

SECTION 02713 - SPRAY-APPLIED MANHOLE REHABILITATION COATING

City of San Diego, CWP Guidelines

PART 1 GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing a trowel-applied epoxy mortar coating such that rehabilitated manholes become structurally sound and impervious to ground water, soil, and debris, and become resistant to hydrogen sulfide (sulfuric acid) corrosion.
- B. The CONTRACTOR is cautioned that sewage will continue to flow to the manholes and that the WORK must be performed under permit required confined space entry conditions.

1.2 RELATED SECTIONS

- A. The WORK of the following sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.

03300 - Cast-In-Place Structural Concrete

1.3 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this section:

ASTM S 4541	Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
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ASTM D 4787	Standard Practice for Continuity Verification of Liquid or Sheet Linings Applied to Concrete Substrates
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1.3 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted in compliance with Section 01300:

1. Coating manufacturer's data sheet for each product used, including statement on suitability of the material for the intended use and compliance with the requirements of this Section.
2. Coating manufacturer's instructions and recommendations on surface preparation, application, and repair of discontinuities.
3. Material Safety Data Sheet for each product to be used.

PART 2 PRODUCTS

2.1 WALL CLEANING MATERIALS

- A. **Water Abrasive or Wet Abrasive Blast:** Type and size of abrasive shall be selected to produce a surface profile that meets the coating manufacturer's recommendations.
- B. **High Pressure Water:** Water at 3500 psi minimum pressure.
- C. **Cleaners:** Cleaners shall be per coating manufacturer's recommendations.

2.2 WALL REPAIR MATERIALS

- A. **Hydraulic Plug:** Quick-setting material recommended by the manufacturer for sealing active leaks in manhole structures. Material shall be compatible with coating material.
- B. **Quick-Set Mortar:** Material to repair wide cracks, hole, and disintegrated mortar.

[2.3 BENCH-FORMING AND REPAIR MATERIALS

- A. Concrete shall be lean, Type V, in accordance with Section 03300.]

2.4 COATING MATERIAL

- A. Manhole coating material shall be a 2 part, 100 percent solids amine cure epoxy specifically resistant to corrosive attack from sanitary sewage and sewer gases including sulfuric acid.
- B. Manufacturer, or equal

1. Aquatapoxy A-6 by American Chemical Company

PART 3 EXECUTION

3.1 DIVERSION PUMPING

- A. If necessary, install and operate sewage diversion pumping equipment to maintain sewage flows without backup, overflow, or spill.

3.2 CLEANING AND SURFACE PREPARATION

- A. Remove dirt, grease, and debris from floor and interior walls of manhole using high pressure water and abrasive, and cleaners as necessary to prepare a roughened, bondable surface as recommended by the applicator.

3.3 REPAIRS

- A. Active leaks, if present, shall be sealed by application of material recommended by the applicator.
- B. Repair wide cracks, holes, or disintegrated mortar with quick-set mortar, following the manufacturer's application instructions.
- [C. Repair and reshape manhole inverts and benches according to the requirement of Section 03300. Inverts shall be U-shaped and have a minimum depth of ½ pipe diameter. Benches shall have smooth surfaces without defects that allow debris to accumulate.]

3.4 COATING

- A. Prepare and spray the epoxy mortar material at high pressure and high temperature following the patent-protected process of Warren Environmental, Inc.
- B. Apply to walls, benches, and inverts and cure 4 coats, each 15 to 20 mil dry film thickness (DFT) nominal, to achieve a total DFT of 65 mils, minimum. The coating shall be holiday free.

3.6 FIELD TESTING

- A. Inspect the coated surfaces for cracks, voids, holes, uncured spots, dry spots, delaminations, and any defect which might affect the coating performance.

- B. Test the entire coated surface for holidays at 100 volts/mil in accordance with ASTM D 4787.
- C. **Repair:** Defects and holidays shall be ground down at least 2 inches in all directions from the defect and shall be repaired according to the manufacturer's recommendations. All repairs shall be made at no additional cost to the OWNER.

- END OF SECTION -