

SECTION 33 13 10
HYDROSTATIC TESTS

PART 1 - GENERAL

1.1 DESCRIPTION

This item shall consist of the hydrostatic testing of all waterlines, fire hydrants, and appurtenances.

1.2 MEASUREMENT AND PAYMENT

Testing of waterlines will not be a measured item. Cost for work herein specified, including the furnishing of all materials, equipment, tools, labor and incidentals necessary to complete the work, shall be included in the unit price bid for waterlines in the Proposal.

TABLE A
 Loss in Gallons Per Hour Per Foot of Pipe

Length	4"	6"	8"	10"	12"	18"	20"	24"
50	.04	.06	.08	.10	.12	.18	.195	.235
100	.08	.12	.16	.195	.235	.355	.395	.475
200	.16	.235	.315	.395	.475	.71	.785	.945
300	.235	.355	.475	.59	.71	1.065	1.185	1.42
400	.315	.475	.63	.785	.945	1.42	1.58	1.89
500	.395	.59	.785	.985	1.185	1.775	1.975	2.365
600	.475	.71	.945	1.185	1.42	2.13	2.365	2.84
700	.555	.83	1.105	1.38	1.655	2.485	2.76	3.31
800	.63	.945	1.265	1.58	1.895	2.84	3.155	3.785
900	.71	1.065	1.42	1.775	2.13	3.195	3.55	4.26
1000	.79	1.185	1.58	1.975	2.365	3.55	3.945	4.735

Calculations Based on a Loss of 25 Gal./Diameter inch of Pipe/Mile of Pipe/Day

PART 2 – PRODUCTS

2.1 MATERIALS

A. **EQUIPMENT PROVIDED BY CONTRACTOR**

The contractor shall furnish pump, pipe connections and all necessary apparatus (including gauges and meters) to hydrostatically test the water lines according to this specification.

B. **WATER FOR TESTING**

Water for testing will be furnished by the City. All connections of new pipeline must be isolated from existing potable water lines until a negative coliform test report from the County Health Department or TCEQ approved lab has been received.

PART 3 – EXECUTION

3.1 GENERAL

- A. All water mains including water services shall be hydrostatically tested and sterilized according to SECTION 33 13 00 - DISINFECTION OF WATERLINES, prior to acceptance by the City.
- B. This section specifies hydrostatic testing of water distribution lines. The contractor shall test waterlines after backfilling, but before replacement of pavement (if applicable.)
- C. Test waterlines in sections, by pressurizing the new system to 150 psi and holding that pressure for a total test time of 4 hours.

3.2 PRESSURIZATION

- A. Each valved section of pipe shall be filled with water slowly. The test pressure, based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the City Engineer.

3.3 AIR REMOVAL

- A. Before applying the specified test pressure, air shall be expelled completely from the pipe, valves and hydrants. If permanent air vents are not located at all high points, the Contractor shall install corporation cocks at such points so that the air can be expelled as the line is filled with water. After all the air has been expelled, the corporation stops shall be closed and the test pressure applied twenty-four (24) hours after filling the line.
- B. At the conclusion of the pressure test, the corporation stops shall be removed and plugged, or left in place at the discretion of the City Engineer. Any added corporation cocks must be shown on as-built plans if they are to remain in place.

3.4 EXAMINATION

- A. All exposed pipe, fittings, valves, hydrants and joints shall be examined carefully during the test. Any damage or defective pipe, fittings, valves or hydrants that are discovered following the test shall be repaired or replaced with sound material and the test shall be repeated until it is satisfactory to the City Engineer.
 - 1. Allowable Pressure Loss
 - a.) For DIP and PVC

No pipe installation will be accepted if the water loss is greater than that shown in Table A. No additional leakage will be included for fittings.
 - b.) When hydrants are in the test section, the test shall be made against the closed hydrant and not the valve on the lead.
 - 2. Acceptance of Installation
 - a.) Acceptance shall be determined on the basis of allowable pressure loss. If any test of pipe discloses a pressure loss greater than that specified, the Contractor shall, at his own expense, locate and repair the defective material until the pressure loss is within the specified allowance.
 - b.) All visible leaks are to be repaired, regardless of the amount of pressure loss.

END OF SECTION