

## **SECTION 820**

### **INSITU POINT REPAIR BY SECTIONAL LINING**

#### **I. GENERAL**

##### **1.1 DESCRIPTION OF WORK**

- A. The Work specified in this section includes all labor, materials, accessories, equipment and tools necessary to install and test cured-in-place sectional piping lining. The completed point repair shall be watertight.
- B. Products shall conform to Section 200.
- C. The Contractor shall perform all required permanent landscape restoration of disturbed areas on private property and within the locality or VDOT right-of-way upon completion of pipe rehabilitation, to the satisfaction of the Owner.

##### **1.2 SUBMITTALS**

Submittals shall be made by the Contractor in accordance with the procedures set forth in Section 105 - Control of Work, and as described below.

The product proposed for the rehabilitation of the sewers must have been in use for at least three years for pipeline diameters 24-inch and below.

After notification of a specific project, the Contractor shall provide the following information for review and approval.

- A. Shop drawings and product data for the rehabilitation method, including a report outlining the process to be used in the rehabilitation of the sewer line. The report shall also include information specific to the job, such as coordination issues, access, timing, manufacturer's installation instructions and bypass pumping.
- B. All measurements made by the Contractor to verify length and diameter of pipe prior to ordering of material.
- C. One complete set of video CDs, or DVDs from each of the television inspections performed (Pre- and Post-Installation TV Inspection), as specified in Section 811 - Television Inspection. The Owner shall specify the storage media.
- D. The Contractor shall provide written warranties for all materials.

#### **II. EXECUTION**

##### **2.1 GENERAL**

- A. The Contractor shall furnish and install a complete system as shown on the Drawings and in

accordance with the Contract Documents. Pipe Liner shall be installed in accordance with the manufacturer's recommendations.

- B. Prior to any lining of a pipe so designated, it shall be the responsibility of the Contractor to remove internal deposits from the pipeline in accordance with Section 810 – Sewer Line Cleaning.
- C. Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections by closed circuit television. The interior of the pipeline shall be carefully inspected to determine the locations and extent of any structural failures. The location of any conditions which may prevent proper installation of lining materials into the pipelines shall be noted so that these conditions can be corrected. A video and suitable log shall be kept and turned over to the Owner. Television survey shall be performed in accordance with Section 811 - Television Inspection, including Preconstruction Post Construction and Warranty Surveys.
- D. The Contractor, when required, shall provide for the transfer of flow, through or around section or sections of pipe that are to be repaired. The proposed bypassing system shall be acceptable in advance by the Owner. The acceptance of the bypassing system in advance by the Owner shall in no way relieve the Contractor of his responsibility and/or public liability. The flow bypassing shall be done in accordance with Section 812 - Bypass Pumping.
- E. It shall be the responsibility of the Contractor to clear the line of obstructions. If the inspection reveals an obstruction that cannot be removed by conventional cleaning equipment, then the Contractor shall make a point repair excavation. Such excavation shall be proposed to the Owner in writing for approval prior to the commencement of the Work.

## 2.2 LINER INSTALLATION

- A. Prior to the installation, all active leaks shall be stopped using chemical grout in accordance with Section 817 – Chemical Grouting. Impregnate the liner with the 100 percent solids epoxy; drop cloths, tarpaulins, etc. shall be used to prevent epoxy material from contacting the adjacent ground. Place the liner on the placement carriage and maneuver carriage and liner into position allowing 100 percent solids epoxy resin to permeate into any cracks in the host pipe. Heat may be introduced to speed up curing time. Curing shall be in accordance with manufacturer's recommendations. Retract the placement carriage and remove from pipe.
- B. Service connections shall be reconnected as specified in Section 821 – Sanitary Sewer Service Reconnections.

## 2.3 ACCEPTANCE

The finished liner shall be continuous over the entire length of the installation. The liner shall be free from visual defects, damage, deflection, holes, delamination, uncured resin, and the like. There shall be no visible infiltration through the liner or from behind the liner.

## 2.4 CLEANUP

After the liner installation has been completed and accepted, the Contractor shall clean up the entire project area and return the ground pre-existing conditions or better. All excess material and debris not

incorporated into the permanent installation shall be disposed of by the Contractor.

## 2.5 WARRANTY

During the warranty period, any defects which affect the integrity or strength of the pipe shall be repaired at the Contractor's expense. Prior to the repair of the defective work, the Contractor shall submit a Shop Drawing indicating the method of repair, for the Owner's approval. The Contractor shall obtain approval for the Owner for method of repair, which may require field or workshop demonstration.

## III. MEASUREMENT FOR PAYMENT

- A. Measurement for payment for point repairs will be based upon the actual quantity of repairs completed, all in accordance with the Contract Documents.
- B. Payment for rehabilitating sanitary sewer pipelines is made at the contract unit prices per linear foot rehabilitated, using the insitu point repair method by sectional lining.
- C. The price per linear foot shall include all:
  - 1. By-pass pumping (up to 2 mgd),
  - 2. Clearing and grubbing,
  - 3. Cost of potable water from the Owner,
  - 4. Debris collection and disposal,
  - 5. Dewatering,
  - 6. Erosion and sediment control,
  - 7. Excavation pits,
  - 8. Ingress and egress procedures,
  - 9. Labor,
  - 10. Materials,
  - 11. Permits,
  - 12. Pipeline cleaning,
  - 13. Pre- and post-television inspection,
  - 14. Re-instatement of service connections,
  - 15. Removal and replacement of manhole frames and covers as necessary,
  - 16. Removal of protruding service connections,
  - 17. Resident/Business owner notification,
  - 18. Root removal,
  - 19. Sediment and root removal,
  - 20. Sealing liner at service connections,
  - 21. Sealing the liner in the manholes,
  - 22. Site restoration,
  - 23. Site cleanup,
  - 24. Testing,
  - 25. Traffic control, and
  - 26. Other Work, not included under other items, necessary to complete the rehabilitation per the Contract Documents.

End of Section