

1.0 GENERAL

1.1 Samples

- .1 At least 2 weeks prior to commencing work, inform Engineer of proposed source of granular materials.
- .2 The Contractor shall provide a sieve analysis of the material for the Engineer's review.

1.2 Submissions

- .1 Granular base course sieve test results shall be submitted to the Engineer before material is used.
- .2 Preliminary review of the material as represented in the test results shall not constitute general acceptance of all material in the deposit or source of supply. Materials may be considered unsuitable even though particle sizes are within the limits of the gradation sizes required, if particle shapes are thin or elongated or any other characteristic precludes satisfactory compaction or if the material fails to provide a roadway suitable for traffic. Rejected material will not be paid for. The Engineer has the right to request additional testing if there are any concerns with the proposed aggregate.
- .3 The Contractor shall provide weigh scale receipts for each load to the Engineer at the time of load delivery. The Contractor shall quote using his own certified scale only with the approval of the Engineer or where indicated within the tendering documents.

1.3 Measurement for Payment

- .1 Granular base course will be measured for payment in tonnes in place based on the area and thickness specified. Payment shall be full compensation for supplying, loading, hauling, placing, remixing if segregation has occurred, compacting, moisture conditioning, shaping the material and provision of a sieve analysis.

2.0 PRODUCTS

2.1 Granular Base Course

- .1 Material for the granular base course shall consist of sound, hard, durable crushed rock or crushed gravel and shall not contain organic or soft, thin elongated, or laminated materials, materials that break up when alternately frozen and thawed or wetted and dried, or other deleterious materials. When compacted near the optimum moisture content to not less than 100% of the maximum dry density corrected for the stone content as determined by ASTM D698, the material shall have a minimum CBR value of 65 and a maximum particle size of 18 mm.

GRANULAR BASE COURSE

- .2 Granular base course shall meet the following gradation when tested to ASTM C136 and ASTM C117, and give a smoother curve without sharp breaks when plotted on a semi-log grading chart:

BASE COURSE		
Sieve Designations (mm)	Percent by Weight Passing	
	Lower Limit	Upper Limit
19.0	100	100
12.5	75	100
5.0	50	75
2.0	32	52
0.900	20	35
0.400	15	25
0.160	8	15
0.071	6	11
Plasticity Index	0	6
% Fractured Face	60 Minimum	
% Light Weight Pieces	5 Maximum	

3.0 **EXECUTION**

3.1 **Placing**

- .1 The base material shall not be placed until the underlying subgrade has been accepted by the Engineer. The granular material shall be placed in uniform layers not exceeding 150 mm in thickness before compaction. The material shall be placed by mechanical spreaders or deposited in windrows and leveled with suitable equipment. Material shall be handled in a manner such that segregation of the coarser and finer fractions will not occur.

3.2 **Compaction**

- .1 All granular base course layers shall be compacted near the optimum moisture content to not less than 100% of the maximum dry density corrected for the stone content as determined by ASTM D698 Method A for the material used.

The thickness of any compacted base course lift shall not be less than seventy-five millimeters (75 mm) and not greater than one hundred and fifty millimeters (150 mm).

Oversize material shall not be incorporated into the base course.

- .2 During compaction, the moisture content shall be maintained at the optimum moisture content as determined by ASTM D698. If the moisture content exceeds the optimum moisture content the material shall be aerated by mechanical means until the material has dried sufficiently to reach the optimum moisture content. Water shall be added if the moisture

content is below optimum. Watering and compacting shall be controlled to prevent pumping of fines to the surface or washing fines away.

The Contractor shall supply a truck loaded to 8,200 Kilograms per axle load for a base course axle test. This test will be undertaken when compaction of the base course has been completed and shall be carried out under the direction and in the presence of the Engineer. It will be used as a supplement to density tests for determining performance of the Contract. No separate payment shall be made for this work.

Failures in the subgrade or base course, which develop on a section of roadway upon which base course has been deposited, shall be repaired at the expense of the Contractor.

3.3 Testing Compaction

- .1 Compaction results shall be based on a minimum of one density test per 1000 square metres of road. Additional tests may be called for by the Engineer as deemed necessary.
- .2 Field density tests shall conform to ASTM D1556, ASTM D2167, or ASTM D2922 for comparison with a maximum density determined according to ASTM D698 Method A.
- .3 The following tests will be performed as directed by the Engineer.
 - .1 Wash Sieve Analysis
 - .2 Plastic Index
 - .3 CBR Value
 - .4 Standard Proctor Compaction Tests.

3.4 Shaping and Finishing

- .1 The finished surface of the granular base course shall conform to grades approved by the Engineer, and shall show no depression more than 5 mm under a straight edge 3.0 m long placed parallel to the road centerline. Granular base course higher than the approved grades shall be cut to the required grades.

Prior to hot mix applications a prime coat shall be placed on the finished final lift of base course in accordance with the requirements of Bituminous Prime and Fog Coat.

Streets, roads, and lanes used for hauling material, that are damaged, shall be repaired by the Contractor at the Contractor's expense.

3.5 Inspection

- .1 Before acceptance by the Engineer and prior to the application of the subsequent layer of roadway materials, the granular base course surface shall be true to cross-section and grade, shall conform to the density and bearing ratio requirements specified. The granular base course surface shall show no visible subsidence or weave under the wheels of a roller having a weight of 4.5 kilograms per millimeter width of tread (8,200 kilograms per axle load).
- .2 Field density and moisture content tests will be made by the Engineer or his representative to ensure that the material is satisfactory. Material not meeting the specification requirements will not be approved.

END OF SECTION