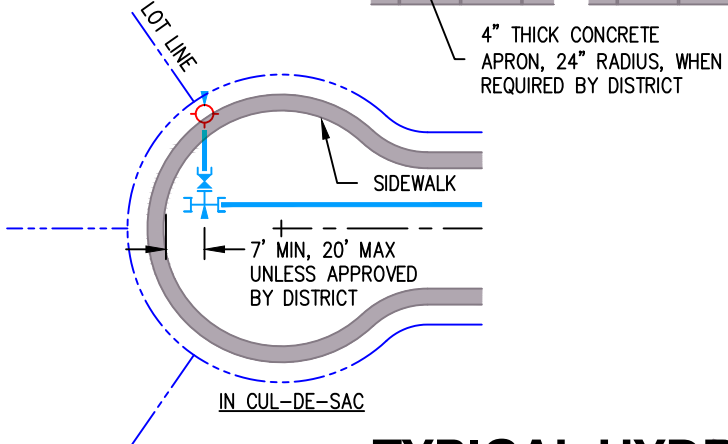
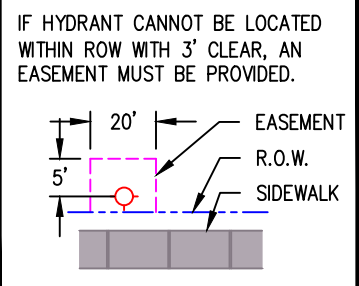
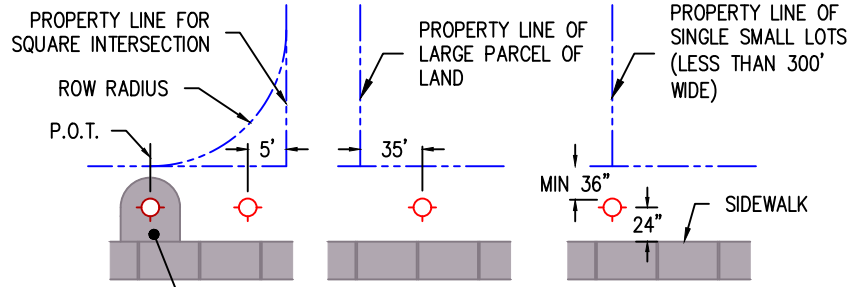
FIRE HYDRANT

FILENAME: EWDTW15

REVISED: OCT 7, 2025

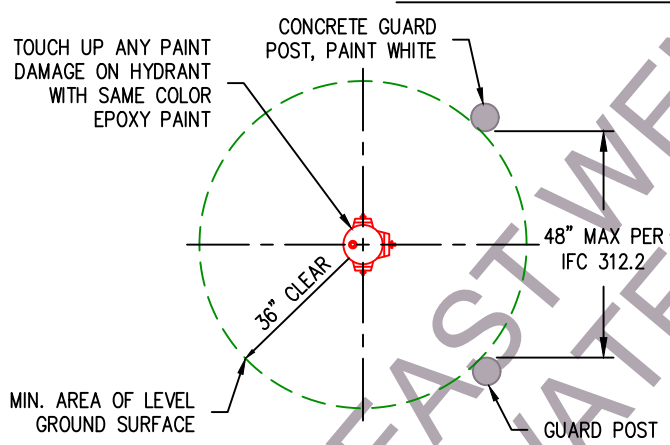
DRAWING No. W-02

SHEET No. 9

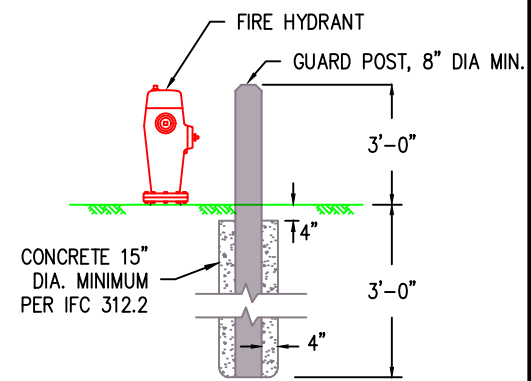


HYDRANTS SHALL BE INSTALLED AT THE END OF ALL 8" DIAMETER AND LARGER DEAD END MAINS.

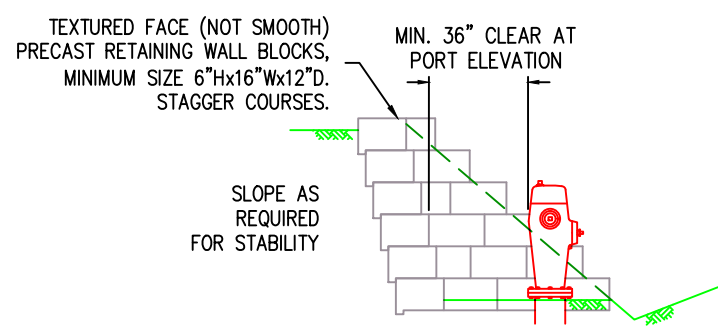
TYPICAL HYDRANT LOCATIONS



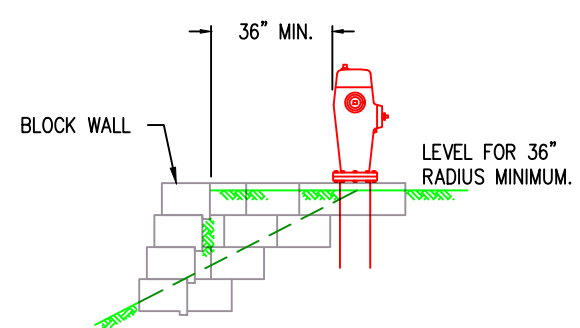
GUARD POST PLAN



GUARD POST ELEVATION



HILL CUT



SLOPE FILL



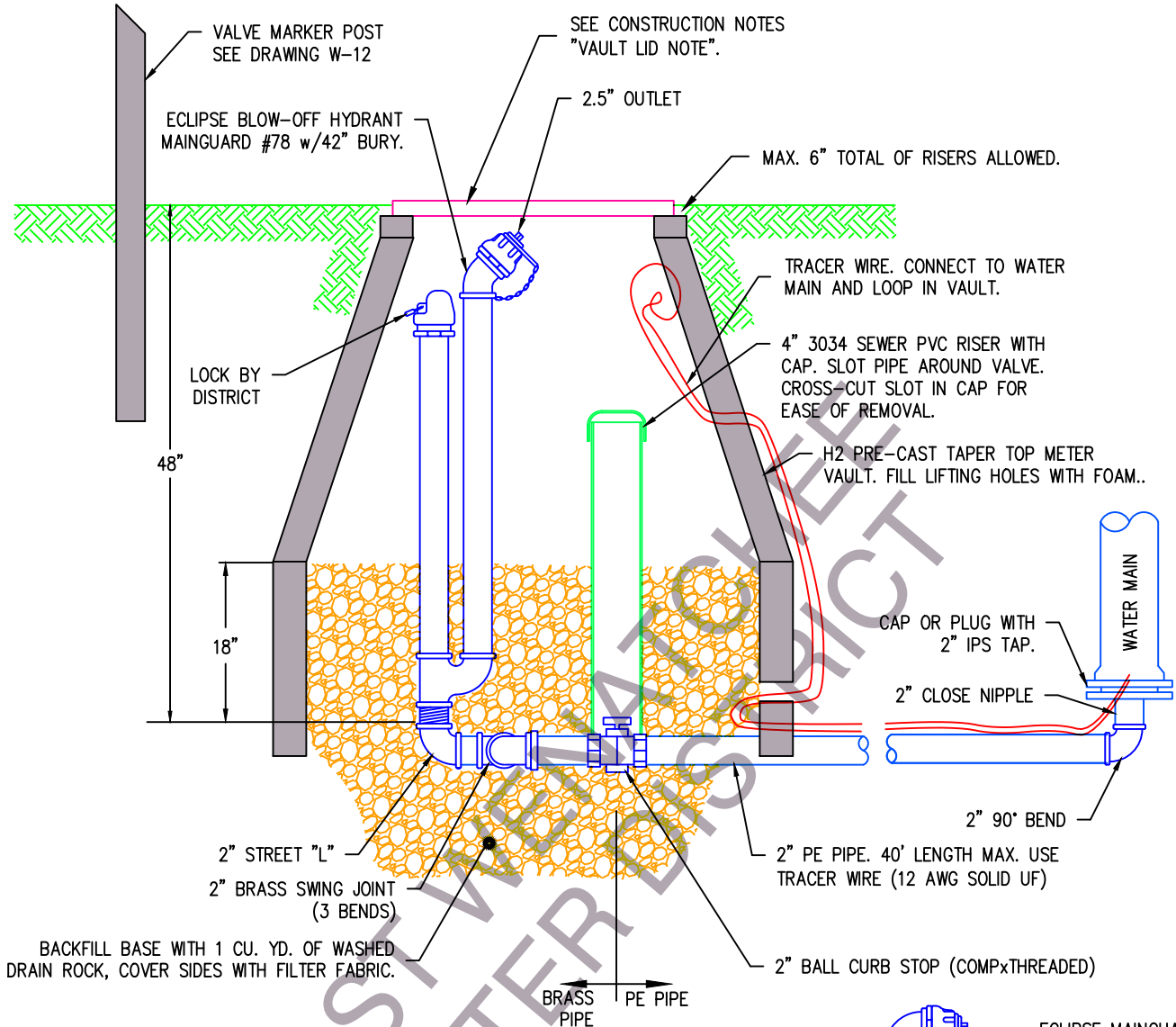
East Wenatchee Water District
WATER SYSTEM STANDARD DETAIL

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HYDRANT LOCATIONS

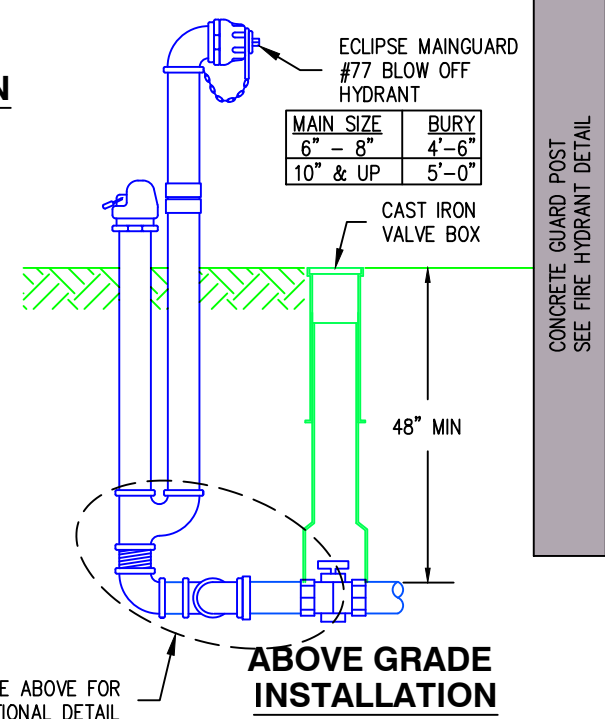
FILENAME: EWDTW8
REVISED: FEB 10, 2023

DRAWING No. W-23
SHEET No. 10



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



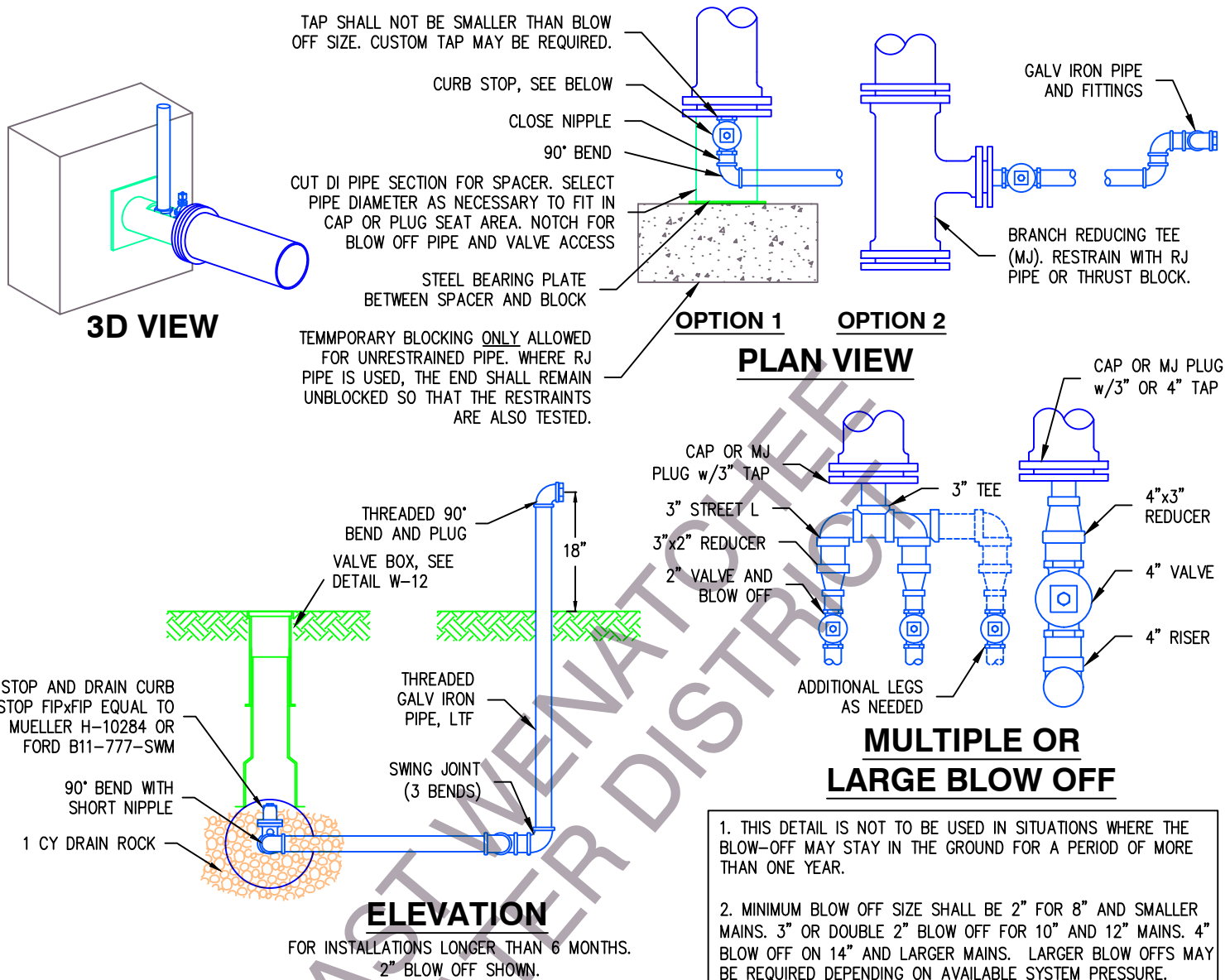
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PERMANENT BLOW-OFF HYDRANT

FILENAME: EWD TW1
REVISED: FEB 10, 2023

DRAWING No. W-08
SHEET No. 11



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. GALV IRON PIPE AND FITTINGS MUST BE USED ON ONE SIDE OF THE CURB STOP FOR ADEQUATE SUPPORT. PE PIPE AND FITTINGS MAY BE USED ON THE OTHER SIDE.

1. FLUSHING, DISINFECTION, AND PURITY TESTING PER WSDOT 7-09(24) EXCEPT AS MODIFIED HEREIN. SEE DETAIL W-01 FOR PRESSURE TESTING.
2. FLUSH AT LEAST TWICE THE FULL VOLUME, OR AS DIRECTED BY THE DISTRICT. PROVIDE BACKFLOW PREVENTION BETWEEN THE WATER SOURCE AND THE NEW PIPELINES.
3. INITIAL FLUSHING OR PIGGING TO REMOVE DEBRIS AND SEDIMENT BEFORE DISINFECTION IS NOT TYPICALLY REQUIRED BUT MAY BE PERFORMED AT THE CONTRACTOR'S DISCRETION OR IF THE DISTRICT FEELS THERE IS EXCESSIVE DEBRIS OR WAS INSUFFICIENT PROTECTION DURING INSTALLATION.
4. CHLORINATE TO A RESIDUAL OF 50 ppm TO 100 ppm. CL RESIDUAL TESTS MUST BE TAKEN IMMEDIATELY FOLLOWING FILLING AT EACH END OF THE WATER MAIN OR AS DETERMINED BY THE DISTRICT.
5. IF CL RESIDUAL EXCEEDS 100 ppm, THE DISTRICT MAY DIRECT THE CONTRACTOR TO FLUSH AND RETRY.
6. RETENTION TIME SHALL BE 24 HOURS MINIMUM TO 72 HOURS MAXIMUM.
7. IF AFTER THE RETENTION PERIOD THE CL RESIDUAL IS LESS THAN 1 ppm, THE SYSTEM MUST BE FLUSHED AND RE-CHLORINATED. IF THE RESIDUAL IS BETWEEN 1 ppm AND 25 ppm, THE CONTRACTOR MAY CHOOSE TO EITHER FLUSH AND RE-CHLORINATE OR MAY FLUSH AND FILL WITH SYSTEM WATER AND HAVE SAMPLES TAKEN AT THEIR RISK.
8. THE DISTRICT WILL TAKE SAMPLES AS NOTED BELOW, OR AT THEIR DISCRETION:
 - 8.1. EVERY 1,200 FEET OF PIPE, ALL LATERALS LONGER THAN 18 FEET, AND AT EACH END OF THE PIPE.
 - 8.2. VERSION 1: FIRST SAMPLES AFTER FLUSHING, SECOND SAMPLES AT LEAST 16-HOURS LATER.
 - 8.3. VERSION 2: FIRST SAMPLES AT LEAST 16-HOURS AFTER FLUSHING, SECOND SAMPLES 15 MINUTES LATER WITH SAMPLE PORT CONTINUOUSLY RUNNING.
9. SAMPLES WILL NOT BE TAKEN ON FRIDAYS UNLESS AGREED TO BY THE DISTRICT.



East Wenatchee Water District

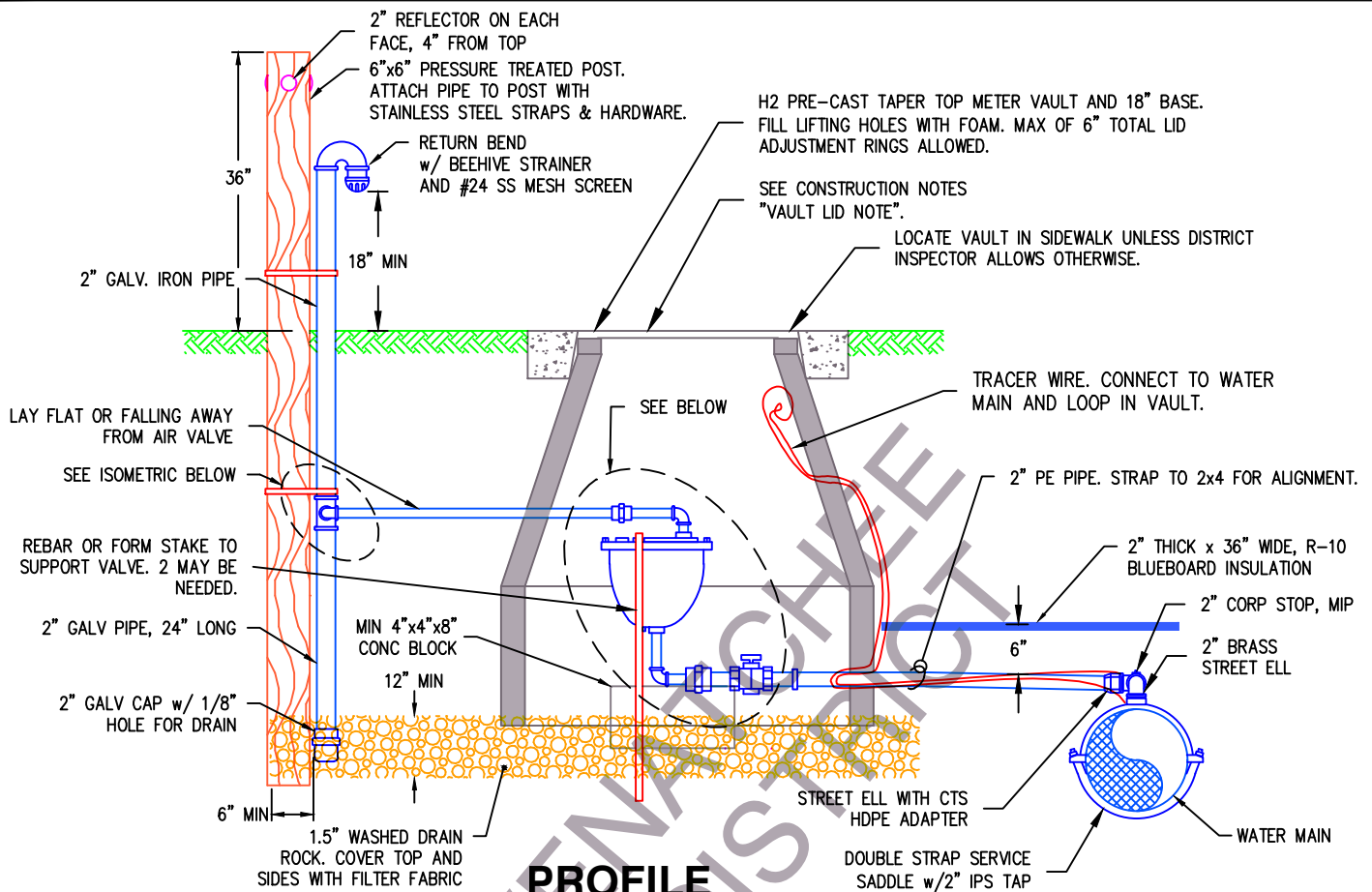
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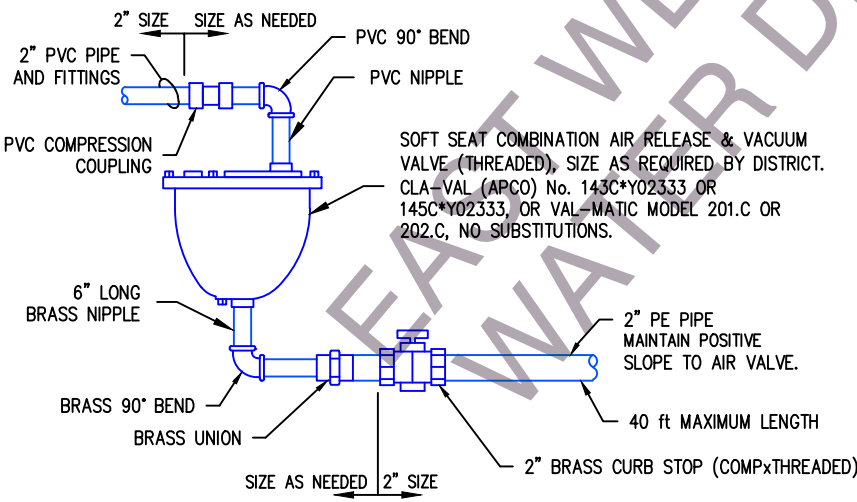
CONSTRUCTION BLOW-OFF AND PURITY TESTING

FILENAME: EWDTW11
REVISED: OCT 7, 2025

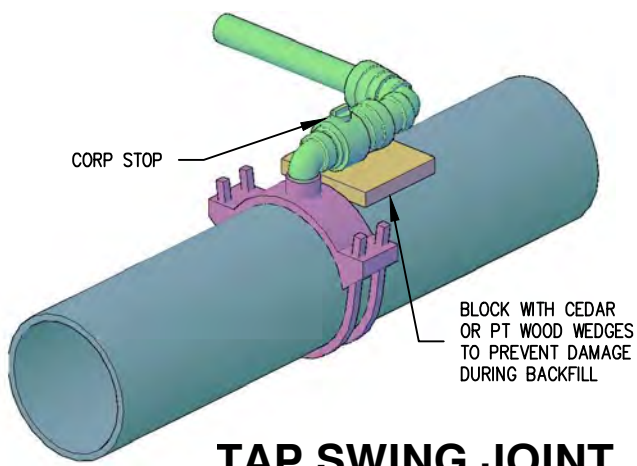
DRAWING No. W-09
SHEET No. 12



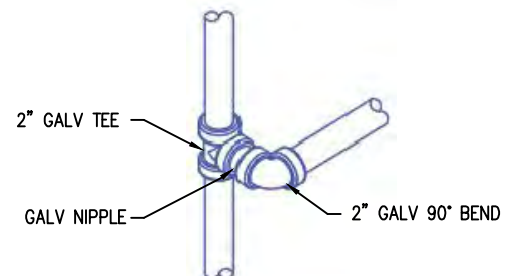
PROFILE



ENLARGEMENT



TAP SWING JOINT



VENT 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.

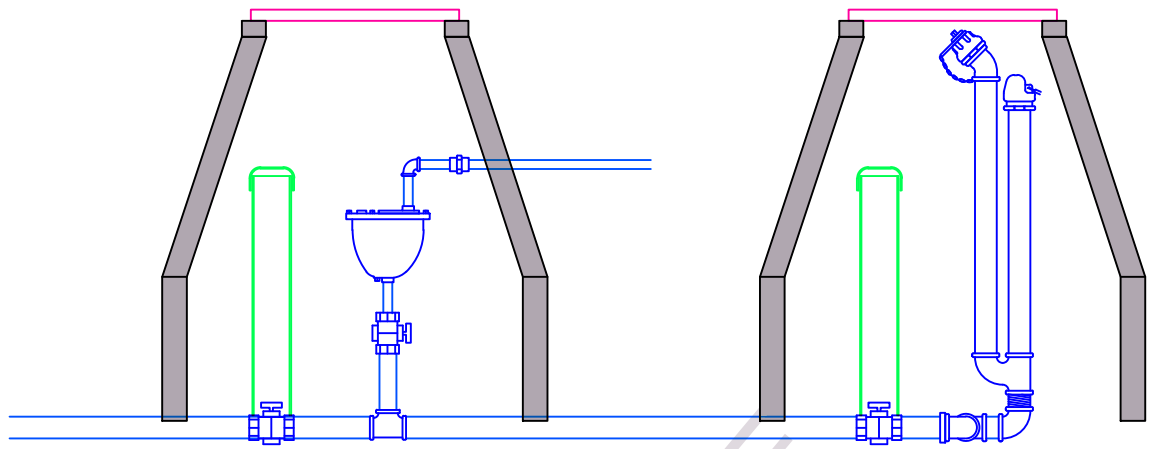


East Wenatchee Water District
WATER SYSTEM STANDARD DETAIL

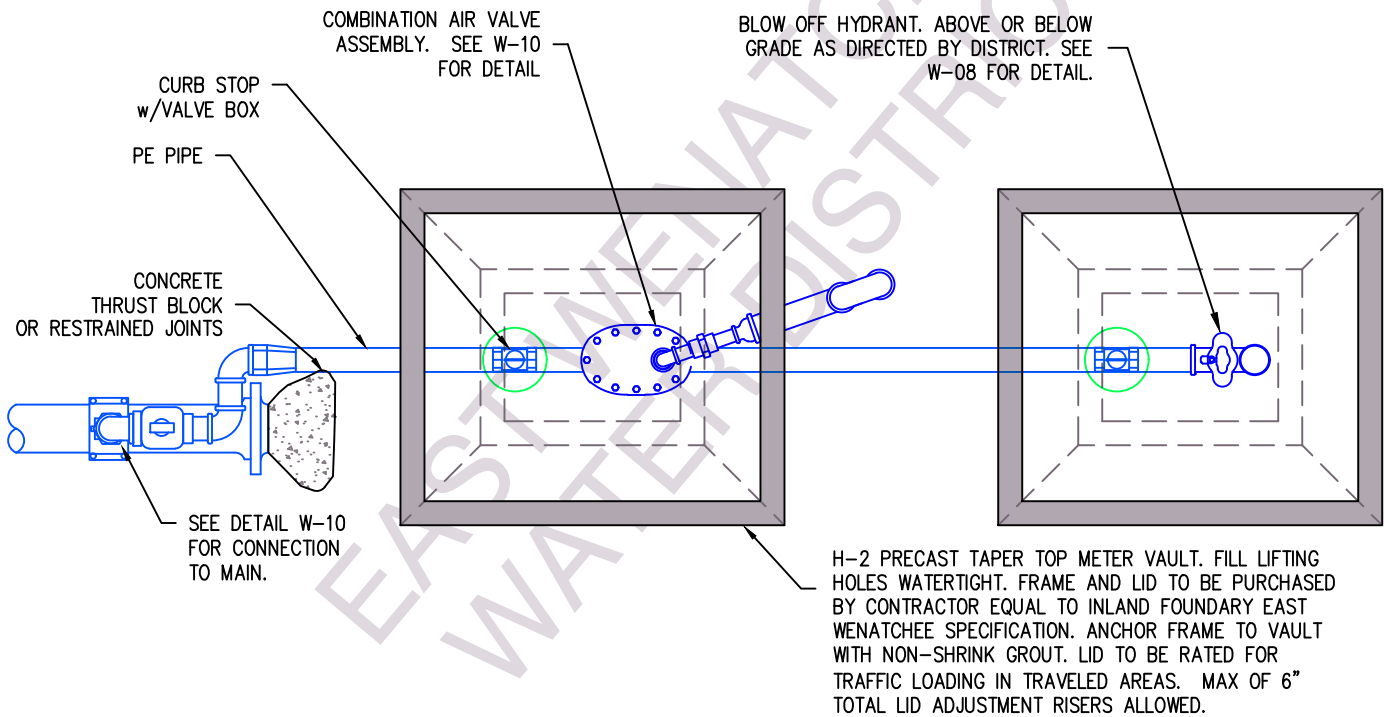
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COMBINATION AIR VALVE ASSEMBLY

FILENAME: EWDTW2	DRAWING No. W-10
REVISED: MAR 30, 2023	SHEET No. 13



ELEVATION



PLAN VIEW

1. INSTALL STANDARD MARKER POST IDENTIFYING VALVE LOCATION.
2. SET VAULT LID FLUSH WITH SIDEWALK OR CURB IF LOCATED IN A LAWN.
3. SET VAULT LID 2" ABOVE FINISHED GRADE IF IN A LANDSCAPING AREA.
4. ALL FITTINGS TO BE COPPER OR BRASS UNLESS OTHERWISE NOTED.
5. SEE THE COMBINATION AIR VALVE AND BLOW OFF STANDARD DETAILS FOR MORE INFORMATION.



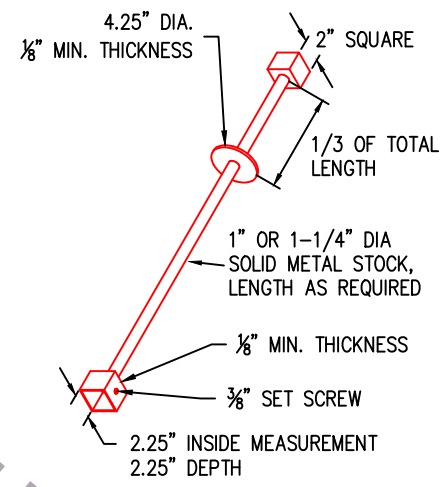
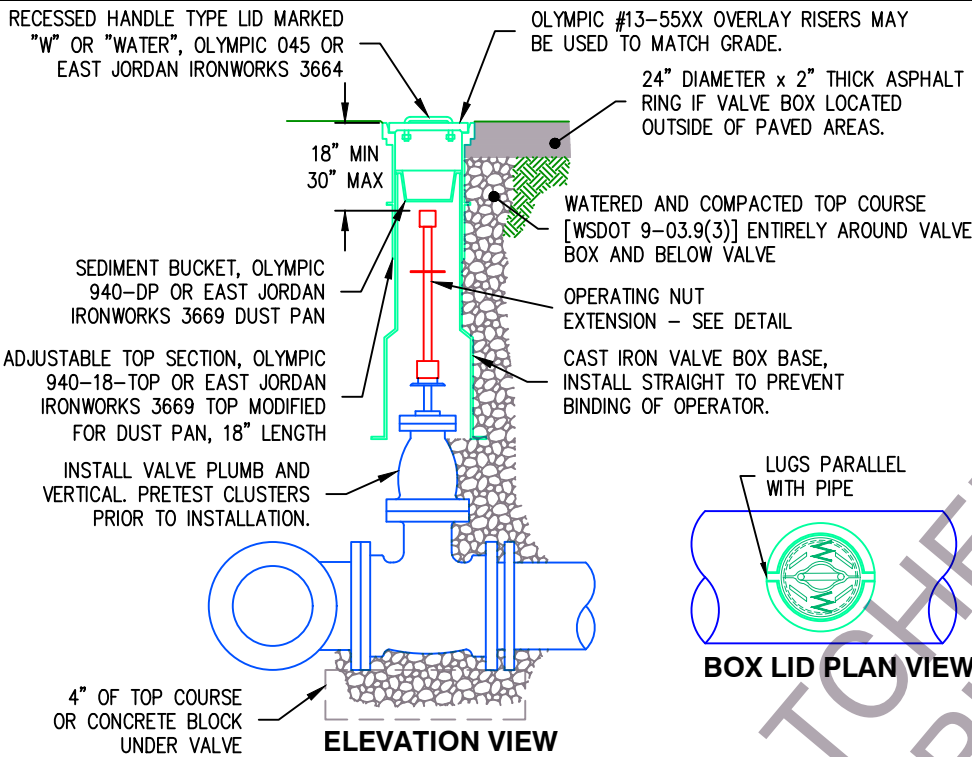
East Wenatchee Water District
WATER SYSTEM STANDARD DETAIL

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COMBINATION AIR VALVE & BLOW-OFF ASSEMBLIES

FILENAME: EWDTW17
REVISED: JUL 18, 2008

DRAWING No. W-11
SHEET No. 14

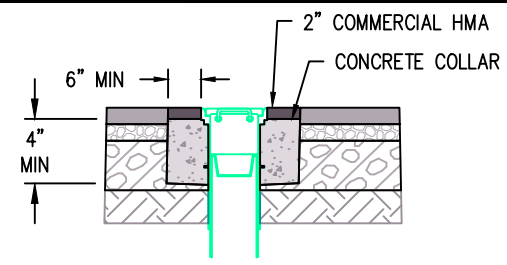


OPERATING NUT EXTENSION

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 EPOXY.

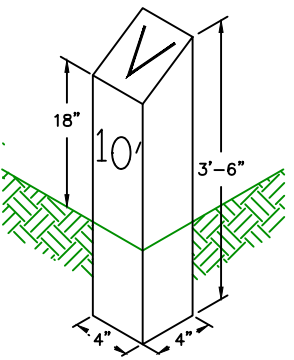
FOR EXTENSIONS LONGER THAN 4 FT AND/OR VALVES LARGER THAN 12\"/>

1. INSTALL VALVES AT NO MORE THAN 1,000 FT SPACING. PROVIDE (3) VALVES ON ALL TEES THAT LOOP OR ARE 6\"/>
- 2. VALVES 4\"/>
- 3. GATE VALVE MODELS: M&H 7000, KENNEDY KS, CLOW 2638, MUELLER 236#. NO SUBSTITUTIONS. ALL EXTERIOR VALVE BODY FASTENERS MUST BE STAINLESS STEEL GRADE 304(18-8) OR 316.
- 4. COMPACT BACKFILL AROUND VALVE BOXES USING A JUMPING JACK.
- 5. OLYMPIC FOUNDRY VALVE BOX MODEL NUMBERS SHOWN. OWNER APPROVED EQUALS WILL BE ALLOWED. SIGMA PRODUCTS ARE NOT ALLOWED DUE TO CLEARANCE ISSUES.
- 6. 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.
- 7. SUPPLY EACH VALVE WITH VALVE BOX, LID, AND DUST PAN. LID SHALL HAVE RECESSED HANDLE. ALIGN VALVE BOX RISER LUGS PARALLEL TO WATER FLOW.
- 8. 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.
- 9. 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.
- 10. BOX LID MUST FIT IN TOP WITH NO MORE THAN 1/16\"/>



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

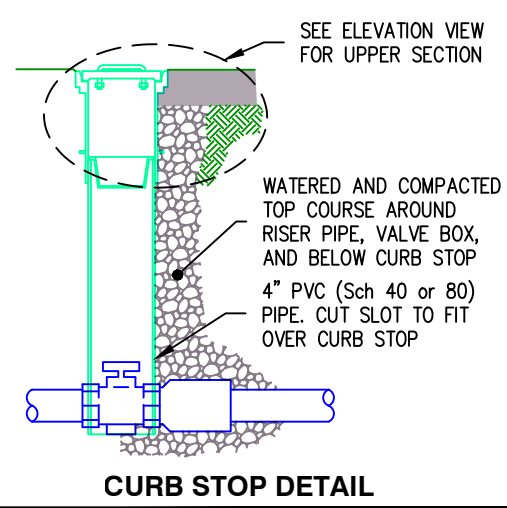
VALVE BOX IN PAVED ROAD



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



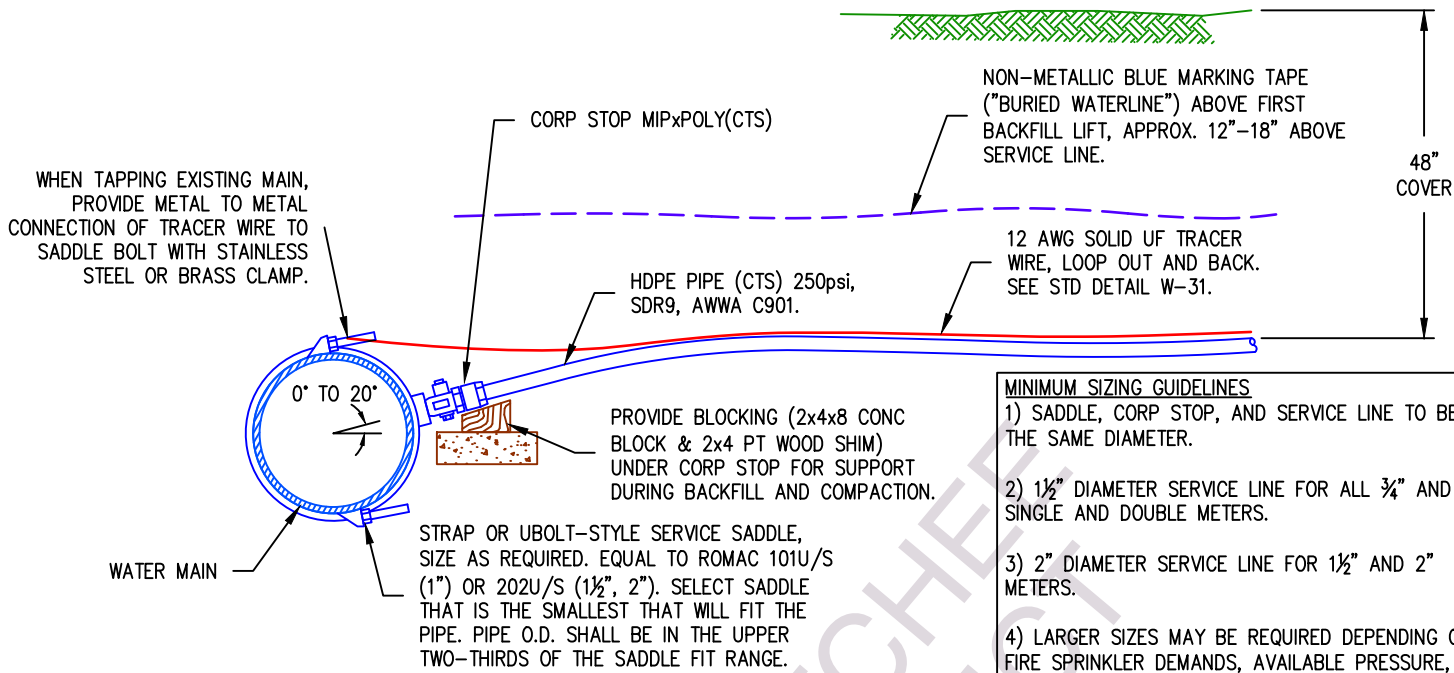
CURB STOP DETAIL



East Wenatchee Water District
 WATER SYSTEM STANDARD DETAIL
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ISOLATION VALVE INSTALLATION DETAILS

FILENAME: EWD TW9	DRAWING No. W-12
REVISED: JUN 25, 2024	SHEET No. 15



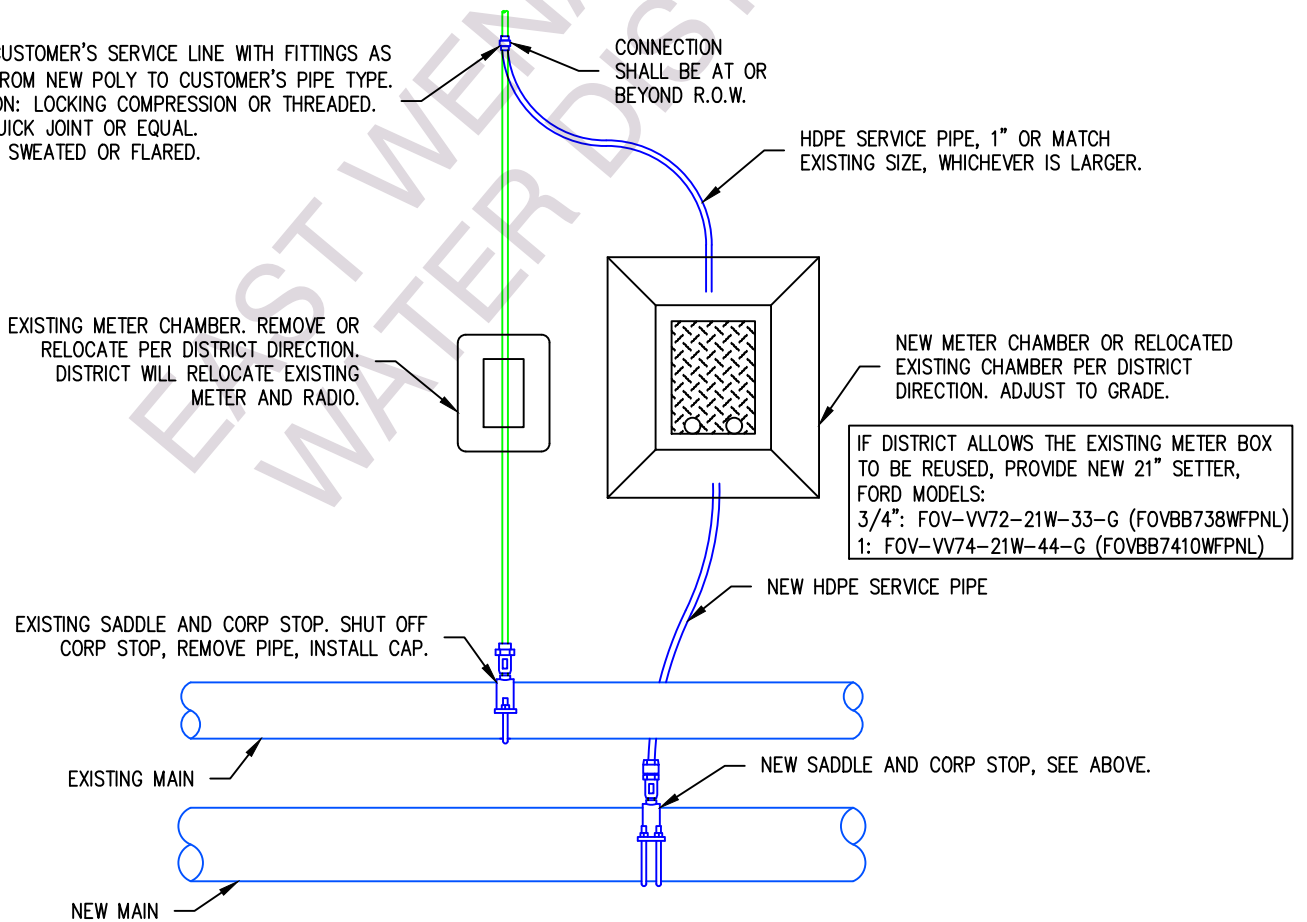
WATER SERVICE TAP AND PIPE

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) 2" DIAMETER SERVICE LINE FOR 1½" AND 2" METERS.
- 4) LARGER SIZES MAY BE REQUIRED DEPENDING ON FIRE SPRINKLER DEMANDS, AVAILABLE PRESSURE, OR LONG PIPE RUNS.

RECONNECT CUSTOMER'S SERVICE LINE WITH FITTINGS AS NECESSARY FROM NEW POLY TO CUSTOMER'S PIPE TYPE.

- GALV IRON: LOCKING COMPRESSION OR THREADED.
- POLY: QUICK JOINT OR EQUAL.
- COPPER: SWEATED OR FLARED.



EXISTING SERVICE RECONNECTION



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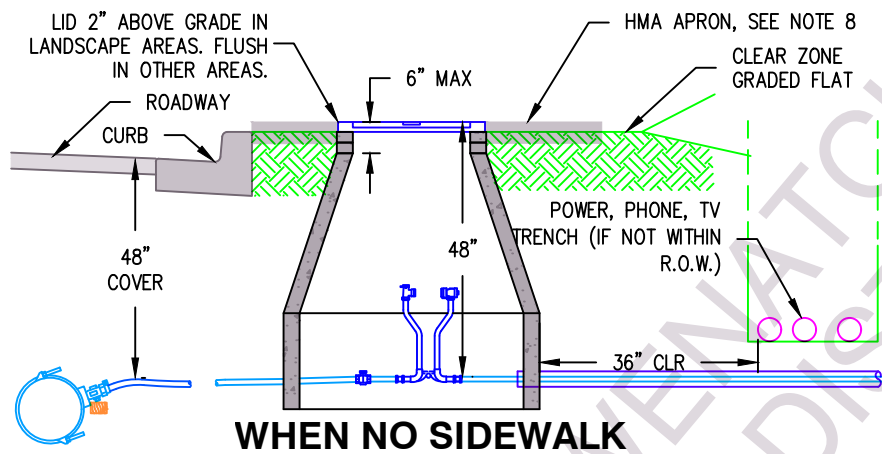
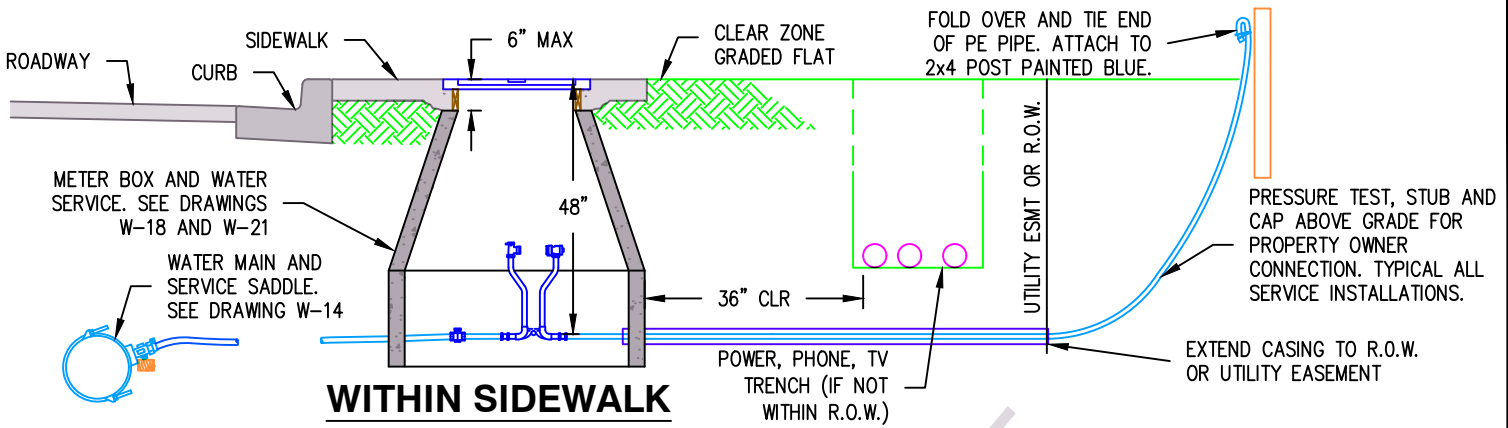
CUSTOMER SERVICE CONNECTIONS

FILENAME: EWD TW14

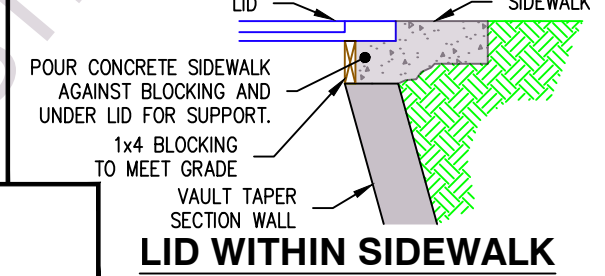
REVISED: MAR 30, 2023

DRAWING No. W-14

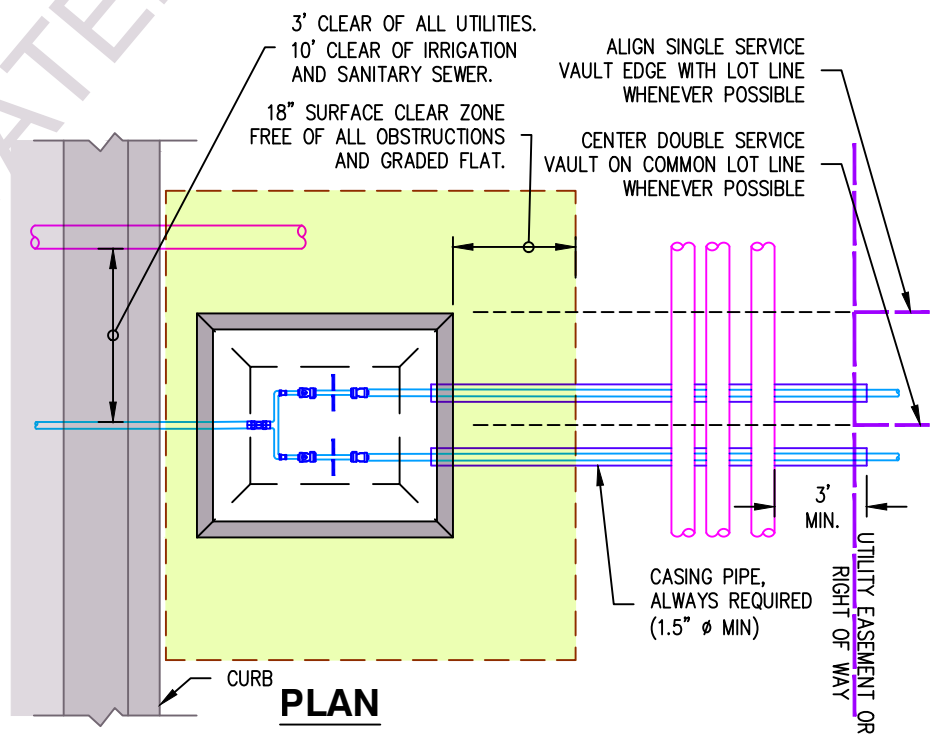
SHEET No. 16



- A. WHERE SIDEWALKS WILL BE INSTALLED (NOW OR FUTURE), INSTALL ONE FULL PANEL OF WALK AROUND EACH VAULT LID.
- B. SIDEWALK PANEL TO BE 4" THICK; WIDTH TO MATCH ROAD CATEGORY; 48" LENGTH OR AS DIRECTED BY CITY OR COUNTY. BROOM FINISH WITH SMOOTH TROWELED PERIMETER, UNLESS DIRECTED OTHERWISE BY THE COUNTY OR CITY.
- C. GROUT LIDS TO FINISHED GRADE BEFORE SIDEWALKS ARE POURED. SCORE WALK WITH CONSTRUCTION JOINT AT EACH LID CORNER.
- D. SLOPE LID WITH SIDEWALK FOR DRAINAGE 0.5% TO 2% PER WSDOT STANDARD PLAN F-30.10. ALL LIDS MUST BE AT THE SAME SLOPE +/- 0.5%.



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

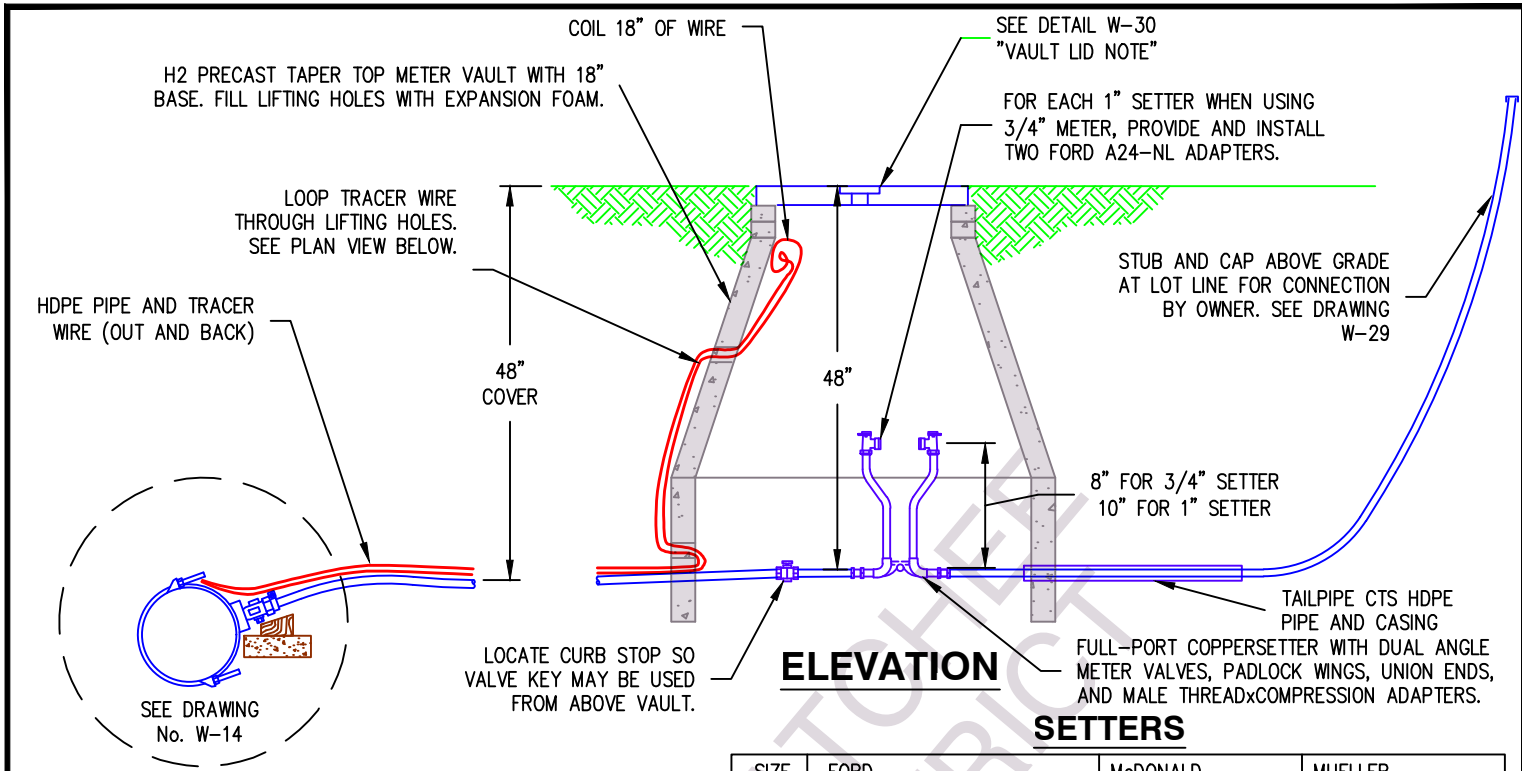
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WATER SERVICE, AIR VALVE, BLOW OFF VAULT INSTALLATION DETAILS

FILENAME: EWD TW3
REVISED: DEC 21, 2021

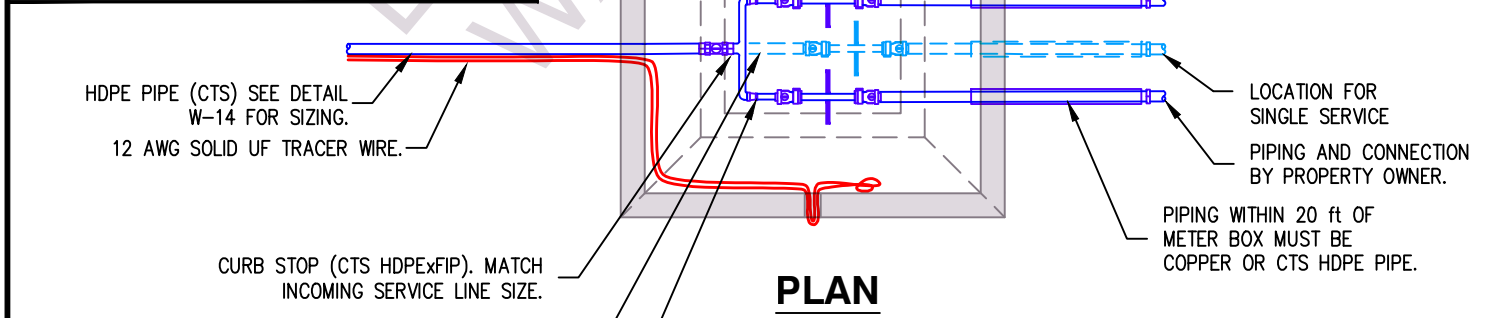
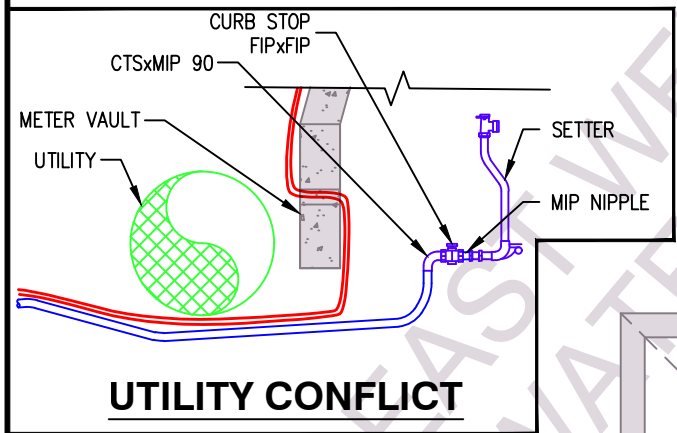
DRAWING No. W-29
SHEET No. 17



SETTERS

SIZE	FORD	McDONALD	MUELLER
3/8" x 3/4"	VBB73-8W-11-33-7-5-FP-NL	20-D207-JJ-DD-33	5/8" x 3/4" 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) PIPE, VALVES, AND FITTINGS.
 - 3/8" x 3/4" SETTER: 3/4" I.D. (0.875" O.D.).
 - 1" SETTER: 1" I.D. (1.125" O.D.).
 - 3/4" METER MAXIMUM 20 GPM RATING.
 - 1" METER MAXIMUM 50 GPM RATING.



- SINGLE SERVICE FITTINGS
BRASS REDUCING BUSHING FROM CURB STOP SIZE TO SETTER SIZE.
3/4" OR 1" (6" LONG) BRASS NIPPLE.
- DOUBLE SERVICE FITTINGS
1 1/2" x 1" U-BRANCH, FORD U88-64-12
1" x 3/4" BRASS BELL REDUCERS (FOR 3/4" SETTER)
3/4" (2" LONG) BRASS NIPPLES (FOR 3/4" SETTER)

- 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.



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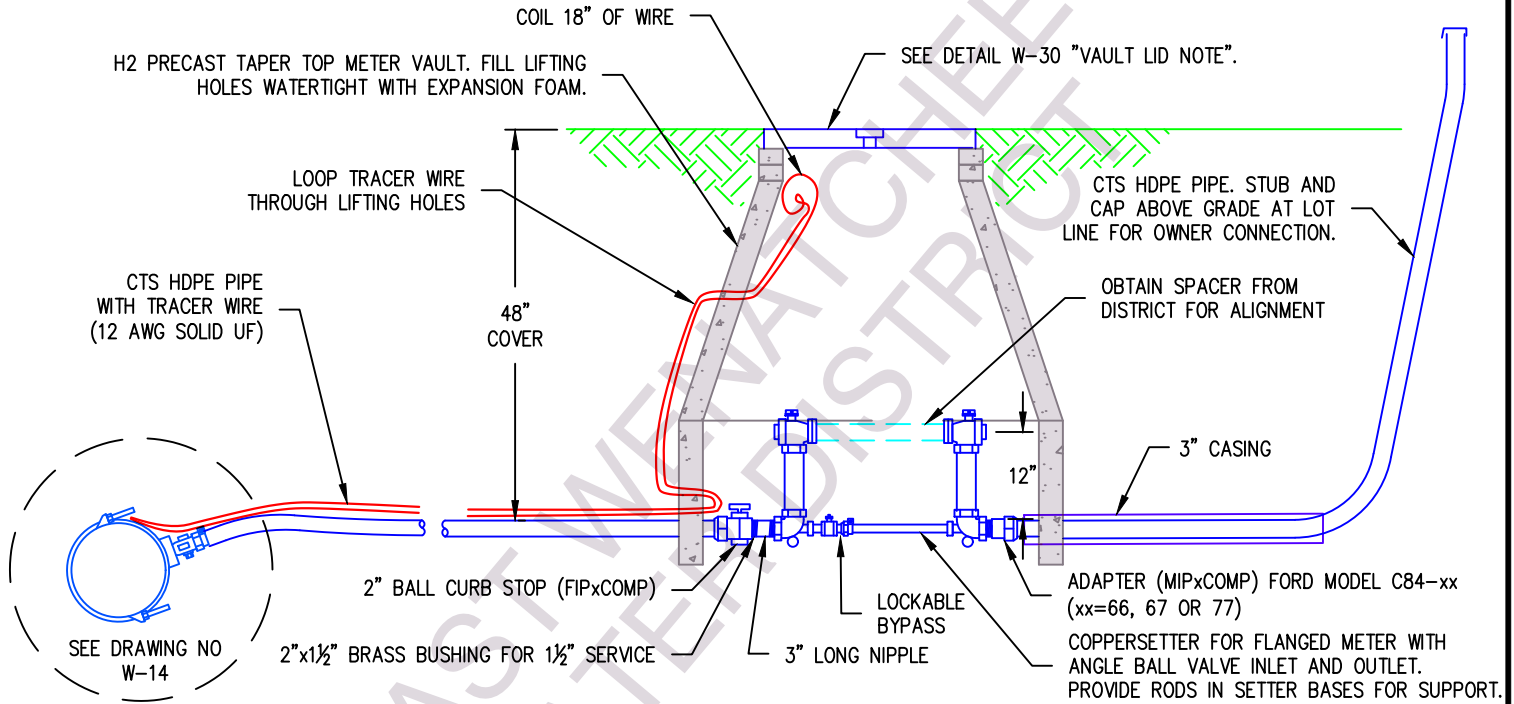
3/4" AND 1" SINGLE AND DOUBLE WATER SERVICES

FILENAME: EWD TW26
REVISED: FEB 10, 2023
DRAWING No. W-21
SHEET No. 18

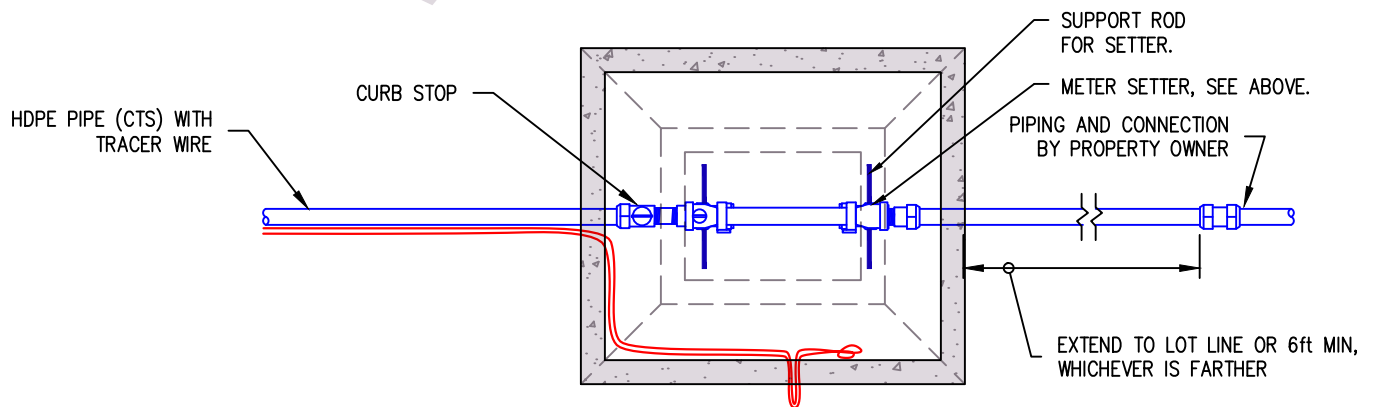
- 1) ALL PIPE TO BE HDPE (NOT INCLUDING SETTER).
- 2) SEE DETAIL W-14 FOR SERVICE LINE AND TAP SIZING.
- 3) SEE DETAIL W-29 FOR METER VAULT INSTALLATION DETAILS.
- 4) PRESSURE TEST ENTIRE SERVICE THROUGH SETTER AND TAILPIPE AT 250 psi. TEMPORARY SETTER JUMPERS AND TAILPIPE CAPS FOR TESTING PROVIDED BY DISTRICT. RETURN TO DISTRICT AFTER TESTING.
- 5) MAXIMUM METER RATINGS: 1.5" = 160 GPM, 2" = 200 GPM.

SETTERS

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



ELEVATION



PLAN



East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

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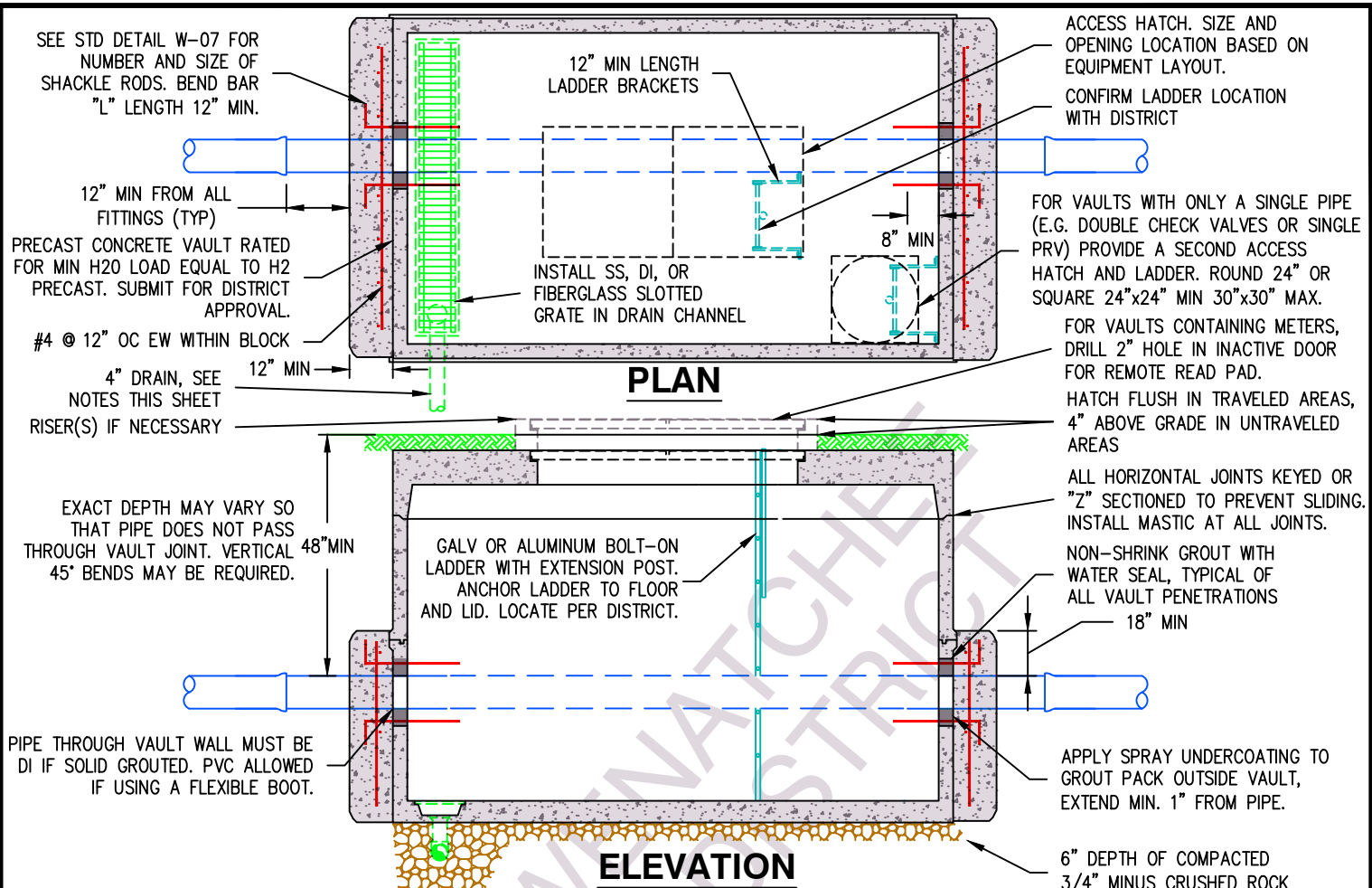
1½" AND 2" WATER SERVICE

FILENAME: EWD TW23

REVISED: JUL 21, 2025

DRAWING No. W-18

SHEET No. 19

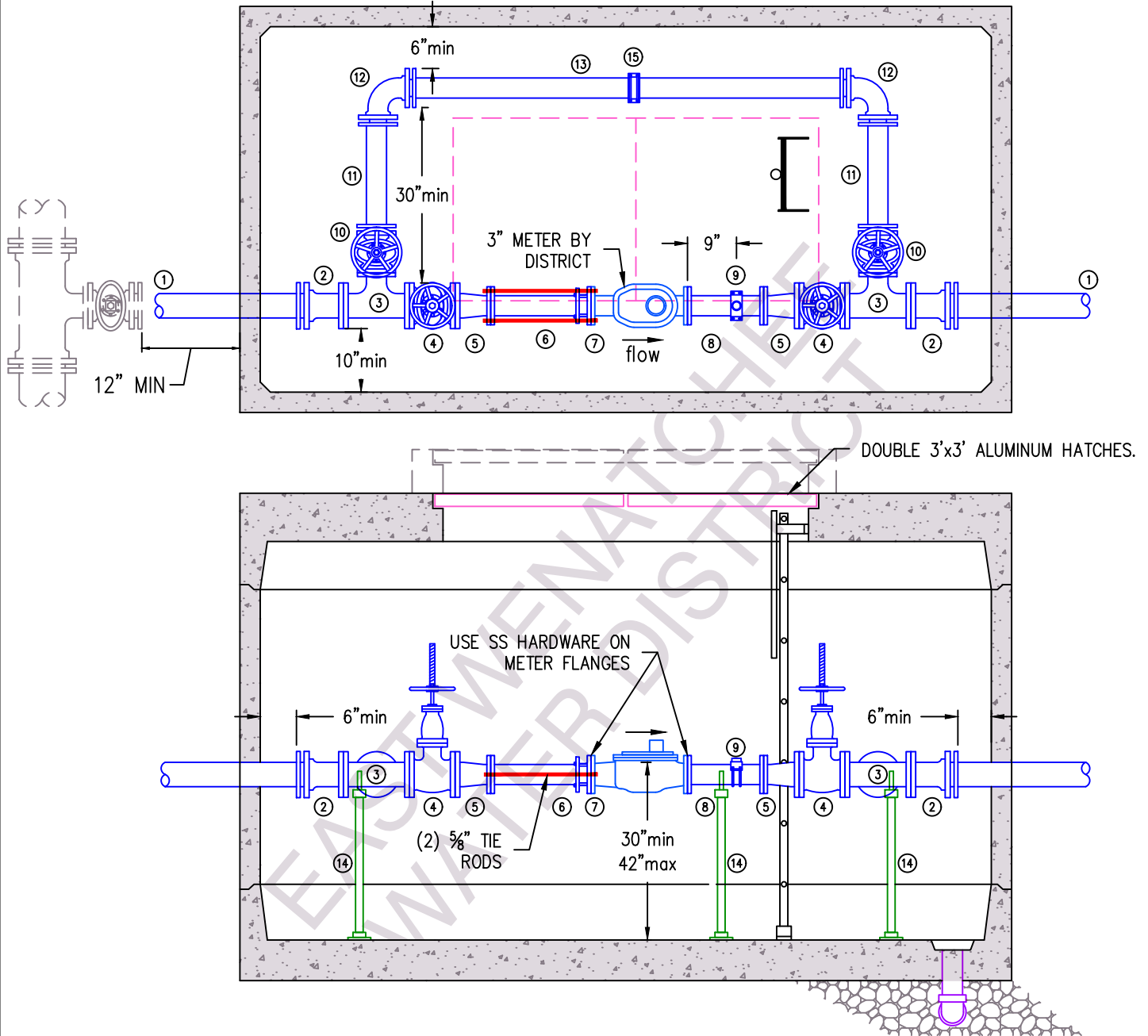


1. INSTALL PIPE CONTINUOUS THROUGH THE VAULT TO ENSURE ALIGNMENT. MORE THAN ONE STICK MAY BE NEEDED FOR LONG VAULTS, IN WHICH CASE LOCATE BELL APPROXIMATELY AT CENTER OF VAULT.
2. EXTERNAL CONCRETE BLOCKING SHALL BE INSTALLED AT THE DISCRETION OF THE DISTRICT. INSTALL BLOCKS BEFORE INTERNAL PIPING IS 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), H2O 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 H2O 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. CHANNEL TOP EDGE NOTCHED SO GRATE SITS FLUSH WITH THE FLOOR.
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. CAST-IN-PLACE VAULTS ARE NOT ALLOWED.
9. ALL VAULTS MUST BE SUBMITTED TO THE DISTRICT FOR REVIEW. SUBMITTALS MUST INCLUDE DIMENSIONS, HATCH LAYOUT, AND HATCH MATERIALS.
10. INSTALL A LADDER EXTENSION POST ON ALL LADDERS. POST TO BE SPRING ASSIST; ALUMINUM, SS, OR POWDER COATED STEEL. POST MUST LOCK IN THE EXTENDED POSITION WITH A LEVER RELEASE. POSTS THAT TURN TO LOCK ARE NOT ACCEPTABLE. BILCO, BABCOCK-DAVIS BSP, OR APPROVED EQUAL.

- 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 RATED 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.
9. ALL VALVES SHALL BE RISING-STEM VALVES.



East Wenatchee Water District

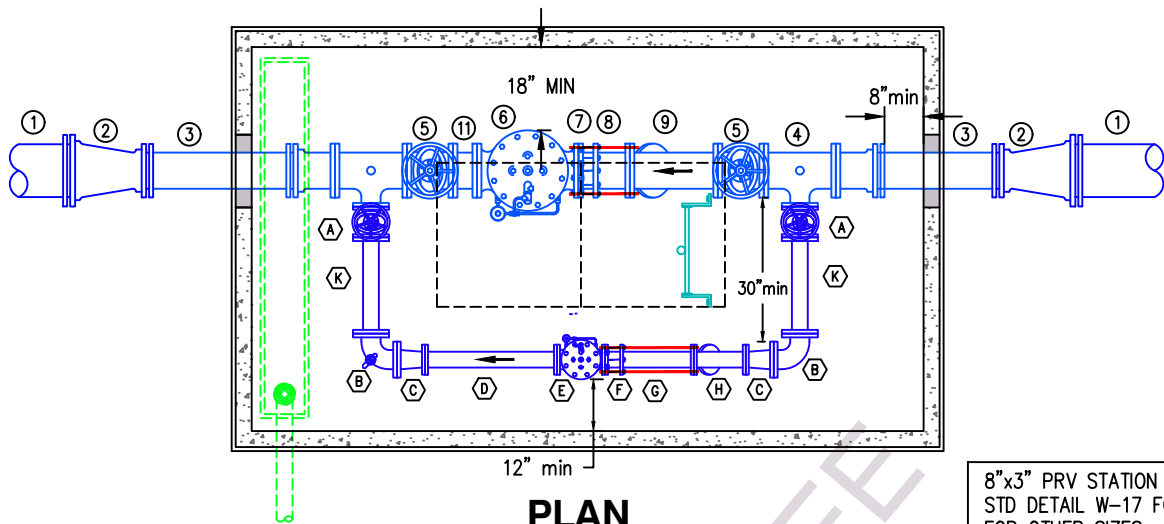
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3" METER ASSEMBLY

FILENAME: EWDTW25
REVISED: MAR 30, 2023

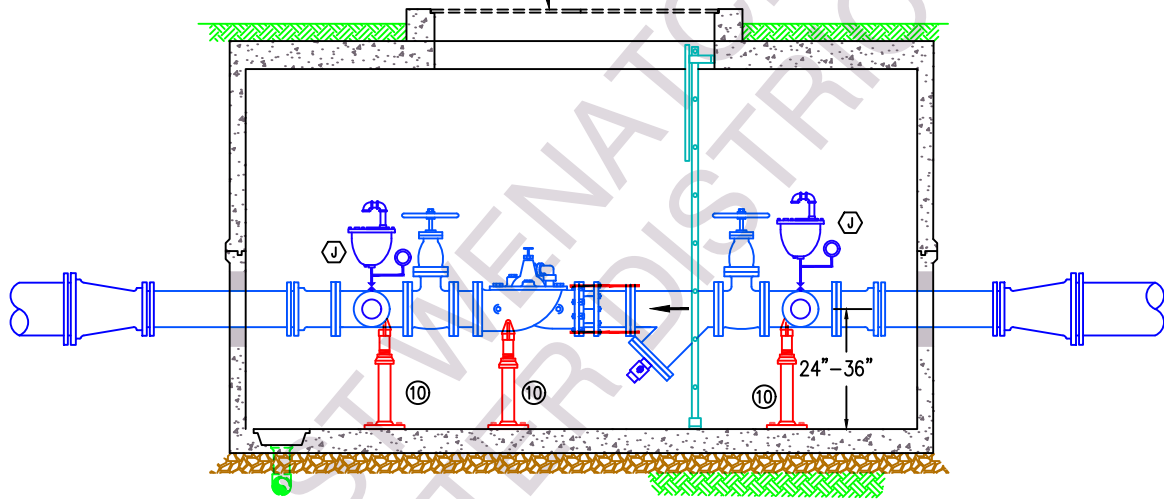
DRAWING No. W-20
SHEET No. 21



PLAN

DOUBLE 3'x3' CLEAR ACCESS HATCH EQUAL TO LW HATCH, OR SUBMIT ALTERNATE VAULT TOP AND HATCH(ES) TO DISTRICT FOR APPROVAL. SEE HATCH NOTES ON DETAIL W-26.

8"x3" PRV STATION SHOWN. SEE STD DETAIL W-17 FOR CALLOUTS FOR OTHER SIZES.
SEE DETAIL W-26 FOR VAULT AND INSTALLATION REQUIREMENTS



ELEVATION

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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.



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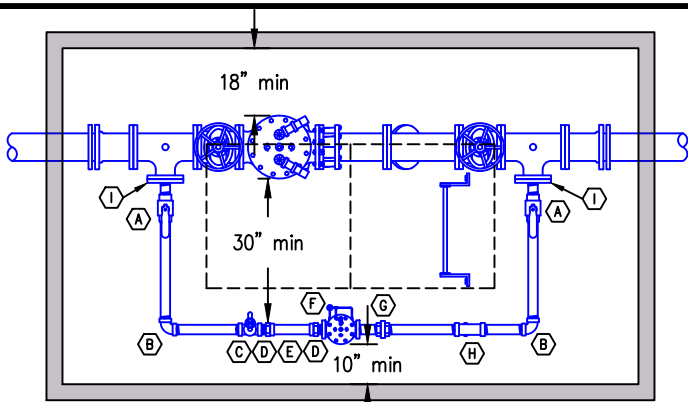
PRESSURE REDUCING STATION

FILENAME: EWDTW24

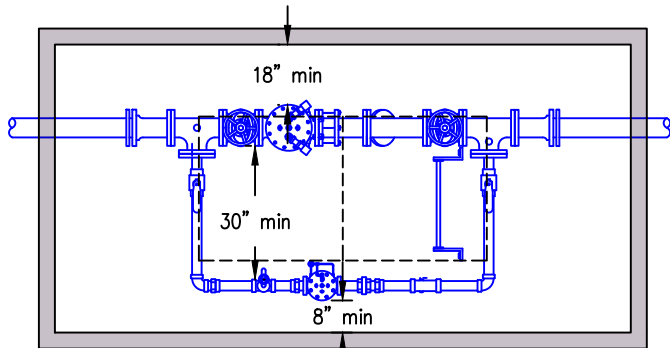
REVISED: MAY 5, 2021

DRAWING No. W-19

SHEET No. 23



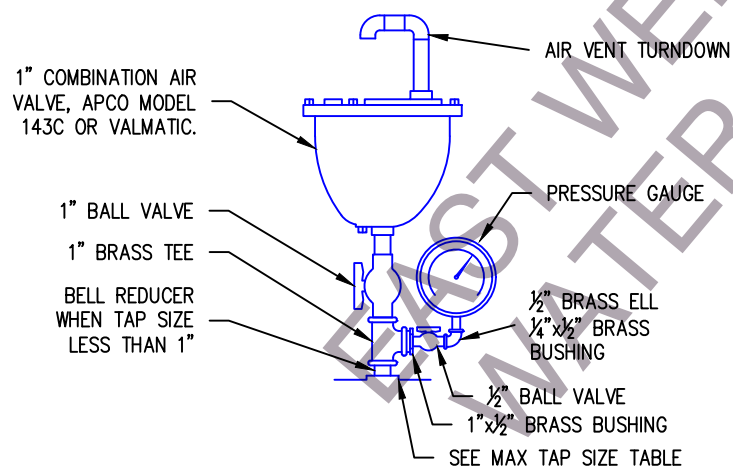
6"x2" PRV STATION



4"x2" PRV STATION

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 POLYIMIDE 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



GAUGE & AIR VALVE

- 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) | (G) 2" BRASS UNION |
| (B) 2" BRASS 90° BEND (THREADED) | (H) STRAINER (THREADED) EQUAL TO WATTS 777S AND BRONZE BALL VALVE FOR BLOW OUT |
| (C) 2" BRASS TEE (THREADED)
¾" HOSE BIB | (I) 4" DI BLIND FLANGE w/2" TAP |
| (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. | |

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



East Wenatchee Water District
WATER SYSTEM STANDARD DETAIL

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PRESSURE REDUCING STATION DETAILS

FILENAME: EWD TW5
REVISED: MAY 2, 2018

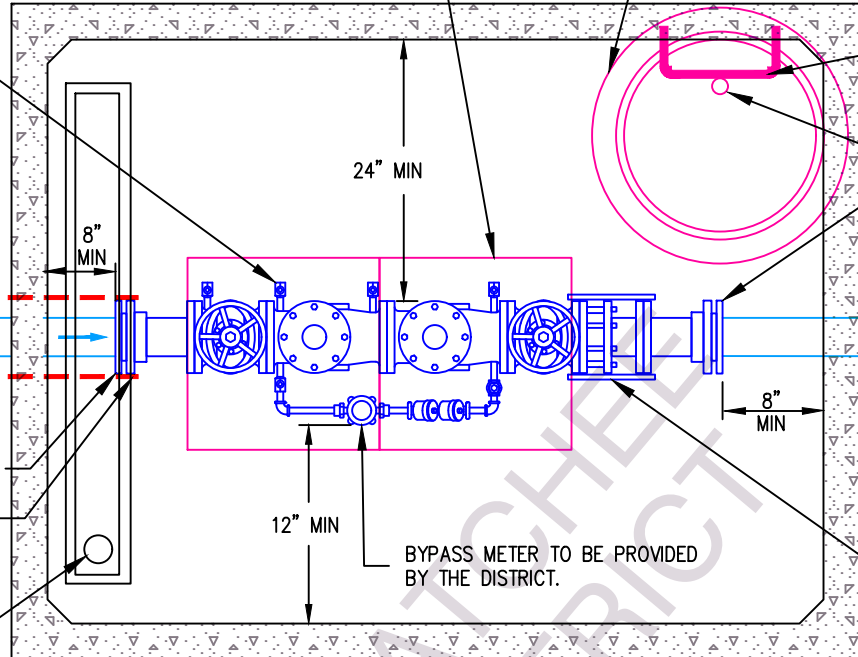
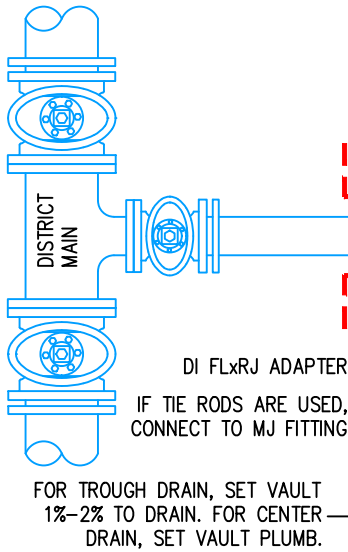
DRAWING No. W-17
SHEET No. 24

4" DOUBLE CHECK SHOWN WITH 687 VAULT

ACCESS HATCH(ES) SIZED TO ALLOW REMOVAL OF CHECK ASSEMBLY. MINIMUM SIZE OF 2'x4'. SEE DETAIL W-26.

PERSONNEL ACCESS: 24" DIA. RING AND SOLID COVER MARKED "WATER". ALTERNATE 24" OR 30" SQUARE HATCH. ALTERNATIVE ACCESS LAYOUTS MUST BE APPROVED BY THE DISTRICT.

TEST COCKS SHALL FACE UP OR TO THE ACCESSIBLE SIDE OF THE ASSEMBLY.



PROVIDE AND INSTALL BOLT ON LADDER OR MANHOLE STEPS.
"LADDER-UP" SAFETY EXTENSION
DI FLxRJ ADAPTER
PRIVATE FIRE SYSTEM INSTALLED BY LEVEL "U" CONTRACTOR

ROMAC DJ400 DISMANTLING JOINT OR APPROVED EQUAL

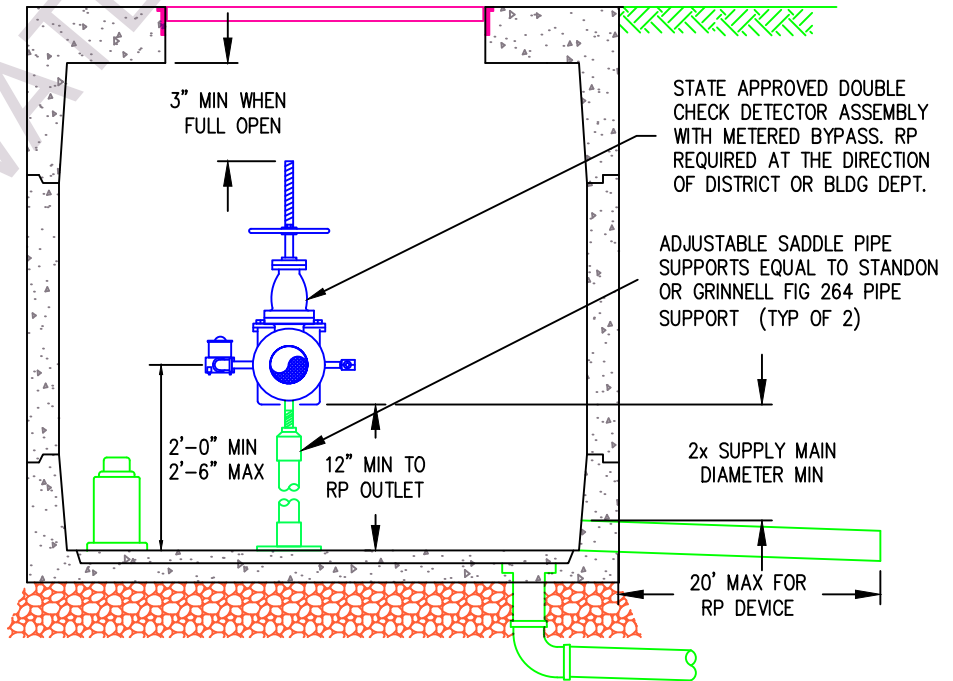
R.O.W. PRIVATE

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.
11. IF THE ASSEMBLY IS ON A FIRE LINE THE VALVES ARE REQUIRED TO BE RISING-STEM VALVES.

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'
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

- 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.



East Wenatchee Water District

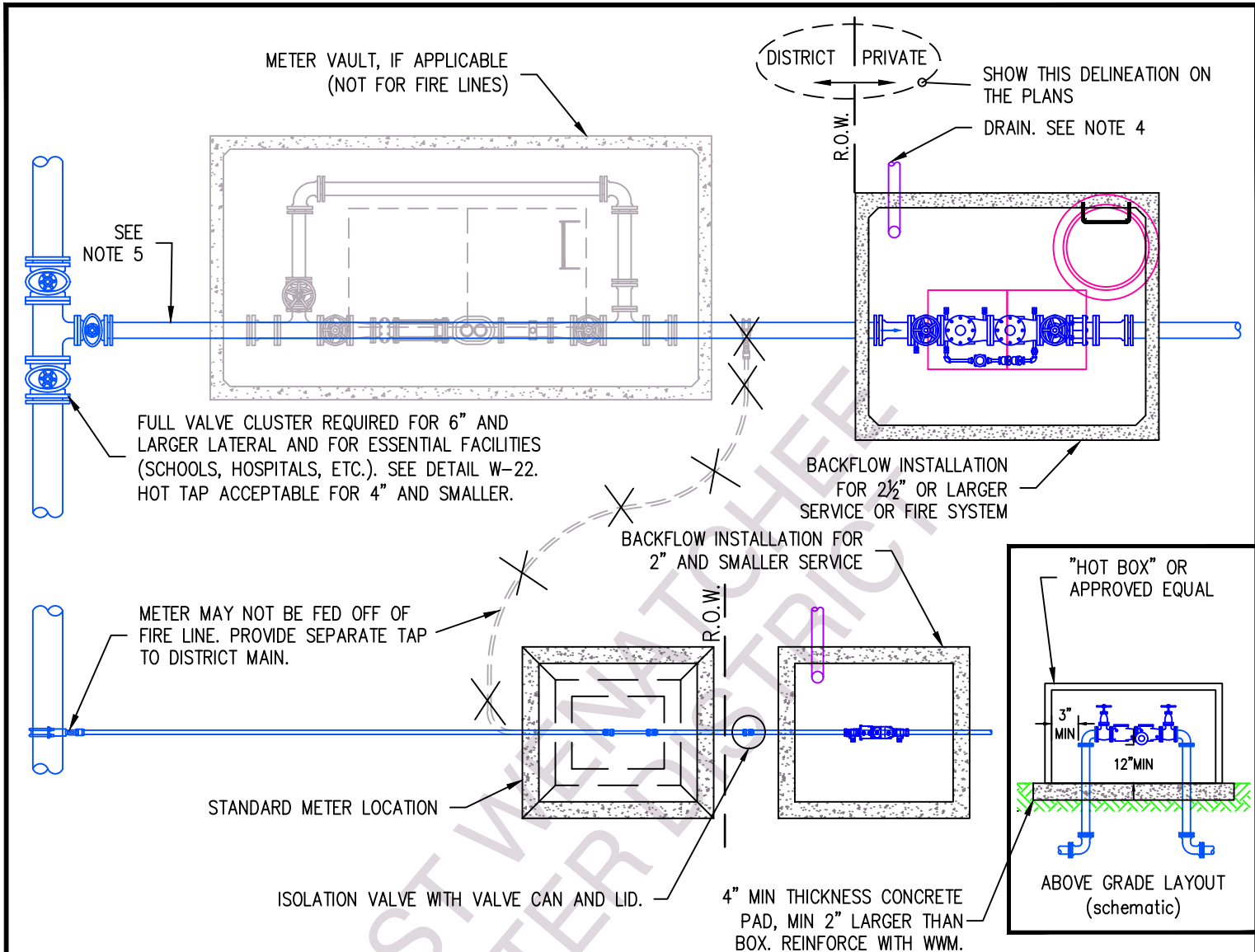
WATER SYSTEM STANDARD DETAIL

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BACKFLOW PREVENTION ASSEMBLY

FILENAME: EWD TW4
REVISED: MAR 30, 2023

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 REQUIRED FOR RPBA ASSEMBLIES UNLESS AN ALTERNATIVE DESIGN IS APPROVED BY THE DISTRICT. "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

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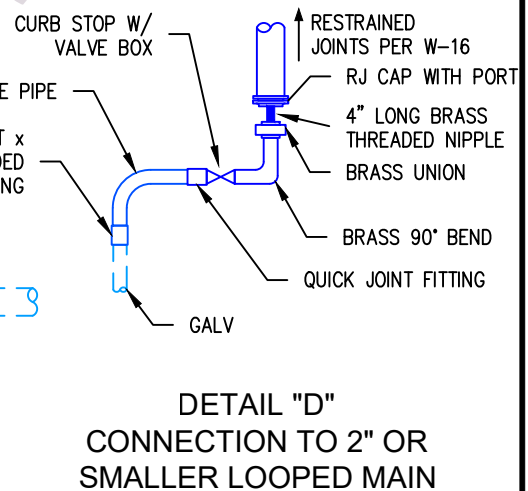
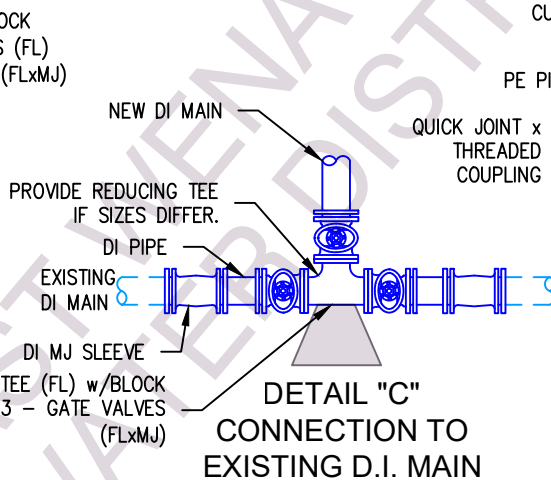
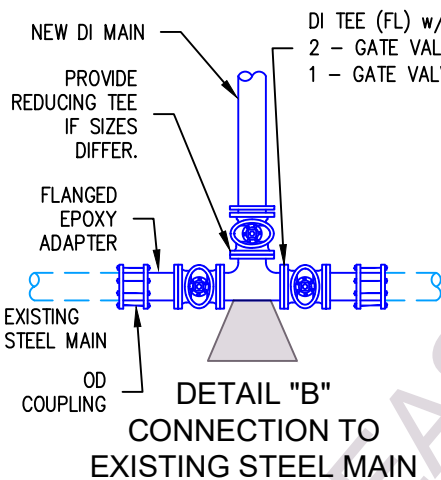
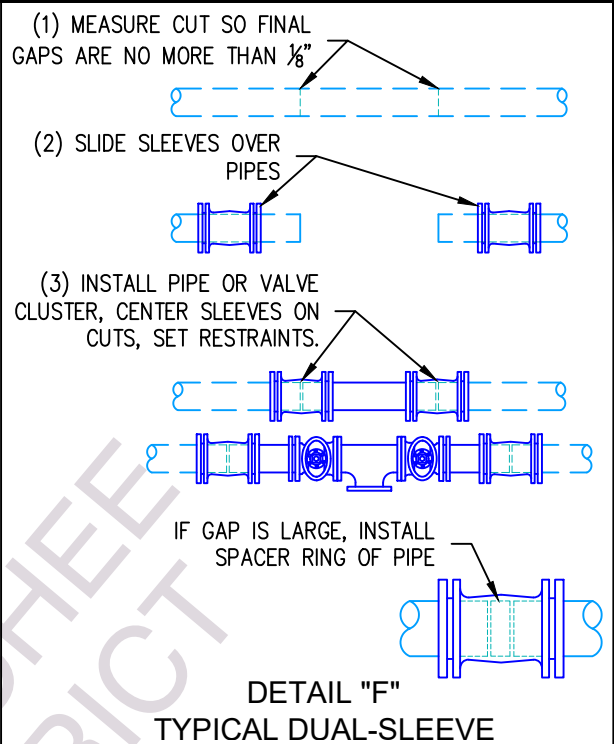
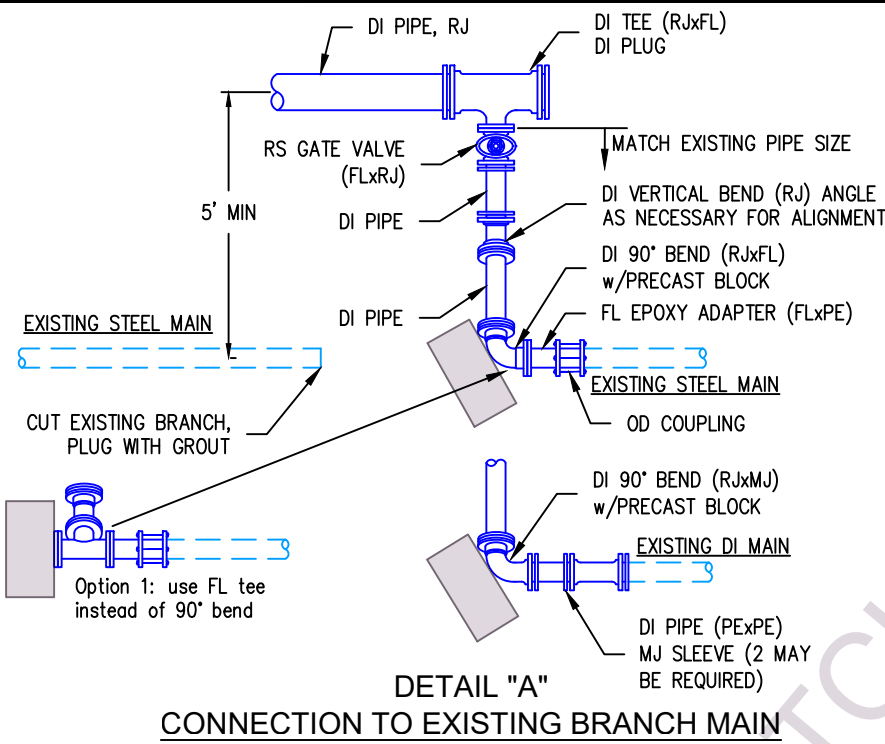
BACKFLOW ASSEMBLY INSTALLATION

FILENAME: EWDTW10

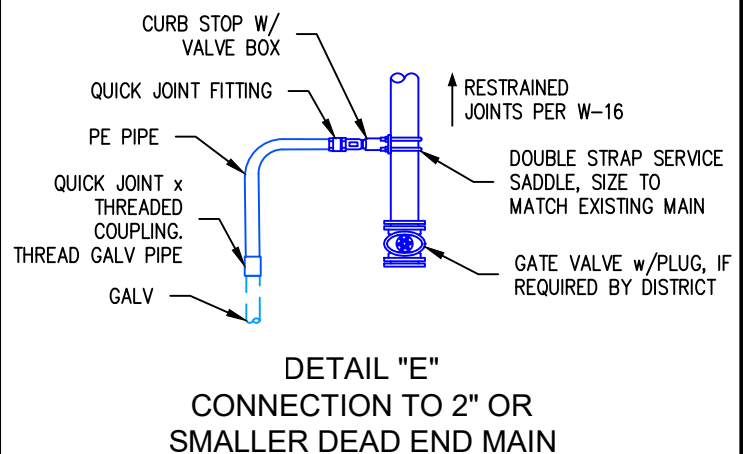
REVISED: MAR 30, 2023

DRAWING No. W-25

SHEET No. 26



- DISTRICT WILL SELECT WHICH DETAIL TO USE AT EACH CONNECTION.
- OD COUPLINGS 3" DIAMETER AND LARGER: ROMAC 501, 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 1/2" OCCURS.
- RJ = RESTRAINED JOINT: MEGALUGS, FIELD-LOK GASKETS OR DISTRICT APPROVED EQUAL. SEE STANDARD DETAIL W-16.
- PRE-PRESSURE TEST TEE/CROSS/VALVE ASSEMBLIES BEFORE CUTTING INTO EXISTING MAINS.
- FLANGED EPOXY ADAPTER IS A FLxPE STEEL SPOOL.
 - NOMINAL O.D. SIZE STEEL PIPE (e.g. 6" = 6.0" O.D.) WITH 3/16" MIN. WALL THICKNESS.
 - FULLY COATED WITH EPOXY OR POWDER COATING, NSF61 CERTIFIED.
 - FLANGE PER AWWA C207 CLASS D, MINIMUM THICKNESS OF:
 - 4" DIAMETER AND LESS: 0.625" THICK.
 - 6" TO 10" DIAMETER: 0.688" THICK.
 - 12" DIAMETER: 0.812" THICK.



East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

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CONNECTIONS TO EXISTING MAINS

FILENAME: EWD TW28
 REVISED: JUN 11, 2025

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

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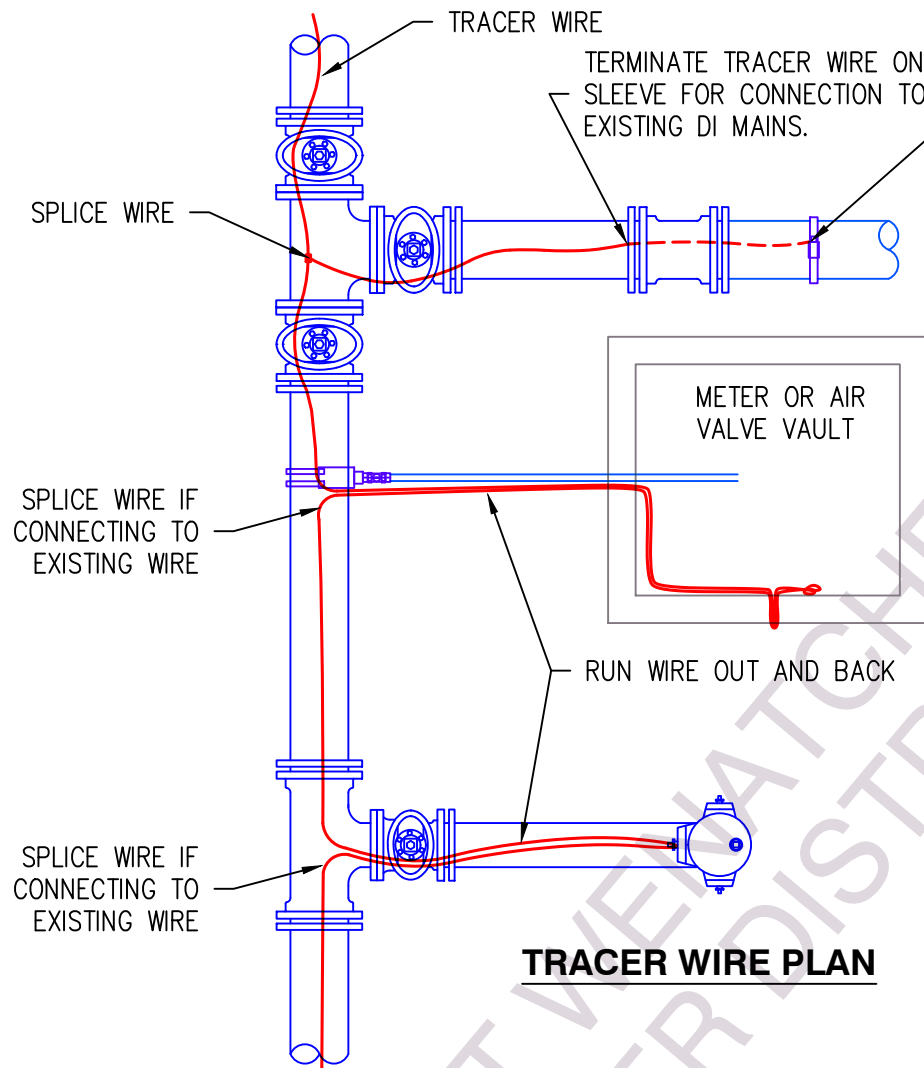
ABANDONMENT AND REMOVAL OF TERMINATED FACILITIES

FILENAME: EWD TW29

REVISED: JAN 7, 2020

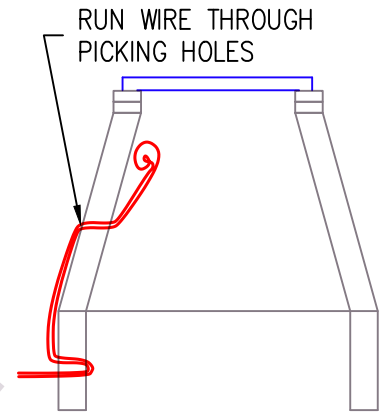
DRAWING No. W-15

SHEET No. 28

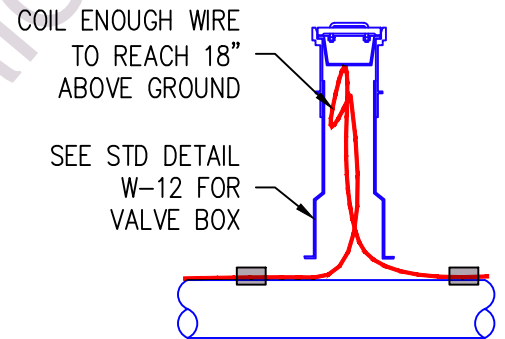


TRACER WIRE PLAN

TERMINATE TRACER WIRE ON SS BAND FOR CONNECTION TO EXISTING STEEL MAINS. STRIP PIPE COATING FOR GOOD CONTACT.

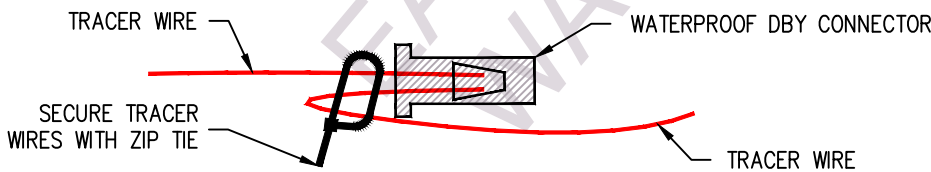


VAULT SIDE VIEW

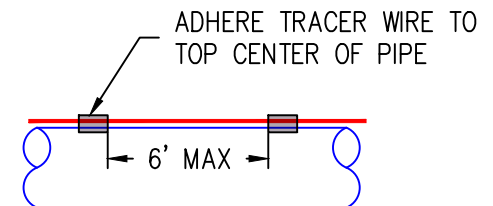


INLINE ACCESS

SEE NOTE 4



SPLICE DETAIL



TRACER WIRE ON PIPE

1. INSTALL TRACER WIRE ON ALL WATERMANS, 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

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TRACER WIRE

FILENAME: EWDTW31

REVISED: DEC 21, 2021

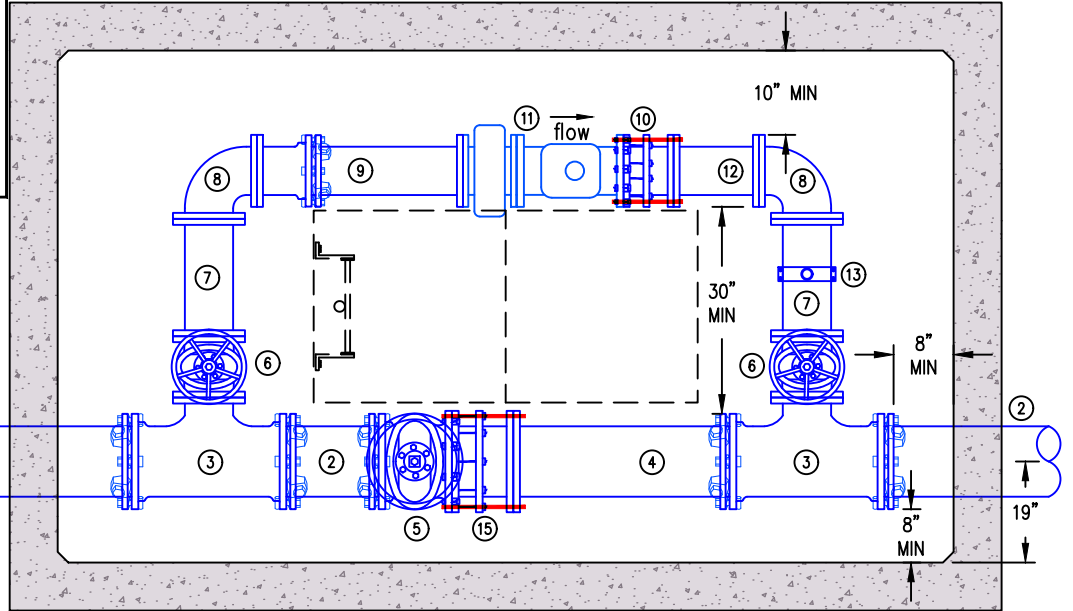
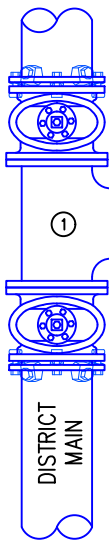
DRAWING No. W-31

SHEET No. 29

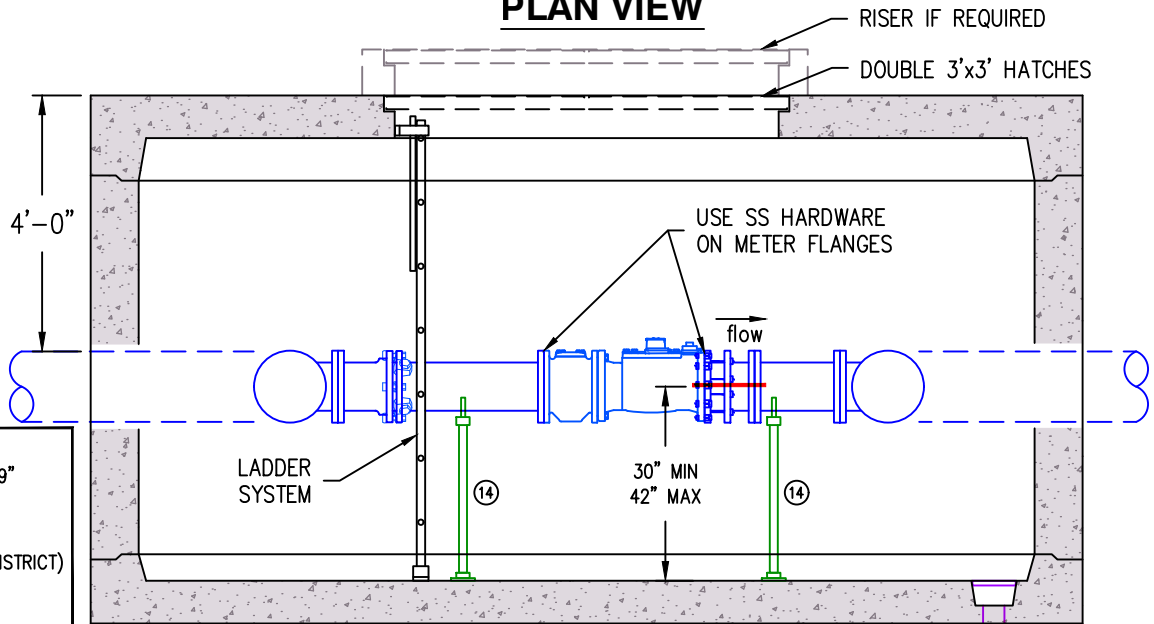
PARTS LIST

1. TEE/VALVE CLUSTER. SIZE AND NUMBER OF VALVES AS DETERMINED BY DISTRICT.
2. 12" DI PIPE, LTF
3. (2) 12"x8" DI TEE (RjxFL)
4. (1) 12" DI SPOOL (FLxPE), APPROX 48" LENGTH
5. (1) 12" GATE VALVE (FLxRj) W/HANDWHEEL
6. (2) 8" GATE VALVE (FLxFL) W/HANDWHEEL
7. (2) 8" DI SPOOL (FLxFL) 22" LENGTH
8. (2) 8" DI 90° BEND (FLxFL)
9. (1) 8" DI SPOOL (FLxPE) APPROX 36" LENGTH
10. (1) 8" ROMAC DJ400 CLS E DISMANTLING JOINT, EPOXY COATED
11. (1) FLOW METER (PROVIDED BY DISTRICT)
12. (1) 8" DI SPOOL (FLxFL) 16" LENGTH
13. (1) 8"x2" DOUBLE STRAP SADDLE w/2" PLUG
14. (2) 8" AND (2) 12" ADJUSTABLE SADDLE-TYPE PIPE SUPPORTS
15. (1) 12" ROMAC DJ400 CLS E DISMANTLING JOINT, EPOXY COATED

- A. VAULT MINIMUM INSIDE DIMENSIONS OF 14'Lx8'Wx6.5'H. SEE DETAIL W-26 FOR ADDITIONAL VAULT INSTALLATION DETAILS.
- B. RESTRAIN ALL MECHANICAL JOINTS PER DETAIL W-16.
- C. RESTRAIN ALL JOINTS BETWEEN THE WATERMAIN AND THE METER ASSEMBLY. RESTRAIN ALL JOINTS ON THE DOWNSTREAM (CUSTOMER) SIDE OF THE METER FOR NO LESS THAN 150 FEET PAST THE VAULT UNLESS OTHER DISTRICT APPROVED THRUST CANCELLATION IS PROVIDED.
- D. USE ONE FULL STICK OF PIPE THROUGH THE VAULT TO INSURE ALIGNMENT. CUT OUT FOR INSTALLATION OF ASSEMBLY.
- E. SENSUS OMNI C2 METER (INCLUDING STRAINER) PROVIDED BY DISTRICT:
 - 6" RATED CAPACITY = 2,000 gpm x 80% = 1,600 gpm, WEIGHT 130 lbs, LENGTH 24".
 - 8" RATED CAPACITY = 2,700 gpm x 80% = 2,160 gpm, WEIGHT 470 lbs, LENGTH 30".



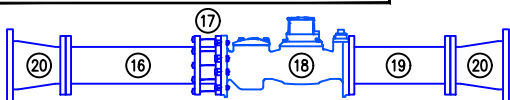
PLAN VIEW



ELEVATION VIEW

6" METER ALTERNATE PARTS

16. (1) 6" DI SPOOL (FLxPE), APPROX 29" LENGTH
17. 6" FLANGED COUPLING ADAPTER
18. (1) 6" FLOW METER (PROVIDED BY DISTRICT)
19. (1) 6" DI SPOOL (FLxFL) 18" LENGTH
20. (2) 8"x6" DI REDUCER (FLxFL)



6" METER FITTINGS



East Wenatchee Water District
WATER SYSTEM STANDARD DETAIL

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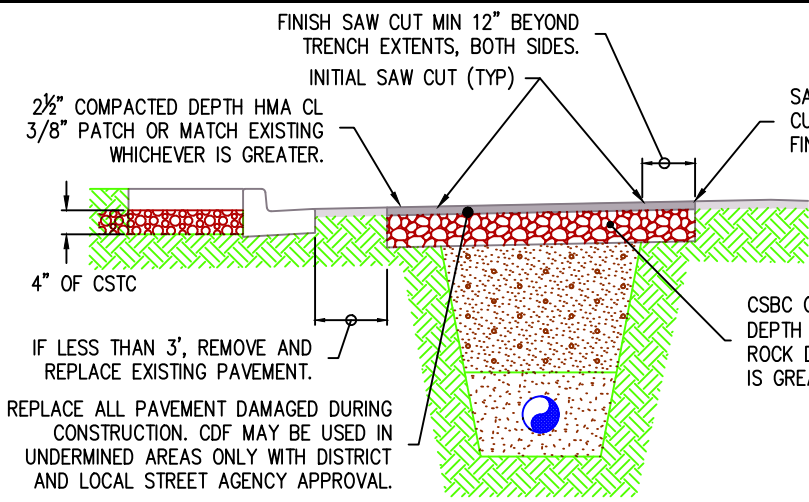
6" & 8" METER ASSEMBLY

FILENAME: EWD TW33

REVISED: FEB 6, 2024

DRAWING No. W-33

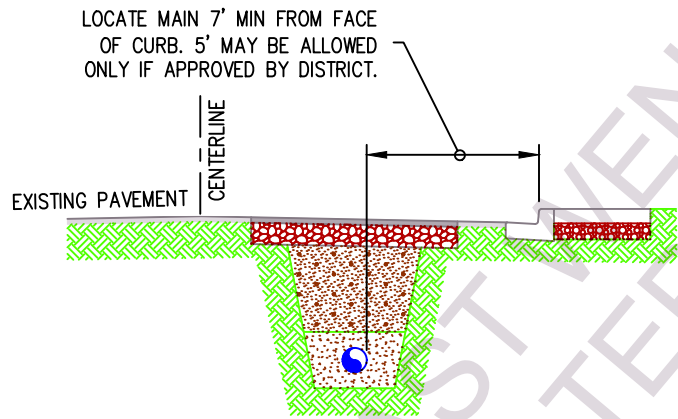
SHEET No. 30



1. CITY OR COUNTY RESTORATION STANDARDS SHALL GOVERN IF MORE STRINGENT THAN SHOWN HERE.
2. PLACE A CRUSHED SURFACING TEMPORARY PATCH OVER TRENCH AT THE END OF EACH WORKING DAY SO THAT TRAFFIC IS NOT AFFECTED.
3. RESTORE INTERSECTIONS AND ROAD CROSSINGS BY THE END OF THE DAY EITHER WITH PERMANENT PATCH OR TEMPORARY COLD MIX.
4. NO TRENCH IN PAVED AREAS SHALL BE LEFT UNPAVED FOR MORE THAN 12 CALENDAR DAYS OR BY THE SECOND FRIDAY, WHICHEVER COMES FIRST.
5. RESTORE DISTURBED SHOULDERS WITH 6" OF CRUSHED SURFACING BASE COURSE.
6. RESTORE DITCHES, CURBS, SIDEWALKS, AND ALL OTHER EXISTING IMPROVEMENTS DISTURBED DURING CONSTRUCTION TO ORIGINAL CONDITION.

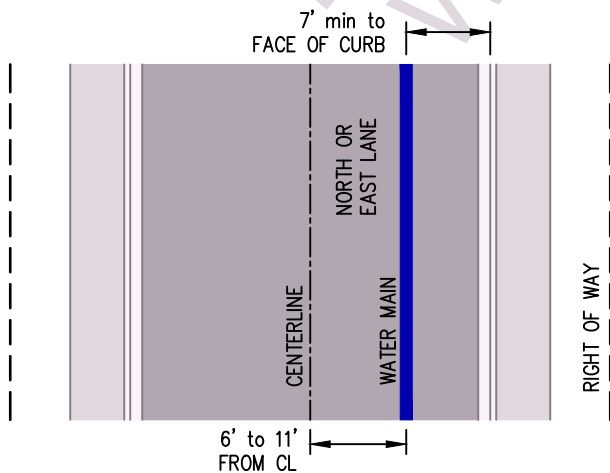
MINIMUM PAVEMENT RESTORATION REQUIREMENTS

USE ONLY IF PROJECT SPECIFIC RESTORATION DETAILS ARE NOT PROVIDED.

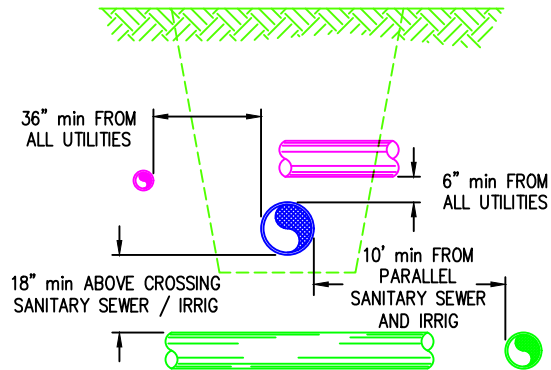


1. INSTALL MAINS TO WITHIN 6-INCHES HORIZONTAL AND 2-INCHES VERTICAL OF THE APPROVED PLAN ALIGNMENT. VARIATIONS MUST BE APPROVED BY THE DISTRICT.
2. RECORD ANY VARIATIONS ON THE AS-BUILT PLANS.

TRENCH IN ROADWAY SECTION



TYPICAL PLAN LOCATION



CLEARANCE SECTION

1. IF 18" VERTICAL CLEARANCE IS AVAILABLE ABOVE PARALLEL SEWER/IRRIG, SEPARATION MAY BE REDUCED TO 5 FT HORIZONTAL, WALL TO WALL, BUT ONLY IF APPROVED BY THE DISTRICT.
2. 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.
3. SEE W-32 FOR PIPE CASING DETAIL.



East Wenatchee Water District

WATER SYSTEM STANDARD DETAIL

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WATER MAIN LOCATION TRENCH RESTORATION

FILENAME: EWD TW34
REVISED: OCT 7, 2025

DRAWING No. W-34
SHEET No. 31