

TABLE OF CONTENTS

3.22	GRADED AGGREGATE SEAL COAT	1
3.22.1	<u>GENERAL</u>	1
3.22.2	<u>MATERIALS</u>	1
3.22.2.1	Aggregate	1
3.22.2.2	Asphalt	1
3.22.2.3	Line Painting Materials	1
3.22.3	<u>EQUIPMENT</u>	1
3.22.4	<u>TESTING</u>	2
3.22.4.1	Quality Control Testing	2
3.22.4.2	Testing by the Consultant	2
3.22.5	<u>CONSTRUCTION</u>	3
3.22.5.1	Surface Preparations	3
3.22.5.2	Application Areas	3
3.22.5.3	Rolling and Brooming	3
3.22.5.4	Protection of Structures	4
3.22.5.5	Traffic Accommodation and Signing	4
3.22.5.5.1	Traffic Convoy	4
3.22.5.6	Temporary Markers	4
3.22.6	<u>PAINTED ROADWAY LINES AND PAVEMENT MESSAGES</u>	5
3.22.7	<u>REQUIREMENTS FOR ACCEPTANCE</u>	5
3.22.8	<u>COMPLETION OF LINE PAINTING</u>	5
3.22.9	<u>MEASUREMENT AND PAYMENT</u>	6
3.22.9.1	Line and Pavement Message Painting	6
3.22.9.2	Supply of Aggregate	7

3.22 GRADED AGGREGATE SEAL COAT**3.22.1 GENERAL**

Graded aggregate seal coat shall consist of a surface treatment composed of an asphalt binder and a graded aggregate, spread and compacted in one application on a prepared surface to the lines and dimensions shown on the plans or as designated by the Consultant.

3.22.2 MATERIALS**3.22.2.1 Aggregate**

The Contractor shall produce crushed aggregate in accordance with Specification 3.2, Aggregate Production and Stockpiling for the designation and class of material specified. The Contractor shall supply aggregate materials in accordance with Specification 5.2, Supply of Aggregate and haul aggregate materials in accordance with Specification 4.5, Hauling.

3.22.2.2 Asphalt

The Contractor shall supply a high float type emulsified asphalt binder in accordance with Specification 5.7, Supply of Asphalt.

3.22.2.3 Line Painting Materials

The Contractor shall supply all line painting materials in accordance with Specification 5.20, Supply of Line Painting Materials.

3.22.3 EQUIPMENT

The Contractor shall use the following equipment:

- (a) A self-powered pressure asphalt distributor meeting the requirements as listed in Specification 3.19, Prime, Tack and Fog Coats.
- (b) A sufficient number of power sweepers to adequately broom loose aggregate from all sections of seal coated roadway. All power sweepers shall be equipped with a minimum of one yellow rotating warning light.
- (c) A self-propelled aggregate spreader capable of spreading the aggregate uniformly at the specified rate in one application over the full-width of the asphalt applied. The spreaders shall be capable of controlling and adjusting the width and rate of spread. The spreaders shall be equipped with the necessary devices to enable it to be attached securely to the aggregate haul truck while in the process of dumping the aggregates into the spreader.
- (d) A minimum of two self-propelled pneumatic rollers, each with a minimum static weight of 9 tonnes. The rollers shall be capable of reversing direction without causing backlash or damage to the seal coat.

- (e) The Contractor shall supply pilot vehicles for conveying traffic. The pilot vehicles shall have sufficient accompanying personnel to provide convoy services on a 24 hour a day availability. The standard number of pilot vehicles to be provided shall be two for two lane highways or as specified in the special provisions. Additional vehicles may be required as determined by the Consultant at the time of construction. All pilot vehicles shall be equipped as follows:
- A two way radio for communication.
 - An overhead revolving beacon with an amber lens a minimum of 180 mm high and 180 mm wide. The beacon shall be mounted on the top of the vehicle fully visible to traffic approaching from both the front and rear.
 - A sequential arrowboard meeting the requirements as shown in Specification 1.2 General.
 - The arrowboard shall be controlled from a console located in the vehicle cab.
 - The arrowboard display shall be visible to traffic approaching the rear of the trucks.
 - Additional pilot vehicles beyond the standard number specified, may be exempt from including a sequential arrowboard with the approval of the Consultant.

The Contractor shall cease seal coat application if any equipment integral to either the compaction, sweeping or traffic accommodation operations is not available or is not in good working order, as determined by the Consultant.

3.22.4 TESTING

3.22.4.1 **Quality Control Testing**

Quality control and quality control testing are the responsibility of the Contractor throughout every stage of the work from the crushing and production of aggregates to the final accepted product. Tests performed by the Consultant will not be considered to be quality control tests. The Contractor shall provide and pay for equipment and qualified personnel to perform all field testing necessary to determine and monitor the characteristics of the materials produced and incorporated into the Work, and the final product produced.

3.22.4.2 **Testing by the Consultant**

The Consultant may from time to time take samples, and carry out testing and inspection of materials incorporated or being incorporated into the Work. Tests performed by the Consultant will not be considered to be quality control tests. The Contractor shall cooperate with the Consultant for such sampling, testing and inspection. Such testing and inspection shall not relieve the Contractor from any obligation to perform all the Work strictly in accordance with the requirements of the Contract.

The Contractor shall provide, at his own expense, stands, sampling devices and other facilities as the Consultant may require to safely obtain representative samples of the item being produced.

3.22.5 CONSTRUCTION

The placement of graded aggregate seal coat shall be limited to the period from May 1 to September 15. The extent of surface preparation required and the method of application of the Graded Aggregate Seal Coat including application rates for the asphalt binder and the processed aggregate shall be determined by the Contractor.

The Contractor shall also determine the amount of compaction required based on consideration of compaction equipment, atmospheric conditions and acceptance requirements.

Construction shall be carried out during daylight hours only.

3.22.5.1 **Surface Preparations**

Before the asphalt binder is applied, the surface to be treated shall be cleaned of all dirt, sand, dust or objectionable matter. Asphalt binder shall not be applied until the surface has been cleaned as required and the section approved by the Consultant.

3.22.5.2 **Application Areas**

Unless otherwise specified or shown on the plans, the Contractor shall not apply seal coat to roadway shoulders or to bridge decks.

The Contractor shall apply seal coat as follows:

- (i) To each through travel lane to the widths shown on the Contract Plan, regardless of the widths shown on the intersection plans.
- (ii) At intersections, to all parallel lanes and their respective tapers, in general conformance with the drawing entitled "Seal Coat Applications at Intersections" (CB6-3.23M1 or CB6-3.23M2 as applicable), or as shown on the shaded intersection plans if provided.
- (iii) To all passing and climbing lanes and their respective tapers.
- (iv) Application on bridge decks where required will generally be from curb face to curb face.

3.22.5.3 **Rolling and Brooming**

Immediately after spreading, the aggregate shall be rolled.

After initial set of the binder (normally 1 to 3 hours depending on atmospheric condition), further compaction of the seal coat shall continue by using either further rolling or controlled traffic or a combination of both, until a thoroughly compacted surface is obtained. The Contractor shall determine the amount of additional compaction required based on consideration of compaction equipment, traffic conditions, atmospheric conditions and acceptance requirements.

Once compaction has been achieved, light brooming of the surface shall be undertaken to remove any loose aggregate.

The Contractor shall broom the graded aggregate seal coat in daylight hours only, when required and as often as required during a two week period following the initial application or as directed by the Consultant.

All highway-to-highway junctions and all junctions of paved highways with municipal roads shall be swept clear of loose aggregate.

The Contractor shall use a pickup broom for all brooming in urban and other areas where loose aggregate cannot be swept onto sideslopes or onto ditches.

3.22.5.4 Protection of Structures

Structures, curbs, guardrail, and other appurtenances shall not be spattered with the asphalt binder. The Contractor shall remove any spattering caused by his operation. Asphalt binder shall not be spilled, sprayed, or tracked on completed sections of seal coat.

The Contractor shall not operate vibratory rollers in vibratory mode on any bridge deck.

The Contractor shall ensure that bridge expansion joints, drains, curbs and appurtenances are protected from asphalt and/or chip contamination.

In addition to being responsible for the cleanup of any contaminated areas, the Contractor is advised that many bridge components and materials are affected by cleanup and any costs for repair of damaged structures will be charged to the Contractor.

3.22.5.5 Traffic Accommodation and Signing

The Contractor shall erect and maintain temporary construction signs in accordance with the Traffic Accommodation in Work Zones manual.

A Traffic Accommodation Strategy as outlined in Specification 7.1, Temporary Construction Signing will be required for all phases of construction including subsequent brooming and line painting activities. The signing strategy shall be developed based upon the requirements of the Traffic Accommodation in Work Zones manual.

3.22.5.5.1 Traffic Convoy

Traffic shall be accommodated through the work. The Contractor shall, at his own expense, provide flagmen, pilot vehicles and/or illuminated arrow boards as required.

Traffic and construction equipment including aggregate haul trucks shall not travel over uncovered surfaces of fresh asphalt binder. Traffic convoy, at speeds not exceeding 50 km per hour, shall commence at the start of seal coat application and shall continue up to six hours after all rolling has been completed as directed by the Consultant.

3.22.5.6 Temporary Markers

The Contractor shall supply and install temporary, reflectorized centreline markings (Davidson Temporary Road Pavement Markers or equivalent) on the centreline of the roadway immediately before applying the

asphalt binder. Markers shall be placed at 25 m intervals on tangent sections and at 15 m intervals on curves and shall remain in place.

3.22.6 PAINTED ROADWAY LINES AND PAVEMENT MESSAGES

The Contractor shall paint all roadway lines and pavement messages for the areas receiving Graded Aggregate Seal Coat in accordance with Specifications 7.2, Painted Roadway Lines and 7.3, Painted Pavement Messages.

All painted roadway lines and painted pavement messages applied to the seal coat surface shall be applied twice at the full application rate for each application. The second application shall be completed after the Contractor's final brooming. On two lane highways the second application will be from the opposite direction of the initial application.

All edge lines shall be painted completely off "but next to" the seal coat "edge" and will only require one paint application.

In all cases, the roadway shall not be posted at gazetted highway speeds until all work including line painting has been completed. The maximum length of roadway posted at less than gazetted highway speeds shall not exceed 30 km.

3.22.7 REQUIREMENTS FOR ACCEPTANCE

Requirements for the acceptance of the completed graded aggregate seal coat include the following:

- (i) Materials shall meet all specified requirements;
- (ii) a minimum of 99% aggregate coverage has been obtained with no single bare area greater than 0.01 m² in any one square metre,
- (iii) there is no streaking or ravelling,
- (iv) the surface of the seal has a uniform, even texture,
- (v) no over-rich or bleeding areas are evident, and
- (vi) no loose aggregate is evident.
- (vii) All existing pavement markings have been preserved or replaced in accordance with Specifications 7.2, Painted Roadway Lines and 7.3, Painted Pavement Messages.

Graded aggregate seal coat that does not meet the foregoing requirements shall be repaired or reconstructed at the Contractor's expense to the satisfaction of the Consultant.

3.22.8 COMPLETION OF LINE PAINTING

The Contractor shall complete the replacement of roadway lines within five days of completing the placing of the seal coat on each individual roadway. Failure to meet this requirement will result in a penalty of

\$900.00 per day for each calendar day delay in completing the painting. The Engineer may extend the time allowed to complete the painting up to a maximum of ten days providing:

- (i) The Contractor submits a written request to the Engineer accompanied by a detailed proposed line painting schedule.
- (ii) The reason for the request, stated in the request, is one of the following:
 - (a) The seal coat requires additional curing time and subsequent brooming work prior to painting the traffic markings, or
 - (b) The work site is not available to the Contractor through no fault of the Contractor, or
 - (c) The Engineer suspends the Work and standby payments are due in accordance with Specification 1.2, General, or
 - (d) There is a delay resulting from an order of a court, or from strikes or lock-outs, or
 - (e) The traffic markings cannot be painted for reasons of inclement weather, or conditions resulting from inclement weather.

3.22.9 MEASUREMENT AND PAYMENT

The amount of Graded Aggregate Seal Coat considered for acceptance will be based upon the estimated quantities as shown in the unit price schedule. Generally, a variance in these quantities will only be considered when the scope of the Work has been modified by the Department. However, the Department reserves the right to measure the Work actually constructed to confirm compliance with the design and any such measurement will become the basis for the final payment.

Payment will be made at the unit price bid per square metre for "Graded Aggregate Seal Coat". This payment will be full compensation for preparing the existing surface; supplying and installing temporary lane markers; supplying and applying the asphalt binder; supplying, processing, hauling, placing and rolling the aggregate; brooming the finished surface; replacing and/or maintaining pavement markings; quality control; traffic accommodation and traffic convoy services using the standard number of pilot vehicles as specified.

Payment for pilot vehicle requirements, as approved by the Consultant, in excess of the standard number specified, shall be paid as Extra Work in accordance with Specification 1.2, General.

No separate payment will be made for any additional equipment, tools or labour employed to satisfy special brooming requirements.

No payment will be made for any costs incurred to rectify defective work.

3.22.9.1 **Line and Pavement Message Painting**

Contrary to Specifications 5.20, Supply of Line Painting Materials; 7.2, Painted Roadway Lines and 7.3, Painted Pavement Messages, no separate payment will be made for the supply of painting materials nor for replacing the lines and pavement message markings. The cost of this Work shall be included in the unit

price bid for "Graded Aggregate Seal Coat."

3.22.9.2 Supply of Aggregate

Contrary to Specification 5.2, Supply of Aggregate, separate payment will not be made for supplying aggregate for graded aggregate seal coat. However, if the Contractor supplies aggregate from a Crown source on undeeded land, operated primarily under lease or licence and for which the Department does not have a reservation, the Department will deduct \$ 0.48 per tonne from the total payments made under the Contract. The tonnage will be determined by multiplying the total square metres of seal work performed, by a conversion factor of 20 kilograms per square metre.