
BITUMINOUS SEAL COAT**PART 1 - GENERAL****1.01 SECTION INCLUDES**

Bituminous Seal Coat Pavement

1.02 DESCRIPTION OF WORK

Work shall include preparation of surface, heating of bituminous materials and placing of the seal coat.

1.03 SUBMITTALS

Follow the General Provisions (Requirements) and Covenants.

1.04 SUBSTITUTIONS

Follow the General Provisions (Requirements) and Covenants.

1.05 DELIVERY, STORAGE, AND HANDLING

Follow the General Provisions (Requirements) and Covenants.

1.06 SCHEDULING AND CONFLICTS

Follow the General Provisions (Requirements) and Covenants.

1.07 RESTRICTION ON OPERATIONS

- A. Wet/Night Conditions: Seal coat shall not be placed on a wet surface or in night conditions.
- B. Spread the binder bitumen on an area no greater than can be covered with aggregate and initially rolled within 2 minutes. The bitumen spreader and aggregate spreader shall be as close as possible, but not more than 150 feet apart.
- C. Date Restrictions: Seal coats shall not be applied after September 30 or when the surface pavement and air temperature are below 70°F.

1.08 MEASUREMENT FOR PAYMENT

The measurement and payments for bituminous seal coat pavement includes surface preparation, furnishing, and placing of materials including fillets at intersecting roads, drives, and turnouts.

A. Bituminous Seal Coat by Area: Bituminous seal coat shall be measured and paid in square yards.

B. Bituminous Seal Coat by Units

- 1. **Cover Aggregate:** The quantity of cover aggregate spread on the road surface, fillets and turnouts shall be measured in tons.

1.08 MEASUREMENT FOR PAYMENT (Continued)

2. **Binder Bitumen:** The quantity of binder bitumen used in the work, including road surface, fillets and turnouts as provided in measurements of distributors, tank cars or trucks shall be measured in gallons. When quantities computed from field measurements checks within 1% of bill gallons, payment will be based on billed gallons. When quantities computed from field measurement differ from billed gallons by more than 1%, payment will be based on field measurements.

C. Preparation of Surface

1. Preparation of existing granular surface by scarifying to the required depth shall be paid for by the square yard.
2. Existing surface shall be cleaned of all foreign material and shall be considered incidental to other work.

PART 2 - MATERIALS AND EQUIPMENT**2.01 MATERIALS**

Materials used in bituminous seal coat work shall comply with the following requirements:

- A. Aggregates:** The aggregate cover shall be clean or washed aggregate and shall be composed of hard durable gravel crushed stone or mixture, with abrasion loss by AASHTO T 96 not exceeding 40%. Gradation shall be as follows:

Sieve	Percent Passing					
	1/2"		3/8"		Sand	
Size	Min	Max	Min	Max	Min	Max
3/4"	100					
1/2"	97	100	100			
3/8"	40	90	90	100	100	
No. 4	5	30	10	55		
No. 8	0	15	0	20	60	90
No. 30			0	7		40
No. 200	0	2	0	1.5	0	1.5

- B. Bituminous Material:** Unless the contract documents stipulate a specific grade, the binder bitumen used shall be Cationic Emulsion CRS-2, complying with requirements of ASTM D 2397. Cut back asphalt MC-800 ORMC 3000 may also be used as directed.

2.02 EQUIPMENT

The equipment used shall be of types approved by the engineer and shall be kept in satisfactory working condition.

- A. Aggregate Spreaders:** Aggregate spreaders shall be self propelled, mounted on pneumatic tires, with a width of spread not less than 12 feet. The unit shall be capable of spreading aggregate specified above at a rate desired from 10 to 30 pounds per square yard of surface covered without contact of the wheels of the spreader with the treated surface until the aggregate has been spread.
- B. Bitumen Distributors:** Distributors shall be mounted on dependable motor trucks equipped with pneumatic tires. Distributors shall be provided with burners with heating coils and an accurate thermometer indicating temperature of the bitumen in the tank. Distributors shall supply bitumen to spray bars to produce an even spray at rates varying from 0.3 gallon to .5 gallon per square yard in a smooth uniform coating at a forward speed of up to 20 mph. The spray bars shall be adjustable vertically and shall provide a total spray width of not less than 12 feet. Distributors shall operate according to manufacturer's instructions for use for spray bar height above surface, nozzle size and angle of spray fan, and tables of rates of distribution in gallons per square yard for tachometer readings. Distributor calibration shall be verified before being used.
- C. Brooms:** A power-driven rotary broom is required for cleaning surfaces before bitumen is applied. Such brooms shall be driven by an auxiliary motor or by power take-off.
- D. Rollers:** Pneumatic tire rollers shall be used and shall be self-propelled, with tires not smaller than 7.50 x 15 size. Rollers shall be loaded to produce a compressive force of not less than 200 pounds per inch width of the roller. Tire inflation shall not be less than 60 psi. Steel rollers shall not be used unless authorized by the Engineer, and then only for finishing work.

PART 3 - EXECUTION**3.01 PREPARATION OF SURFACE****A. Existing Gravel Roads:**

1. Add aggregate to existing gravel surface as necessary to obtain a minimum depth of 4 inches.
2. Scarify the top 4 inch gravel roadbed or as directed by the Engineer.
3. Add 6% emulsion to scarified roadbed to obtain a 4% residue content and blade to mix to a uniformed mixture.
4. Compact to not less than 95% as determined in accordance with the Standard Proctor Density.
5. Surface will be allowed to cure for a minimum of 24 hours.

B. Existing Paved Roads: Clean entire surface to be treated.**C. Priming:** Unless otherwise specified by the Engineer, the prime coat application shall be MC70 or MC30 and applied at a rate of 0.1 to 0.3 gallon per square yard.**3.02 HEATING BITUMINOUS MATERIAL**

Bituminous materials shall be heated to the temperature at which will permit uniform spreading. It is estimated that temperatures between the following limits will produce the desired viscosity.

<u>Designation</u>	<u>Temperature</u>
CRS-2	125-170

Cutback asphalts used are to be as directed by the Engineer.

MC 800	175-255
MC 3000	215-290
MC 70	145-165

3.03 SPREADING BITUMINOUS MATERIAL

- A. General:** Bituminous material shall not be spread until the distributor has been tested to assure a uniform distribution of bitumen.
- B. Spreading Binder Bitumen:** Bitumen shall be applied to the prepared base on surface at the rate of 0.30 gallon per square yard, if not otherwise specified. Adjacent applications of bitumen shall close with a minimum longitudinal lap. The length of spread shall not be greater than can be covered with aggregate within 20 minutes after the bitumen spread has been completed, nor longer than can be completely rolled within 30 minutes after the bitumen spread has been completed. The quantity of aggregate size selected and should be spread as directed by the Engineer. (For example, 1/2 inch maximum size aggregate should be spread at approximately 25-30 lbs/sq yd) the aggregate should be embedded a minimum of one-half the thickness of the bitumen.
- C. Maintenance During Construction Period:** If bleeding occurs during construction, cover area with clean skid sand and/or restrict traffic to light loads 7 to 10 calendar days to control bleeding. Incidental if bid is by the square yard or if covered by contract price. Rolling will be considered incidental.

3.04 ROLLING

- A. Initial pass of pneumatic tired roller shall be completed within 2 minutes after spreading the binder bitumen. Rolling operations shall be completed within 30 minutes after binder bitumen has been sprayed.
- B. Five passes of roller shall be required for cover aggregate; one pass shall be required for skid sand, placed to control bleeding
- C. Succeeding applications of binder bitumen shall not be applied until rolling operations are completed for the previous course.

END OF SECTION