## BITUMINOUS SURFACE TREATMENT (PREVENTATIVE MAINTENANCE), CLASS A-2

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**Description:** This work shall consist of constructing an A-2 bituminous surface treatment which shall consist of a prime coat, a bituminous cover coat material and a cover coat aggregate, and a bituminous seal coat material and seal coat aggregate.

**Materials:** Materials shall be according to the following.

Item Article/Section

(a) Cover Coat Aggregate ....................................................................... 1004.03

(b) Seal Coat Aggregate ……….................................................................... 1004.03

(c) Bituminous Materials (See Note) ............................................................ 1032

Note: The Engineer reserves the right to specify the grade which shall be used.

***Cover Coat Aggregate and Seal Coat Aggregate shall only be white crushed limestone, washed twice, with a CA 16 or CA 20 gradation.***

***The bituminous material shall be a polymer modified emulsified asphalt meeting the requirements of Article 1032.06(e) of the Standard Specifications.***

All materials to be incorporated into the project shall be tested and approved prior to incorporation. Samples of aggregate shall be submitted to the County’s “On-Call” material testing Contractor as soon as possible so as not to impose work.

**Equipment:** Equipment shall be according to the following.

Item Article/Section

(a) Pneumatic-Tired Rollers ....................................................................... 1101.01

(b) Mechanical Sweeper ............................................................................... 1101.03

(c) Aggregate Spreaders …….. .................................................................... 1102.04

(d) Heating Equipment ................................................................................. 1102.07

(e) Pressure Distributor ……........................................................................ 1102.05

**CONSTRUCTION REQUIREMENTS**

**Weather Limitations**: This work shall be done between May 1 and October 1. Bituminous materials shall be applied only when the temperature of the air in the shade is above 60 °F (15 °C). No work shall be started if local conditions indicate that rain is imminent.

**Preparation of Bituminous Material**: The temperature of the bituminous material at the time of application shall be such that it will spray uniformly without clogging the spraying nozzles and shall be applied within the temperature ranges according to Article 1032.04. Bituminous material delivered in tank cars may be heated by steam coils. Bituminous material delivered in mobile tanks may be heated in asphalt tanks or in a pressure distributor. In all cases, precautions shall be taken to avoid danger of fire. If heated in asphalt tanks, the material shall be agitated during the heating period to prevent localized overheating. If heated in a pressure distributor, the material shall be circulated while it is being heated. All flames shall be extinguished during application of the bituminous material. In all methods of heating, means shall be provided to determine the temperature of the material at frequent intervals to prevent it from being overheated or damaged. Emulsified asphalt received in tank cars or mobile tanks shall be agitated to secure uniformity of the emulsion before being used. Penetrating emulsified prime (PEP) shall be thoroughly agitated within 24 hours of application.

**Preparation of Aggregate**: The aggregates used in the cover coat(s) and the seal coat shall contain no free moisture.

The Contractor shall only perform work on ½ mile of roadway at a time. For 2 lane roads a ½ mile of roadway shall be measured along the centerline of the roadway. For roads with more than 1 through lane of traffic in each direction the ½ mile of roadway shall be defined as ½ lane-mile of roadway.

**Sequence of Work**: The sequence of construction operations shall be undertaken as follows.

(a) Repair and preparation of base or existing surface.

(b) Application of bituminous material for prime coat.

(c) Alternate applications of bituminous material and aggregate.

**Repair and Preparation of Base or Existing Surface**: The base or existing surface shall be prepared according to Section 358.

**Prime Coat:** The bituminous material, as specified above, shall be applied uniformly at the rate of 0.25 to 0.5 gal/sq yd (1 to 2 L/sq m), the exact rate to be specified by the Engineer. The bituminous priming material shall be applied to a width 1 ft (300 mm) greater on each side of the roadway than the specified width of the finished surface.

The prime coat shall be permitted to cure until the penetration has been approved by the Engineer, but not less than 24 hours for MC-30 or four hours for PEP. Pools of bituminous material occurring in the depressions shall be broomed or squeegeed over the surrounding surface the same day the prime coat is applied. Traffic shall not be allowed upon the primed surface during the curing period. At locations where the prime coat has failed or is damaged, it shall be repaired in a manner satisfactory to the Engineer. The prime coat shall be maintained at all times until the cover coat is constructed. When required by the Engineer, the primed surface shall be swept prior to constructing the cover coat.

**Application of Bituminous Material**: The bituminous material shall be applied with a pressure distributor. A hand spray bar shall be used at places which are not covered by the distributor. The entire length of the spray bar shall be set at the height above the surface recommended by the manufacturer for even distribution of the bituminous material. Any loss of bituminous material in handling due to faulty valves, leaking pipes, overflow due to excess, or other reasons, will be deducted from the amount due the Contractor.

The distributor shall be operated in a manner such that missing or overlapping will be avoided. To prevent overlapping of successive applications of bituminous material at transverse joints, heavy paper shall be spread over the previously applied bituminous material and aggregates. In order to obtain a uniform application of the bituminous material, the distributor shall be traveling at the speed required for the specified rate of application when the spray bar crosses the paper.

Adjacent construction, such as concrete pavement, curb and gutter, bridge floors, raised reflective pavement markers, and bridge handrails, shall be protected by shields, covers or other means. If bituminous material is applied to adjacent construction either by accident or because of inadequate protection, the Contractor shall remove such material.

If the Contractor is unable to obtain satisfactory application due to unsuitable or poorly regulated distributing equipment, or to incompetent operators, the Contractor shall immediately replace or repair such equipment, or furnish competent operators.

A spray bar operator shall be present at all times, on the rear platform of the distributor, during the application of the bituminous material.

The spray bar operator may be omitted from the rear platform, if the distributor is of such design that the quantity of bituminous material being placed is mechanically coordinated with the speed of the distributor, and the on-off controls and driver's visibility are such that no overlapping of successive applications of bituminous material and aggregates will occur.

**Application of Aggregates**: The cover coat and seal coat aggregates shall be spread evenly with an aggregate spreader over the entire surface being treated. In all cases, the aggregate shall be applied ahead of the truck or spreader wheels. Hand spreading will be permitted only when approved by the Engineer and, when so permitted, the aggregate shall be spread uniformly and at the approximate rate specified. Any ridges of aggregate left by the aggregate spreader shall be smoothed out with hand brooms immediately behind the aggregate spreader.

**Cover Coat**: Bituminous material for the cover coat shall not be applied until the previous application is acceptable to the Engineer.

At the beginning of each day's work, no bituminous material shall be applied until there is sufficient cover coat aggregate in trucks at the work site to completely cover the first application of bituminous material. The amount of surface area covered by each successive application of bituminous material shall be determined by the Engineer. In no case shall this area be greater than can be covered with cover coat aggregate and given the initial rolling while the bituminous material is still in condition to hold the aggregate.

The bituminous material, as specified for cover coat above, shall be applied uniformly over the surface at the rate of 0.20 to 0.50 gal/sq yd (1 to 2 L/sq m), the exact rate to be specified by the Engineer. Immediately following the application of the bituminous material, the cover coat aggregate shall be spread over the treated surface at the rate of 15 to 25 lb/sq yd (8 to 14 kg/sq m), the rate to be as specified by the Engineer.

The entire surface shall be rolled immediately with a pneumatic-tired roller. Rolling shall proceed in a longitudinal direction beginning at the edges and progressing toward the center, overlapping on successive trips by at least 1/2 the width of the roller. The roller shall be operated at a speed which will not cause the aggregate to be displaced. The aggregate shall then be rolled with a separate pneumatic-tired roller until the aggregate is properly seated in the bituminous material.

**Seal Coat**: When constructing, the seal coat shall not be started until the cover coat immediately preceding the seal coat is completed.

Application of the bituminous material and aggregate and rolling of the seal coat aggregate shall be the same as specified above for the cover coat.

During the construction period, the Contractor shall maintain the completed work. If necessary, the Contractor shall apply additional seal coat aggregate to absorb excess bitumen appearing on the surface and shall repair any areas where pickup has occurred.

Upon completion of the work and after final set of the asphalt, excesses of loose aggregate shall be removed by brooming the entire roadway surface with rotary type brooms.

**Opening to Traffic**: The road shall be opened to traffic according to Article 701.17(c)(4).

**Method of Measurement**: Bituminous materials will be measured for payment by weight. A weight ticket for each truck load shall be furnished to the Engineer. The truck shall be weighed at a location approved by the Engineer. The ticket shall show the weight of the empty truck (the truck being weighed each time before it is loaded), the weight of the loaded truck, and the net weight of the bituminous material. Payment will not be made for bituminous materials in excess of 105 percent of the amount specified by the Engineer.

The Bituminous Surface Treatment, Class A-2, will be measured for payment in place and the area computed in square yards. The width for measurement will be the top width of the bituminous surface treatment as shown on the plans or as directed by the Engineer.

**Basis of Payment**: This work will be paid for at the contract unit price per pound for BITUMINOUS MATERIALS (TACK COAT) and at the contract unit price per square yard for BITUMINOUS SURFACE TREATMENT (PREVENTATIVE MAINTENANCE) CLASS A2.

When provided as a payment item, the preparation of the base or existing surface will be measured and paid for as specified in Section 358. If not provided as a payment item, preparation of base or existing surface shall be considered as included in the contract unit price(s) for the bituminous surface treatment.