

Clearly identify Manufacturer, brand name, contents and stock number on each package.

Packages showing indications of damage that may affect condition of contents are not acceptable.

- (2) Storage of Materials: Store in original packaging under protective cover and protect from damage.

Store all materials at temperatures recommended by manufacturer.

Stack containers/bags in accordance with manufacturer's recommendations.

- (3) Handling of Materials: Handle materials in such a manner as to prevent damage to products or finishes.

- (d) Project Conditions. Environmental Requirements: Applicator shall conform to all local, state and federal regulations including those set forth by OSHA and the EPA and any other applicable authorities. Maintain the temperature inside the pipe at not less than 34° F and no more than 100° F, or otherwise directed by manufacturer, during application and finishing.

Provide sufficient shielding to ensure overspray does not enter surface waters.

46. Deleted and Replaced with Special Provision 63.

47. MATERIAL SPECIFICATIONS

(a) Geopolymer Pipe Lining Mortar. The SCGP lining shall conform to the following properties under laboratory conditions.

Compressive Strength	ASTMC39 or C109	1 Day	2,500 psi
		28 Day	8,000 psi
Flexural Strength	ASTM C78	28 Day	1,250 psi
Tensile Strength	ASTM C496	28 Day	800 psi
Shrinkage	ASTM C1090	28 Day	0% at 65%RH
Modulus of Elasticity	ASTM C469 -6" Cylinder	1 Day	3,000,000 psi
		28 Day	5,800,000 psi
Bond Strength	ASTM C882 Type II	1 Day	900 psi
		28 Day	2,500 psi
Freeze Thaw Durability	ASTM C666	300 Cycles	Zero Loss
Set Time	ASTM C807	Initial	Less Than 75 min
		Final	Less Than 120 Min
Abrasion Resistance	ASTM C1138 5 Cyl @	28 Day	Less Than 3% Loss
Rapid Chloride Ion Permeability	ASTM C1202	28 Days	Very Low (below 1000 Coulombs)

The SCGP lining geopolymer mortar should be composed of at minimum 70% Pozzolanic material selected from the list of: SiO₂, MgO, Al₂O₃, Fe₂O₃ and be verified by third party certified X-ray Fluorescence (XRF) testing.

Payment will be full compensation for preparing, implementing, inspecting, maintaining, and removing the applicable traffic control plan and required traffic control devices, including but not limited to temporary traffic barrier and signing; and for furnishing all labor, tools, materials, equipment, and incidentals necessary to complete the work.

Flaggers will be paid for separately under Contract item 630.15.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.645 Special Provision (Traffic Control, All-Inclusive) (STP 0146(16))	Lump Sum
900.645 Special Provision (Traffic Control, All-Inclusive) (BF 010-1(52))	Lump Sum

63. Submittals

- (a) Product Data: Submit Manufacturer's product data and installation instructions. Include required substrate preparation, on-site quality assurance recommendations and a list all materials to be used.
- (b) Certifications: Manufacturer shall submit a letter of certification that the product meets or exceeds all technical and packaging requirements.

Manufacture shall submit original third-party verification that materials meet physical properties specified for design at 24hr and 28-day, minimally ASTM C-78, ASTM C-39 or C-109, ASTM C-882, and ASTM C-1090. Further Manufacture shall submit original third-party verification of test data for ASTM C-666 testing for samples cured 28 days and subjected to 300 cycles.

Manufacture shall submit original third-party verification of material formulation via XRF (X-ray Fluorescence) data as detailed in the material section.

Submit Manufacturer's certifications that materials have been approved for the installation conditions shown on the Drawings and as specified herein.

- (c) Qualifications: The Contractor performing the work shall be fully qualified, experienced and equipped to complete this work expeditiously and in a satisfactory manner and shall be an approved installer of the geopolymer lining system as certified and licensed by the Manufacturer.

The Manufacture shall submit documentation and verifiable references for installation of the proposed lining system in a minimum of 5000 linear feet of large diameter (>36 inch) horizontal pipe for pipeline qualifications.

Special Provisions for:
Woodford BF 010-1(52) & Weathersfield STP 0146(16)

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The Contractor shall submit a certified statement from the Manufacturer that he/she is a certified and/or licensed installer of the liner.

The Geopolymer Installer must submit a work plan showing how the work shall be scheduled and coordinated.