

## SECTION 3842 - MANHOLE WATER EXFILTRATION TESTING

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

Provide all labor, materials, equipment and services required for manhole water exfiltration testing specified herein.

### PART 2 - EXECUTION

#### 2.1 WATER EXFILTRATION TESTING:

- A. This specification shall govern the water exfiltration testing of sanitary sewer manholes and structures and shall be used as a method of determining acceptability by the OWNER, in accepting maintenance of a sanitary sewer manhole or structure on behalf of the public. All new sanitary sewer manholes and structures shall be tested by vacuum test as specified in Section 3810 or by water exfiltration test as specified herein to test for leaks. Other forms of testing of some manholes may be required, as deemed necessary by the OWNER.
- B. Manholes shall be tested after installation with all connections in place.
  - 1. Lift holes, if any, shall be plugged with an approved, non-shrinkable grout prior to testing.
  - 2. Drop connections shall be installed prior to testing.
  - 3. The water exfiltration test shall include testing of the seal between the cast iron frame and the concrete cone, slab or grade rings.
  - 4. The manholes shall be backfilled and finished to design grade.
  - 5. If a coating or lining is to be applied to the interior of the manhole the water exfiltration test must not be performed until the coating or lining has been cured according to the manufacturer's recommendations.
  - 6. If existing manholes are to be tested (e.g. in the case of a sewer rehabilitation project), the ENGINEER and CONTRACTOR must deem the manhole structurally sound prior to testing.
- C. Procedure for testing shall be as follows:
  - 1. The maximum leakage allowance for all manholes shall be 2.424 tablespoons (0.00947 gallon) per foot diameter per foot of depth per 24 hours. Labor, equipment, supplies and water required for the test shall be furnished by the CONTRACTOR. The ENGINEER shall witness and approve all leakage tests. In the event that the CONTRACTOR performs any test without witness by the ENGINEER, the CONTRACTOR will be required to test the manhole again at no cost to the OWNER. The CONTRACTOR and ENGINEER shall sign all test reports.
  - 2. The inlet and outlet of the manhole being tested shall be sealed with watertight plugs or bulkheads, and the manhole shall be filled with water until the elevation of the water is above the interface of the concrete and the casting. The test level shall be clearly marked in the manhole. The manhole shall be filled and maintained full of water for a period of at least 24 hours prior to the start of the test. If the water level in the manhole drops during this 24 hour period, the level shall be raised to the test level mark prior to start of the test. All vent holes in the lid shall be plugged and the lid shall be installed prior to start of the test.
  - 3. The test shall last a minimum of 24 hours. Once the test begins, the manhole lid shall only be removed in the presence of the ENGINEER. Exfiltration will be determined by measuring the amount of water required to raise the water level back to the marked level at the end of

the test period.

4. The manhole shall be considered to pass the water exfiltration test if the measured exfiltration is less than or equal to the allowable leakage specified in paragraph 1 above.
5. If a manhole fails the water exfiltration test, the manhole shall be repaired with a non-shrinkable grout or other material approved by the ENGINEER. The water exfiltration test shall then be repeated until a satisfactory test is obtained.
6. All observed leaks shall be corrected even if exfiltration is within the allowable limits.
7. All temporary plugs shall be removed after each test.

### **PART 3 - BASIS OF PAYMENT**

Water exfiltration testing of manholes is not a pay item. Payment will be included under the manhole bid item(s).

END OF SECTION