

SECTION 313

ASPHALT SURFACE TREATMENT

I. GENERAL

1.1 DESCRIPTION OF WORK

- A. The Contractor shall furnish all labor, supervision, material (except as herein provided), tools, equipment, supplies, and services; and, shall perform all Work necessary for constructing a single or multiple course asphalt surface treatment, in accordance with the requirements of these specifications and in conformity with the lines shown in the Contract Documents or as established by the Owner.
- B. Asphalt surface treatment may consist of applying one or more seal coats (prime between 2 asphalt courses) or a prime coat followed by one or more seal coats as specified.

1.2 MATERIALS

Materials shall be furnished by the Contractor in accordance with Section 200.

1.3 SUBMITTALS

Submittals shall be made by the Contractor in accordance with the procedures set forth in Section 105 and as described below:

- A. The Contractor shall submit reports of material analysis and asphalt mix designs confirming conformance of all materials with the requirements of this section and all applicable VDOT or permit requirements.
- B. The “Acceptance Procedures for Aggregates” shall be in accordance with *VDOT Road and Bridge Specifications Section 200.04*.

II. EXECUTION

2.1 WEATHER LIMITATIONS

Penetration courses shall not be placed when surfaces are wet when the air temperature is below 50°F or when the surface temperature is below 70°F. The Contractor shall furnish a properly calibrated infrared instrument for the purpose of measuring the surface temperature and shall measure the surface temperature prior to placement.

2.2 EQUIPMENT

- A. Equipment for Heating and Applying Asphalt

- 1. Spreaders

Spreaders for coarse aggregate shall be self-propelled spreading and leveling machines or spreader boxes equipped with shoes or runners of sufficient width and length to preclude damage or displacement of the subgrade or other courses.

2. Distributor

The distributor shall be so designed, equipped, maintained, and operated that asphalt at the specified temperature range may be applied uniformly on variable widths of surface up to 15 feet at readily determined and controlled rates from 0.05 to 2.0 gallons per square yard, with uniform pressure, and with an allowable variation from any specified rate not to exceed 0.02 gallon per square yard. Distributor equipment shall include a tachometer, pressure gages, accurate volume measuring devices or a calibrated tank, and a thermometer for measuring temperatures of the contents of the tanks. Distributors shall be equipped with a power unit for the pump and full circulation spray bars adjustable laterally and vertically. The distributor shall be equipped with a positive shutoff control that will prevent lapping at the junction of two applications. When necessary, the distributor shall be equipped with a positive means of deflecting the spray to prevent coating of adjacent structures and appurtenances. A connection shall be provided and hand spraying equipment shall be used to cover variable width areas, patches and other areas where spray bar application is impractical or would result in excessive asphalt material.

3. Rotary Power Broom

4. Roller equipment

- a. At least one pneumatic tire roller. The pneumatic tire roller shall be self-propelled, and the gross load adjustable to apply 200 to 350 pounds per inch of rolling width as directed. Tires shall be designed for a tire pressure of at least 90 pounds per square inch. Pneumatic tire rollers shall be operated at a maximum speed of 5 miles per hour.
- b. Additional rollers that may be required may be tandem steel wheel or three-wheel rollers weighing at least 8 tons. Steel wheel rollers shall be operated at a maximum speed of 3 miles per hour.

5. Mechanical roller-type hopper or a self-propelled aggregate spreader of an approved design.

2.3 CERTIFIED ASPHALT PAVING TECHNICIAN

The Contractor shall have a VDOT Certified Asphalt Paving Technician present during the paving operation.

2.4 PRIME COAT

The weather limitations of Paragraph 2.1 shall apply to asphalt prime coat work. When asphalt is to be used as a cover for cement stabilization or as a primer for asphalt concrete, the weather limitations specified for these particular operations shall apply.

The maximum application temperature of the liquid asphalt shall conform to the requirements of Section 310, Table 310-1.

The surface to be primed shall be shaped to the required grade and section; rendered free from ruts, corrugations, segregated material, or other irregularities, and uniformly compacted.

Delays in priming may necessitate reprocessing or reshaping to provide a smooth compacted surface.

Asphalt shall be applied by means of a pressure distributor in a uniform continuous spread. When traffic is maintained, not more than 1/2 the width of the section shall be treated in one application. Care shall be taken that the application of asphalt at junctions of spreads is not in excess of the specified amount. Excess asphalt shall be removed from the surface by a squeegee. Skipped areas or deficiencies shall be corrected.

During the application of asphalt, care shall be taken to prevent spattering adjacent items. The distributor shall not be cleaned or discharged into ditches or borrow pits, onto shoulders, or along the right of way. When not in use, equipment shall be parked so that the spray bar or mechanism will not drip asphalt on the surface of the traveled way.

When traffic is maintained, one-way traffic shall be permitted on the untreated portion of the roadbed. When the asphalt has been absorbed by the treated surface and will not pickup, traffic shall be transferred to the treated portion and the remaining width of the section shall be primed.

The quantity, rate of application, temperature, and areas to be treated shall be approved before application of the prime coat.

If after application of the prime coat the asphalt fails to penetrate within the time specified and the roadway must be used by traffic, cover material shall be spread at the Contractor's expense in an amount that will prevent pickup of the asphalt.

When cover material is specified: Immediately after cover material is spread, rolling shall begin immediately behind the spreader and shall consist of at least three complete coverages.

The prime coat shall be permitted to cure prior to the next application of asphalt.

During the period between application of the prime coat and the seal coat, the primed surface shall be kept in repair. Holes, ravels and areas deficient in primer shall be patched and repaired with asphalt-treated materials by penetration methods or other approved procedures.

2.5 SEAL COAT

Seal coating operations shall not be started until the surface is thoroughly compacted and cleaned of dust, mud, and foreign matter and the section to be sealed has been approved by the Owner.

Asphalt shall be applied by means of a pressure distributor in a uniform continuous spread over the section to be treated and within the temperature range given in Section 310, Table 310-1. A strip of building paper at least 3 feet in width and having a length equal to that of the spray bar of the distributor plus 1 foot shall be used at the beginning of each spread. If the cutoff is not positive, the use of paper may be required at the end of each spread. The paper shall be removed and disposed of legally. The distributor shall be moving forward at the proper application speed at the time the spray bar is opened. Skipped areas and deficiencies shall be corrected. Junctions of spreads shall be carefully made to ensure a smooth riding surface.

The length of the spread of asphalt shall be regulated by the quantity of cover material in loaded trucks on the project.

The spread of asphalt shall be not more than 6 inches wider than the width covered by the cover material from the spreading device. Asphalt shall not be allowed to chill, set up, dry, or otherwise impair retention of the cover material.

During asphalt application, care shall be taken to prevent spattering adjacent items. The distributor shall not be cleaned or discharged into ditches or borrow pits, onto shoulders, or along the right of way. When not in use, equipment shall be parked so that the spray bar or mechanism will not drip asphalt material on the surface of the traveled way.

Immediately following asphalt application, cover material shall be applied in full-lane widths up to 12 feet. Laps shall be made only at lane dividers or at the crown of the roadway. Successive laps at lane dividers and the roadway crown shall be staggered from 3- to 6-inches. Spreading shall be accomplished in a manner so that the tires of the truck or aggregate spreader do not contact the uncovered and newly applied asphalt.

If directed, cover material shall be moistened with water to eliminate or reduce dust coating of aggregate. Moistening shall be done the day before the use of aggregate.

Immediately after cover material is spread, rolling shall begin immediately behind the spreader and shall consist of at least three complete coverages.

After application of cover material, the wearing surface shall be lightly broomed or otherwise maintained until cured as directed. Maintenance of the surface shall include distributing cover material over the surface to absorb free asphalt and cover any area deficient in cover aggregate. Maintenance shall be conducted so as not to displace embedded material. Excess material shall be swept from the surface by means of rotary brooms as required or as directed by the Owner.

Successive applications of asphalt using emulsion or asphalt cements may be applied without any delay for curing. When cutback asphalt is used, the first seal coat shall be maintained and permitted to cure for at least 48 hours.

2.6 OPENING TO TRAFFIC

The roadway shall be kept open to traffic at all times. As soon as the final layer is placed, controlled traffic may be permitted thereon.

2.7 RATES OF APPLICATION

Unless otherwise directed by the Owner or defined in the Contract Documents or Special Provisions, the rates of application of materials shall be determined in accordance with the method described in Education Series No. 12 of the Asphalt Institute entitled *Asphalt Surface Treatments Construction Techniques*.

III. MEASUREMENT FOR PAYMENT

- A. Surface treatment will be measured and paid by the square yard, based on plan quantities.
- B. Items considered incidental work will not be measured for payment or paid for as such. Incidental items are identified in Section 109.1.2 and also include Maintaining Treatment.

End of Section