

MINUTES OF AGC-DOT JOINT BRIDGE SUBCOMMITTEE MEETING

(Approved September 18, 2024)

The AGC-DOT Joint Bridge Subcommittee met on August 14, 2024. Those in attendance were:

Brian Hanks	State Structures Engineer (Co-Chairman)
Victor Barbour	Carolinas AGC – Highway Division Director (Co-Chairman)
Troy Brooks	State Construction Engineer
Aaron Earwood	State Bridge Construction Engineer
Todd Whittington	State Materials Engineer
Liam Shannon	Assistant State Construction Engineer – Eastern Region
Brian Skeens	Assistant State Construction Engineer – Western Region
Tom Santee	Assistant State Geotechnical Engineer – Eastern Region
Gichuru Muchane	Assistant State Structures Engineer
Trey Carroll	Assistant State Structures Engineer
Brian Hunter	M&T Unit – State Laboratory Operations Manager
Cabel Garbee	M&T Unit – Manufactured Products Engineer
Scott Hidden	Geotechnical Unit – Support Services Supervisor
Aaron Griffith	Construction Unit – Bridge Construction Engineer – Western
James Bolden, Jr.	Structures Management Unit – Project Engineer
Nicholas Pierce	Structures Management Unit – Project Engineer
Doug Cantrell	Structures Management Unit – PRR Team Leader
Tim Sherrill	Structures Management Unit – Preservation Program Manager
Eskedar Bayissa	Structures Management Unit – PRR Engineer
Mark Newman*	NHM Constructors, LLC
Jerrad Stewart	Conti Civil
Daniel Paulsen	Blythe Construction
Erick Frazier	S. T. Wooten Corporation
Damien Hollifield*	Young & McQueen Grading Company
Adam Holcomb*	Dane Construction, Inc.
Pete Distefano	Balfour Beatty
Justin Carter*	Sanford Contractors
Tanya Ball*	Wright Brothers Construction
Nathan Thomas	Smith-Rowe
Andrew Fulkerson	Buckeye Bridge
Philip Creasman	Buckeye Bridge
Chris Powers	Lee Construction Co.

* Joined Via Microsoft Teams

During the review of the June 12, 2024, meeting minutes, the following items were discussed:

1. Davis Bacon Wage Survey

Victor Barbour reminded Contractors of the importance of responding to the survey. He noted there have not been many responses to date and the survey ends on August 20th.

2. Grouting/Tensioning Note on Cored Slabs/Box Beams
Nick Pierce noted Structures Management corrected the Cored Slab/Box Beam Standard Drawings and they will soon be published on NCDOT's website.
3. Hold-Down Detail with Expansion Ends
Aaron Earwood will investigate the performance of Rodanthe Bridge hold-down details and share his findings.
4. Strip Seal P-Joint
Contractors were reminded that expansion joint seals (EJS) continue to be the alternative for strip seal joints when they are not readily available.
5. Integral End Bent Approach Slab
Construction is still seeking suitable candidates for a trial project. Contractors should contact Aaron Earwood directly if they have a good candidate bridge.
6. Blocking Out under MBT and FIB Flanges
SMU is working on an update to the Design Manual to note or show blocked out areas under wide-top flange concrete girders.
7. Long Span Box Beams
A relatively new producer of box beams is expanding their current precast yard. The availability of longer span box beams will likely be addressed by this additional production capacity. PCI maintains a list of precast producers. M&T will review the precast producer changes to see if the precast producer list warrants revision.

The minutes of the June 12, 2024, meeting were approved.

The following items of new business were discussed:

1. Railroad Flaggers
Contractors brought up a concern with out-of-state railroad flaggers. Covering their travel expenses is leading to an unanticipated increase cost. Pre-construction bids submitted consider the cost for in-state flaggers. Not knowing if flaggers will be in-state or out-of-state makes it difficult for Contractors to quantify project bid prices.

Contractors are looking for more clarity on who is ultimately responsible for paying for railroad flagger travel costs and if anything can be done to capture these costs in a more defined way.

Action Item:

NCDOT Construction Unit will coordinate with NCDOT Rail Unit to discuss how this issue should be addressed.

2. GFRP in Bridge Decks
Mr. Hanks noted the successful completion of the Harker's Island Bridge project and asked for meeting participants' feedback on potentially expanding the use of GFRP in bridge decks.

Mr. Garbee mentioned that there are multiple domestic GFRP rebar suppliers and production rates are anticipated to increase in the future. He noted that rebar bends can be problematic for some suppliers and limiting the number of varying bends for a project is considered a best practice at this time.

Contractors shared their experiences on projects with GFRP rebar. Generally, they found the material to be lighter than steel rebar which increased the placement production rate. GFRP rebar typically has a coating, which can cause skin irritability, so PPE is necessary for handling GFRP. Contractors also noted that GFRP rebar can be more fragile when it comes to storage and handling. The lead time for procuring and shipping replacement GFRP rebar to the project site is typically longer compared to steel rebar.

Contractors mentioned the potential of damaging the GFRP rebar when fixing potholes and applying deck overlays, which typically require scarification or hydro-demolition. It was noted that GFRP rebar does not corrode, and therefore will not expand and delaminate the concrete like steel rebar when exposed to water and chlorides.

The discussion also covered using GFRP rebar as an identical swap with steel rebar. Mr. Carroll mentioned there are design differences between a deck designed with steel rebar and a deck designed with GFRP rebar. Any project where a Contractor would like to use GFRP rebar in the deck would require a deck redesign.

There was consensus that construction and long-term maintenance advantages exist for using GFRP rebar in bridge decks. Contractors, Construction, and Structures Management will continue to discuss and develop a framework to allow expanded use of GFRP in bridge decks including the possibility of changing some current contracts to GFRP. SMU will investigate the possibility of developing design tables that could make for easier rebar substitutions.

Action Item:

Construction and SMU to have internal discussions and develop preliminary guidelines.

3. *National Steel Bridge Alliance-Steel Price Adjustment Template*

Mr. Hanks shared that the National Steel Bridge Alliance (NSBA) is interested in creating a standard format for all states to use when addressing steel price adjustments (SPA). He provided this statement from NSBA:

From Jeff Carlson – Senior Director of Bridge Initiatives (NSBA)

"AISC/NSBA is looking into developing cost adjustment language and procedures that could possibly serve as a template for bridge owners to use on an optional basis. If you are interested in participating or giving some ideas and thoughts to AISC/NSBA, contact Jeff Carlson at carlson@aisc.org. This is in the preliminary stages right now, and AISC/NSBA staff is gathering information from multiple agencies and organizations, and determining some potential ways forward that would benefit everyone within the bridge industry."

Mr. Earwood suggested reestablishing the SPA workgroup to reflect on how the SPA program has been working and discuss if there are any modifications that need to be considered for NCDOT's program.

Action Item:

Construction to meet with AGC and SPA Workgroup to discuss NCDOT's SPA provision.

4. Central Construction Unit Reorganization

Mr. Earwood shared an updated map with the new Construction Unit organization. Mr. Earwood is now the State Bridge Construction Engineer and will have 4 Regional Bridge Construction Engineers reporting to him. The Construction Unit is in the process of interviewing to fill those positions. Area Construction Engineers will continue to work with the Contractors.

<https://connect.ncdot.gov/projects/construction/Construction%20Documents/Construction%20Unit%20Map%202024.pdf>

Action Item:

None.

5. Hurricane Inventory Spreadsheet

The Construction Unit sent a questionnaire to Contractors in advance of Tropical Storm Debby to inventory stockpiled materials and products. The goal of the questionnaire was to gauge what materials may be available in the event of an emergency where supplier lead times may be too long. Contractors noted that the results from the questionnaire will become less accurate over time, as the materials are used on projects.

Victor Barbour suggested that in the event of an emergency, NCDOT could send out a request for specific materials or products to the Contractors to see if they are available, as an alternative option to the questionnaire results.

Action Item:

None.

6. EJS – Properly Setting to Grade

Mr. Earwood shared some examples of EJS joints that were either installed too high, too low, or on a slight angle as relative to the finished elevation of bridge deck. These examples were out of the specified tolerance (recessed 1/8"-1/4"). Contractors noted that if the deck needs to be ground for rideability, this can affect the joint tolerances.

Construction proposed adding a permitted transverse construction joint at approach slabs to help with the joint installation. Contractors agreed that an additional transverse joint at approach slabs would be beneficial for joint installation. Construction noted that if Contractors have projects without this additional transverse joint at approach slabs, the

Contractors can coordinate with Area Construction Engineers for approval on a case-by-case basis.

Action Item:

SMU to investigate detailing Permitted Construction Joints on Approach Slabs

7. Spiral Reinforcement in Drilled Shafts

Mr. Earwood discussed the plan note alerting the Contractor of 3 feet of additional longitudinal reinforcement detailed in the plans to allow for variations in drilled shaft tip depth. However, spiral reinforcement does not currently extend into this additional 3 feet of reinforcement. Construction has observed instances of where the spiral reinforcement is tied at the bottom of the drilled shaft reinforcement cage, which can lead to not having enough spiral reinforcement at the top of the drilled shaft if the tip elevation is lowered.

To minimize confusion about the additional reinforcement required at the bottom of drilled shafts, Construction proposed to extend the spiral reinforcement into the additional 3 feet to match the longitudinal bars. This will increase the amount of spiral reinforcement required for each drilled shaft and slightly increase the cost of drilled shafts. Geotech and Contractors did not have any concerns about the proposal.

Action Item:

SMU and Construction to discuss drilled shaft spiral reinforcement internally.

8. Other Topics Discussed

FIB's with Skews

Mr. Earwood shared an example of a skewed bridge with Florida I-Beams (FIB's) that were not clipped, resulting in a triangular deck area with insufficient reinforcement. This will cause future maintenance issues if additional reinforcement is not included in this area. Bridge designers should be aware of this situation and ensure their designs account for this situation.

Action Item:

None.

Extra Rebar Available to Contractors

Mr. Earwood discussed a project that had its bridge foundation type changed after the rebar for the drilled piers was ordered. NCDOT is trying to find a suitable project to transfer some or all of the reinforcing steel to. If Contractors have interest in transferring the bars to their project at a reduced cost, they can reach out directly to Aaron Earwood.

Action Item:

None.

Student Outreach

Mr. Earwood provided updates on the NCDOT Model Bridge Building Competition, which is sponsored by AGC. This competition is for middle and high school students across the State. Previously, there was strong participation in this event, but since COVID, participation

has declined. To promote more participation, NCDOT and AGC have been meeting to find better ways to promote the competition. ACEC has become a sponsor and will be purchasing bridge competition materials and providing them to schools that register for the competition. Mr. Barbour highlighted the goal of this program is to get more students exposed to construction and engineering to promote these careers.

Action Item:

None.

Welding Certifications

A Contractor mentioned that some of their employees are having difficulty with bridge welder certification. Mr. Garbee referenced that NCDOT does not currently have welding instruction or training but administers the test for welding certification. M&T will be moving to a larger location in the future which will allow for greater welding capabilities.

Action Item:

None.

**** Upcoming 2024 Meeting Dates:**

October 9th

December 11th