Use this item on bridge crossings only. See Region Resource Library for guidance (N:\region\Resources\Resource Library\Design\Multi-Modal\Snowmobile) and discuss with Materials Engineer for applicable use.

1. Protective Polymer Coating at Snowmobile Trail Crossings, Item SPV.0180.##

A Description

This special provision describes providing a two layer system of polymer liquid binder and pre-bagged aggregate to provide a protective surface for the asphaltic concrete pavement and adjacent concrete curbs, if they exist, and sawing, routing, and seal jointing at snowmobile trail crossings as the plans show.

B Materials

**B.1 Polymer Liquid Binder**

Furnish one of the polymer liquid binder products shown on the pre-qualified list below.

|  |  |
| --- | --- |
| Product Trade Name | Supplier |
| Mark-163 Flexogrid | PolyCarb, Inc. |
| Mark-174 Polymer Road System | PolyCarb, Inc. |
| Sikadur 22 Lo-mod | Sika Corporation |
| Silspec 900 PNS | Silicone Specialties, Inc. |
| CB 700 | Axson North America, Inc. |
| Pro-Poxy DOT Type III | Unitex by Dayton Superior |

A minimum of 10 working days before applying the liquid binder, submit certification to the engineer verifying the product trade name and supplier. The polymer supplier shall provide technical literature to the contractor with advice on storing, mixing, and applying the binder, clean up, and disposing of excess materials.

**B.2 Aggregate**

Provide aggregate that is angular to subrounded, pre-dried, and pre-bagged. The aggregate shall have a minimum hardness of 7 on the Moh’s scale. The aggregate shall be clean, dry (less than 0.2% moisture), and free from silt, clay, asphalt or other organic materials. The aggregate shall meet the following gradation:

|  |  |
| --- | --- |
| Sieve Size | Percent Passing By Weight |
| No. 4 | 100 |
| No. 6 | 80 – 100 |
| No. 10 | 10 – 35 |
| No. 20 | 0 - 10 |

A minimum of 10 working days before application, submit certification to the engineer, verifying the above requirements are met. Before the application, the engineer may request samples of the aggregate for the purpose of acceptance testing by the department.

**B.3 Joint Sealant**

Provide joint sealant material that meets the requirements of ASTM D 6690, Joint Sealants, Hot Poured for Concrete and Asphalt Pavements.

A minimum of 10 calendar days before application, submit certification to the engineer verifying the above requirements are met.

C Construction

Delineate the area to be coated using a string line across the full pavement width. To cause pitting of the surface exposing the coarse aggregate, thoroughly sandblast the finished pavement surface. Expose the edge of the pavement a minimum of one inch at the shoulder so that the coating will adhere to the edge of pavement. Then, clean the entire area with oil-free compressed air.

Taking care to keep the edges straight as possible, place duct tape at the leading and trailing edges of the crossings. Apply the tape to a minimum width of six inches taking care to overlap adjacent rolls.

Premix part A and part B components of the polymer liquid binder before combining. As recommended by the polymer supplier, use the size and type of mixer, and mix the components to the proper proportion.

Using notched squeegees in good condition, apply the polymer at the manufacturer’s recommended temperature to the prepared pavement. Maintain a polymer depth of 1/8 inch so that the aggregate will adhere properly to the pavement.

Immediately after polymer placement, place the aggregate over the polymer. The aggregate spreading technique shall consist of dropping the aggregate into the polymer without pushing the polymer around. Apply the aggregate completely over the polymer to a degree that no wet spots exist. Then remove the duct tape before allowing the polymer to cure.

After the first layer of coating has cured to the point the aggregate cannot be pulled out, apply the second layer. Before applying the second layer, broom the first layer and blow off all loose excess aggregate with compressed air.

Similar to the first layer of polymer coating, install duct tape at the leading and trailing edges for the second layer. Place the tape near the first layer edge starting back into the first layer four inches from the initial edge. The purpose for the setback at the leading and trailing edges is to minimize the potential for snowplow damage. Apply the second layer in the same manner as the first layer. Remove the second layer of tape before curing the second layer. Broom and blow off all loose excess aggregate off the coating in an identical manner to the first layer. Allow the final coating to cure before opening the area to traffic.

To further protect the leading and trailing edges of the protective coating, construct a sawed, routed, and sealed joint into the asphaltic pavement at the delineation edge of the coating, and transversely along the centerline of the roadway. Form the joints by sawing and routing the pavement to the dimensions shown on the plan. Blow the joints clean with compressed air, and seal them with an approved joint sealant. To prevent uncontrolled cracking along the edge of the coating, construct these joints the same day the coatings are applied.

Coat the adjacent lane in the same manner as the first. The second layer shall overlap the adjacent lane a minimum of six inches. Take care not to apply too much aggregate at the centerline thus creating a bump.

D Measurement

The department will measure Protective Polymer Coating at Snowmobile Trail Crossings by the SY acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER DESCRIPTION UNIT

SPV.0180.## Protective Polymer Coating at Snowmobile Trail Crossings SY

Payment is full compensation for furnishing and hauling all materials, including polymer liquid binder, pre-bagged aggregate, joint sealant and duct tape; mixing and applying the polymer liquid binder; spreading, brooming and blowing the aggregate; sandblasting the original pavement surface; sawing, routing, and sealing the required joints; and for removing and disposing of all excess materials.

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