

SECTION 063
SPECIFICATIONS - CURED-IN-PLACE PIPE

1.0 Scope of Work

The work required by the project shall consist of furnishing all labor, tools, materials, equipment, and supervision necessary to perform the following work in accordance with both these specifications and those referenced including notification of all affected households, businesses, etc.; inspection of sewer lines that are to receive a cured-in-place pipe (CIPP); installation of CIPP; and reestablishment of sanitary services after CIPP installation.

When there is a conflict between these specifications and any specifications referenced herein, the Engineer shall determine which specification shall govern.

The sewer lines to be lined by installation of a CIPP are shown on the maps or plans that have been made part of the specifications.

2.0 Public Notification

All residences and businesses that may be affected by work performed in the installation of CIPP liners shall be notified both by mail and by delivery of a notification. Mailed notifications are to be mailed via first-class mailing at least two (2) weeks before any work commences at a site. Work shall begin no later than three (3) weeks after public receipt of mailed notifications. A second notification shall be delivered at least twenty-four (24) hours before commencement of work at a site.

Every business and residence that may be affected by traffic disruptions, disruption of sanitary service, odor problems, etc., shall be notified of the following: an explanation of the work to be performed; when the work is anticipated to commence; where the work is to be performed in reference to local streets; the name and office telephone numbers of Contractor representatives; the nature of the inconvenience(s) anticipated to be experienced by the resident/business owner; the anticipated duration of the repair; that the work is being performed on behalf of the Greater Peoria Sanitary District; and a Sanitary District contact and telephone number as provided by the District. Information included in the notifications regarding Contractor representatives shall include both the name and twenty-four (24) hour telephone number of the Contractor's supervisor at the work site(s) and the name and business telephone number of a Contractor representative who is responsible for the administration of the project from the location of the offices of the Contractor. Additionally, an advisement shall be included stating that the business/resident should make sure that the traps in the affected buildings are functioning properly.

The proposed format of all correspondence from the Contractor, to the public, shall be reviewed, and approved, by the Engineer before mailed delivery. Only after execution of the contract, the District, upon request, may supply a partial listing of those contacts that are to receive said notifications. It is to be understood by the Contractor that such a list is not intended to be a complete listing of those persons required to receive notification. Complete public notification is to be the exclusive responsibility of the Contractor.

The Engineer shall be notified promptly of all correspondence between a representative of the Contractor and the public.

Costs associated with public notifications shall be included in the contract price of CIPP installation.

3.0 Sewer Line Preparation

Sewer line preparation for CIPP installation shall be performed in accordance with subsection 3.0 of Section 093 of the Specifications and ASTM F1216, except that the cleaning of the bookend manholes shall not be required.

The Contractor shall take care not to cause damage to the host pipe during sewer line preparation. Any damage caused during the performance of the work shall be the responsibility of the Contractor and repaired exclusively at the Contractor's expense. The Contractor shall select an approved method of preparation that which will minimize the potential for damage to the host pipe, any connections or private property.

Costs associated with the preparation of sewer lines for installation of CIPP shall be included in the contract price of CIPP installation.

4.0 Sewer Line Inspection

Sewer line inspections shall be performed in accordance with subsection 4.0 of Section 093 of these Specifications, titled Television Inspection, Videotaping and Recording, except that portion related to compensation. The purpose of sewer line inspection is to inspect the condition of the sewer lines in question before lining, establish the locations of sewer services, verify parameters such as the quantity of liner to be installed and to videotape the sewer line in question both before and after installation of CIPP. The cost of all sewer line inspections shall be included in the cost of lining.

5.0 Sewer Flow Control

If determined to be necessary by the Contractor, sewer flow control shall be as required in subsection 2.0 of Section 093 of these Specifications.

Costs associated with sewer flow control in advance of the installation of CIPP shall be included in the contract price of CIPP installation.

6.0 Cured-in-Place Pipe

The intent of cured-in-place lining is to repair designated sewer lines by inversion of a CIPP within the host pipe.

For all materials being used in the performance of the work, each of the Contractor's crews shall have with

them at all times material safety data sheets (MSDS) for all materials in which such information is required. MSDS sheets shall be available for inspection at all times and copies shall be provided to the Engineer.

6.1 Materials

The materials used both in the preparation and installation of CIPP shall conform to the following specifications and ASTM F1216.

Resin materials, pigments, dyes or colorants shall be chosen such that coloring of the installed CIPP will not interfere with visual inspection of the pipe.

Liners shall consist of flexible needle interlocked polyester felt, or an equivalent non-woven or woven material, or a combination of non-woven and woven materials, formed into sheets of required thickness. Liners shall be fabricated to sizes that, when installed, will fit the internal circumference of the host pipes in question. Allowance shall be made during CIPP construction for irregular shaped piping, bends in piping and stretching during insertion.

6.2 Design of CIPP Liners

Design of CIPP shall meet the minimum design requirements of ASTM F1216 and all referenced documents therein except as modified by these Specifications. For design considerations, it will be assumed that all sewer lines to be rehabilitated by installation of a CIPP exhibit a fully deteriorated pipe condition in accordance with definitions provided in ASTM F1216. In reference to equation X1.3 of ASTM F1216, the following guidelines shall govern the design the thickness of all CIPP unless specified otherwise in these Specifications: assume a height of water above the pipe (H_w) equal to the height of soil above the top of the pipe (H) (i.e., a minimum water buoyancy factor of 0.67); a percent ovality of the host pipe of two (2) percent; a factor of safety of two (2); a modules of soil reaction of 700 psi; a minimum long-term modules of elasticity of 150,000 psi; and a minimum initial modules of elasticity of 300,000 psi.

The thickness of installed liners shall be no less than that able to satisfy a standard dimension ratio (SDR) of 26. The thickness of the liner shall not include the thickness of the polyurethane inner liner.

6.3 Installation

Installation of CIPP shall proceed only after all necessary preparation has been completed, including the following: all affected residences and businesses have been notified in accordance with these specifications; pre-installation cleaning and inspection; implementation of adequate flow control; and the placement of traffic control measures in accordance with these Specifications.

Installation of CIPP shall be performed using an inversion process and shall be in accordance with these Specifications and ASTM F1216.

After installation, CIPP shall be cleaned to the satisfaction of the Engineer. Installation shall not be complete until such cleaning has been performed.

CIPP shall be continuous over entire length of insertion runs and be free of visual defects. Liners shall conform to the host pipe and shall not be more than five (5) percent less than designed thickness.

Particular attention shall be paid to the connection of CIPP to manhole/ pipe joints. A watertight joint between the installed CIPP and the existing manhole shall be provided. If a joint is not acceptable to the Engineer, a watertight seal shall be provided by filling the space between the host pipe and the installed CIPP with a resin mixture compatible with both pipe materials. If a watertight seal cannot be provided, the Contractor shall be responsible for correcting the deficiency in accordance with the direction of the Engineer.

6.4 Re-establishing Sanitary Services

Those sanitary services to be reestablished shall be determined by the Contractor. Unless directed by the Engineer, those tees or taps that are plugged are not to be reinstated and those unplugged are to be reinstated. The Engineer may direct the Contractor not to reinstate an unplugged sewer service connection. Before the Engineer accepts the installation of a CIPP, he shall provide a form indicating recognition by both the Engineer and the Contractor that the Contractor has been directed by the Engineer not to reinstate specific connection(s). Unless otherwise directed by the Engineer in writing, the decision as to the location of services is that of the Contractor, exclusively.

Service reconnections shall be completed within twenty-four (24) hours after service discontinuation.

A television camera and a remote cutting device shall be used to reconnect sewer services. Service capacity shall be reestablished to ninety-five (95) percent of the capacity before commencement of the work. Service reestablishment by excavation shall not be allowed unless approved by the Engineer.

6.5 Materials Inspection and Testing

The Contractor shall give notice in writing to the Engineer sufficiently in advance of his intention to commence the manufacture or preparation of materials to be specifically used in the work performed as part of this project. Such notice shall contain a request for inspection, the location of manufacture, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the Engineer will arrange to have a representative present at such times during the manufacture or he will notify the Contractor that the inspection will be made at a point other than the point of manufacture or he will notify the Contractor that inspection will be waived.

When the Engineer so requires, the Contractor shall furnish to him authoritative evidence in the

form of Certificates of Manufacture that the materials to be used in the work have been manufactured and third party tested in conformity with these specifications. These certificates shall include copies of the results of physical tests and chemical analyses that have been made directly on the materials.

A third party shall perform the testing of materials necessary for the performance of the work and the products thereof. The Engineer shall direct when testing is to be performed and what tests, as defined in ASTM F1216 and other applicable ASTM Standards, are to be performed. All aspects of testing, including sample collection, sample transport, testing performance and the reporting of results shall be in accordance with the applicable standards.

All testing is to be performed by a third party approved by the Engineer. Evidence of the qualifications and experience of the testing party shall be submitted by the Contractor to the Engineer before work commences. Results of tests performed are to be the property of the Engineer, exclusively. The results of testing shall be made available to the Engineer as soon as possible so that he may determine the acceptability of the work. Results shall be submitted in a format acceptable to the Engineer.

If the Engineer finds the results to be unsatisfactory, the costs of correction shall be solely that of the Contractor. The Engineer shall choose the method(s) that will be used to correct any unaccepted work.

All sample collection, transport, testing, reporting and inspection performed shall be considered included in the contract amount and the exclusive responsibility of the Contractor.

END OF SECTION

