



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES. PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 14, 2011

Addendum No. 2

RE: Contract ID: C202241

WBS# 34430.3.3

Camden County (R-2414B)

US-158 From South of SR-1139 To East of NC-34 in Belcross

January 18, 2011 Letting

To Whom It May Concern:

Reference is made to the proposal recently furnished to you on this project.

The following revision has been made to the proposal:

On Page Nos. 56 and 64 changes were made to the project special provision entitled "Mass Soil Mixing". Please void Page Nos. 56 and 64 in your proposal and staple the revised Page Nos. 56 and 64 thereto.

Sincerely,

A handwritten signature in black ink, appearing to read "R. A. Garris".

R. A. Garris, PE
Contract Officer

RAG/jag
Attachments

cc: Mr. J.G Nance, PE
Mr. Ron Hancock, PE
Mr. J. Jennings., PE
Ms. D. M. Barbour, PE
Mr. Art McMillan, PE
Mr. J.V. Barbour, PE
Project File (2)

Mr. R. E. Davenport, Jr., PE
Mr. Ronnie Higgins
Mr. Larry Strickland
Ms. Marsha Sample
Ms. Natalie Roskam, PE
Ms. Lori Strickland

Soil mixing equipment must allow the use of compressed air or grout during mixing. Mixing tools must be capable of injecting binder or grout through the mixing tool. Rotate and orient mixing tools sufficiently to break up the in situ soils and disperse and blend with injected binder or grout to form the soil/binder mixture. Continuous auger flights are not allowed. Mixing tools shall be rotated sufficiently fast and be oriented to thoroughly break up the in situ soils and disperse and blend with injected cement/grout to form a homogenous mixture. Mixture rotation speed during mixing shall be chosen by the Soil Mixing Contractor and should not vary by more than 10% at any time.

B. Storage Tanks for Binder Materials or Grout Mixing Plant

Store and deliver binder materials to the mixing points in closed pressure tanks suitable to be used as pressure vessels, for all pressures required including those to be used to load and unload the materials. Provide storage tanks or silos for adequate storage space for continuous production. The bulk storage equipment includes all pumps, scales, mixers, valves, gauges, and regulating devices required to measure and mix binder.

If wet soil mixing method is used, the grout mixing plant shall include the necessary equipment including a high shear mixer capable of producing a colloidal suspension of cement and additives in water and pumps, valves, hoses, supply lines, and all other equipment as required to adequately supply grout to the mixing tool. Positive displacement grout pumps shall be used to transfer the grout to the mixing auger. The grout pump shall be capable of pumping to the required distance and elevations to provide an adequate supply of grout to the mixing tool. The plant shall be equipped to accept dry or liquid additives in measured amounts. Storage tanks shall be provided (as needed) to store and allow for an adequate supply of batches or continuously mixed grout to the soil mixing machine. Grout shall be agitated until fully mixed and recirculated in the storage tanks to maintain a homogeneous mix and prevent flash set. Grout meters or calibrated tanks shall be provided to measure injection volumes.

6.0 MATERIALS

A. Reagent Binder

Use a binder material consisting of cement or a mixture of cement and slag. The percentage of slag shall not exceed 50% of the binder material by weight. The binder shall be delivered in a powder form. Protect the binder material from damage by moisture while in transit to and in storage at the job site.

1. Cement:

Use Type I or II Portland Cement in accordance with Section 1024 of the Standard Specifications for Roads and Structures. No other types of cement will be allowed. All cement shall be homogeneous in composition and properties, and shall be manufactured using the same method at one plant by the same manufacturer. Material which has become caked due to moisture absorption shall not be used. Bags of cement shall be stacked no more than ten bags high to avoid compaction. Cement containing lumps or foreign material that may be deleterious to the mass soil mixing operation shall not be used. Tricalcium aluminate content shall not exceed 7%.

2. Slag

work. No work shall be performed in the defective area until the Engineer approves the remedial measures proposed by the Contractor.

- 11.1 The limits of the mass soil mixing in both horizontal and vertical dimensions shall be as shown in the contract plans or as directed by the Engineer.
- 11.2 All construction records including the QA/QC records have been submitted to the Engineer and demonstrate that the mass soil mixing operation was done in conformance with all of the requirements specified in this provision and produces a homogeneously mixed soil mass.
- 11.3 The results of the unconfined compressive testing of wet samples as specified in Section 10.1 show an average and a minimum unconfined compressive strength not less than 165 KPa and 83 KPa at seven days, respectively.
- 11.4 The Cone Penetration Test (CPT) as specified in Section 10.2 demonstrates a homogeneous and thorough treatment of the mass soil mixing throughout the entire depth of penetration. In addition, the CPT results show a minimum average corrected cone resistance (q_c) of 1,100 KPa within any one (1) meter interval of the mass soil mixing depth. The cone resistance (q_c) shall be corrected to q_t to account for pore water effects in accordance with ASTM D5778. If CPT refusal occurs after three (3) attempts within two (2) meters by two (2) meters area, this section is considered to meet the CPT requirements.
- 11.5 The coring performed as specified in Section 10.3 shows a homogeneous profile of the treated soil mass. In addition, the results of the unconfined compressive testing of core samples as specified in Section 10.3 show an average and a minimum unconfined compressive strength not less than 165 KPa and 83 KPa at seven days, respectively. Even if a complete core recovery is not achieved, it is not subject to rejection provided all other acceptance criteria are met.
- 11.6 Any additional test conducted by the Engineer confirms that the mass soil mixing product meets the acceptance criteria stated above.

12.0 REMEDIAL WORK

The Contractor shall submit a plan of remedial work for the mass soil mixing area determined by the Engineer as defective based on the acceptance criteria in Section 12.0. The Engineer will review the submittal and approve or reject it within seven days from the date the submittal is received. All remedial work shall be performed in accordance with this provision including the acceptance criteria unless otherwise approved by the Engineer. The Contractor shall perform all remedial work at his own expense. No additional compensation or time extension will be made for any remedial work.

13.0 MEASUREMENT AND PAYMENT

The quantity of mass soil mixing to be paid for shall be the quantity of the completely treated and accepted soil mass in cubic meters. Measurement shall be made from the limits of mass soil mixing shown on the plans or from the revised limits as directed by the Engineer. No separate measurement for payment will be made of any remedial work. No separate measurement for