

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 45 00 – Quality Control.
- .3 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Section 03 30 00 - Cast-In-Place Concrete.

**1.2 MEASUREMENT FOR PAYMENT**

- .1 See Section 01 29 00 – Payment Procedures.

**1.3 REFERENCES**

- .1 NCHRP 244, Concrete Sealers for the Protection of Bridge Structures.

**1.4 SUBMITTALS**

- .1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit manufacturer's instructions in accordance with Section 01 33 00 – Submittal Procedures.
- .3 Submit information on 3 projects where the product has been used on a bridge with similar environmental conditions to this project and has been in use for over 5 years. Information to include project name, owner's contact information and brief description of the project.
- .4 Submit samples in accordance with Section 01 33 00 – Submittal Procedures. Samples shall demonstrate the colour and texture of the coating product.
- .5 Submit drawing indicating locations of coloured coating application.

**1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, handle, store and protect materials to prevent damage to packaging.
- .2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor. Store coating products in temperatures above 4°.

**1.6 WASTE MANAGEMENT**

- .1 Separate waste materials for disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facility.
- .3 Unused sealer material must not be disposed of into the river, on to the ground or in other locations where it will pose health or environmental hazard.

- .4 Divert unused coating material from landfill to official hazardous material collections site approved by Departmental Representative.

## **1.7 WASTE MANAGEMENT**

- .1 Environmental Limitations: conform to manufacturer's written instructions.
- .2 Substrate Conditions:
  - .1 Do not proceed with installation of materials until contaminants capable of interfering with adhesion are removed from substrates.

## **1.8 WASTE MANAGEMENT**

- .1 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of coatings including special conditions governing use.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Concrete coating system shall be a waterborne, highly flexible, high performance waterproofing coating for protection of new concrete formulated with internally cross-linked acrylic copolymer. The coating system shall be highly breathable yet waterproof, resistant to carbon dioxide diffusion, exceptionally UV light resistant, unaffected by wetting/drying and freeze/thaw, and dirt resistant. The coating system shall also have excellent chemical resistance in an acid environment, long term adhesion and durability, no chalking or leaching, and a high resistance to water ponding.
  - .1 The concrete coating system shall consist of a primer coat followed by a coloured top coat. Colour of the primer coat to be a contrast to the top coat.
  - .2 The coating colour shall be 241P Parchment. Provide colour swatches to Departmental Representative for acceptance prior to placing order.
- .2 Clear penetrating silane sealer to be a clear water repellent silane sealer which prevents water and chloride intrusion into the concrete and conforms to the following requirements:
  - .1 Penetration into concrete: 3 - 6mm.
  - .2 Surface appearance: no visual change after application.
  - .3 Water vapour transmission: 100% transmitted (NCHRP 244).
  - .4 Chloride absorption reduction: 80% improvement over control.
  - .5 Water adsorption: 90% improvement over control (NCHRP 244).
  - .6 Ensure silane sealer compatible with waterproofing membrane.

**Part 3            Execution**

**3.1                APPLICATION**

- .1      Apply concrete coating to the crash blocks (all four sides) and the exterior edge of the curbs along the full length of the bridge structure. The curb coating shall be terminated at the top edge of the 25 x 25 chamfer at the top of the curbs, leaving the top surface and the inside edge of both the narrow and wide curbs uncoated. The coating shall also be applied to the outside edges of the bridge deck, the soffit of the bridge deck from the girders' exterior web lines to the outside edges of the bridge deck and the visual surface of the exterior girders from deck soffit to underside of bottom bulb for the full length of the bridge. The exposed surfaces of the wingwalls and abutments, projecting down to an elevation as achievable at finished grade to the approval of the Departmental Representative.
- .2      Apply clear penetrating sealant to the following:
  - .1          To top surface of concrete bridge deck.
  - .2          To top surface of the bridge girder bearing seat at both abutments.
- .3      Do not apply if rain is imminent.
- .4      Surface ambient temperature must not be less than 7°C or above 32°C during 24 hours after the application.
- .5      Fresh concrete must be cured for ten (10) days prior to application.
- .6      Prepare surface for coating in accordance with manufacturer's recommendations.
- .7      Install to manufacturer's recommendations.

**END OF SECTION**