

**03010 Granular Subbase Course****Index**

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**03010-1      Description**

The work shall include the supplying of all labour, plant, equipment and materials required to construct granular subbase course at the location and in conformity with the line, grade and dimensions shown on the plans or as designated by the Engineer.

**03010-2      Materials**

The Contractor shall supply the subbase course material. Refer to the Aggregates Specifications 03001-3.2.1 "Subbase Aggregate".

The subbase aggregate shall be composed of fragments of durable rock free from undesirable quantities of soft or flaky particles, shale, loam and organic or other deleterious material.

Reclaimed Asphalt Pavement (RAP) may be blended with subbase granular materials, in a manner approved by the Engineer, and re-used in new construction as granular subbase to a maximum amount of 40% by mass. The blended subbase granular shall not contain more than 2.2% by mass asphalt cement as determined by ASTM D2172.

A higher Plasticity Index may be approved by the Engineer if sufficient load bearing capacity can be obtained from the subbase course.

The allowable moisture content of the subbase course shall not exceed the optimum moisture content when delivered to the road.

**03010-3      Approval of Subbase Course**

A representative sample of the subbase course material shall be supplied to an approved Testing Laboratory. The sample shall contain not less than 35 kg.

The following tests shall be performed.

1. Wash Sieve Analysis
2. Plasticity Index
3. C.B.R. value
4. Standard Proctor Compaction Test

One copy of the test results shall be submitted to the Engineer at least 7 days before subbase course construction commences. Subbase course construction shall not commence unless the material is approved by the Engineer.

The cost of submitting samples and testing by the Testing Laboratory shall be borne by the Contractor until the material is approved by the Engineer. After the material is approved, partial subsequent testing will be carried out at the expense of the Contractor in accordance with the requirements of Testing and Inspection (Specification 03020).

Preliminary approval of the material shall not constitute general acceptance of the stockpile, deposit or source of supply.

**03010-4     Construction**

Materials shall be handled in a manner such that segregation of the coarser and finer fractions will not occur.

Stockpiles shall be constructed in accordance with the requirements for stockpiling aggregates (Specification 03015).

The compacted lift of subbase course shall not exceed 150 mm in depth.

Oversize material shall not be incorporated into the subbase course.

Subbase course shall not be spread and compacted if the atmospheric temperature is 2°C and falling.

If excess moisture exists in the subbase course, it shall be dried to the optimum moisture content as determined by the Standard Proctor Compaction Test.

If necessary for compacting, water shall be added with a pressure distributor. The optimum moisture content will be determined by the Standard Proctor Compaction Test. Watering and compacting shall be controlled to prevent pumping of fines to the surface or washing fines away.

Each lift shall be compacted to not less than 100% of the maximum density as determined by the Standard Proctor Compaction Test. The density of this section will be considered satisfactory when:

1. Test results average not less than 100% of maximum density; and,
2. All individual test results are greater than 98% maximum density.

Once passing density, each lift of granular subbase shall be proof rolled with a heavy piece of equipment of sufficient axle load to expose any soft spots. Acceptable heavy equipment shall be approved by the Engineer. There will be no direct payment for proof-rolling, and it shall be an integral part of subbase course acceptance. If there is any visual movement, the soft spots detected by proof-rolling shall be repaired at the Contractor's expense. If the movement is due to the *in situ* soils below the subgrade preparation, the Engineer will provide direction. Condition of the soils below the subgrade preparation are the responsibility of the Engineer.

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

Subbase course shall be spread by motor graders or other equipment approved by the Engineer.

Any ruts or irregularities formed on the surface of any layer during compaction shall be bladed smooth during compaction operations. The Contractor shall spread and shape each layer to the cross section shown on the drawings or as designated by the Engineer. The finished surface of the final layer shall conform to the longitudinal grade within a tolerance of 15 mm, but not uniformly high or low, and shall have no depression or high areas more than 10 mm under a straight edge 3 m long when placed in any direction.

The final lift of subbase course shall have sufficient stability such that when compacted, it will not rut or break through during the hauling and placing of the bottom lift of base course.

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

**03010-5     Measurement**

Granular subbase course will be measured in tonnes or square metres as specified.

**03010-6     Payment**

Payment for granular subbase course will be at the contract unit price per tonne or square metre. The unit price will be full compensation for loading, hauling, dumping, spreading, watering, aerating, compacting and proof-rolling.

**End of Specification 03010**