

## **SECTION 32 12 16 ASPHALT PAVING**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION**

This work shall cover the composition, mixing, construction upon the prepared subgrade, and the protection of hot asphalt concrete pavement. The hot asphalt concrete pavement shall consist of an aggregate or asphalt base course and asphalt surface course constructed in conformity with the lines, grades, thickness, and cross sections as shown. Each course shall be constructed to the depth, section, or elevation required by the drawings and shall be rolled, finished, and approved before the placement of the next course.

#### **1.2 RELATED WORK**

- A. Laboratory and field testing requirements: Section 01 45 29, TESTING LABORATORY SERVICES.
- B. Subgrade Preparation: Paragraph 3.3 and Section 31 20 00, EARTH MOVING.
- C. Pavement Markings: Section 32 17 23, PAVEMENT MARKINGS.

#### **1.3 INSPECTION OF PLANT AND EQUIPMENT**

The Resident Engineer shall have access at all times to all parts of the material producing plants for checking the mixing operations and materials and the adequacy of the equipment in use.

#### **1.4 ALIGNMENT AND GRADE CONTROL**

The Contractor's Registered Professional Land Surveyor specified in Section 00 72 00, GENERAL CONDITIONS shall establish and control the pavement (aggregate or asphalt base course and asphalt surface course) alignments, grades, elevations, and cross sections as shown on the Drawings.

#### **1.5 SUBMITTALS**

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:
- B. Data and Test Reports:
  - 1. Aggregate Base Course: Sources, gradation, liquid limit, plasticity index, percentage of wear, and other tests required by NCDOT Department.
  - 2. Asphalt Base/Surface Course: Aggregate source, gradation, soundness loss, percentage of wear, and other tests required by North Carolina Department of Transportation (NCDOT).
  - 3. Job-mix formula.
- C. Certifications:
  - 1. Asphalt prime and tack coat material certificate of conformance to NCDOT requirements.
  - 2. Asphalt cement certificate of conformance to NCDOT requirements.
  - 3. Job-mix certification - Submit plant mix certification that mix equals or exceeds the NCDOT requirements.

- D. One copy of NCDOT Specifications.
- E. Provide MSDS (Material Safety Data Sheets) for all chemicals used on ground.

**PART 2 - PRODUCTS**

**2.1 GENERAL**

- A. Aggregate base and asphalt concrete materials shall conform to the requirements of the following and other appropriate sections of the latest version of the NCDOT Material Specifications, including amendments, addenda and errata. Where the term "Engineer" or "Commission" is referenced in the NCDOT Specifications, it shall mean the VA Resident Engineer or VA Contracting Officer.

**2.2 AGGREGATES**

- A. Provide aggregates consisting of crushed stone, gravel, sand, or other sound, durable mineral materials processed and blended, and naturally combined.
- B. Base aggregate maximum size:
  - 1. Base course over 152mm(6") thick: 38mm(1-1/2");
- C. Asphaltic base course:
  - 1. Maximum particle size not to exceed 25.4mm(1").
  - 2. Where conflicts arise between this specification and the requirements in the latest version of the NCDOT Specifications, the State Specifications shall control.
- D. Aggregates for asphaltic concrete paving: Provide a mixture of sand, mineral aggregate, and liquid asphalt mixed in such proportions that the percentage by weight will be within:

<u>Sieve Sizes</u>	<u>Percentage Passing</u>
19mm(3/4")	100
9.5mm(3/8")	67 to 85
6.4mm(1/4")	50 to 65
2.4mm(No. 8 mesh)	37 to 50
600µm(No. 30 mesh)	15 to 25
75µm(No. 200 mesh)	3 to 8

plus 50/60 penetration liquid asphalt at 5 percent to 6-1/2 percent of the combined dry aggregates.

**2.3 ASPHALTS**

- A. Comply with provisions of Asphalt Institute Specification SS2:
  - 1. Asphalt cement: Penetration grade 50/60
  - 2. Prime coat: Cut-back type, grade MC-250
  - 3. Tack coat: Uniformly emulsified, grade SS-1H

## **2.4 SEALER**

- A. Provide a sealer consisting of suitable fibrated chemical type asphalt base binders and fillers having a container consistency suitable for troweling after thorough stirring, and containing no clay or other deleterious substance.
- B. Where conflicts arise between this specification and the requirements in the latest version of the NCDOT Specifications, the State Specifications shall control.

## **PART 3 - EXECUTION**

### **3.1 GENERAL**

The Asphalt Concrete Paving equipment, weather limitations, job-mix formula, mixing, construction methods, compaction, finishing, tolerance, and protection shall conform to the requirements of the appropriate sections of the NCDOT Specifications for the type of material specified.

### **3.2 MIXING ASPHALTIC CONCRETE MATERIALS**

- A. Provide hot plant-mixed asphaltic concrete paving materials.
  - 1. Temperature leaving the plant: 143 degrees C(290 degrees F) minimum, 160 degrees C(320 degrees F) maximum.
  - 2. Temperature at time of placing: 138 degrees C(280 degrees F) minimum.

### **3.3 SUBGRADE**

- A. Shape to line and grade and compact with self-propelled rollers.
- B. All depressions that develop under rolling shall be filled with acceptable material and the area re-rolled.
- C. Soft areas shall be removed and filled with acceptable materials and the area re-rolled.
- D. Should the subgrade become rutted or displaced prior to the placing of the subbase, it shall be reworked to bring to line and grade.
- E. Proof-roll the subgrade with maximum 45 tonne (50 ton) gross weight dump truck as directed by VA Resident Engineer or VA Contracting Officer. If pumping, pushing, or other movement is observed, rework the area to provide a stable and compacted subgrade.

### **3.4 BASE COURSES**

- A. Base
  - 1. Spread and compact to the thickness shown on the drawings.
  - 2. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.
  - 3. After completion of the base rolling there shall be no hauling over the base other than the delivery of material for the top course.
- B. Thickness tolerance: Provide the compacted thicknesses shown on the Drawings within a tolerance of minus 0.0mm (0.0") to plus 12.7mm (0.5").

- C. Smoothness tolerance: Provide the lines and grades shown on the Drawings within a tolerance of 5mm in 3m (3/16 inch in ten feet).
- D. Moisture content: Use only the amount of moisture needed to achieve the specified compaction.

### **3.5 PLACEMENT OF ASPHALTIC CONCRETE PAVING**

- A. Remove all loose materials from the compacted base.
- B. Apply the specified prime coat, and tack coat where required, and allow to dry in accordance with the manufacturer's recommendations as approved by the Architect or Engineer.
- C. Receipt of asphaltic concrete materials:
  - 1. Do not accept material unless it is covered with a tarpaulin until unloaded, and unless the material has a temperature of not less than 130 degrees C(280 degrees F).
  - 2. Do not commence placement of asphaltic concrete materials when the atmospheric temperature is below 10 degrees C (50 degrees F), not during fog, rain, or other unsuitable conditions.
- D. Spreading:
  - 1. Spread material in a manner that requires the least handling.
  - 2. Where thickness of finished paving will be 76mm (3") or less, spread in one layer.
- E. Rolling:
  - 1. After the material has been spread to the proper depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown on the drawings.
  - 2. Roll in at least two directions until no roller marks are visible.
  - 3. Finished paving smoothness tolerance:
    - a. No depressions which will retain standing water.
    - b. No deviation greater than 3mm in 1.8m (1/8" in six feet).

### **3.6 APPLICATION OF SEAL COAT**

- A. Prepare the surfaces, mix the seal coat material, and apply in accordance with the manufacturer's recommendations as approved by the Architect or Engineer.
- B. Apply one coat of the specified sealer.
- C. Achieve a finished surface seal which, when dry and thoroughly set, is smooth, tough, resilient, of uniform black color, and free from coarse textured areas, lap marks, ridges, and other surface irregularities.

### **3.7 PROTECTION**

Protect the asphaltic concrete paved areas from traffic until the sealer is set and cured and does not pick up under foot or wheeled traffic.

### **3.8 FINAL CLEAN-UP**

Remove all debris, rubbish, and excess material from the work area.

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