

HIGH PRESSURE DISTRIBUTION SYSTEM

HP-1 **GENERAL.** The work performed for the construction of a high pressure water distribution system, including water mains, services, fire hydrants, and all related appurtenances, shall be done in accordance with current SAWS Specifications for Water Works Construction. This Section 12 shall apply solely to the construction of high pressure water systems and shall govern when in conflict with other sections of the SAWS Specifications for Water Works Construction.

1. **High pressure systems.** Each of the water distribution systems that furnish water in Pressure Zone 9 through Pressure Zone 16 shall be designed as a high pressure system. The static water pressure in each of these Service Levels shall be not less than 35 psi nor exceed 175 psi with no fire hydrants in use.
2. **Locations of high pressure levels.** Geographically, the boundaries of Pressure Zones 9 through 16 conform to the surface contour tabulation shown in Table HP-1, **High Pressure Levels.** Most of the area within Pressure Zones 9 through 16 is located north of Loop 1604 between IH 35 North and Bandera Road as delineated on Exhibit S-12.1.2.

HP-2 **MATERIAL AND SUPPLIES.**

1. **General.** Construction materials and supplies shall be furnished in accordance with provisions outlined in the SAWS Material Specifications and as supplemented or revised by conditions noted in this Section.
2. **Pipe Materials.** Ductile Iron, Concrete Steel Cylinder, PVC class 200 (DR14), and Steel pipe shall be used for water main construction in the high pressure Distribution System.

HP-3 **TRENCH EXCAVATION**

1. **General.** All excavation shall be performed in accordance with "Excavations, Trenching and Backfill", Item No. 804.

HP-4 **PIPE LAYING.**

1. **General.** Pipe installation shall be performed in accordance with "Water Main Installation", Item No. 812.

HP-5 **SETTING VALVES, FITTINGS, AND FIRE HYDRANTS.**

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1. General. Valves, fittings, fire hydrants, plugs, and caps shall be set in accordance with Items No. 826, 830, 832, and 836 of these Specifications.
2. Valves. All valves shall be supported on a concrete pad in accordance with Standard Drawings DD-828-01, 828-02, and 828-03.
3. Fire Hydrants. All fittings for fire hydrant installations such as ties, bends, nipples, valves, and hydrants shall have anchored or flange type joints. The bowl of each hydrant and valve shall rest on a concrete pad as shown on Standard Drawing DD-834-01. The main line fire hydrant tee shall be an anchored tee properly blocked.
4. Thrust Blocking. All thrust blocking placed in conjunction with mains and appurtenances constructed in Service Levels 9 through 16 shall be in accordance with Standard Drawings DD-839-01 and DD-839-02. In all cases, the design of thrust blocking shall be of sufficient size to withstand a soil pressure of 3,000 psi unless specified otherwise in the job plans or specifications. The maximum soil pressure value that will be allowed for the design of thrust blocking shall be 5,000 psi. When soil pressure bearing values of 4,000 psi or 5,000 psi are recorded for design of thrust blocks, copies of soil test made for determining the bearing value of the soil in question shall be submitted to the Engineer for verification.

HP-6 TRENCH BACKFILL.

1. General. All backfill material shall be placed in accordance with "Excavation, Trenching, and Backfill", Item No. 804, of these specifications.

HP-7 CLEANUP.

1. General. Cleanup of the area of the construction operations shall be in accordance with these specifications.

HP-8 FLUSHING AND TESTING MAINS.

1. General. All flushing and hydrostatic testing shall be conducted in accordance with "Hydrostatic Testing Operations", Item No. 841, of these specifications, except that the maximum test pressure shall be established at 200 psi.

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HP-9 DISINFECTION OF NEW MAINS UTILIZING MACHINE CHLORINATION.

1. General. Disinfection of new mains by machine chlorination shall be accomplished in accordance with "Disinfection", Item No. 847, of these specifications.

HP-10 DISINFECTION OF NEW MAINS UTILIZING CALCIUM HYPOCHLORITE.

1. General. Disinfection of new mains with calcium hypochlorite shall be accomplished in accordance with "Disinfection", Item No. 847, of these specifications.

HP-11. SERVICE SUPPLY LINES.

1. General. Service lines and fittings, meter boxes, and appurtenances shall be installed in accordance with "Service Supply Line (Water)", Item No. 824, and "Meter and Meter Box Installation", Item No. 833, of these specifications.

2. Service Line Installation. All service lines shall be installed in accordance with SAWS Standard Drawing 824 Series, except that two strap service saddle clamps shall be installed for all tap connections made on water mains located within boundaries of Pressure Zones 9 through 16.

Copper tubing shall be installed for service lines $\frac{3}{4}$ through 2 inches in size.

Ductile iron pipe shall be installed for service lines 4 inches and larger in size.

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TABLE HP-1					
HIGH PRESSURE LEVELS					
Static Gradient Service Level	Maximum Ground Elevation (feet)	Ground Elevation (feet)	Ground Elevation 110 psi (feet)	Ground Elevation 150 psi (feet)	Ground Elevation 175 psi (feet)
9	1,125	1,000	870	780	720
10	1,290	1,160	1,040	940	880
11	1,400	1,270	1,150	1,050	1,000
12	1,520	1,390	1,270	1,170	1,120
14	1,630	1,500	1,380	1,280	1,230
15	1,860	1,730	1,600	1,510	1,460
16	1,990	1,860	1,740	1,640	1,590