

**Division 7: Asphalt Concrete Base Course**

**7.01 SCOPE:** Construction of a Asphalt Concrete Base Course shall consist of one or more layers placed on a prepared surface in accordance with these Specifications and in close conformity with the alignment and grades shown on the construction plans or established by the Engineer.

**7.02 MATERIALS:** Asphalt Concrete Base Course shall consist of a combination of mineral aggregates and asphalt materials mixed mechanically in a plant. Asphalt concrete materials shall meet the following requirements:

A. The materials shall conform to the requirements of VDOT Special Provision for Sec. 212 Asphalt Concrete dated October 11, 1989.

Asphalt concrete mixtures used in surface and intermediate courses shall conform to the following requirements:

MIX TYPE	VTM (%)	VFA (%)	MIX DESIGN CRITERIA				AC VISCOSITY GRADE	MARSHALL BLOW
			MIN. VMA (%)	MINIMUM STABILITY (lbs.)	FLOW (0.01")			
SM-1	4-8	65-80	17	1000	8-16	AC-20	50	
SM-2A	3-6	65-80	15	1200	8-14	AC-20	50	
SM-2B	3-6	65-80	15	1500	8-14	AC-20	75	
SM-2C	4-6	60-75	15	1500	8-14	AC-30	75	
SM-3A	3-6	65-80	14	1500	8-14	AC-20	50	
SM-3B	3-6	65-80	14	1500	8-14	AC-20	75	
SM-3C	3-6	60-75	14	1800	8-14	AC-30	75	
1M-1A	3-6	65-80	14	1500	8-14	AC-20	50	
1M-1B	3-6	65-80	14	1500	8-14	AC-20	75	
BM-1				400		AC-20	50	
BM-2						AC-20		
BM-3						AC-20		

Maximum F/A ratio shall be 1.2:1 on all surface and intermediate mixtures

Maximum F/A ratio shall be 1.4:1 on all base mixtures

Minimum F/A ratio shall be 0.6:1 on all surface and intermediate mixtures

Asphalt content shall be selected at the mid point of VTM range

B. Job-Mix Formula: The Contractor shall submit his source of supply for approval to the Engineer, with a job-mix formula for each mixture to be supplied for the project prior to starting work. Materials from more than one source shall not be used alternately or mixed when used in base courses without the written consent of the Engineer.

In the event the job-mix formula is modified within a lot, the mean test results of the samples taken will be compared to the applicable process tolerance shown in the following table:

Number	Size	PROCESS TOLERANCE									
		Tolerance on each Laboratory Sieve and Asphalt Content - Percent									
		1½"	¾"	½"	3/8"	No. 4	No. 8	No. 30	No. 50	No. 200	A.C.
1	0.0	±8.0	±8.0	±8.0	±8.0	±8.0	±8.0	±6.0	±5.0	±2.0	±.60
2	0.0	±5.7	±5.7	±5.7	±5.7	±5.7	±5.7	±4.3	±3.6	±1.4	±.43
3	0.0	±4.4	±4.4	±4.4	±4.4	±4.4	±4.4	±3.3	±2.8	±1.1	±.33
4	0.0	±4.0	±4.0	±4.0	±4.0	±4.0	±4.0	±3.0	±2.5	±1.0	±.30
8	0.0	±2.8	±2.8	±2.8	±2.8	±2.8	±2.8	±2.1	±1.8	±0.7	±.21

C. All sources supplying asphalt concrete must, when requested by the Engineer, be able to supply written evidence

that they meet or exceed the minimum standards of VDOT Road and Bridge Specifications Sections 212.07, .08, .10, .11, and .12 for Acceptance, Adjustment, Handling and Storing Aggregates, Asphalt Concrete Mixing Plant, and Preparation of Mixtures respectively.

- D. Tests for conformance with the Specifications may be made of samples of materials as requested by the Engineer. All test samples shall meet or exceed the minimum standards of VDOT Special Provision for Sec. 212 Asphalt Concrete dated October 11, 1989 and if said tests fail, costs of tests and corrective measures will be at the Contractors expense with no additional costs to the City.
- E. Asphalt Base Course constructed will be as per the type and location shown on the construction plans and shall conform with the following provisions:
  - 1. Asphalt Concrete Base Course currently acceptable to the City are as follows:
    - a. Type 1M-1A and 1M-1B Asphalt Concrete shall consist of crushed stone, crushed slag or crushed gravel and fine aggregate, slag, or stone screenings, or combination thereof combined with asphalt cement.
    - b. Type BM-1 Asphalt Concrete shall consist of local pit material combined with at least 4.0 percent asphalt cement. Addition of mineral filler, not to exceed 5%, or other aggregates will be permitted to conform to specification requirements.
    - c. Type BM-2 and BM-3 Asphalt Concrete shall consist of coarse aggregate (crushed stone, crushed slag, or crushed gravel); fine aggregate (slag, stone screenings, gravel screenings, or combination thereof); combined with at least 4.4 percent asphalt cement.
  - 2. The aforementioned Asphalt Concrete Mixtures must fall within the following design ranges:

Type	Percentage by Weight Passing Square Mesh Sieves										Mix Temp. (at Plant)	
	2	1½	1	¾	½	3/8	No. 4	No. 8	No. 30	No. 50		No.200
IM-1 A-B			100	97-100	72-86		40-58		14-24		3-6	210°-300°F
BM-1			100	85-98			60-80			20-30	1-6	210°-300°F
BM-2		100	97-100	75-90		54-74		30-38			3-6	210°-300°F
BM-3	100	97-100	80-92		60-74		40-52		14-24		3-6	210°-300°F

**7.03 EXECUTION:** Asphalt Concrete Base Course shall consist of one or more courses placed on a prepared subbase in accordance with the applicable divisions of these Specifications for said subbase, and shall meet the following requirements:

- A. Asphalt Concrete mixtures shall conform to VDOT Road and Bridge Specifications Sections 320.03-.08 and VDOT Special Provisions for Sec. 320 Asphalt Concrete dated December 12, 1989 and November 15, 1990 for Placing Limitations, Equipment, Conditioning of Existing Surfaces, Spreading and Finishing, Compaction, and Joints respectively.
- B. When directed, the Contractor shall cut samples from the compacted pavement for testing depth and density as directed by the Engineer. Construction of Density Control Strips will be required as per VDOT Special Provision for Sec. 320 Asphalt Concrete Pavement dated October 12, 1989 and VTM-10. If said tests fail to meet or exceed the minimum depth of the construction plan or density as per the test method, costs of the tests and corrective measures shall be borne by the Contractor, at no additional expense to the City. However, if the test(s) should pass all cost(s) shall be paid by the City.
- C. Pavement Tolerances in placing and compacting asphalt concrete base course or surface shall be in accordance with VDOT Section 320.10.

**7.04 MEASUREMENT AND PAYMENT:** Costs of all materials, labor, and equipment as well as incidental expenses shall be included in the unit price for furnishing, placing, and compacting the asphalt concrete base material

and shall be measured and paid as follows:

- A. Asphalt concrete will be measured in tons of the type specified, complete in place. Net weight information will be furnished in the form of individual weight tickets with each vehicle load.
- B. Each vehicle used to transport asphalt material shall be inspected when it is reported empty and the quantity of asphalt material remaining therein, if any, shall be gauged and agreed upon as to quantity by representatives of the Owner and Contractor. All asphalt material remaining shall be deducted from the vehicle net weight ticket.
- C. Payment will be made at the unit price per ton for each type as specified in the Unit Price Table.

D.