

January 16, 2003

Mr. Charles J. Sukanek, P.E.
URS Corporation
2698 Orlando Drive
Sanford, FL 32773

Mr. Kenneth Hudson
Modern Continental South, Inc.
278 Garrison Road
Pelzer, SC 29669

RE: Seminole Expressway, Project 2 - Section 1
FIN No. 240258-2-52-01
Dispute Review Board Recommendation
Fabriform Installation – Ramps “B” and “C”

Dear Sirs:

The Florida Department of Transportation (Department) and Modern Continental South (MCS) requested a hearing concerning the failure of the fabriform at ramps “B” and “C”. Summaries of the Department’s and MCS’s positions were forwarded to the Dispute Review Board (DRB), and a hearing was held on December 20, 2002.

ISSUE: Is the Contractor entitled to compensation for the installation of fabriform at ramps “B” and “C” that failed during heavy rains in June 2002?

Contractor’s Position

Modern Continental South, Inc. (MCS) proposes that it should be fully compensated for the installation of the Fabriform at Ramp "B" at SR417 and Ramp "C" at SR417 as well as all work associated with restoring these areas to the design requirements. The structures were installed in accordance with the Standard Index No. 281 (sheet 1 of 2) and Supplemental Agreement No. 3 and accepted by the CEI as is evident by the fact that the Department compensated MCS in full before the structures failed.

MCS requested that the Department evaluate utilizing Fabric Formed Concrete (Fabriform) at the subject locations due to the narrow throat area of these areas that made it impractical to install rip rap as designed. The Department approved this change and initiated Supplemental Agreement #3 detailing the design requirements and method of payment. In June of 2000, MCS entered into a subcontract with International Technical Systems (ITS) of Orlando, Florida to install 8-inch Rip Rap Fabric Formed Concrete (Fabriform). ITS was selected for their expertise with this product and their extensive history of work involving Florida Department of Transportation (FDOT) and Army Core of Engineer projects. During installation, the Department and MCS determined that a three (3) foot wide installation as designed would be inadequate thus MCS was directed to install the fabriform at a width of five (5) feet. The fabriform structures were installed before April 20, 2002.

*On June 14, 2002-MCS noted the severe erosion that had occurred at Ramp "B". **Appendix 1, "Photographs"**, is comprised of photographs taken of the field conditions. Photograph # 1 illustrates the condition on that date. On June 18, 2002 MCS noted the erosion that had occurred at Ramp "C". MCS initiated RFI# 139 on June 17, 2002 requesting a review of the fabriform at Ramp "B" to which URS responded with Letter No. 1441. MCS responded with correspondence 201-2889-02 dated July 2, 2002. On July 1, 2002 URS notified MCS of the erosion at Ramp "C" in correspondence number 1448. MCS responded with correspondence 201-2888-02 dated July 2, 2002. URS initiated correspondence*

1456 dated July 9, 2002 concerning Ramp "B". These conditions were discussed several times with URS generating Letter No. 1470.

Details of the correspondence will be discussed below. Copies of the correspondence are contained in Appendix 2, "Correspondence".

MCS requested that the fabriform be substituted for the rubble rip rap due to the difficulties associated with placing the rip rap as stated above, to which the Department agreed and thus Supplemental Agreement #3 was initiated. Even though this was MCS' request, the Department's EOR designed the installation. At no time prior to the first notice of the eroded areas was MCS notified by the Department that the fabriform installations were deficient. In fact, the fabriform was installed by a qualified subcontractor in accordance with the contract documents as is evidenced by the fact that the Department compensated MCS in full for this work under Pay Item 547-70-1.

MCS initiated RFI# 139 on June 17, 2002 requesting a review of the fabriform at Ramp "B" to which URS responded with Letter No. 1441 On June 24, 2002. The letter states that the fabriform was not installed per Standard Index No. 281. Verification of the installation would have been impossible after the effects of the erosion as is evident by the photographs in Appendix 1. MCS responded to URS Letter 1441 with MCS correspondence 201-2889-02. MCS identified the cause of the erosion as being a result of the excessive rains of June where the migration of the groundwater eroded the underlying embankment causing the fabriform to collapse. The saturated condition of the soil is evident in the photographs. MCS also proposed that replacing the fabriform was not a long-term solution and proposed sodding the area.

URS initiated Letter No. 1448 on July 1, 2002 concerning Ramp "C". MCS took immediate action to place embankment materials at the top of slope to stabilize the area and the drainage structures and installed silt fence at the toe of slope to control erosion. Once again URS states that the fabriform is not installed in accordance with the Standard Index No. 281. Verification of the installation would have been impossible after the effects of the erosion as is evident by the photographs in **Appendix 1**. MCS responded to URS Letter 1448 with MCS correspondence 201-2888-02. MCS identified the cause of the erosion as being a result of the excessive rains of June where the migration of the groundwater eroded the underlying embankment causing the fabriform to collapse. The saturated condition of the soil is evident in the photographs. MCS also proposed that replacing the fabriform was not a long-term solution and proposed sodding the area.

On July 9, 2002 URS initiated Letter No. 1456 concerning the fabriform at Ramp "B". This letter stated once again that the Department considered the fabriform installation to be deficient and that MCS should repair the eroded areas and fabriform at its cost and follow Section 5-12 of the Specification for compensation.

On July 22, 2002 URS initiated Letter No. 1470 directing MCS to install rubble lining (Pay Item 530-3-4) as called for in the contract plans and noted that payment for the fabriform would be deducted from the next pay request. MCS proceeded with the requested repairs as described below:

The repairs at Ramp "B" consisted of replacing approximately 120 c.y. of embankment, replacement of approximately 150 s.y's. of sod and placement of the riprap. It was decided by the CEI that the riprap should be placed at a minimum of ten (10) feet in width, once again demonstrating that the design was questionable. These repairs took approximately two (2) days

utilizing manpower and resources to include a loader, a combination hoe, dozer and dump truck (subcontracted).

The repairs at Ramp "C" consisted of removing and replacing approximately 20-feet of 18-inch aluminum pipe with two (2) joints, poured concrete collars, approximately 220 c.y. of embankment, replacement of approximately 240 s.y.'s of sod and placement of the rip rap. It was decided by the CEI that the riprap should be placed at a minimum of ten (10) feet in width, once again demonstrating that the design was questionable. These repairs took approximately four (4) days utilizing manpower and resources to include a loader, combination hoe, dozer and dump truck (subcontracted).

Other points to note are that that no failure of the top-of slope toe-ins occurred that would have allowed the material to move down the slope. Also, the design of the width of material changed from three feet, to five feet and finally ten feet, further confirming that the design of these structures was inadequate. Additionally, it should be noted that following the maintenance inspection by the FDOT on October 4, 2002, the urea at the toe of slope of Ramp "C" had, to be repaired once again due to erosion. This effort took one (1) day to move the riprap, replace the embankment, reinstall the riprap and replace sod.

*The above conditions indicate that there exists deficiencies in the design of the embankment areas at Ramp "B" and "C". These deficiencies are the cause for the severe and continuous erosion that is occurring which indicates that the slopes are failing which caused the undermining of the fabriform structures. The erosion is neither due to deficient workmanship nor materials. It is worth noting that the Project has had several other situations of severe erosion due to deficiencies in design., These are included in the **Appendix 2**, "Correspondence ". At Wall #9 along Ramp "A", the Department compensated MCS to repair eroded areas that occurred due to conflicts in the structure and the landscaping. At Wall #3 on southbound SR417, MCS was directed to add an asphalt curb due to erosion from storm water that rushed over the shoulder gutter and eroded the embankment.*

MCS is confident that the discussion and facts submitted provide the basis for the Dispute Review Board (DRB) to award entitlement to MCS concerning the deficient design of slopes and payment for the fabriform structures. It is evident from the above discussion that the structures were installed in accordance with the design requirements and that the failures are due to deficiencies in design concerning the embankment slopes and not defective workmanship or materials.

Department's Position

Modem Continental South (MCS) submitted a letter dated May 22, 2000 proposing the use of Fabriform in lieu of rip-rap rubble which was specified in the contract. MCS's submittal included manufacturer's data sheets and a cost of \$36.00 per square yard to furnish and install the material.

URS reviewed MCS's proposal and made a recommendation to the Department that Fabriform be substituted for rip-rap rubble. The substitution represented a cost saving to the project. URS also talked to a District 5 project engineer on a nearby I-4 Interchange project concerning the use of Fabriform on that project. The engineer stated that rip-rap rubble was installed and severe washouts were experienced. Therefore, the District had the Contractor remove the rip-rap rubble and replace it with Fabriform.

In July 2000, a Supplemental Agreement was issued to MCS to add the Fabriform to the project, which decreased the Rip-Rap Rubble pay item. The Supplemental Agreement included specification, Section 547, FABRIC FORMED CONCRETE RIPRAP.

MCS installed the Fabriform at Ramps B and C. During heavy rains, the Fabriform at Ramp B and Ramp C severely eroded. With reference to Ramp B, MCS submitted RFI No.139 requesting the Department to "review the size and location of the material (Fabriform) as it appears that due to the run-off this situation may continuously occur."

In response to RFI No. 139, and the extensive washout at Ramp C and SR 417, URS reviewed the Fabriform installation and subsequently sent letters dated June 24 and July 1, 2002 advising MCS that the Fabriform had not been installed in accordance with the contract documents, particularly Standard Index No. 281 (sheet 1 of 2) and Supplemental Agreement No. 3, which provided the substitution of Fabriform for rip-rap rubble as MCS requested.

The details on the Standard Index indicate the top and bottom of the ditch material must be placed in a trench. The specification attached to the S.A. states -- "Place the ends and upper limits of the fabric mat in a trench of suitable width as shown on the plans. " "Measurements will include portions of the rip-rap in trenches... "

Also, the Standard Index indicates that the ditch should have a valley of 6-inches deep.

The Fabriform installed at Ramps B and C did not have a formed valley and the top and bottom were not placed in a trench. MCS was advised to replace the Fabriform in accordance with the standards.

MCS removed the fabriform and replaced it with rip-rap rubble material which was the construction originally specified. MCS was advised that the Department would pay for the rubble rip-rap at the contract unit price of \$50 / TN and the costs paid for the Fabriform would be deleted from the contract. As a result, the following contract costs were implemented.

*Item No. 530-3-4, Rip-Rap (Rubble) - 162.130 Tons @ \$50.00/TN = \$ 8,106.50
Item No. 547-70-1, Rip-Rap Fabric Formed Concrete -142.98 SY @ \$36.00/SY = (\$ 5,147.28)*

The Department approved a request by MCS to use Fabriform in lieu of the rip-rap rubble. The Department's approval was formalized in a Supplemental Agreement that contained specifications covering the Fabriform installation. Also, the Department's Standard Index contained details for the ditch lining material.

The Contractor did not install the fabriform in accordance with the supplemental agreement and contract provisions. Therefore, the Department will not participate in the costs for installing and removing the Fabriform material because. the reason the Fabriform did not perform as intended was a direct result of improper. installation by MCS. The means and methods for installation of the Fabriform were under the direct and sole control of MCS.

DRB Findings

From the evidence presented in the position papers and reviewed at the hearing, the DRB determined that the fabriform failed due to insufficient capacity to handle the volume of run-off as a result of the

heavy rains. Severe erosion occurred along the sides of the fabriform that eventually undermined the mat that led to complete failure. The DRB is of the opinion that the original 3 foot riprap mat would likely have failed as well due to the heavy rains that occurred. The capacity of the original swale appears to be questionable as the Department required the final replacement with riprap to be 10 feet.

DRB Recommendation

The DRB finds entitlement to the Contractor's position and recommends that the parties enter into negotiations for an equitable settlement for the work in question.

The Board appreciates the cooperation by all parties involved and the information provided to make this Recommendation. Please remember that failure to respond to the DRB and the other party concerning your acceptance or rejection of the DRB Recommendation within 15 days will be considered acceptance of the Recommendation.

I certify that I participated in all of the meetings of the DRB regarding the Dispute indicated above and concur with the findings and recommendations.

Respectfully submitted,

Dispute Review Board

Jim Vest, DRB Chairman
John Duke, DRB Member
John Coxwell, DRB Member

SIGNED FOR AND WITH THE CONCURRENCE OF ALL MEMBERS:

A handwritten signature in black ink that reads "Jim Vest". The signature is written in a cursive, flowing style.

DRB Chairman