

Section 2111. Granular Subbase

2111.01 DESCRIPTION.

Construct a subbase consisting of a uniform mixture of granular material.

2111.02 MATERIALS.

Use either of the following:

- A. Materials meeting the requirements of [Section 4121](#), or
- B. Recycled PCC material of the specified gradation. Use material reclaimed from an Interstate or Primary roadbed under the jurisdiction of the Department. Recycled PCC pavement, meeting the specified gradation, obtained from other sources may be used for granular subbase with the Engineer's approval.

2111.03 CONSTRUCTION.

A. Equipment.

- 1. Use equipment that meets the requirements of [Section 2001](#).
- 2. Apply [Article 2001.05](#), Paragraphs [B](#), [C](#), [D](#), and [F](#), to compaction equipment, except that other types of equipment may be used provided it is demonstrated they will consistently produce the required compaction.

B. Preparation of Subgrade.

- 1. Prepare subgrade for granular subbase according to [Section 2109](#) with the following modifications:
 - a. **Secondary and Local Projects.**
 - 1) Check the cross section with an accurate template extending at least halfway across the width of the subgrade. Repair template deviations of more than 1 inch (25 mm). Prepare the subgrade to remove dips or humps from the general profile. Ensure the subgrade has a good riding surface after preparation is completed.
 - 2) When PCC pavement is to be placed on the subbase, use the same preparation requirements as for Primary projects.
 - b. **Interstate and Primary Projects, State Parks, and Institutions.**
 - 1) Use grade stakes to indicate the elevation of the subgrade surface.
 - 2) Correct the surface of the subgrade in both profile and cross section to within 0.05 foot (15 mm) of the desired elevation as indicated by the grade stakes.
- 2. Ensure the subgrade surface is in an undisturbed condition after final subgrade trimming. In areas where this condition does not exist, recompact according to [Section 2109](#).

C. Delivery of Materials.

1. Operate trucks off the subgrade except in the area of unloading.
2. Maintain a clean aggregate interface between the granular subbase material and the porous backfill material of longitudinal subdrains.

D. Construction of Granular Subbase.

1. Ensure granular subbase material is uniformly moist prior to and during compaction. Place subbase material according to the contract documents.
2. Compact granular subbase with a maximum of three passes of a self propelled, non-vibratory steel or pneumatic roller. Use a roller with a compactive effort of 150 to 200 pounds per lineal inch (2.7 to 3.5 kg/mm) of contact surface.
3. Placing and compaction procedures will be evaluated on an initial trial section approximately 500 feet (150 m) long. This evaluation is to assess the extent of material degradation, consolidation, and permeability.
4. Profile and cross section tolerances for granular subbase are +0 to -0.05 foot (+0 mm to -15 mm).
5. At the Contractor's option, the subbase may be constructed to a general elevation higher than the required design elevation and cut back to design elevation. In this case, excess material removed may be salvaged. It may be processed as required and used for any purpose for which it can be approved under the specifications. The price paid for salvaged and reused material will be the contract unit price for the material as used. If the exposed portions of the subbase are damaged or disturbed, restore them to an acceptable condition (at no additional cost to the Contracting Authority) prior to any subsequent operation that will cover or conceal these portions of the subbase.
6. For sections of pavement more than 600 feet (180 m) long, complete the subbase no less than 600 feet (180 m) in advance of the concrete placing operation. Do not place granular subbase more than 2 months before the pavement is placed. The granular subbase may be placed in areas where the Engineer and the Contractor agree it is reasonable to expect pavement construction can be accomplished prior to winter shutdown. Restrict granular subbase trimming to 1 mile (1.6 km) ahead of the paving operation when winter shutdown is eminent.

E. Maintenance of Completed Granular Subbase.

Do not operate hauling equipment and other traffic on the granular subbase material.

2111.04 METHOD OF MEASUREMENT.

- A.** Measurement for Granular Subbase material furnished and placed in accepted portions of work will be in square yards (square meters) for the specified design thickness. The measured area will be based on plan dimensions for the finished surface but will exclude fillets.
- B.** The design thickness of the placed material will be verified by spot checks of the grade.

2111.05 BASIS OF PAYMENT.

- A.** Payment will be the contract unit price per square yard (square meter) for each specified design thickness of Granular Subbase as measured above.
- B.** The contract will have a separate item for Granular Subbase, Place Only, in square yards (square meters), when the Contracting Authority is providing the material or if the material is available from mandatory crushing on the contract. The cost of crushing shall be included in the Contractor's price bid for Granular Subbase if recycling is not required, but the Contractor chooses to crush the pavement removed for granular subbase.
- C.** Payment is full compensation for furnishing all materials, water, preparation of subgrade, and for doing all work necessary to complete the Granular Subbase in compliance with the contract documents.