CHAPTER 175

STORM WATER CONVEYANCE FROM NEW STRUCTURES

175.01 DISCHARGE LINE. The discharge line shall be a pipe with a minimum inside diameter of 1½ inches. The discharge line may be polyvinyl chloride (PVC) or polyethylene (PE) pipe. PVC pipe shall be a minimum of Schedule 40 PVC meeting A.S.T.M. D-2665 with solvent weld Schedule 80 deep socket fittings. PE pipe shall be a minimum of PE-3408 meeting A.S.T.M. D-2239 with joints made with ribbed insert fittings secured by stainless steel clamps. All discharge line piping, where fittings are not visible or where there is doubt on the part of the inspector of proper installation, shall be tested for leakage by hydrostatic tests as follows:

1. Conduct after pipe is laid, joints completed, and trench partially backfilled, leaving joints exposed for examination. At minimum, leave 10% of the joints and valves exposed for examination by engineer. Contractor may elect to backfill the trench before performing the hydrostatic tests. Should any section fail to meet the requirements, the contractor shall be responsible to locate the faulty section and make the necessary repairs at his/her own expense.

2. The hydrostatic tests shall be conducted in accordance with the latest revision of AWWA C-600.

3. Flush out main before test to remove air, insert tape to release trapped air and plug after test.

4. All exposed pipe joints, fittings, valves, hydrants, etc. shall be observed during the test for signs of leakage.

5. The hydrostatic test shall consist of a pressure test and a leakage test. The hydrostatic tests are to be conducted concurrently and shall be of 2-hour duration.

A. Pressure Test:

(1) The test pressure at the test location shall be not less than 1.5 times the working pressure at the test location.

(2) The test pressure shall not be less than 1.25 times the working pressure at the highest point in the test section.

(3) Test pressures shall not exceed design pressures and pressure during the test shall not vary more than plus or minus 5 psi.

B. Leakage Test:

(1) Maximum allowable leakage (L) in gallons per hour:

$$L = \frac{ND \; x \; p^{0.5}}{7400}$$

Where: N = number of pipe section under test
D = pipe diameter in inches
P = average test pressure, psig

(2) When testing against closed metal-seated valves, an allowance of 0.0078 gal/hr/inch nominal diameter of valve may be added for each valve against which the hydrostatic test is conducted.

6. Provide all test pumps, test plugs, pipe and gauges, and make all required piping connections.

7. Examine trench for leakage during test; replace all defective pipe or fittings disclosed during tests and repeat tests until requirements have been met. All visible leaks to be repaired regardless of the amount of leakage.

8. Test initial 1,000 feet of water main installed, then a minimum of 2,000 feet after satisfactory performance of initial tests.

9. Contractor responsible for all costs for testing, retesting and repair of any deficiencies observed.

175.02 DEPTH OF BURIAL. The discharge line shall be buried to a depth of at least four feet below the final surface grade.

175.03 CHECK VALVE. A check valve shall be provided in the discharge line, whether the discharge line flows by gravity or is pumped. The check valve may be installed in either a vertical or horizontal position. This check valve shall be in addition to any check valve built into the sump pump.

175.04 ELECTRICAL SERVICE. For a sump pump to be operational, the sump pump shall have a 20-amp circuit and 15-amp outlet. The wire shall be a 12-2 w.g. The sump pump shall have a separate circuit. Where the fuse box lacks sufficient capacity or where other electrical deficiencies will not permit routine hookup of electrical service to the sump pump, the homeowner will be informed. In such cases, additional costs could be incurred by the homeowner to correct the deficiencies.

175.05 CONNECTION. The discharge line shall be connected to a public storm sewer, collector line, or storm sewer intake if such exists adjacent to the property. The connection to the storm sewer or collector line shall be made by machine tapping and a manufactured fitting, or by an alternative method of an approved tap and saddle on a concrete storm sewer pipe. A tap shall be used on all 6-inch collector lines. A sewer tapping machine shall be used for all tile lines.

1. The correct saddle to use to connect to a 6-inch to 15-inch tile line is a Gemco sewer saddle (B.F.O.).

2. The correct saddle for a collector line of 6-inch plastic is a Smith Blair 313-00066-314-000 6-inch x 2-inch saddle.

3. To connect a storm line to a concrete pipe, use a saddle made with a cast iron hub. The pipe will extend from the hub to the face of the pipe. Cement mortar and oakum will be used for a water and root-proof connection to the storm sewer.

175.06 NO CONNECTION AVAILABLE. If a storm sewer or collector line does not exist in the roadway fronting the property, the discharge line shall be terminated at the back of curb. In the event the

storm sewer/collector line is on the opposite side of the pavement, the discharge line shall be extended across the street. Back-of-curb discharges shall be directed downward to the pavement by use of an elbow or other approved arrangement. The City shall be responsible in the future for the connection to the storm sewer/collector line for those services properly terminated at back-of-curb.

175.07 SUMP PUMP. Delivery of the foundation water to an approved point of disposal shall be made using an approved pump system. The sump pump shall be able to deliver 17 gpm against 17 feet of head.

175.08 GRAVITY DISCHARGE. In some instances, foundation water may be discharged to an open waterway or other natural drainageway by gravity when approved by the administrative authority. Under no circumstances will a gravity line be approved without backwater control.

175.09 ALTERNATIVE USES. With prior approval, the property owner may install such piping and valves necessary to allow the foundation water to be used for lawn or garden watering or other such use. However, said diversion facilities shall be in addition to the permanent connection to the storm sewer/collector line.

175.10 STORM SEWER SERVICE. The storm sewer service line or designed private storm sewer shall be made of cast iron, reinforced concrete pipe (RCP), vitrified clay pipe (VCP), SDR 35 polyvinyl chloride pipe (PVC), PVC truss pipe, or PVC meeting ASTM F949. PVC pipe shall conform to ASTM D-3034. PVC resin shall meet cell class 12454B per ASTM D 1784.

175.11 INSTALLATION REQUIREMENTS. Installation shall be completed in accordance with the standard specifications governing pipe installations as established by the Public Works Department.

1. RCP, VCP, and cast iron shall be installed according to methods specified in ASTM C-12.

2. SDR 35 PVC shall be installed according to ASTM D-2321. Embedment material shall meet ASTM C-33 (Crushed) Gradation 67.

175.12 CONNECTION OF SERVICE LINES. Storm sewer service lines may be connected to the City storm sewer system at intakes or manholes or directly into the City storm sewer pipe. Tapping storm sewer service lines into City storm sewers will be by using approved methods. The connection from the storm sewer service line to the City storm sewer will be made by a clamping saddle or a fitting with a sealant that will be waterproof and root-proof. The entire connection shall remain uncovered for inspection and approval before backfill. A collar will be installed at the main so that the service line will not protrude into the main. If a storm sewer service line is over half the size of the City storm sewer, it will require a manhole at the junction. The manhole shall meet the City's Standard Specifications for storm sewer construction. Taps will be installed on the top half of the City storm sewer. Clean-outs shall be installed on storm sewer service lines at intervals not to exceed 80 feet of developed length and at locations where the line changes direction more than 45 degrees. If a storm sewer service line is installed with more than 25 percent grade, it will be stepped down with the use of fittings.

175.13 CONNECTION OF PRIVATE STORM SEWER MAINS. Private storm sewer mains can be connected to the City storm sewer system at intakes or manholes. Connecting into the City storm sewer line with a private storm sewer main requires installation of a manhole or intake at the junction. The manhole or intake shall meet the City's Standard Specifications for storm sewer construction. Manholes or intakes on the private storm sewer line will be installed at intervals not to exceed 300 feet and at all alignment and size changes. The Public Works Director shall review and approve all private storm sewer systems designs prior to the issuance of a permit to connect the private storm sewer system to the City storm sewer.

175.14 PERMITS AND FEES. Permits and applicable fees are required for any storm sewer service lines or private storm sewer systems installed on private property. Inspection fees for installations shall be set by Council resolution.

175.15 PROCEDURE FOR ABATEMENT OF PROHIBITED SEWER CONNECTIONS AND DRAINAGE ARRANGEMENTS.

1. In that surface water runoff, subsoil and footing drainage water is being allowed to enter the sanitary sewer system contrary to Chapter 97 and other provisions of this Code of Ordinances to the public detriment from resulting sewer back-ups and overloading of the sewage treatment plant, any connection or arrangement found to exist whereby surface, subsoil or footing drainage water is discharged or diverted into the sanitary sewer system is deemed to be and hereby declared as a public nuisance.

2. Whenever such connection or arrangement is found to exist in violation of this Code of Ordinances, whereby surface water runoff, subsoil or footing drainage is discharged or diverted into the sanitary sewer system, the Council may, after notice to the owner or person in possession and control of the premises an opportunity for a hearing, cause such to be abated by ordering a connection to the public drainage system, storm sewer system, natural watercourse or such other arrangement as the Council shall find necessary, adequate or appropriate given the particulars and circumstances of each case.

3. If the person so ordered fails to comply with the Council's order within the time prescribed, when the order is made, the Council may cause the ordered work to be done, an accounting of the cost of such work made and reported, and by resolution of the Council certify to the County Auditor for collection in the same manner as property taxes.