



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

October 9, 2009

MEMORANDUM TO: Jay Bennett, P.E.
State Roadway Design Engineer

Division Engineers

FROM: Randy Garris, P.E. 
State Contract Officer

SUBJECT: Aggregate Subgrade and
Select Granular Material Pay Items

The Contract Standards and Development and Geotechnical Engineering Units have completed the development of two new special provisions entitled "Aggregate Subgrade" and "Select Granular Material" to be effective with the March 16, 2010 letting. These new provisions include changes to the pay items and plans. The purpose of this memorandum is to inform groups involved in plan and quantity estimate preparation about how to handle these pay item changes.

The new "Aggregate Subgrade" provision will replace the current "Shallow Undercut" provision. The *Class IV Subgrade Stabilization* and *Fabric for Soil Stabilization* pay items will remain the same for the new provision. However, the new "Aggregate Subgrade" provision includes a new *Shallow Undercut* pay item to replace the *Undercut Excavation* pay item used in the current "Shallow Undercut" provision. Projects with geotechnical recommendations recommending shallow undercut will need to be revised. The *Undercut Excavation* quantity for shallow undercut should be deducted from the total *Undercut Excavation* quantity and included in the estimate as *Shallow Undercut*. If the *Undercut Excavation* quantity for shallow undercut is not clearly stated in the geotechnical recommendations, contact the Geotechnical Engineering Unit for clarification.

The new "Select Granular Material" provision will replace Section 265 of the standard specifications. The *Select Granular Material* pay item for the new provision has not changed from Section 265. However, to aid in contract administration during construction, select granular material will be paid for differently when it comes from the same source as the borrow excavation. As a result, comprehensive (Lump Sum) grading projects with select granular material should be handled differently if the geotechnical recommendations

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
CONTRACT STANDARDS AND DEVELOPMENT
1591 MAIL SERVICE CENTER
RALEIGH NC 27699-1591

TELEPHONE: 919-250-4128
FAX: 919-250-4119

Website: www.ncdot.org/doh

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-3
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Jay Bennett, P.E.
Division Engineers
October ??, 2009
Page 2

recommend the use of select granular material and it is not a contingency item. For this situation, undercut and borrow quantities should be included as individual items under Sections 225 and 230 of the Standard Specifications.

In addition, we recommend revising the Roadway Design Manual and Calculation of Quantities to reflect this memorandum. If there are any questions regarding this memorandum, please contact Scott Hidden, P.E. of the Geotechnical Engineering Unit at (919) 250-4088.

Attachments

cc: Andy Gay, P.E., Proposals and Contracts Engineer
Cynthia Perry, P.E., Plans and Standards Engineer
Ron Davenport, P.E., State Estimating Engineer
Njoroge Wainaina, P.E., State Geotechnical Engineer
Ron Hancock, P.E., State Construction Engineer
Scott Hidden, P.E.
Division Project Managers

AGGREGATE SUBGRADE:

(3-16-10)

SP2 R35

Description

Construct aggregate subgrades in accordance with the contract or as directed by the Engineer. Undercut as needed in cut areas. Install fabric for soil stabilization and place Class IV Subgrade Stabilization at locations shown on the plans.

Materials

Refer to Division 10 of the *Standard Specifications*.

Item	Section
Select Material, Class IV	1016
Fabric for Soil Stabilization, Type 4	1056

Use Class IV Select Material for Class IV Subgrade Stabilization. If Class IV Subgrade Stabilization does not meet the requirements of Article 1010-2 of the *Standard Specifications*, the Engineer may consider the material reasonably acceptable in accordance with Article 105-3 of the *Standard Specifications*.

Construction Methods

When shallow undercut is required to construct aggregate subgrades, undercut 6 to 24 inches as shown on the plans or as directed by the Engineer. Perform undercut excavation in accordance with Section 225 of the *Standard Specifications*. Install fabric for soil stabilization in accordance with Article 270-3 of the *Standard Specifications*. Place Class IV Subgrade Stabilization (standard size no. ABC) by end dumping ABC on the fabric. Do not operate heavy equipment on the fabric until it is covered with Class IV Subgrade Stabilization. Compact ABC to 92% of AASHTO T180 as modified by the Department or to the highest density that can be reasonably obtained.

Maintain Class IV Subgrade Stabilization in an acceptable condition and minimize the use of heavy equipment on ABC in order to avoid damaging aggregate subgrades. Provide and maintain drainage ditches and drains as required to prevent entrapping water in aggregate subgrades.

Measurement and Payment

Shallow Undercut will be measured and paid for in cubic yards. Shallow undercut will be measured in accordance with Article 225-7 of the *Standard Specifications*. The contract unit price bid for *Shallow Undercut* will be full compensation for excavating, hauling and disposing of materials to construct aggregate subgrades.

Class IV Subgrade Stabilization will be measured and paid for in tons. Class IV Subgrade Stabilization will be measured by weighing material in trucks in accordance with Article 106-7 of the *Standard Specifications*. The contract unit price bid for *Class IV Subgrade Stabilization* will be full compensation for furnishing, hauling, handling, placing, compacting and maintaining ABC.

Fabric for Soil Stabilization will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Payment will be made under:

Pay Item

Pay Unit

Shallow Undercut

Cubic Yard

Class IV Subgrade Stabilization

Ton

SELECT GRANULAR MATERIAL:

(3-16-10)

SP2 R80

Revise the *Standard Specifications* as follows:

Page 2-29, Delete Section 265 **SELECT GRANULAR MATERIAL** and replace it with the following:

Description

Furnish and place select granular material in accordance with the contract or as directed by the Engineer.

Materials

Refer to Division 10 of the *Standard Specifications*.

Item	Section
Select Material, Class II	1016
Select Material, Class III	1016

Construction Methods

Use Class II or III Select Material over fabric for soil stabilization and only Class III Select Material for backfill in water.

Place select granular material to 3 ft above fabric and water level.

Measurement and Payment

Select granular material will be paid for as *Select Granular Material* unless the material is obtained from the same source as the borrow material. When this occurs and the contract includes a pay item for *Borrow Excavation*, select granular material will be paid for as *Borrow Excavation* in accordance with Article 230-5 of the *Standard Specifications* and no payment for *Select Granular Material* will be made.

Select Granular Material will be measured and paid for in cubic yards. When *Undercut Excavation* is in accordance with Section 226 (Comprehensive Grading) of the *Standard Specifications* and the Engineer requires undercut to be backfilled with select granular material, the second sentence of the sixth paragraph of Article 226-3 will not apply, as payment for the backfill will be made as specified in this provision.

Select granular material will be measured by in place measurement in accordance with Article 230-5 of the *Standard Specifications* or by weighing material in trucks in accordance with Article 106-7 of the *Standard Specifications* as determined by the Engineer. When select granular material is weighed in trucks, a unit weight of 135 pcf will be used to convert the weight of select granular material to cubic yards. At the Engineer's discretion, truck

measurement in accordance with Article 230-5 of the *Standard Specifications* may be used in lieu of weighing material in trucks.

The contract unit price bids for *Select Granular Material* and *Borrow Excavation* as described above will be full compensation for furnishing, hauling, handling, placing, compacting and maintaining select granular material.

Payment will be made under:

Pay Item

Pay Unit

Select Granular Material

Cubic Yard