When any portion of the subgrade is constructed on an old roadbed that conforms to or approximately with the elevation of the subgrade, the existing surface shall be scarified and manipulated as directed by the Engineer in order that the subgrade when compacted will have a uniform density.

208.03 Protection and Maintenance. The subgrade shall be maintained in a smooth and compacted condition, free from ruts and depressions, and shall be adequately drained. In no case shall any base, surface course, or pavement be placed on a frozen, muddy or unstable subgrade. Storing or stockpiling of materials directly on the subgrade will not be permitted except with the approval of the Engineer.

No base or surfacing materials shall be placed before the subgrade is checked and approved by the Engineer.

208.04 Method of Measurement. Subgrade work will not be measured for direct payment.

208.05 Basis of Payment. Subgrade work will not be paid for directly, but shall be considered as included and paid for in the various pay items of the contract.

SECTION 209

SHOULDERS AND SLOPES

209.01 Description. This work shall consist of the excavating, hauling, placing, and maintaining approved materials on shoulders in accordance with these specifications and in conformity with the lines, grades and typical cross-sections shown on the plans or as specified. It shall also include excavating, hauling, placing, and maintaining approved material on cut and fill slopes or other designated areas.

It is the intent of this specification that the best available materials be utilized in the construction of shoulders and slopes in order to enhance the establishment of permanent vegetation and minimize the effects of erosion on the project.

MATERIALS

209.02 Materials. The material used in this construction shall be obtained from the following locations:

1. Stockpiled material stripped from within the right of way in the grading operation.

2. Outside the cut or fill slopes in the right of way.

3. Stockpiled material stripped from borrow pits.

4. Select material pits.

5. Roadway and drainage excavation.

Selected material for shoulders or slopes shall consist of a friable material such as topsoil, etc., containing grass roots and having the properties of being comparatively porous, capable of growing grass and of a stable nature in that when compacted it will resist erosion and be capable of supporting vehicles when relatively wet.

Material from the roadway shall be salvaged to the extent that it is available. The Contractor will not be required to furnish material from outside the right of way for this purpose unless otherwise provided. The provisions of Subsection **104.09** that require the contractor to replace material removed and used on the project are not applicable for this construction operation.

The amount of material available from cut sections shall be considered before considering material from fill sections. However, material may be removed from fill sections if addi-

tional material is needed. If material is removed from fill sections, the Contractor shall notify the Engineer in sufficient time before beginning excavation in order that the necessary cross-sections may be taken.

When an item of Borrow Excavation is included in the proposal, the borrow pit shall be stripped and the stripped material stockpiled for future use if suitable material is available, provided this would not contradict any agreement between the contractor and property owner, affect the restoration of the pit site, or affect compliance with the South Carolina Mining Act.

When required by the contract, the Contractor shall provide the material pits and necessary haul roads, and no payment for haul will be made.

When the quality of material described above is not available, and the ordinary excavation material from roadway and drainage excavation is suitable for shoulders and slopes, this material shall be used; however; no compensation under this item of work will be allowed.

CONSTRUCTION REQUIREMENTS

209.03 General. The shoulders and slopes shall be shaped, trimmed, and compacted in proper sequence for the type of base or surfacing being constructed. The construction shall be so performed that the shoulders, adjacent ditches, and slopes shall be adequately drained at all times.

All shoulders on earth type base courses, for a width of 18 inches adjacent to the base or surface course, shall be compacted along with the base course.

In the case of concrete base or concrete pavement, the shoulders shall be constructed immediately upon the expiration of the curing period. For other types of base or surface courses, the shoulder work shall be done prior to or during

the construction of these courses or as soon thereafter as directed by the Engineer.

Selected material pits shall be scarified and terraced as directed by the Engineer as soon as practicable after the material is removed. Terracing work shall be accomplished in accordance with the standard practices as recommended by the U. S. Soil Conservation Service.

209.04 Maintenance. The Contractor shall maintain the shoulders, slopes and other designated areas by preserving, protecting, replacing and doing such other work as may be necessary to keep the work in a satisfactory condition until the project is accepted.

209.05 Method of Measurement.

A. Measurement of Selected Material. Selected material for shoulders and slopes obtained from stockpiled material stripped in the grading operation; outside the cut or fill slopes in the right of way; stockpiled material stripped from borrow pits; or selected materials pits, will be measured by the cubic yard in place after being brought to the required cross-section, compacted and maintained until the project has been completed and accepted.

In cases where it is not practicable to measure the compacted in place, it will be measured on the cubic yard basis in loose volume at the point of delivery on the road by scaling and counting the loads, with a deduction of 25% for shrinkage.

When selected material for shoulders and slopes is to be placed on irregular areas where it is not feasible or practicable to determine the volume of the soil compacted in place, instead of scaling and counting the loads, the Engineer may designate pit areas from which to obtain selected material for shoulders and slopes where meas-

urement will be made in accordance with Subsection **203.15**. When measurement is made of the material in its original position, no deduction will be made for shrinkage. This method of measurement shall not be allowed when the depth of the pit excavation is less than 18 inches.

B. Ordinary Excavation Material. Material used in the construction of shoulders, other than that obtained from sources specified in Subsection **209.05A**, will not be measured, nor paid under the item Selected Material for Shoulders and Slopes. When the material used in the shoulders and slopes consists of ordinary roadway or drainage excavation the measurement and payment for this material will be Unclassified Excavation.

209.06 Basis of Payment. Material in shoulders and slopes will be compensated for under this item only when the selected material used consists of material described and measured as provided in Subsection **209.05A**.

The accepted volume of selected material measured in Subsection **209.05A** will be paid for at the contract unit price for Selected Material for Shoulders or Slopes when this item is included in the proposal; otherwise payment will be at the contract unit price for Unclassified Excavation or Borrow Excavation, as the case may be. The above price and payment shall be full compensation for excavating, hauling within free haul limit, placing, spreading, shaping and compacting in its final position; for scarifying and terracing the material pits; and for all labor, equipment, tools, maintenance and incidentals necessary to satisfactorily complete the work. Overhaul will be paid for as specified in Section **207**.

When the contract requires the Contractor to furnish the shoulder material, the unit price and payment shall be full and complete compensation for the work stated above and, in addition, shall cover the cost of material pits, haul roads and hauling of materials.

Payment for this item includes all direct and indirect costs and expenses required to complete the work.

Payment will be made under:

Item No.	Pay Item	Pay Unit
2091000	Select Material for Shoulders and Slopes	Cubic Yard

SECTION 210

FLOWABLE FILL

210.01 Description. This work shall consist of the use of Flowable Fill, its application, materials, proportioning, handling, maintenance, and protection. Flowable Fill is a controlled low strength material (CLSM) which can be placed in a self-leveling consistency or in a less flowable state to reduce the fluid pressures exerted by the material. The ultimate unconfined compressive strengths should be less than 200 psi to maintain the ability to re-excavate, and the hardened flowable fill should not exhibit settlement.

210.02 Applications. Flowable Fill is suitable for routine backfilling such as for bridge abutments, utility trenches, cross-line pipes, catch basins, drop inlets, manholes, etc.; filling the voids of abandoned below ground structures including pipelines, culverts, and storage tanks; and for structural backfill beneath foundations. Flowable fill is acceptable for use in original construction or in maintenance situations, and can be placed in all weather conditions, including rain.

The mixes fall into the categories of "less flowable" and "very flowable" that are controlled by the amount of water in the mix. The less flowable mix shall be used when it is desirable to put traffic back on a roadway quickly or when being used to backfill pipes which could "float" out of position due to