

**DIVISION 17****FORCEMAINS**17.01 Description:

The work shall consist of constructing a forcemain of the type and size and at the depths as shown on the plans, including the furnishing of all labor, equipment, and materials.

17.02 Materials:

Materials to be furnished by the contractor shall meet the following requirements:

17.02.01 Ductile Iron Pipe

Ductile iron pipe shall meet or surpass ANSI A21.51 as modified below:

All pipe shall be centrifugally cast and enameled with cement mortar on the inside (AWWA C104). The exterior and interior shall also be coated with a bituminous sealcoat. The pipe, unless otherwise specified, shall be “Tyton,” “Belltite” or “Super Belltite” slip type coupled (AWWA C111).

Unless otherwise specified, pipe shall be furnished as Class 53.

17.02.02 Cast Iron Fittings

All fittings shall be cast iron watermain fittings and shall be mechanical joint and conform to ANSI-A21.11 or AWWA C111. They shall be bituminous coated as per ANSI 10-8.3.

17.03 Construction Methods:17.03.01 Pipe Laying – All pipe shall be placed in accordance with Section 15.04.04.17.03.02 Anchorage of Bends, Tees and Plugs

On all forcemain work, whenever necessary, all bends, tees, plugs and other fittings shall be securely rodded. Blocking against the trench bottom and walls by the use of concrete foundations, concrete encasements, thrust blocks as per Standard Detail, or other approved supports, may also be required.

The cost of providing the concrete foundations, thrust blocks and other supports or anchorages and for all work in connection therewith and incidental thereto shall be incidental to the price bid for the laying of the pipe and no extra payment will be made.

17.03.03 Pressure Test

The pressure tests shall be subjected to the same requirements of the watermain tests per Section 15, Appendix A.

The test shall be preformed by the City Public Works Department. The cost of the first test will be paid for by the City. If any additional tests are required, they will be at the contractor's expense.

17.04 Method of Measurement:

Force mains will be measured for payment from the discharge bell on the lift station to the inside face of the manhole into which they discharge in linear feet.

17.05 Basis of Payment:

17.05.01 Furnish and Lay Forcemain of the size and class as shown shall be paid for at the contract unit price, which payment shall be payment in full for all trenching, backfilling, ductile iron pipe, jointing materials, concrete blocking, joint anchorage and all other labor, material, and equipment necessary to put the forcemain in service.

17.05.02 Air Relief Valve shall be paid for at the contract unit price shown on the proposal which payment shall be payment in full for all labor, equipment and materials including chambers, valves and couplings.

17.05.03 Furnish and Place Special shall be paid for at the contract unit price shown on the proposal which payment shall be payment in full for all labor, equipment and material necessary to complete the work specified.