

MINUTES OF AGC-DOT JOINT BRIDGE SUBCOMMITTEE MEETING

(Approved April 21, 2023)

The AGC-DOT Joint Bridge Subcommittee met on December 14, 2022. Those in attendance were:

Brian Hanks	State Structures Engineer (Co-Chairman)
Victor Barbour	Carolinas AGC – Highway Division Director (Co-Chairman)
Kevin Bowen*	Eastern Deputy Chief Engineer
Mark Gibbs*	Western Deputy Chief Engineer
Kristin Barnes*	Director of Highway Operations
Boyd Tharrington*	Director of Field Support
John Pilipchuk	State Geotechnical Engineer
Todd Whittington	State Materials Engineer
Wiley Jones	State Construction Engineer
Brian Hunter	State Laboratory Operations Manager
Gichuru Muchane	Assistant State Structures Engineer
Brian Skeens*	Assistant State Construction Engineer – Western Region
Kerry Kennedy	Conti Enterprises, Inc.
Adam Holcomb	Dane Construction, Inc
Jay Boyd	Balfour Beatty Infrastructure, Inc.
Brian Weathersby	Reeves Construction Company
Chris Brown*	Sanford Contractors, Inc.
Larry Cagle	Thompson Arthur-APAC, Inc.
Mark Newman	NHM Constructors, LLC
Erick Frazier	S. T. Wooten Corporation
Brandon Lafferthan	Crowder Construction Company
David Yates	Fred Smith Company
Tanya Ball	Wright Brothers Construction
Chris Powers	Lee Construction Company of the Carolinas
Nathan Thomas	Smith-Rowe, LLC
Tom Meador	Lane Construction Corporation
Chris Britton	Buckeye Bridge, LLC
Andy Jenkins	Vecellio & Grogan, Inc.
Sean O’Neal	Flatiron Construction Corporation
Damien Hollifield*	Young & McQueen Grading Company
Lisa Penny	Contract Standards and Development-Specifications Engineer
Thomas Santee	Geotechnical Unit – Eastern Regional Operations Engineer
Scott Hidden	Geotechnical Unit – Support Services Engineer
Aaron Earwood	Construction Unit – Regional Bridge Construction Engineer
Aaron Griffith	Construction Unit – Regional Bridge Construction Engineer
Cabell Garbee	Materials & Tests Unit – Manufactured Products Engineer
James Bolden	Structures Management Unit – Project Engineer
Trey Carroll	Structures Management Unit – Project Engineer
Tim Sherrill	Structures Management Unit – Staff Engineer
Nicholas Pierce	Structures Management Unit – Team Leader

* Joined Via Microsoft Teams

During the review of the October 12th, 2022 meeting minutes, the following items were discussed:

1. Pile Driving

Mr. Earwood stated that Construction and Geotechnical are investigating alternate methods for proving pile bearing.

2. Girder Buildup Points and Pour Dry Runs

Mr. Carroll noted that SMU's design manual addresses sag vertical curves on bridges and prohibits girders with final negative camber. Mr. Hanks asked that subcommittee members notify SMU if plans indicate negative camber.

3. Tensioning of Cored Slabs & Box Beams

Mr. Earwood shared that another project successfully applied the proposed partial transverse post-tensioning procedure. He noted no comments were received for the draft Standard Specification language shared during the previous meeting.

4. Approach Slabs

Mr. Earwood noted no additional comments have been received for the revised roadway standard drawings for bridge approach slabs. Mr. Hidden is revising the Bridge Approach Fill special provision.

5. FRP Institute Educational Opportunity

Mr. Garbee noted that M&T received positive feedback about the training session, and that everyone who attended will receive a PDH certificate.

Mr. Hanks noted that SMU plans to use FRP technology in other bridge replacement projects.

Mr. Earwood asked about using FRP reinforcing bars in western region bridge decks where chlorides are high from winter deicing activities. Mr. Hanks stated that could be a possibility. Mr. Boyd noted some of the challenges that his company has experienced on their recent project with using this technology, such as no field bending.

The minutes of the October 12th, 2022, meeting were approved.

The following items of new business were discussed:

1. Pipe Pile Order Lengths

Mr. Brown discussed challenges with acquiring uncommon pipe pile sizes and the associated lead time. He shared that a recent project required 36" diameter, 5/8" wall pipe piles and noted that the lead time was 15 weeks. The plan pile length quantity was considerably more than what was installed resulting in excess pile that could not be easily used on other projects.

Contractors asked if NCDOT could standardize the pipe piles to common sizes, making it easier to acquire during challenging supply chain conditions. They also noted that unused

pile can be used on future projects. Another suggestion from Contractors was to change payment method for uncommon pipe pile sizes from installed length to order length. Mr. Barbour noted that foundation materials are not typically considered a major contract item, but consideration could be given to uncommon pipe piles sizes. Mr. Brown noted that on his project the cost of the pipe piles was greater than 2 of the 3 items NCDOT designated as major contract items.

Mr. Earwood noted that NCDOT could consider making large, uncommon pipe piles a product that could be reimbursed for purchase of the entire lengths to reduce Contractor risk. Contractors also asked if NCDOT could consider having NCDOT maintenance purchase the pile cut offs.

Action Item:

Construction, Geotechnical and Contract Unit's will discuss how to address uncommon pipe pile sizes.

2. Bridge Program/Timber Bridges

Mr. Hanks shared a presentation detailing the progress and current condition of the bridge program.

He shared that a large portion of the secondary bridges in the poor and fair categories are in the western Divisions, mainly in Divisions 11, 13 and 14, and that most of these structures are timber bridges. He highlighted how many are on roads without an outlet. He shared that these bridges have other complications, such as narrow curvy roads that restrict equipment access as well as the need to keep them open due to lack of alternate access.

Mr. Boyd asked if timber is used will bridge widths and lengths need to increase or would they remain in the same footprint, Mr. Hanks noted that the intent is replacement with a similar footprint.

Mr. Hanks shared an example plan set of a timber bridge for a road without an outlet and asked Contractors to provide comments. Mr. Britton asked if the substructure was timber, Mr. Hanks noted that NCDOT is considering concrete substructures to facilitate quickly replacing superstructures in the future.

Mr. Holcomb noted that if the Contractor is already constructing concrete footings, it would not be much more investment to build full height abutments because the necessary equipment needed to excavate for the footings will be mobilized.

Mr. Hidden asked about constructing abutments like the test project that was completed with geogrid reinforced soil with segmental retaining wall (SRW) units. Mr. Hanks noted that NCDOT built a trial project in Anson County using this method and it was successful. Contractors noted that the overall project cost can be minimized if the roadway footprint is reduced.

Mr. Garbee noted that the timber supply should not be an issue and NCDOT is working with a forestry professor to revise the Standard Specifications to include additional timber

treatments, which should increase the number of suppliers. He also noted that Tennessee DOT has used FRP decks on timber bridges.

Contractors noted that there are environmental restrictions on many of the bridges located in the mountains that restrict working times so using timber could be quicker and easier to construct.

Mr. Hanks asked about bundling bridges into a single project. Contractors noted that if NCDOT bundles bridges they should consider the condition of other bridges along the route from the main road. Several Contractors noted that access is their biggest issue that come with these bridges, and they often must shore up bridges along the routes off the main roads to get their equipment to the project. One Contractor noted that they had to station a fire truck on the no outlet side of a bridge being replaced to provide service if needed. Similar issues need to be considered when constructing these types of projects.

Mr. Barbour asked when this program will get started. Mr. Hanks noted that this is currently in the planning process and would require programmed funding. Mr. Barbour asked AGC members for comments on this type of construction.

Action Item:

Contractors to provide Mr. Barbour comments about timber bridge replacements.

3. 2024 Standard Specifications Updates

Mr. Earwood noted NCDOT is currently working on the 2024 Standard Specifications update. Ms. Penny noted the draft divisions of the specification book are in the process of being released for comments.

Mr. Earwood shared proposed revisions to Section 402, Removal of Existing Structures. He noted that demolition plans will be required for removal meeting certain criteria. Mr. Holcomb noted that item “B” requires staged bridges that keep the existing bridge open to traffic would require a licensed engineer to analyze the bridge, which would have an impact on project cost. After some discussion, it was decided that item “B” would be removed and become a special provision.

Proposed revisions to Section 440 - Steel Structures, were shared with the requirements for erection sequences and the minimum number and location of bolts/pins required for field connections. Mr. Earwood discussed erection bolts vs permanent bolts and noted that permanent bolts can be used as erection bolts if the threads, heads and shaft are not damaged during the erection process. He noted that language is included that allows crane release prior to 100% connection if approved. Additional requirements for reaming and direct tension indicators is added.

Proposed revisions to Section 450-Piles, some of the revisions noted include removing reference to PDA testing to allow for other vendor testing. Reducing the number of blows per foot from 180 to 120. Disallowing closed end hammers for driving piles. Updating requirements on cushions and helmets on prestressed piles. Requiring pile excavation equipment to go 5ft beyond the maximum pile depth lengths shown on plans.

Mr. Holcomb noted that “as necessary” and other language is still in the specifications but should probably say “as shown on the plans”.

Action Item:

Mr. Earwood asked AGC subcommittee members to review and provide comments back to Mr. Barbour.

4. Cored Slabs/Box Beams-Transverse Post-Tensioning Holes

Mr. Earwood shared a self-adhesive donut that other States detail around the post-tensioning holes between units. He noted this will prevent grout from flowing into the post-tensioning strand ducts.

A Contractor noted they have used the donuts in the past and they don’t hold up well.

Mr. Earwood also showed pictures from a cored slab project where the Contractor chose to insert a conduit pipe into the post tensioning ducts as they are being erected to allow the post-tensioning cables to be easily slipped into it when it was time to post-tension the cored slab units together. Mr. Earwood explained that by using the conduit pipe the Contractor had an easier time dealing with the offset post-tensioning ducts between cored slab units, it also provided additional protection to the strand from water/chlorides working down through the shear keys and it will make it easier for NCDOT maintenance crews to insert future replacement post-tensioning cables.

Action Item:

None

Post Meeting Notes

Due to a limited agenda, the February 8th, 2023 meeting was cancelled.

Due to scheduling conflicts, the April 12th meeting was rescheduled to April 21st, 2023.

**** Upcoming 2023 Meeting Dates:**

April 21st

June 14th

August 9th

October 11th

December 13th