ITEM #0601192A – SURFACE PATCH

Description:

Work under this item shall consist of the removal of spalled, delaminated or otherwise deteriorated concrete from the underside of existing bridge decks by mechanical methods and the coating of the reinforcing steel with epoxy resin as directed by the Engineer.

Materials:

The materials shall conform to the following requirements:

The epoxy resin shall be a two component system. The base polymer shall be a thermosetting resin of the epoxy type. The epoxy resin shall be composed of 100% reactive constituents, which are a condensation product of the reaction of epichlorohydrin with bisphenol ether of bisphenol A, containing no more than trace amounts of hydrolyzable chloride. The epoxy resin shall have an epoxide equivalent between 465 and 530.

The reacting system shall consist of a blend of condensation polymers of dimerized and trimerized unsaturated fatty acids and an aliphatic polyamine.

Unless otherwise specified, pigmentation shall be required in the system so that the cured coating shall conform to the Federal Color Standard 595, No. 16357.

a) Physical Requirements of (Mixed) Epoxy Resin System:

A mixture of both components in the proportions recommended by the manufacturer shall conform to the following requirements:

Viscosity - 500 to 800 centipoises at
77°F Pot life - 7 hours minimum at
75°F Minimum solids content - 48%

The cured system shall not exhibit amine blushing or sweating.

When testing for abrasion by ASTM Designation D968, the pigmented finish coats shall require a minimum of 50 liters of sand to abrade a one mil thickness of coating.

A 2Yz mil dry film thickness of the coating tested according to ASTM Designation D522 shall pass a 1/8-inch diameter mandrel test without splitting the film or causing loss of bond.

b) Sampling:

A representative sample of each component sufficient for the test specified shall be taken by a Department representative either from a well-blended bulk lot prior to packaging or by withdrawing 3 fluid ounce samples from no less than 5 percent by random selection of the containers comprising the lot or shipment. Unless the samples of the same component taken from containers show evidence of variability, they may be blended into a single composite sample to represent that component. The entire lot of both components may be rejected if samples submitted for testing fail to meet any requirements of this specification.

c) Packaging and Marking:

The two components of the epoxy resin system furnished under these specifications shall be supplied in separate containers, which are non-reactive with the materials contained therein. The size of the container shall be such that the recommended proportions of the final mixture can be obtained by combining one container of one component with one or more whole containers of the other component.

Containers shall be identified as base polymer and reacting system, and shall show the mixing directions and usable temperature range as defined by these specifications. Each container shall be marked with the name of the manufacturer, the lot or batch number, the date of packaging, pigmentation if any, and the quantity contained therein in pounds and gallons.

Printed instructions from the manufacturer for mixing and applying the material shall be included.

Potential hazards shall be so stated on the package in accordance with the Federal Hazardous Products Labeling Act.

d) Control of Materials:

A Materials Certificate will be required in accordance with Article 1.06.07, certifying the conformance of the epoxy resin to the requirements set forth in this specification.

Construction Methods:

1) Inspection of the Structural Slab: Before any existing concrete is removed from the structural slab, the Contractor will provide the Engineer clear access to the underside of bridge deck. During this time, the Engineer will perform an inspection of the structural slab and designate areas where concrete removal will berequired.

It shall be the responsibility of the Contractor to inform the Engineer, in writing, of the

date that a structure will be available for inspection operations. Notification shall be given to the Engineer at least seven (7) days prior to the date that the area in question will be in a condition acceptable to the Engineer.

The Contractor will not be allowed to do any further work to the structural slab, until all necessary inspection operations have been performed, unless given permission by the Engineer.

The Contractor will include any costs related to the allowance for this inspection in the general cost of the work.

2) Removal of Deteriorated Concrete: All deteriorated concrete designated for removal under this construction item shall be removed within the limits shown on the plans and where ordered by the Engineer. The lateral limits of each area to be repaired will be delineated by the Engineer and suitably marked. The Engineer will be sole determiner of what constitutes deteriorated concrete, using sounding methods or other evaluation measures at his discretion.

The weight of pneumatic hammers when used shall not exceed 15 pounds. The Contractor shall provide structurally adequate shields approved by the Engineer for protection of adjacent traffic lanes in the vicinity of the removal and cleanup operations.

The concrete surface and exposed reinforcing steel, if any, which is to receive the coating material shall be cleaned of all loose or powder-like rust, oil, dust, dirt, loose particles, and other bond inhibiting matter just prior to coating.

3) Epoxy Coating: The epoxy resin shall be mixed in accordance with the manufacturer's instructions. Also in accordance with the manufacturer's instructions, two coats of the mixed material shall be applied in uniform coats of approximately 2 to 3 mil dry film thickness each.

Method of Measurement:

This work will be measured for payment by the actual number of square feet of area coated with epoxy resin material.

Basis of Payment:

This work will be paid for at the contract unit price per square foot of "Surface Patch", complete and accepted, which price shall include all materials, equipment, tools and labor incidental thereto including inspection and construction access means.

Pay Item	Pay Unit
Surface Patch	s.f.