

1. CONSTRUCTION OF IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE MOST CURRENT VERSIONS OF THE FOLLOWING:

- EAST WENATCHEE WATER DISTRICT DEVELOPER EXTENSION AGREEMENT (when applicable).
- EAST WENATCHEE WATER DISTRICT STANDARD DETAILS (INCLUDING REVISIONS AFTER PLAN APPROVAL).
- EAST WENATCHEE WATER DISTRICT SERVICE POLICIES AND CONSTRUCTION STANDARDS.
- WA STATE DEPT. OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION.

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

3. ONLY FORD, MCDONALD AND MUELLER PRODUCTS ARE APPROVED FOR USE AS SERVICE BRASS, EXCEPT WHERE OTHERWISE NOTED IN THESE STANDARD 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 FOR VERTICAL BENDS, WHERE BLOCKING IS INEFFECTIVE OR NOT PRACTICAL, AND ARE REQUIRED FOR MAINS THAT WILL BE EXTENDED.

12. A SANITARY CAP MUST BE PROVIDED 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.

- PRESSURE TEST INCLUDES MAINLINE, HYDRANTS, SERVICE LINES, SETTERS, AND CUSTOMER SERVICE SIDE TAILPIPE.
- TEST MAINLINE IN SECTIONS OF NO MORE THAN 1,500 FEET. PRESSURE DROP SHALL NOT EXCEED 5psi IN 60 MINUTES.
- ASSEMBLE AND TEST VALVE CLUSTERS OUTSIDE OF THE TRENCH PRIOR TO INSTALLATION.
- TEST GAUGE RANGE SHALL NOT EXCEED 160% OF TEST PRESSURE (400 psi 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 PRE-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. ALL HDPE PIPE SHALL BE MIN 200psi RATED CTS (Copper Tube Size). ONLY "QUICK-JOINT" OR EQUAL FITTINGS ALLOWED FOR HDPE OR COPPER PIPE CONNECTIONS, NO PACK JOINTS.

CONTINUED ON W-30 . . .

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" (1" OVER 18") 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 36192/3619C (TRAFFIC); 36202/3620C (NONTRAFFIC).

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" TYP 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 OF EXISTING IRRIGATION SYSTEMS DAMAGED DURING CONSTRUCTION MUST USE PRODUCTS OF NO LESSER QUALITY THAN SCH 40 PIPE.

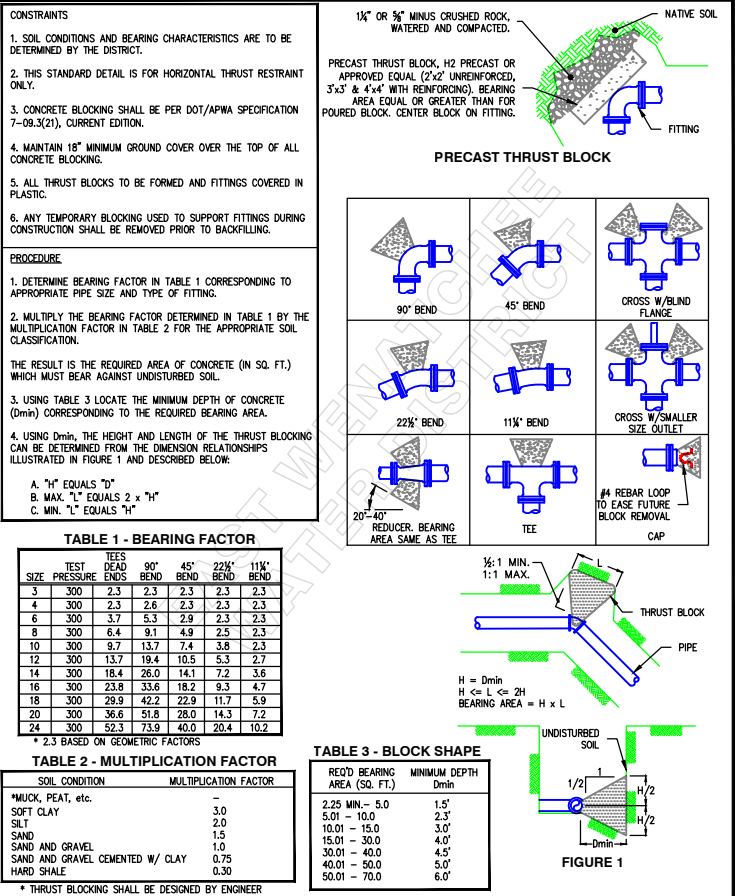
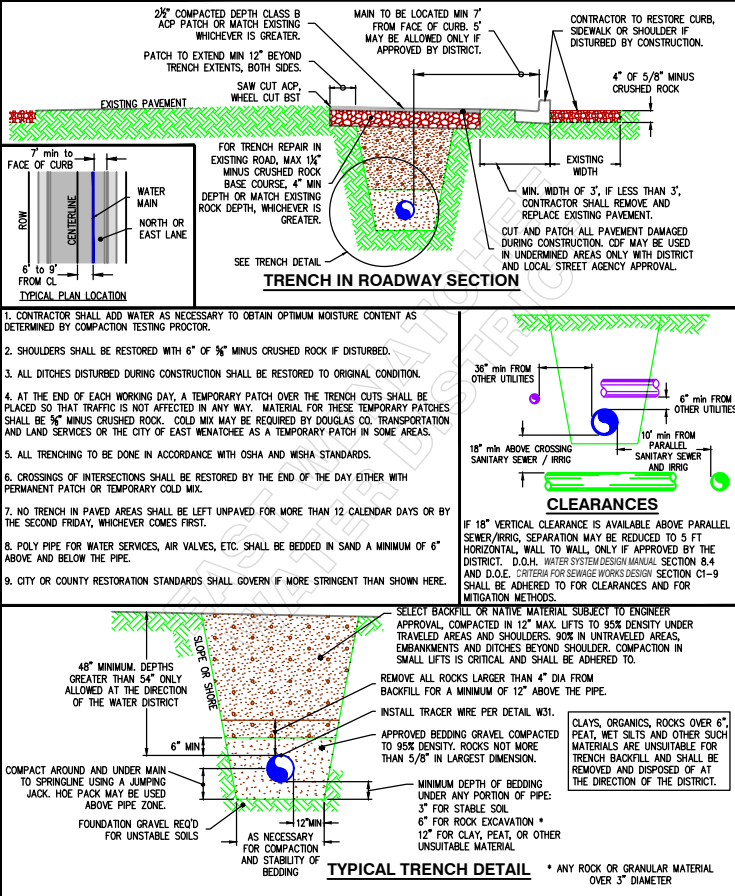
25. CONTRACTOR TO PROVIDE NO LESS THAN 48 HOURS NOR MORE THAN 72 HOURS NOTICE TO THE DISTRICT PRIOR TO ANY REQUESTED SHUTDOWN OR CUSTOMER OUTAGE. DISTRICT WILL PROVIDE NOTICE TO CUSTOMERS 24 HOURS IN ADVANCE OF OUTAGE.

26. RESTRAINTS, GASKETS, OR RESTRAINED PIPES (PORTIONS AFFECTED 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.



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

PIPE SIZE NOM. DIAMETER - INCHES	TEST PRESSURE (PSI)	VERTICAL BEND DEGREES	MINIMUM CONCRETE BLOCKING - CU FT	LENGTH OF SIZE FEET	SHAKLE ROD DIA. INCHES	DEPTH OF ROD IN CONCRETE INCHES	NUMBER OF THE 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	17.8	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	24"	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

PIPE

4 TURNBUCKLES

4 SHAKLE RODS

CONCRETE BLOCKING

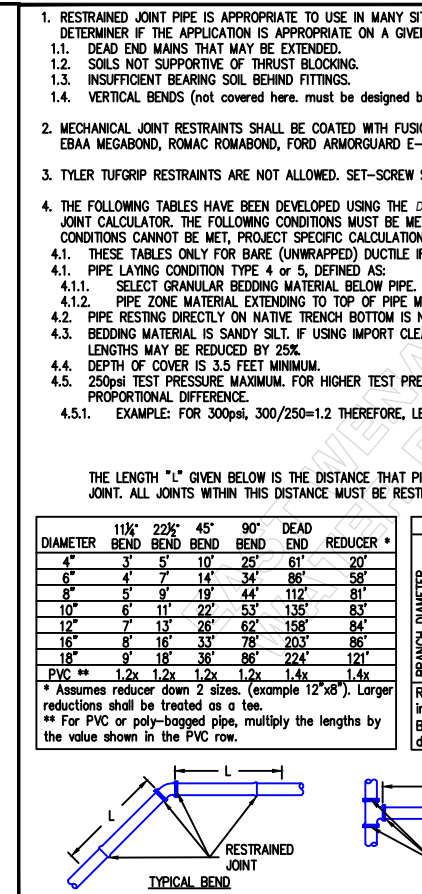
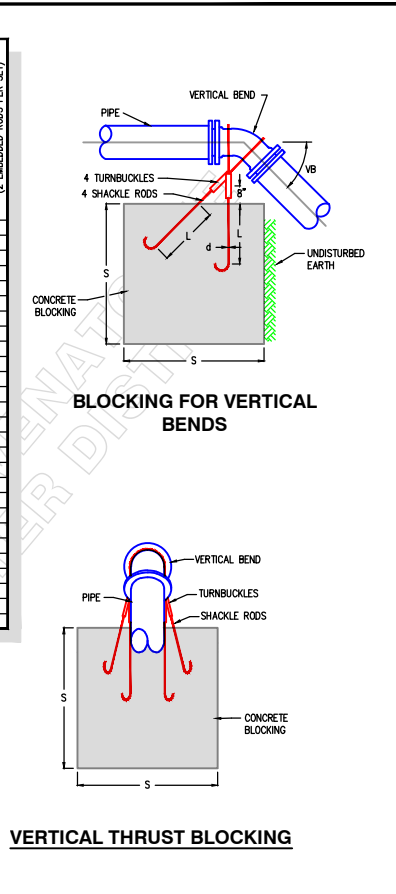
UNDISTURBED EARTH

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. SHAKLE RODS SHALL BE PER W-07.



ASTM A242 (COR-TEN® OR EQUAL) STEEL

NUMBER OF THE RODS PER JOINT	MAXIMUM THE ROD LENGTHS, FEET					
	3"	4"	6"	8"	10"	12"
3	100	100	100	100	100	100
4	100	100	100	100	100	100
6	100	100	100	100	100	100
8	100	100	100	100	100	100
10	100	100	100	100	100	100
12	100	100	100	100	100	100
14	100	100	100	100	100	100
16	100	100	100	100	100	100

304SS OR OTHER STEELS

NUMBER OF THE RODS PER JOINT	MAXIMUM THE ROD LENGTHS, FEET (OR 5/8")					
	3"	4"	6"	8"	10"	12"
3	100	100	100	100	100	100
4	100	100	100	100	100	100
6	100	100	100	100	100	100
8	100	100	100	100	100	100
10	100	100	100	100	100	100
12	100	100	100	100	100	100
14	100	100	100	100	100	100
16	100	100	100	100	100	100

TIE BOLT DETAIL

DOUBLE NUT OR WLOK NUT

WASHER

TIE BOLT

THE ROD 5/8" OR 3/4"

PIPE

SHAKLE PLATE DETAIL

DOUBLE NUT OR WLOK NUT

WASHER

TIE BOLT

THE ROD 5/8" OR 3/4"

SHAKLE PLATE

PIPE

GENERAL NOTES

- THE RODS SHALL BE "ALL THREAD" ROD OF ONE OF THE APPROVED MATERIALS:
 - ASTM A242 (COR-TEN)
 - 304 STAINLESS STEEL
 - ASTM F1552 A307 TYPE 3
 - ASTM A307
 - ASTM A307 OR 508</