

207 - EMBANKMENT AND COMPACTION OF EARTHWORK

207.1 DESCRIPTION

Construct embankments for roadways as indicated in the plans. Embankment shall be defined as all fill areas outside the limits of pavement subgrade, as shown in the standard details. All earthwork shall be uniformly compacted as indicated in the contract documents and in accordance with Section 205 of the Standard Specifications except as otherwise modified herein.

207.2 MATERIALS

If required borrow is needed to complete the earthwork, the Contractor shall furnish from an off-site source as approved by the Engineer.

Borrow material, whether contractor furnished or taken from on-site excavation, shall be free of organics, construction debris, and other deleterious materials.

207.3 CONSTRUCTION REQUIREMENTS

The embankment fill area shall be cleared and grubbed prior to placing the fill layers. Where the fill is started less than four feet below the finished subgrade, all sod and vegetable matter shall be removed from the surface upon which the fill is to be placed. The cleared surface shall be completely broken up by plowing, scarifying or stepping to a minimum depth of six inches. The material shall be recompacted. The fill shall be spread in layers not to exceed eight inches loose, free from clods, bladed or disked to an even surface, and compacted. In no case shall rocks, larger than three inches in any dimension be deposited within one foot of subgrade elevation. In no instance shall any lift or layer exceed six inches of compacted thickness. The entire embankment fill shall be spread in layers and compacted as hereinafter specified.

After each fill layer has been spread as outlined above, the entire area shall be compacted as set forth in these specifications. The Contractor shall have available adequate hand or mechanical compaction equipment to accomplish the compaction.

All fill areas outside the limits of pavement subgrade shall be uniformly compacted to a minimum of Type B, MR-90, in accordance with Section 205 of the Standard Specifications

Excavated rock and shale shall be used in fill sections at locations at least 3 feet below the finished subgrade elevations. All rock fill shall be tracked in with dirt or shale to minimize voids in accordance with the Standard Specifications. Non-durable shale shall be manipulated (i.e. sized) with equipment and water until 100% of the material is smaller than 6 inches in all dimensions, and until a minimum 90% of the material is smaller than 3 inches in all dimensions. Shale shall be tilled or pulverized, if necessary, so that it may be compacted to a minimum of Type A (MR-90). The Engineer will verify manipulation requirements with a visual inspection (e.g. have the Contractor scarify a known area to a known depth, calculate theoretical volume scarified, calculate an average volume for the stones between 3 inches and 6 inches and if the volume for the stones exceed 10%, the test fails). Continue manipulation and retest until the above requirements are met. No additional payment will be made for any work or equipment required for compliance with this specification.

Filling and compacting operations shall continue alternately until the fill conforms with the lines, grades, and typical cross-sections shown on the approved drawings.

207.4 MEASUREMENT AND PAYMENT

No separate payment will be made for water required for compaction of earthwork.

The Engineer will measure contractor furnished embankment by the cubic yard. The Engineer will measure quantities for the embankment by cross-sectioning the area and compute the volume by the average end area method. Where it is impractical to measure material by the cross section method, the Engineer may use 3-dimensional measurements or other methods agreed to by both the Engineer and Contractor. No payment will be made for quantities beyond the limits of the Contract Documents.

Payment for “Embankment (Contractor Furnished)” at the contract unit price bid is full compensation for the specified work.

The amount of completed and accepted work shall be paid for based on plan quantity at the contract unit price bid per cubic yard for "Compaction of Earthwork” including compaction of “Embankment (Contractor Furnished)” of the specified type and moisture range. Embankment (Contractor Furnished) and Compaction of Earthwork shall be considered subsidiary to Linear Grading when “Linear Grading” is specified in the proposal as a bid item.