

## SECTION 32 11 16

**SUBGRADE PREPARATION AND COMPACTION****PART 1 - GENERAL****1.1 DESCRIPTION**

- A. This item shall consist of scarifying, blading and rolling the sub-grade to obtain a uniform texture and a uniform density throughout the required depth as shown on the Plans.

**1.2 MEASUREMENT AND PAYMENT**

- A. When the Contractor thinks the sub-grade is ready for acceptance by the Engineer, he will have field densities performed on the sub-grade at his expense by an independent testing laboratory approved by the Engineer. These tests shall be taken at points directed by the Engineer with a maximum of one test per station of construction. These tests shall be performed by the method outlined in A.S.T.M. Designation D-698, or an equivalent method approved by the Engineer (Balloon Density or Harris Cup). A section will be considered satisfactory as to density when no single test indicates less than 98% Standard ASTM D-698. A written report containing the dry density, the moisture content and location of each in place sample taken shall be submitted to the Engineer.
- B. Payment for compacted sub-grade shall be included in the unit price bid for "Concrete Pavement", "Flexible Base" or "Compacted Sand Sub-base" as the case may be. Price will be full compensation for removing excess material, shaping, fine grading and compacting the sub-grade; for furnishing and hauling all materials, blading, shaping, rolling and finishing, and all labor, tools and incidentals necessary to complete the work except roadway excavation. Payment will not be made for unauthorized work.

**PART 2 – PRODUCTS**

N/A

**PART 3 – EXECUTION****3.1 GENERAL**

- A. The roadbed shall be excavated and shaped in conformity with the typical sections shown on the Plans and to the lines and grades established by the Engineer. The entire roadway cross-section including an area two (2) feet back of the proposed curb line shall be bladed clear of vegetation and scarified as directed by the Engineer. All unstable or otherwise objectionable material shall be removed or broken off to a depth of not less than six (6) inches below the surface of the sub-grade. Holes or depressions resulting from the removal of such material shall be backfilled with suitable material compacted in layers not to exceed six (6) inches. All soft and unstable material and other portions of the sub-grade which will not compact readily or serve the intended purpose shall be removed as directed. No direct payment will be made for such removal, except where each separate spot or area requiring removal exceeds ten (10) cubic yards, in which case measurement and payment will be made as provided in the SECTION 31 23 00 – EXCAVATION AND EMBANKMENT.

- B. The sub-grade shall be scarified to the depth shown on the Plans and bladed and compacted in the manner directed in the section on "Finishing and Compaction". The surface of the sub-grade shall be finished to line and grade as established, and be in conformity with the typical sections shown on the Plans. Any deviation in excess of one-half (1/2) inch in cross-section and in a length of sixteen (16) feet measured longitudinally shall be corrected by loosening, adding or removing material, reshaping or compacting by sprinkling and rolling. Material excavated in the preparation of the sub-grade shall be disposed of as directed by the Engineer.

### **3.2 FINISHING AND COMPACTION**

- A. The sub-grade course, including an area two (2) feet back of the proposed curb line, shall be sprinkled as required and rolled as directed until a uniform compaction and required density is obtained. Compaction of the sub-grade may be done using any of the rolling equipment outlined in SECTION 31 11 29.02 - ROLLING. However, required densities must be met. Should the Engineer feel that too much time is being required to obtain those densities he can require that a heavy pneumatic roller be applied. Rolling shall continue until the sub-grade has been compacted to ninety-eight (98) percent of the Standard Density (A.S.T.M. Method D-698). The allowable deviation from optimum moisture content is 0 to +4%.
- B. Rolling shall progress gradually from the sides to the center of the lane under construction, by lapping uniformly each proceeding track by at least twelve (12) inches.
- C. After rolling and watering, the sub-grade shall be checked by the use of string line or instrument. All portions that do not conform to the lines and grades as shown on the Plans, shall be scarified for at least six (6) inches and re-compacted to correct elevation.
- D. Until the base course or pavement is placed, the sub-grade shall be maintained free from ruts and depressions, in a smooth and compacted condition true to lines and grade and to the density requirements contained herein. All of the Contractor's hauling and other equipment used in such a way as to cause rutting and raveling of the sub-grade shall either be removed from the work or suitable runways or other equivalent means shall be provided to prevent rutting.
- E. The Contractor shall be responsible for maintaining and protecting the roadbed for the entire length of the project.
- F. During construction, grading of the sub-grade shall be conducted so that the berm of earth or other material does not prevent immediate drainage of water to the side. Ditches and drains along the sub-grade shall be maintained so as to drain effectively.

**END OF SECTION**