



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES. PERDUE  
GOVERNOR

EUGENE A. CONTI, JR.  
SECRETARY

June 12, 2012

**Addendum No. 2**

RE: Contract ID: C202837

WBS# 34461.3.4

**Wayne County (R-2554A)**

US-70 From West Of NC-581 To SR-1300 (Salem Church Road)

**June 19, 2012 Letting**

To Whom It May Concern:

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

The following revision has been made to the Roadway plans:

Sheet No. 1-A has been revised to reflect the below noted plan sheet revisions. Please void Sheet No. 1-A in your plans and staple the revised Sheet No. 1-A thereto.

Sheet No. 2-AK has been revised to remove any references to "Wall No. 1". Please void Sheet No. 2-AK in your plans and staple the revised Sheet No. 2-AK thereto.

Please void/remove Sheet No. 2-AL in your plans.

Sheet No. 2-AN has been revised to correct the settlement gauge offset distances. Please void Sheet No. 2-AN in your plans and staple the revised Sheet No. 2-AN thereto.

The following revisions have been made to the Structure plans:

Sheet No. W-1 was revised to change various notes and factors. Please void Sheet No. W-1 in your plans and staple the revised Sheet No. W-1 thereto.

Sheet No. W-2 was revised to make various changes to MSE Wall No. 1. Please void Sheet No. W-2 in your plans and staple the revised Sheet No. W-2 thereto.

Sheet No. W-4 was revised to indicate that "high strength fabric" is only required for Wall No. 2. Please void Sheet No. W-4 in your plans and staple the revised Sheet No. W-4 thereto.

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

TELEPHONE: 919-707-6900  
FAX: 919-250-4119  
**WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)**

**LOCATION:**  
CENTURY CENTER COMPLEX  
ENTRANCE B-2  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC

The following revision has been made to the Structure Subsurface plans:

The sheets for “Retaining Wall 2 At End Bent 2 At –L2RPB- Sta. 6+40.0” have been revised due to additional borings being taken. Please void the sheets for “Retaining Wall 2” (10 sheets) and replace with the attached revised sheets for “Retaining Wall 2” (12 sheets).

The following revisions have been made to the proposal:

On Page Nos. 40 and 41 references to MSE Wall No. 1 have been removed within the project special provision entitled “Temporary Embankment Placement, Maintenance and Removal”. Please void Page Nos. 40 and 41 in your proposal and staple the revised Page Nos. 40 and 41 thereto.

On Page No. 81 and new Page No. 81A a table indicating the possible locations of the geotextile have been added to the project special provision entitled “Geotextile For Pavement Stabilization”. Please void Page No. 81 in your proposal and staple the revised Page No. 81 and new Page No. 81A thereto.

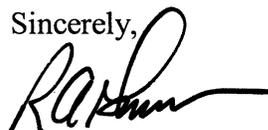
On Page No. 257 a paragraph has been added to “Section 6.0 Construction Methods” of the project special provision entitled “Mechanically Stabilized Earth Retaining Walls”. Also on Page No. 259 a paragraph has been added to “Section 7.0 Measurement and Payment” of the same provision. Please void Page Nos. 257 thru 259 in your proposal and staple the revised Page Nos. 257 thru 259 and New Page No. 259A thereto.

On Page No. 2 of the new item sheets the following pay item quantities have been revised:

<u>Item</u>	<u>Description</u>	<u>Old Quantity</u>	<u>New Quantity</u>
020-0195000000-M-SP	Select Granular Material	64,300 M3	67,900 M3
023-0241000000-M-SP	Fabric For Embankment Stabilization	10,920 M2	6,540 M2
026-0241000000-M-SP	Type 2 Engineering Fabric	1,565 M2	930 M2

The Contractor’s bid must be based on these revised quantities. The contract will be prepared accordingly.

The Expedite File has been updated to reflect these revisions. Please download the Expedite Addendum File and follow the instructions for applying the addendum. Bid Express will not accept your bid unless the addendum has been applied.

Sincerely,  


R. A. Garris, PE  
Contract Officer

RAG/jag  
Attachment

cc: Mr. J.G Nance, PE  
Mr. Ron Hancock, PE  
Mr. John Rouse, PE  
Ms. D. M. Barbour, PE  
Mr. J.V. Barbour, PE  
Mr. G.R. Perfetti, PE  
Mr. Njorge Wainania, 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  
Ms. Penny Higgins  
Ms. Jaci Kincaid

**BASIS OF PAYMENT:**

The quantity of fabric, measured as provided above, will be paid for at the contract unit price per square meter (square yard) for “Fabric for Embankment Stabilization”. Such price and payment will be full compensation for furnishing, transporting, placing, sewing, testing, and all incidentals necessary to complete the work as described in this provision and the plans.

Pay Item:      Fabric for Embankment Stabilization ..... Square Meter



**TEMPORARY EMBANKMENT PLACEMENT, MAINTENANCE AND REMOVAL:**  
**(SPECIAL)**

This work consists of constructing, maintaining, and removing a temporary embankment in front of MSE wall No. 2 from Sta. 6+37.642± -L2RPB- to Sta. 7+59.706± -L2RPB- to provide surcharge to the underlying soil in front of the walls. The limits of the temporary embankment material are shown on the “Fabric and Temporary Embankment” plans and include a berm with side slopes no steeper than 2:1 (H:V). Do not perform any grade excavation in front of the MSE wall under the footprint of the temporary embankment until the temporary embankment is placed and removed. Place and compact borrow as temporary roadway embankment in accordance with Section 235 Standard Specifications except hand operated compaction equipment is only allowed within one (1) meter of wall panels. Install a layer of Type 2 Engineering Fabric that meets the requirements of Section 1056 Standard Specifications against the exterior face of the MSE wall panels before the temporary embankment fill placement occurs. Overlap fabric a minimum of 0.3 meters at the ends of fabric. Take caution not to damage any wall panels during the placement and removal of the temporary embankment fill. Include additional protection measures necessary to ensure that the wall panels do not get damaged. The contractor will be required to repair or replace damaged wall panel to the satisfaction of the Engineer at no additional cost to Department. Place the temporary embankment and roadway embankment behind the MSE wall reinforced zones to the construction phase elevations as shown on the plans. Maintain the temporary embankment height at all times until the end of the waiting periods and the additional end bent waiting period as shown on the bridge plans. After the waiting periods for the wall construction phases and bridge end bent waiting period have been observed, remove the temporary embankment to proposed roadway subgrade elevations in front of the MSE wall No. 2, unless otherwise directed by the Engineer.

Measurement and Payment

Fabric on the exterior of the MSE wall panels will be measured and paid as “Type 2 Engineering Fabric” at the contract unit price per square meter. The contract unit cost price for “Type 2 Engineering Fabric” will be full compensation for material, placement and removal of fabric. No separate measurement will be made of overlapping fabric for payment.

The placement of the temporary embankment earth material against MSE wall No. 2 will be measured and paid for at the contract unit price per cubic meter for “Borrow Excavation”.

The earth material removal will be measured and paid for at the contract unit price per cubic meter for “Unclassified Excavation”. These payments will be considered as full compensation for placement, maintenance, and removal of the temporary embankment as shown on the plans and described in this provision.

Pay Items :	Borrow Excavation .....	Cubic Meter (M <sup>3</sup> )
	Unclassified Excavation .....	Cubic Meter (M <sup>3</sup> )
	Type 2 Engineering Fabric .....	Square Meter (M <sup>2</sup> )



**EMBANKMENT AND MSE WALL INSTRUMENTATION:**

**DESCRIPTION**

The embankment and MSE wall instrumentation will consist of twelve (12) vibrating wire (vw) piezometers, two (2) vertical inclinometer casings, and ten (10) settlement gauges. Provide instrumentation calibration data sheets for all piezometers.

Purchase and deliver to the Engineer instruments and materials for piezometer gauges and inclinometer casings at least 20 working days before starting MSE wall construction. Discuss the instrumentation installation during the preconstruction meeting for MSE wall construction.

The Engineer will install and monitor the vw piezometers and vertical inclinometers. Contractor will furnish and install settlement gauges. The Engineer will retain ownership of all instruments and materials after completion of the project. Provide access and assistance to the Engineer in installing the instrumentation and casings as shown on the plans. Provide access to the Engineer

If the gradation, binder content, or any of the volumetric mix properties are not within the allowable tolerances of Table 1012-2, do not use the new source RAP unless approved by the Engineer. The Contractor may elect to either not use the stockpile, to request an adjustment to the JMF, or to redesign the mix.

**TABLE 1012-2  
NEW SOURCE RAP GRADATION and BINDER TOLERANCES  
(Apply Tolerances to Mix Design Data)**

Mix Type	0-20% RAP			20 <sup>+</sup> -30 % RAP			30 <sup>+</sup> % RAP			
	Sieve (mm)	Base	Inter.	Surf.	Base	Inter.	Surf.	Base	Inter.	Surf.
P <sub>b</sub> %		± 0.7%			± 0.4%			± 0.3%		
25.0	±10	-	-	-	±7	-	-	±5	-	-
19.0	±10	±10	-	-	±7	±7	-	±5	±5	-
12.5	-	±10	±10	±10	-	±7	±7	-	±5	±5
9.5	-	-	±10	±10	-	-	±7	-	-	±5
4.75	±10	-	±10	±10	±7	-	±7	±5	-	±5
2.36	±8	±8	±8	±8	±5	±5	±5	±4	±4	±4
1.18	±8	±8	±8	±8	±5	±5	±5	±4	±4	±4
0.300	±8	±8	±8	±8	±5	±5	±5	±4	±4	±4
0.150	-	-	±8	±8	-	-	±5	-	-	±4
0.075	±4	±4	±4	±4	±2	±2	±2	±1.5	±1.5	±1.5

**GEOTEXTILE FOR PAVEMENT STABILIZATION:**

**(10-19-10)**

**Description**

Furnish and install geotextile for pavement stabilization in accordance with the contract. Geotextile for pavement stabilization may be required to prevent longitudinal pavement cracks and provide separation between the subgrade and pavement structure at locations shown on the plans.

The following areas may need Geotextile for Pavement Stabilization.

LINE	STATIONS
-L-	39+55 to 40+500
-L-	47+00 to 47+90
-L-	53+80 to 54+60
-L-	58+30 to 61+30
-L-	64+30 to 66+35
-L-	74+15 to 77+00
-L-	83+20 to 84+00
-FLY-	13+00 to 16+70
-FLY-	17+75 to 20+60
-RPD-	15+40 to 15+90

<u>LINE</u>	<u>STATIONS</u>
-Y10-	13+85 to 15+75
-Y10-	16+40 to 17+29
-Y10-	17+29 to 18+50
-Y-	12+90 to 15+70
-L2RPDB-	8+60 to 15+80
-RPA-	12+10 to 13+88
-RPB-	14+10 to 15+15
-LPC-	10+00 to 11+00

### Materials

Load, transport, unload and store geotextiles such that they are kept clean and free of damage. Label, ship and store geotextiles in accordance with Section 7 of AASHTO M288. Geotextiles with defects, flaws, deterioration or damage will be rejected. Do not unwrap geotextiles until just before installation and do not leave geotextiles exposed for more than 7 days before covering geotextiles with base course.

Use geotextiles with a minimum roll width of 13 ft (4 m) that meet the requirements of Article 1056-1 of the *Standard Specifications*. Provide Type 1 Certified Mill Test Report in accordance with Article 106-3 of the *Standard Specifications* with minimum average roll values (MARV) as defined by ASTM D4439 for geotextile properties. For testing geotextiles, a lot is defined as a single day's production.

Before starting MSE wall construction, hold a preconstruction meeting to discuss the construction and inspection of the MSE walls. Schedule this meeting after all MSE wall submittals have been accepted. The Resident or Bridge Maintenance Engineer, Bridge Construction Engineer, Geotechnical Operations Engineer, Contractor and MSE Wall Installer Superintendent will attend this preconstruction meeting.

#### 4.0 CORROSION MONITORING

Corrosion monitoring is required for MSE walls with steel reinforcement. The Engineer will determine the number of monitoring locations and where to install the instrumentation. Contact the Materials and Tests (M&T) Unit before beginning wall construction. M&T will provide the corrosion monitoring instrumentation kits and if necessary, assistance with installation.

#### 5.0 SITE ASSISTANCE

Unless otherwise approved, provide an MSE Wall Vendor representative to assist and guide the MSE Wall Installer on-site for at least 8 hours when the first panels and reinforcement layer are placed. If problems are encountered during construction, the Engineer may require the vendor representative to return to the site for a time period determined by the Engineer.

#### 6.0 CONSTRUCTION METHODS

Control drainage during construction in the vicinity of MSE walls. Direct run off away from MSE walls, aggregate and backfill. Contain and maintain aggregate and backfill and protect material from erosion.

Excavate as necessary for MSE walls in accordance with the accepted submittals. If applicable and at the Contractor's option, use temporary shoring for wall construction instead of temporary slopes to construct MSE walls. Define "temporary shoring for wall construction" as temporary shoring not shown in the plans or required by the Engineer including shoring for OSHA reasons or the Contractor's convenience.

Excavate the existing ground beneath Wall No. 1 and backfill with select granular material as shown in the wall plans. Place and compact the select granular material in accordance with Section 235 of the *2006 Standard Specifications*. Excavate the existing fill as required to construct the Wall No.1 with a 1.5:1 (H:V) temporary cut slope, unless otherwise directed by the Engineer. Backfill this portion of excavation with common borrow material.

Unless required otherwise in the plans, install the bridge foundations located in the reinforced zone before placing aggregate or reinforcement. Notify the Engineer when foundation excavation is complete. Do not place leveling pad concrete, aggregate or reinforcement until excavation dimensions and foundation material are approved.

Construct cast-in-place concrete leveling pads at elevations and with dimensions shown in the accepted submittals and in accordance with Section 420 of the *2006 Standard*

*Specifications.* Cure leveling pads at least 24 hours before placing panels.

Erect and support panels and with no negative batter (wall face leaning forward) so the final wall position is as shown in the accepted submittals. Set panels with a vertical joint width of 19 mm. Place bearing pads in horizontal panel joints and cover all panel joints with filter fabrics as shown in the accepted submittals. Attach filter fabrics to back of panels with adhesives, tapes or other approved methods. Contractor will install a layer of fabric against the exterior face of the MSE wall panels before the temporary embankment fill placement occurs.

Use only square or rectangular shape panels. Place panels in such a way to make a vertical line between the panel and columns. Construct MSE walls with the following tolerances:

- A. Final wall face is within 19 mm of horizontal and vertical alignment shown in the accepted submittals when measured along a 3 m straightedge and
- B. Final wall plumbness (batter) is within  $0.5^\circ$  of vertical unless otherwise approved.

Place reinforcement at locations and elevations shown in the accepted submittals and within 75 mm of corresponding connection elevations. Install reinforcement with the direction shown in the accepted submittals. Place reinforcement in slight tension free of kinks, folds, wrinkles or creases. Reinforcement may be spliced once per reinforcement length if shown in the accepted submittals. Use reinforcement pieces at least 1.8 m long. Contact the Engineer when unanticipated existing or future obstructions such as foundations, guardrail, fence or handrail posts, pavements, pipes, inlets or utilities will interfere with reinforcement. To avoid obstructions, deflect, skew or modify reinforcement as shown in the accepted submittals.

Place aggregate in the reinforced zone in 200 mm to 250 mm thick lifts. Compact fine aggregate in accordance with Subarticle 235-4(C) of the *2006 Standard Specifications*. Use only hand operated compaction equipment to compact aggregate within 1 m of panels. At a distance greater than 1 m, compact aggregate with at least 4 passes of an 7.3 metric ton to 9.1 metric ton vibratory roller in a direction parallel to the wall face. Smooth wheeled or rubber tired rollers are also acceptable for compacting aggregate. Do not use sheepsfoot, grid rollers or other types of compaction equipment with feet. Do not displace or damage reinforcement when placing and compacting aggregate. End dumping directly on geogrids is not permitted. Do not operate heavy equipment on reinforcement until it is covered with at least 200 mm of aggregate. Replace any damaged reinforcement to the satisfaction of the Engineer.

Backfill for MSE walls outside the reinforced zone in accordance with Article 410-8 of the *2006 Standard Specifications*. If a drain is required, install wall drainage systems as shown in the accepted submittals and in accordance with Section 816 of the *2006 Standard Specifications*.

Place and construct coping and leveling concrete as shown in the accepted submittals and Section 420 of the *2006 Standard Specifications*. Do not remove forms until concrete attains a compressive strength of at least 16.5 MPa. Provide a Class 2 surface finish for

coping that meets Subarticle 420-17(F) of the *2006 Standard Specifications*.

Construct coping joints at a maximum spacing of 3 m. Make 13 mm thick expansion joints that meet Article 420-10 for every third joint and 13 mm deep grooved contraction joints that meet Subarticle 825-10(B) for the remaining joints. Stop coping reinforcement 50 mm on either side of expansion joints. When single faced precast concrete barrier is required in front of and against MSE walls, stop coping just above barrier so coping does not interfere with placing barrier up against wall faces.

When separation fabrics are required, overlap adjacent fabrics at least 450 mm and hold separation fabrics in place with wire staples or pins as needed. Seal joints above and behind MSE walls between coping and ditches or concrete slope protection with silicone sealant.

## 7.0 MEASUREMENT AND PAYMENT

*MSE Retaining Walls* will be measured and paid in square meters. MSE walls will be measured as the square meters of exposed wall face area with the height equal to the difference between top and bottom of wall elevations. Define "top of wall" as top of coping or top of panels for MSE walls without coping. Define "bottom of wall" as shown in the plans and no measurement will be made for portions of MSE walls embedded below bottom of wall elevations.

The contract unit price for *MSE Retaining Walls* will be full compensation for providing designs, submittals, labor, tools, equipment and MSE wall materials, excavating, backfilling, hauling and removing excavated materials and supplying site assistance, leveling pads, panels, reinforcement, aggregate, wall drainage systems, fabrics, bearing pads, coping, miscellaneous components and any incidentals necessary to construct MSE walls. The contract unit price for *MSE Retaining Walls* will also be full compensation for reinforcement connected to and aggregate behind end bent caps in the reinforced zone.

No separate payment will be made for temporary shoring for wall construction. Temporary shoring for wall construction will be incidental to the contract unit price for *MSE Retaining Walls*.

Excavation and backfilling for Wall No.1 construction as shown in the wall plans will be measured and paid for separately. Such excavation and backfilling will be measured and paid for at the contract unit price for unclassified excavation, borrow excavation, and select granular material in accordance with Article 225-7, 230-5, and 265-4, respectively, of the *2006 Standard Specifications*. No separate payment will be made for any excavation or backfilling required for Wall No. 2 construction.

The contract unit price for *MSE Retaining Walls* does not include the cost for ditches, fences, handrails, barrier or guardrail associated with MSE walls as these items will be paid for elsewhere in the contract.

Where it is necessary to provide backfill material behind the reinforced zone from sources other than excavated areas or borrow sources used in connection with other work in the

contract, payment for furnishing and hauling such backfill material will be paid as extra work in accordance with Article 104-7 of the 2006 *Standard Specifications*. Placing and compacting such backfill material is not considered extra work but is incidental to the work being performed.

Payment will be made under:

**Pay Item**

MSE Retaining Walls  
Unclassified Excavation  
Borrow Excavation  
Select Granular Material

**Pay Unit**

Square Meter  
Cubic Meter  
Cubic Meter  
Cubic Meter

