
ASPHALT CONCRETE PAVING

PART 1 GENERAL**1.1 Related Work**

- | | | |
|----|-------------------------------|-------------------------------------|
| .1 | All Division 1 | Specification Sections |
| .2 | Section 01330 | Submittals |
| .3 | Section 01450 | Quality Control & Inspection |
| .4 | Section 02233 | Granular Base |
| .5 | Section 02315 | Excavation, Trenching & Backfilling |
| .6 | Section 02911 | Site Topsoil & Finish Grading |

1.2 References

- .1 American Society for Testing and Materials International (ASTM):
- .1 ASTM-C88, Standard Test Method for soundness of Aggregates by use of Sodium Sulphate or Magnesium Sulphate.
 - .2 ASTM-C177, Standard Test Method for Material Finer than 00.75 mm Sieve in Mineral Aggregates by Washing.
 - .3 ASTM-C123, Standard Test Method for Lightweight Particles in Aggregate.
 - .4 ASTM-C127, Standard Test Method for Density Relative Density (Specific Gravity), and Absorption of Course Aggregate.
 - .5 ASTM-C128, Standard Test of Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate.
 - .6 ASTM-C136, Standard Method for Sieve Analysis of Fine and Course Aggregates.

1.3 Protection

- .1 The Contractor to keep vehicular traffic off newly paved areas until paving surface temperature has cooled below 38 degrees Celsius. Do not permit stationary loads on pavement until 48 hours after installation.
- .2 Arrange paving schedule to prevent interference with normal use of premises.

1.4 Mixing Plant Qualifications

- .1 Asphalt concrete mixing plants shall conform to ASTM D995-95b.

1.5 Scheduling and Coordination

- .1 For any work required for access to a building, ensure that work

ASPHALT CONCRETE PAVING

does not interfere with use of the facility.

PART 2 PRODUCTS

2.1 Materials

- .1 Granular base: Material to Section [02233](#) - **Granular Base**.
- .2 Asphalt concrete aggregates:
 - 1. Material Specification to OPSS No. 1003, May 2010, Material Specification for Aggregates – Hot Mix Asphalt.
- .3 Asphalt cement: to OPSS, No. 1101, October 1989, Asphalt Cement.
- .4 The percent by mass of asphalt cement contained in the mixture shall fall within the following limits:

HL1, 3 and 4.....	5.0 to 7.0%
HL2.....	6.0 to 8.0%
HL3.....	5.5 to 7.5%
HL8.....	4.5 to 7.0%

2.2 Mix Design

- .1 Design of mix: provide a design mix for each type of asphalt by Marshall Method as directed by the Consultant.
- .2 Submit mix design for pavement to the Consultant not less than three (3) days prior to commencing paving.
- .3 Refer to OPSS No. 1150, November 2010 Hot Mix Asphalt.

PART 3 EXECUTION

3.1 Subgrade Inspection

- .1 Refer to Section [02311](#) - **Site Grading**.
- .2 Verify 'as built' layout and elevations of existing drainage structures for conformance with Contract Document drawings prior to placing granular base material.
- .3 Prior to placement of granular base course, the compaction of the finished subgrade shall be tested as follows:

ASPHALT CONCRETE PAVING

- .1 In a cut situation into native soil and following fine grading and compaction, the subgrade shall be proof-rolled three times with a fully loaded rubber tire tandem axle vehicle in the presence of the Consultant. Where proof rolling reveals areas of defective material the areas shall be excavated to the depth and extent as directed by the Consultant and backfilled with granular materials or properly compacted clean earth fill to the densities noted below at no additional cost to the Owner.
- .2 In fill situations compact cohesion less fill soils to at least 98% of corrected maximum dry density and cohesive soils to at least 95% of corrected maximum dry density in lifts not exceeding 200 millimetres.
- .3 Obtain written approval of the subgrade compaction test results by the Consultant prior to placing the granular base.

3.2 Granular Base

- .1 Refer to Section [02233](#) - **Granular Base**.
- .2 Place granular base to compacted thickness as indicated.
- .3 Place in layers not exceeding 150mm compacted thicknesses. Compact to no less than 98% SPD.
- .4 Finished base surface to be within 10mm of specified grade, but not uniformly high or low.

3.3 Asphalt Concrete Paving

- .1 Arrange for the Consultant to inspect and approve the base at least forty-eight (48) hours prior to commencing asphalt operations. Failure to obtain approval from the Consultant shall result in rejection of placed asphalt.
- .2 Bituminous material, primer to ASTM D2027-76, MC-30 and asphalt cement to ASTM D946-82.
- .3 Aggregate is to consist of crushed stone, crushed gravel, sand, and mineral filler to ASTM D692-94a and ASTM D1073-94. Mineral filler to be Portland cement, pozzolan, or commercially grown stone dust conforming to ASTM D242-95. Minimum of 60% aggregate retained on the 5mm sieve shall have at least one fractured face. Gradation of the aggregate is to be through sieves to CAN/CGSB-8.2-M88 as follows:

ASPHALT CONCRETE PAVING

Nominal Sieve Opening	<u>Percent By Weight Passing Sieve Sizes</u>				Mineral Filler
	10.0*	12.5*	16.0*	20.0*	
20.0 mm				100	
16.0 mm			100	85-95	
12.5 mm		100	80-95	70-90	
10.0 mm	100	83-95	70-85	63-87	
5.0 mm	55-85	48-77	50-70	40-68	
2.5 mm	32-67	35-60	35-55	28-55	
1.25 mm	25-54	25-48	25-45	20-45	
630 µm	17-40	18-40	13-35	100	
315 µm	8-30	10-30	10-30	8-28	95-100
160 µm	5-20	5-20	5-18		
80 µm	2-10	2-10	2-10	70-100	

*Maximum size of aggregate (mm).

- .4 Compact each course with roller as soon as it can support roller weight without undue cracking or displacement.
- .5 Roller: power driven, minimum mass of 4.5 tonnes, minimum wheel width 600 mm.
- .6 Eliminate all marks and ridges. Compact to density not less than 98% of density obtained with Marshall Design Density specimens prepared in accordance with ASTM D1559-82 from samples of mix being used.
- .7 Maintain roller speed to avoid mix displacement. Do not stop roller on fresh pavement.
- .8 Moisten roller wheels with water to prevent adhesion to roller.
- .9 Compact mix with hot tampers or other approved equipment in areas inaccessible to roller.
- .10 Finish surface smooth, uniform, without ridges and true to grade to within 10 mm and with no irregularities greater than 10 mm in 4.5 m length.

ASPHALT CONCRETE PAVING

3.4 Single Lift Pavement

- .1 Using a mechanical spreader, for walkways, place asphalt in a single lift to a compacted thickness minimum of 50mm (and as indicated on the Contract Document drawings)
- .2 Minimum aggregate size is to be 12mm or 16mm.

3.5 Two Lift Pavement

- .1 Using a mechanical spreader, for roadways and parking lots, place asphalt in a double lift to a compacted thickness greater than 65mm (and as indicated on the Contract Document drawings).
- .2 Base lift: 50mm-75mm thickness
- .3 Surface lift: 50mm – 40mm thickness
- .4 Maximum aggregate size:
 - .1 Base Course: 12.5mm, 16mm or 20mm
 - .2 Surface Course: 10mm, 12.5mm

3.6 Pavement Mix and Placement Temperatures

- .1 Place asphalt mix only when base course, or previous course is dry and air temperature is above 7 degrees C.
- .2 Minimum 120 degrees Celsius mix temperature required when spreading.
- .3 Maximum 160 degrees Celsius mix temperature permitted at any time.
- .4 Do not place asphalt on a surface which is wet or covered by snow or ice or if the ground is frozen.

3.7 Protection

- .1 Protect any structures, buildings, sidewalks, landscape work and any other design features against potential damage by paving installation.

ASPHALT CONCRETE PAVING

3.8 Paving at Catch Basins

- .1 Ensure surface correctly drains to catch basins as per drawings.
- .2 Do not pave over any valve chambers or manholes.

3.9 Joints

- .1 Saw cut bituminous course to full depth in neat lines to expose fresh vertical surfaces. Remove broken and loose material.
- .2 Immediately prior to paving, apply a tack coat with a heavy brush to the joint between the asphalt paving and all manholes, catch basin frames, curbs and similar items.
- .3 Use an approved bituminous emulsion such as type SS-1 or SS-1H as a tack coat. Place no more tack coat than can be covered in the same day's work.
- .4 Place tack coat around manhole covers, catch basin lids and valve boxes after they have been raised to grade.
- .5 Where paving comprises two courses, overlap longitudinal joints minimum 150 mm.
- .6 Carefully place and compact hot asphaltic concrete against joints.

3.10 Clean Up

- .1 Remove all loose pavement, aggregate, spillage, and overspray, from the site sidewalks, and buildings.

3.11 Testing

- .1 Refer to Section [01450](#) – **Quality Control & Inspection**
- .2 Testing shall include subgrade, granular base and asphalt concrete compaction and material composition of the granular base and asphalt material(s). Sampling will follow recommended practice of ASTM D979-96.

END OF SECTION - 02743