

MINUTES OF DOT-AGC BRIDGE DESIGN SUBCOMMITTEE MEETING

(Approved: 4/13/11)

The DOT-AGC Joint Bridge Design Subcommittee met on October 13th, 2010. Those in attendance were:

Berry Jenkins	Manager of Highway Heavy Division, Carolinas Branch AGC (Co-Chairman)
Greg Perfetti	State Bridge Design Engineer (Co-Chairman)
Mike Robinson	State Bridge Construction Engineer
Chris Peoples	State Materials Engineer
Ron Hancock	State Construction Engineer
Randall Gattis	Sanford Contractors, Inc.
Chris Britton	Taylor & Murphy Construction Co.
Larry Cagle	Thompson-Arthur Div., APAC-Atlantic, Inc.
Adam Holcomb	Dane Construction
Lee Bradley	Dellinger, Inc.
Erick Frazier	S.T. Wooten Corp.
Brian Hanks	Structure Design Project Engineer
Bill Heston	Balfour Beatty Infrastructure
Paul Lambert	Structure Design Project Engineer
Scott Hidden	Support Services Supervisor – Geotech. Eng. Unit
Gichuru Muchane	Structure Design Engineer

The following items were discussed during the review of the August 11th, 2010 minutes:

1. *Maintenance of Effort (MoE) Projects*

Mr. Jenkins reported that the Department met the ARRA funding requirements, which required the State to maintain planned spending from February 17, 2009 to Sept 30, 2010. He noted that as a result the Department will qualify for additional federal funds.

2. *Evazote Joint Seals*

Mr. Hanks reported that after the recent FHWA/DOT Bridge Field Review there was discussion of whether to discontinue the use of armored evazote joints and return to using standard expansion joint seals with the hold-down plates. He noted that unarmored evazote will still be detailed per current policy. Contractors present voice no negative concerns. Mr. Robinson added that the Department is investigating a more durable joint seal material, and the special provision will soon be revised to include requirements for the bond strength of the epoxy.

3. *Contractor Prequalification to Construct Foundations*

Mr. Frazier mentioned that the revised work codes require prequalification for all drilled shaft foundations. He added that Contractors would like the opportunity to perform drilled shaft work in some situations, such as relatively shallow foundations for sign structures where slurry or casing is not required.

Mr. Robinson expressed concern regarding the uncertainty of subsurface conditions and inquired how Contractors would handle unanticipated subsurface conditions and the potential impact on the project schedule. Contractors responded by stating they would only be interested in performing the work for relatively shallow, dry, low risk situations.

Mr. Robinson stated the he will report back after an internal review and discussion of the request.

4. *Revision to the Minutes*

Mr. Hidden requested that Item 7(i) be revised to clarify that Contractors expressed concerns with the need to be prequalified to construct foundations for sign structures; not major structures.

5. *Division Managed Projects*

Mr. Robinson distributed a status report on the progress of Division Managed low impact bridge replacements. The report summarized the activities in each Division, but noted that the information was subject to change.

The minutes of the August 11th, 2010 meeting were approved.

The following items of new business were discussed:

1. *Diaphragm Fabrication for Total Dead Load Fit-up*

Mr. Hanks discussed the concept of detailing steel plate girder diaphragms for total dead load fit-up. He explained that the diaphragms are detailed to fit-up with the girders plumb after the full dead load is applied. As a result, the girders are not plumb prior to the deck pour. Mr. Hanks also displayed the erection sequence published in the AASHTO/NSBA Steel Bridge Collaboration G12.1 – *Guidelines for Design for Constructibility*, and noted that this concept has been successfully applied on one project in North Carolina. Mr. Perfetti noted that the required changes in diaphragm detailing will affect the steel fabricator's shop drawings, but not contract drawings/plans.

Contractors raised questions regarding field splice fit-up, grading on temporary erection towers, behavior of the SIP forms and how to check for errors in the field. After some discussion it was suggested that Structure Design request fabricators detail diaphragms for total dead load fit up on a few more bridges and document any field problems.

2. *Integral Abutments with Wire Basket Fabric Wall in Approach Fill*

Mr. Muchane showed pictures of a wire basket fabric wall that was constructed in lieu of the reinforced bridge approach fill for a bridge with integral abutments and solicited Contractors' feedback on the preferred type of approach fill for integral abutment bridges.

Contractors stated that they preferred the wire basket fabric wall and that crane placement was not necessarily a factor. The discussion noted that Roadway Design has a set of standard wire basket fabric wall details that can be used for bridge approach fills, however these were not designed for crane loads placed on the fabric wall. For situations where Contractors wish to place a crane on the fabric wall there were suggestions to mitigate any load effects that ranged from restricting the distance from the fill-face based on the height of the fabric wall to requiring a Contractor designed fabric wall.

There was consensus to develop standard wire basket fabric wall details for integral abutment approach fills that are based on the Roadway fabric wall details. There was also a suggestion to develop a standard fabric wall that is designed for crane loads typically found in the submittals. The Geotechnical Unit will work with Structure Design to investigate the feasibility of developing a standard fabric wall.

3. *Pipe Pile Piece Lengths*

Pictures from the recent FHWA/DOT Bridge Field Review showing pipe piles with two splices in the exposed area of the piles were discussed. Mr. Peoples noted that the galvanizing repairs using zinc rich paint were already beginning to show signs of corrosion.

Contractors suggested that the splices were necessary to install the battered piles without the pile hammer interfering with the plumb piles. The discussion noted that the Standard Specifications permits no more than 2 splices, but does not specify minimum pile piece length. It was suggested that

Contractors make an effort to ensure the splice is driven to an elevation below ground and/or field metalize areas that require corrosion protection repairs. Mr. Peoples noted that currently there are three companies that are approved to perform field metalizing and that Materials and Tests is working to increasing that number.

Post meeting note:

It was verified that the piles shown could be driven without interference with the vertical piles.

4. *Staged Construction Formwork*

Mr. Frazier distributed and discussed details for formwork on a staged concrete girder deck pour, which were not approved because of the requirement for independence from Stage 1. He noted that the proposed formwork is supported on Stage 1, but that the screed is supported on Stage 2 only. Contractors noted that the details showed a common method for supporting the formwork and the screed, and sought suggestions for a submittal that would be approved.

There was some discussion to clarify the requirements for independently supporting Stage 2 deck pours. A revised submittal incorporating the suggestions was recommended.

5. *Next Meeting*

The next meeting is scheduled for Wednesday, December 8, 2010 in the Structure Design Conference Room.

Post meeting note:

Due to a limited agenda, the December 8th meeting was cancelled. Due to a scheduling conflict with the Joint AGC-DOT Winter conference, the February 8th, 2011 meeting was also cancelled. The next meeting is scheduled for April 13, 2011.