

SUDAS Revision Submittal Form

Status Date: As of 4/9/2026 Topic: Manhole lining system
Manual: Specifications Manual Location: Section 6020, 1.08, E; 2.04; 3.04

Requested Revision:

1.08 MEASUREMENT AND PAYMENT

D. Manhole Lining with Centrifugally Cast Cementitious Mortar Liner with Epoxy Seal:

1. **Measurement:** The vertical dimension of manhole lining will be measured for depth in feet from the bottom of the lining to the top of the lining for each liner thickness specified.
2. **Payment:** Payment will be at the unit price per vertical foot for each liner thickness.
3. **Includes:** Unit price includes, but is not limited to, the handling of sewer flows during lining operations as required to properly complete the installation, and ~~replacement of the existing casting with a new casting~~ salvaging and reusing existing casting.

E. Multi-Layer Polyurea/Polyurethane Lining System:

1. **Measurement:** The vertical dimension of the lined structure with multi-layer polyurea/polymer protective liner will be measured in feet from the lowest flowline to the top of the rim.
2. **Payment:** Payment will be at the unit price per vertical foot for each structure size.
3. **Includes:** Unit price includes, but is not limited to, the handling of sewer flows during lining operations as required to properly complete the installation, and salvaging and reusing existing casting.

F. Remove and Replace Casting:

1. **Measurement:** Each casting to remove and replace will be counted.
2. **Payment:** Payment will be at the unit price for each casting to be removed and replaced.
3. **Includes:** Unit price includes, but is not limited to, furnishing and installing adjustment rings, installing new infiltration barrier (sanitary sewer manholes only), and salvaging existing casting for the Jurisdiction.

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2.04 MULTI-LAYER POLYUREA/POLYURETHANE LINING SYSTEM

A. Lining System: Comprised of polyurea adhesion coating, polyurethane surface material, and polyurea final layer.

B. Polyurea Adhesion Coating and Final Layers: Fast set, spray applied, two component that is 100% solid, contain no volatile organic compounds, moisture tolerant, elastomeric polyurea providing infiltration and corrosion protection. Ensure material is capable of curing properly given the specific project site conditions and conforms to the following table.

Table 6020.05: Physical Properties

Property	Specifications	Value
Harness	ASTM D 224	D 48
Tensile Strength	ASTM D 412	3300 psi
Modulus (100%)	ASTM D 412	1650 psi
Modulus (200%)	ASTM D 412	1950 psi
Modulus (300%)	ASTM D 412	2650 psi
Elastomer Tear Strength	ASTM D 624	400 psi
Elongation	ASTM D 412	<395%
Taber Abrasion	CS-17 Wheel	<15mg
Severe Wastewater Analysis Testing	ASTM G 210	Pass

C. Polyurethane Surface Layer: Spray applied, two component that is high closed cell content, contain no volatile organic compounds, be moisture tolerant, elastomeric polyurethane. Ensure material is capable of curing properly given the specific project site conditions and conforms to the following table.

Table 6020.06: Physical Properties

Property	Value
Density ASTM D 1622	6-8 pcf
Compressive Strength ASTM D 1621	130-180 psi
Closed Cell Content	>94%
Water Absorption	<0.03 lbs/sq ft
Maximum Service Temperature	180
Ultimate Elongation ASTM D 638	3.5 to 5.5 %
Adhesion ASTM D 7234	Substrate Failure

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3.04 MULTI-LAYER POLYUREA/POLYURETHANE PROTECTIVE LINING SYSTEM

A. Surface Preparation: Prepare according to the manufacturer's recommendations and the following.

1. Provide a surface compatible for installation of the liner system, which may include high pressure water cleaning, hydro blasting, abrasive blasting, grinding, or detergent water cleaning.
2. Produce a cleaned, abraded, and sound surface with no evidence of laitance, loose concrete, brick or mortar, contaminants or debris.
3. After the defects in the structure are identified, repair all leaks with a chemical or hydraulic sealant designed for use in field sealing of ground water. Repair severe cracks with a urethane-based chemical sealant, as approved by Jurisdiction prior to installation. Repair exposed rebar, defective pipe penetrations, or inverts utilizing non-shrink grout or approved alternative method.

B. Lining Material Installation: Apply according to the manufacturer's recommendations and the following.

1. Ensure an adhesion layer minimum thickness of 50 mils.
2. Apply the polyurethane liner system surface layer to a thickness of no less than 400 mils. Also use this material to produce a uniform interior wall surface prior to the installation of the final layer.

3. Ensure final installation is a minimum of 500 mils of the lining.

C. Quality Assurance and Acceptance:

1. The Engineer will conduct a visual inspection of the completed lining system prior to acceptance. Any deficiencies in the finished liner system will be marked. Repair marked deficiencies according to the manufacturer's recommendations.

2. Utilize high voltage holiday detection to inspect for pinholes or breaches in the liner system installation according to ASTM D 4787.

3. When required, verify thickness of the application by point depth checks into the surface layer component and/or physical removal of a small area of the polyurethane material. Repair the test areas immediately following the test at the Contractor's expense.

3.05 CASTING

Install casting per Section 6010, 3.01, J.

Reason for Revision: Added an additional lining system for manhole rehabilitation.

Comments: None.

Region: Central East West **2/19/2026 Webinar**

Comments: Salvaging and reusing the existing casting would be included. Add a new bid item for removing and replacing casting. *Note - done.*
