

SECTION 02744

HOT MIX ASPHALT - PROCUREMENT
Maintenance Only

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Procurement (Laydown and Blade Work), and compaction of a surface course of one or more layers of asphalt concrete pavement.
- B. Mix materials at a central mixing plant.

1.2 RELATED SECTIONS

- A. Section 02741: Hot Mix Asphalt.
- B. Section 02745: Asphalt Material.
- C. Section 02746: Hydrated Lime.
- D. Section 02748: Prime Coat/Tack Coat.

1.3 REFERENCES

- A. AASHTO T 40: Sampling Bituminous Materials.
- B. AASHTO T 96: Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine.
- C. AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test.
- D. AASHTO T 304: Uncompacted Void Content of Fine Aggregate.
- E. Asphalt Institute SP-2: Compaction of Bituminous Gyratory Specimen.
- F. ASTM D 2041: Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.
- G. ASTM D 4791: Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

- H. ASTM D 5821: Determining the Percentage of Fractured Particles in Coarse Aggregate.
- I. Modified GDT-115: Georgia Loaded Wheel.

1.4 ACCEPTANCE

- A. Testing:
 - 1. Department truck: sample at Hot Mix Plant.
 - 2. Contractor truck: sample at roadway in the presence of the Engineer.
 - 3. Contractor provides a sampling device.
 - 4. The Department or its representative conducts the acceptance testing for gradation and asphalt content.
 - 5. Testing is based on a minimum of three samples per 2750 tons. Contractor may take several days or locations to obtain minimum samples.
 - 6. The Department or its representative may:
 - a. Sample any portion of the day's production that exhibits a non-uniform appearance.
 - b. Reject materials when results show deviations beyond acceptance limits from the job-mix design.

PART 2 PRODUCTS

2.1 ASPHALT CEMENT

- A. Asphalt Binder: Refer to Section 02745.
 - 1. PG Binder: Refer to Table 3.
 - a. Blade work or Laydown: (1.0 ft ≤ 10 ft ESALs): PG 58-22.
 - b. Laydown only:
(1 ft ≤ 10 ft ESALs and 10 ft ≤ 10 ft ESALs): PG 64-34.
 - 2. AASHTO T 40.

2.2 AGGREGATE

- A. Follow Section 02741, Part 2, article, "Aggregate," except for Aggregate Properties Table.
- B. Use the following Table 1 for Aggregate Properties.

Table 1

Aggregate Properties - Procurement			
Test Method	Test Number	3/8 inch Blade Work	1/2 inch Laydown
One Fractured Face	ASTM D 5821	90 % min.	90 % min.
Two Fractured Face	ASTM D 5821	90 % min.	90 % min.
Fine Aggregate Angularity	AASHTO T 304	45 min.	45 min.
Flat and Elongated 1 to 3 ratio	ASTM D 4791 (Based on 3/8 inch and above)	20 % max.	20 % max.
L.A. Wear	AASHTO T 96	40 % max.	40 % max.
Sand Equivalent	AASHTO T 176	45 min.	45 min.
Natural Fines	None	10 % max.	Not allowed

- C. Meet design requirements of Asphalt institute SP-2.
- D. Meet aggregate broad band gradation as specified in Table 2.

Table 2

Aggregate Gradations (Percent Passing by Dry Weight of Aggregate) Procurement			
Nominal Sieve Size (inch)		1/2	3/8
Control Sieves	1	--	--
	3/4	--	--
	1/2	90.0 - 100.0	100.0
	3/8	<90.0	90.0 - 100.0
	No. 4	-	<90.0
	No. 8	28.0 - 58.0	32.0 - 67.0
	No. 200	2.0 - 10.0	3.0 - 10.0

2.3 HYDRATED LIME

- A. Minimum one percent hydrated lime.
- B. Refer to Section 02746.

2.4 JOB-MIX DESIGN REQUIREMENTS

- A. Hot Mix supplier is responsible for satisfying all the requirements for Superpave Volumetric Mix Design including:
 - 1. The low bid supplier is required to submit the job-mix design from certified laboratory in writing prior to the award of contract. Design includes gradation, asphalt content, and hydrated lime in percentage.
 - 2. Supply target job mix gradation and binder content. Target information is used for price adjustments.
 - 3. The Region Materials Lab verifies that the Volumetric Mix Design meets all requirements. The verification must meet all requirements prior to the award of contract.
- B. Department credits the Contractor \$5,000 for mix verified design work.

2.5 SUPERPAVE VOLUMETRIC MIX DESIGN

- A. Comply with requirements in Table 3.
 - 1. Hot Plant Mixing Temperature: Set by the Engineer.
 - 2. Voids in Mineral Aggregate (VMA) at N_{design} (Laboratory Mix):
 - 15.0 percent for 3/8 inch.
 - 14.0 percent for 1/2 inch.(Asphalt Institute SP-2, p.45; Equation based on percent of Total Mixture).
 - 3. Pavement Analyzer: < 1-1/4 inch.
(At high temperature of PG Asphalt. Modified GDT-115)
 - 4. Hamburg Rut Test: < 3/8 inch.
(By Department) on production mix for information.

Table 3

Superpave Volumetric Mix Design - Procurement Number of Gyration Table				
20 Years Design ESALS (Million) as defined in the plan summary sheets	Compaction Parameters			Void Filled with Asphalt (VFA) (%)
	$N_{initial} / \% \text{ of } G_{mm}$ Maximum Specific Gravity of Mix (Rice)			
0.3 to <3	7/≤ 90.5	75/96	115/ ≤ 98	65 - 78
3 to < 30	8/≤ 89	100/96	160/ ≤ 98	65 - 75

PART 3 EXECUTION

3.1 SURFACE PREPARATION

- A. Refer to Section 02741, Part 3.

END OF SECTION