

## **CONSTRUCTION SPECIFICATIONS**

**(Same as Sections II, III, IV, V, VI & VII of the General Specifications)**

*Revision Date 07/07/2009*

The following construction related section is intended to apply to ALL new construction, both public and private. For the purposes of ensuring overall proper workmanship and compliance to these specifications, the District makes no distinction between extensions that are to be owned and maintained by the District, and private extensions installed to serve commercial, industrial or multi-unit type projects.

### **II. PRE-CONSTRUCTION**

1. All administrative work must be completed prior to receiving authorization to proceed. Including, but not limited to: forwarding a deposit to the District for the amount shown on the Main Extension (or Master Service) Estimate, providing a suitable easement if applicable, and signing the Main Extension Contract. A minimum of 30 days shall be allowed for completing this work.
2. A listing of all material and material suppliers will be submitted to the District for approval prior to the pre-construction meeting (item 3.).
3. A pre-construction meeting shall be held between the District and the contractor/owner prior to startup.
4. The District shall be given the opportunity to inspect all materials before installation and shall notify the contractor/owner prior to installation if material is defective or does not comply with District specifications.

5. Before construction is allowed to begin, stakes showing the finish roadway grades shall be placed a minimum of 50 feet apart for the entire length of the proposed project. Stakes, pins, or other suitable markers shall be placed on the right-of-way line at sufficient points to ensure proper alignment of the water main. Said vertical and horizontal field information will be inspected and approved by the District prior to start-up.
6. Blasting: It is the responsibility of the contractor to familiarize themselves with any applicable municipal ordinance governing blasting activity. All applicable local or state regulations if effect shall be adhered to.
7. All required permits (road opening, environmental, dig safe, etc.) are the responsibility of the contractor / owner.

### **III. LOCATION**

1. Pipe shall be installed so that top of pipe will be 5 feet below finished grade. Any variation on this standard must have prior approval by the District. It shall be the contractor's responsibility and expense to verify (by test hole) the cover of the main at any location questioned by the District.
2. The pipe shall be located horizontally so that it will be 12-1/2 feet inside the right-of-way line or as otherwise directed by the District. Case by case determinations will be made by the District for other conditions.
3. Unless specifically allowed by the District in writing, the water main shall not be installed within 10 feet horizontally of any other underground utility line, including but not limited to sewer, gas, power, telephone and cable TV. Lateral utility crossings shall be reviewed by the District on a case by case basis and will be installed as specified by the District.

4. Lateral phone and cable TV crossings shall be encased in Schedule 40 PVC conduit within 10 feet of the water main in all directions.
5. Any electric utility lines within 10 feet of the water main, whether or not a lateral crossing, will be encased in conduit.

#### **IV. INSTALLATION**

1. All water mains shall be installed in accordance with the final approved plans. Any variation to the plans must have prior approval in writing by the District.
2. Pipe, fittings, valves, hydrants, and associated appurtenances shall be installed in accordance with the latest American Water Works Association Standards and as directed herein.
3. Fittings and hydrants shall be blocked for horizontal and/or vertical movement in accordance with American Water Works Association Standards.
4. All main line gate boxes, service gate boxes and blow-off appurtenances shall be properly installed and raised to grade at the completion of paving or grading operations. Any gate box found to be improperly installed or not raised to grade at any point prior to the end of the one year warrantee period will be the responsibility (and cost) of the contractor to repair.
5. If the water main should be laid across an area where there is or will be a culvert, the trench dimensions and cross-section detail must have prior approval by the District if it varies from the approved drawings. The use of insulation may be required for some design applications.

6. The trench will be kept dewatered during pipe installation. Every effort shall be made to avoid any situation where groundwater or surface water runoff is allowed to enter the main. The District reserves the right to issue a stop work order upon a project if this situation cannot be controlled.
7. Every effort and precaution must be undertaken to prevent the introduction of any foreign material (insects, rodents or other animals, sediment, organic material, etc.) from entering the pipeline, either before construction or during installation. Each pipe section shall be visibly inspected on the inside and outside prior to lowering into the trench. Failure to follow proper housekeeping during installation will result in a stop work order or rejection of the pipe system.
8. All fittings (tees, bends, solid sleeve couplings, end caps, valves etc.) shall be wrapped with a minimum 6 mil polyethelene sheeting and securely taped before backfilling.

## **V. BEDDING**

1. Enough bedding is needed to place 6 inches under pipe and to fill both sides of the trench to a compacted elevation of 6 inches above top of pipe.
2. Bedding material shall be granular sand meeting the following requirements:
  - 100 percent passing a 2-inch sieve
  - Greater than 75 percent passing a # 4 sieve
  - Less than 5 percent passing a # 200 mesh sieve

## **VI. BACKFILL**

1. The remaining depth of trench will be backfilled with material suitable to the District representative on the job; excluding, particularly organic material, blasted or hammered ledge\*, rocks over 6 inches in diameter and peat-type material. Road subgrade gravel

and paving shall conform to the requirements of the design drawings, Town or State Highway Departments.

\* From a point 12-inches above the top of the pipe to the bottom of the road subgrade, a mixture of screened ledge and sand backfill material can be used. It must meet a 100% 6-inch minus specification, and the percentage of ledge and sand used must be approved by the District.

2. No backfill material which is frozen shall be placed in the trench.
3. Trench Compaction: Compaction of backfill material shall be done in 12-inch maximum lifts achieving 95% proctor, or in accordance with the specifications and requirements of the State or Municipality responsible for the street or highway involved (whichever is the more stringent). Under no circumstance shall the District authorize the start of construction for any water main without a pre-approved compaction plan in place.

The District reserves the right to hire an independent testing firm, at the expense of the contractor or owner, to verify compliance to the approved compaction plan.

## **VII. MISCELLANEOUS**

1. A watertight plug will be inserted into the open end of the end pipe or fitting in the trench during all pipe installation, as well as any period when the trench is unattended for any length of time.
2. All excess material and debris resulting from the trenching will be removed from the job site, and the surface of the road or right-of-way will be left at the same elevation and in the same condition existing prior to construction. \*

\* For existing roadways, a restoration plan will be prepared and approved by the District prior to construction. The plan will include details regarding pre and post construction

pavement cutting, replacement paving details, housekeeping during construction and post construction restoration.

3. Properly mark through the use of flares, signs and barricades any open or soft trench. The contractor shall be responsible for the public's safety at all times by using accepted safety precautions and aids during the course of the work.
4. The trench is to be widened if the District's representative or inspector desires it in the interest of safety.
5. It is understood that District personnel working on a project may be called away for emergency work, or previously scheduled work, and that the contractor will not be paid extra for any down time for labor or equipment. The contractor will provide the District with a minimum 24 hour notice prior to starting or resuming pipe installation. The District reserves the right to request that sections of trench remain open for inspecting.
6. The Contractor installing the water pipes, lines and fittings will be responsible for the maintenance of that water line for a period of one year from the first time the water line is accepted and goes into service. This responsibility will also include assuming proper final adjustment for all gate boxes prior to and after any paving or grading operations occurring during this period.
7. The contractor shall be familiar with and shall accept full responsibility for compliance with all federal, state and local safety regulations.
8. The District will, at the Owner's cost, fill, test and disinfect the new water lines. It is The District's goal to accommodate the contractor's schedule and perform needed tests in a timely manner. The District, however, will not be responsible for any downtime or delay associated with an inability to meet the contractor's and/or project's schedule.

9. The contractor shall not operate any water related appurtenances, including but not limited to valves, hydrants and service lines, without a District representative present.
  
10. The contractor shall be responsible for developing as-built information during construction. The contractor shall supply to the District copies of all field notes, ties, as-build details or other information relating to the installation of the main. The format and scope of the information tracked shall be coordinated and approved by the District inspector. Failure to provide field information in a timely manner may be cause for not accepting the waterline.

*End of Section*