

SECTION 03730

EPOXY COATINGS AND CEMENTITIOUS OVERLAYS FOR CONCRETE REPAIR

PART 1 GENERAL

1.1 REFERENCES

Not Applicable

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL DESCRIPTIONS:

SD-01 Data

Materials; GA.

Manufacturer's data and catalog cuts for cementitious mortar overlays, leveling courses and epoxy resin coatings.

SD-06 Instructions

Manufacturer's Instructions; FIO.

Manufacturer's instructions covering storing, handling, mixing, applying, finishing, curing and cleanup of all mortars and epoxy.

PART 2 PRODUCTS

2.1 CEMENTITIOUS MORTAR OVERLAY

Cementitious mortar overlay shall be a commercially produced multicomponent polymer-modified portland cement specially formulated for concrete repair and rehabilitation applications. The specific products used shall be approved by the Contracting Officer.

2.2 EPOXY COATING

Epoxy coating shall be a commercially produced multicomponent epoxy resin specially formulated for abrasion and corrosion protection of concrete surfaces and suitable for exterior exposure. The specific product used shall be approved by the Contracting Officer.

PART 3 EXECUTION

3.1 SURFACES TO RECEIVE CEMENTITIOUS OVERLAYS AND EPOXY COATING

The invert, interior walls and divider walls of the existing turnout structure and downstream apron at the junction of Main Canal and Edendale Creek shall be rehabilitated. The soffit of the structure is not included in this work.

3.2 SURFACE PREPARATION

A horizontal saw-cut, 1/2 inch deep, shall be made on the interior walls, divider walls and apron walls three feet above the invert. The concrete below the saw-cut shall be removed to a depth of 1/2 inch by chipping or other method approved by the Contracting Officer. All surfaces shall be free of deteriorated concrete, dirt, laitance, oil, grease and all bond inhibiting material. Further surface preparation of the walls and invert shall be in accordance with the mortar manufacturer's recommendations. Preparation of all surfaces shall be completed before application of coatings or overlays to any surface.

3.3 MIXING

Multicomponent mortars and epoxy resins shall be mixed in accordance with the manufacturer's recommendations.

3.4 APPLICATION

3.4.1 Cementitious Mortar Overlays

3.4.1.1 Lower Walls

After surface preparation in accordance with paragraph SURFACE PREPARATION an approved polymer-modified portland cement mortar shall be applied to a thickness of 1/2 inch on the bottom three feet of the walls to bring the surface below the saw-cut even with the wall surface above the saw-cut. The mortar shall be scrubbed into the concrete substrate, using a toothed trowel, filling all pores and voids beginning at the bottom of the wall and working upward. After partial set of the mortar the surface shall receive a smooth float finish. This portion of the work shall be completed and the mortar set up and surface finished before work shall begin on the invert of the structures.

3.4.1.2 Invert

After surface preparation in accordance with paragraph SURFACE PREPARATION and completion of the work specified in paragraph LOWER WALLS an approved polymer-modified portland cement mortar shall be applied to a thickness of 3/4 inch on the inverts of the turnout structure and downstream apron. The mortar shall be scrubbed into the concrete substrate, using a toothed trowel, filling all pores and voids beginning at the edge of the wall and working toward the center of the invert. After partial set of the mortar the surface shall receive a smooth float finish.

3.4.1.3 Leveling Course

After surface preparation in accordance with paragraph SURFACE PREPARATION and completion of work specified in paragraphs LOWER WALLS and INVERT an approved polymer-modified leveling and pore seal mortar shall be applied to the upper portion of the vertical walls above the saw-cut on the turnout structure and downstream apron. If required by the Contracting Officer a leveling course shall also be applied to the final course of mortar on the invert and/or lower portion of the walls below the saw-cut. The leveling course shall be no less than 1/12 inch and no more than 1/6 inch thick. Unblocked edges shall be feathered. The leveling course shall be finished by rubbing with a fine sponge or plastic trowel.

3.4.2 Epoxy Resin Coating

After all mortar and leveling courses have been applied to the walls and inverts of the structures and sufficient time has elapsed for the mortar to cure, as recommended by the manufacturer or required by the Contracting Officer, two coats of an approved abrasion and corrosion resistant epoxy resin shall be applied to the walls and inverts. Application of the epoxy shall follow manufacturer's recommendations.

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