NCDOT - G/C PCI Joint Meeting
Minutes

Thursday, July 16, 2020; 1:30 pm

Remote via GoToMeeting

1. Cabell Garbee welcomed attendees to the remote meeting at about 1:35. An attendance list was compiled from those on the call.

   Cabell began with an announcement that Jason Poppe had retired effective June 30. They hope to fill his position, but until that time G/C PCI members should call Cabell, Jason Civils, or Tim Brandenburg with any questions.

   After the announcement, the meeting was turned over to Reid Castrodale.

   The following attended the meeting.

Gichuru Muchane	NCDOT – SMU	gmuchane@ncdot.gov
Trey Carroll	NCDOT – SMU	thcarroll1@ncdot.gov
Emmanuel Omile	NCDOT – SMU	eomile@ncdot.gov
Madonna Rorie	NCDOT – SMU	mrorie@ncdot.gov
Cabell Garbee	NCDOT – MTU	cgarbee@ncdot.gov
Jason Civils	NCDOT – MTU	jcivils@ncdot.gov
Tim Brandenburg	NCDOT – MTU	trbrandenburg@ncdot.gov
Aaron Earwood	NCDOT – Construction	aearwood@ncdot.gov
Peter Finsen	G/C PCI	peter.finsen@gcpci.org
Reid Castrodale	Castrodale Engineering / G/C PCI	reid.castrodale@castrodaleengineering.com
Chris Arca	Coastal Precast Systems - Wilmington	carca@cpsprecast.com
Jake Rausch	Coastal Precast Systems - Wilmington	jrausch@cpsprecast.com
J. R. Parimuha	Florence Concrete Products	jrparimuha@yahoo.com
Scott Hicks	Smith-Columbia Corp.	shicks@smithcolumbia.com
Richard Potts	Standard Concrete Products	richardpotts@standardconcrete.org
Jim Schroeder	Tindall Inc.	jimschroder@tindallcorp.com

2. Approval of minutes of November 7, 2019 Meeting.

   Minutes were distributed prior to the meeting. Minutes and other handout information can be accessed on the G/C PCI website: www.gcpci.org which is currently undergoing a transition to a new provider. The draft minutes were approved as distributed.

   The action item list updated after the last meeting were distributed with the meeting invitation. These were reviewed and discussed. The action item list has been separated into items for G/C PCI and for NCDOT. Several items had been completed. It was agreed that item 19-3 regarding G/C PCI members providing photos of girder repairs to Cabell can be an ongoing item, so fabricators should send Cabell photos of the stages of the repair process when repairs on girders are made. Inspectors have also been asked to send photos to Cabell. Some Technical Committee Meeting items appear on the action item list for the Joint meeting; they are noted as such on the list – these may be moved to the Technical Committee list when discussed at the Technical Committee meeting.

3. Old Business

   a. Technical Committee Meeting

      Minutes from the Technical Committee Meeting on July 11, 2019 were distributed for information with the meeting invitation. Approval of the minutes will be handled at the upcoming Technical Committee Meeting on July 30. It was noted that the agenda for the Technical Committee meeting is longer than it should be. The agenda has been reorganized to hopefully put items that could be resolved at the top of the agenda. The tentative agenda for the Technical Committee meeting is attached to these minutes.

      1) Stressing strands in draped position

      Reid Castrodale noted that this item had been on the agenda since at least the 2015 meeting. It is hoped that it can be completed at the upcoming meeting.

   b. RFID/Barcode Information

      Cabell Garbee reported that there is a shortage, or potential shortage, of the Idencia tags. Bobby Watkins has been contacting all producers to update them on the situation and how the Department intends to move ahead. Alternate tags are available that can be floated in. Producers should let Cabell know if they have not been informed of the situation and the possible remedies.

      Cabell also reported that the Department has scheduled a meeting with Titan for the following week to discuss how they can also provide data in the same way that it is currently being provided by Idencia.

      The portal being developed for NCDOT that will allow the direct entry of data into HiCAMS has not been completed because those working on the project have been moved to other projects. Cabell did not have a target date for the completion of the portal. The fabricators reported that they did not have any issues that needed to be discussed regarding the current system.

   c. Field Review of Girders with Vertical Cracking NCRs

      Cabell Garbee reported that the Department had initial discussions with NCSU in November 2019 exploring having them assist with the field observation of girders with NCRs related to vertical cracking. However, with current conditions, research proposals are expected to be put on hold for at least a year. He had received NCRs for girders with vertical cracking from several fabricators. The Department is continuing to identify additional girders that may be considered for field investigation.

   d. Silane Sealer – for Vertical Cracks Prior to Detensioning and Web Splitting

      Jason Civils reported that a section of an older beam that had been rejected was sprayed with silane sealer, then was finished using standard rubbing procedures in both treated and untreated areas. The rubbing was still successful in filling bug holes in the treated section. Chris Arca clarified that the girder was actually sprayed twice with sealer prior to rubbing.

      Jason clarified that for web splitting there is not an issue with the silane sealer because cracks typically appear after the girders are in storage and have been rubbed. Since the silane sealer is applied after the girders have been rubbed, the sealer has no effect on the finish. Jason agreed that the web splitting cracks tend to continue to grow as the girders sit in storage, but then close when girders are erected and the deck dead load is applied. The silane sealer in this application is intended to keep water out of the cracks while girders are in storage rather than to heal the cracks. The use of the silane sealer is an improvement to the epoxy that used to be applied to web splitting cracks; the epoxy would often crack as the web splitting cracks continued to open with time.

Regarding the use of silane sealer in lieu of a 7-day wet cure for vertical cracks, Jason reported that the issue would be considered further by Cabell Garbee and the SMU. Richard Potts described the initial study on girders with vertical cracks that occurred years ago. Cores were taken from girders at crack locations which did not receive any additional water curing, yet the cracks had healed. The cored girders were as much as two years old in some cases. Healing was occurring even though external water had not been applied to the girders. The use of silane sealer would help retain moisture within the girder to enhance the healing of the crack. He recommended that the application of silane sealer across the top flange at a vertical crack location be limited to a band at the crack location to avoid inhibiting the bond of the deck to the girder. It was noted that in the center portions of a girder, where vertical cracks tend to occur, horizontal shear stresses are low and the potential local loss of bond where sealer had been applied would not be a significant issue. The top surface roughness and stirrups crossing the interface would still provide horizontal shear capacity even if the bond was inhibited by the silane sealer. Richard added that the vertical cracks have a compression force applied across them that occurs immediately at detensioning which promotes healing; these conditions differ from web splitting cracks where they continue to open while in storage and do not close until the deck dead load is applied in the field.

Cabell Garbee indicated that he would plan a meeting the next week to invite those interested in this topic to discuss the Department's response. If further discussion is required, they will bring their questions to the Technical Committee meeting in two weeks.

Aaron Earwood stated that his experience has been that silane sealers are a relatively short-term repair with an effective life of several years. Reid Castrodale pointed out that the silane sealer was not intended to perform a long-term function but was only being called on to provide improved curing for the 7 days for which water curing is currently being required.

The web splitting part of the topic does not need further discussion at future meetings. The use of silane sealer for vertical cracks will be retained on the agenda for the next meeting as the Department considers the issue.

e. Standard Repair Procedures

Cabell Garbee asked if G/C PCI had received a copy of the Standard Repair Procedures. Peter Finsen reported that he had not received them.

Richard Potts noted that standard repair procedures currently appear on the website and asked if the application of these repairs could be clearly stated and that other standard repairs could be added to streamline the processing of repairs. Cabell reported that Sherry's group was still working on procedures and that G/C PCI members could request standard repair procedures be considered for the list. Cabell reported that Tim Brandenburg is working on automating the process for submitting NCRs using the SharePoint system which will automatically route communications to the right people and will retain electronic copies of the documentation. Cabell thought that they should be able to post the completed standard repair procedures on the website in the next few weeks and they will let G/C PCI know when they are available. Cabell asked the fabricators to send a note to him to request consideration of additional standard repairs.

f. Standard Operating Procedures

Peter Finsen reported that Jason Poppe had provided the Standard Operating Procedures to G/C PCI for review. J. R. Parimuha had provided some comments that there was some text in the procedures that was not relevant to the topic being discussed – it appeared that the text had been copied to different locations and unnecessary text had not been removed. Jason Civils stated that he had a copy of J. R.'s comments and had been working on incorporating the changes. Jason also planned to incorporate photos where relevant.

Cabell and Jason indicated that this document can be updated immediately when significant changes are required, but less significant changes would probably be compiled and made at reasonable intervals.

g. High Flow/SCC Mixes

Cabell Garbee reported that the Department had a meeting recently to discuss this topic. They are not currently able to send staff to schools for certifications, so getting the ACI certification for SCC will not be happening in the near future. The Department plans to collect data on higher flow mixes currently being used to guide them as they develop specifications and select test methods. Inspectors have been asked to collect data on higher flow mixtures. Fabricators need to help the inspectors conduct the tests.

h. Status of FIB Use

Trey Carroll indicated that the FIB standard drawings have been drawn and are in the initial stages of internal review. He indicated that the Department would share the standard drawings with G/C PCI members for comment prior to their release. He did not expect that the standard drawings will be ready for discussion at the Technical Committee meeting in two weeks.

Reid Castrodale shared that in a recent conversation a consultant expressed concern regarding the lack of standards for FIB girders for NCDOT projects. He said that there seemed to be a great deal of variation in details being used which was confusing for them as they prepared designs. So the FIB standards are of interest for designers as well as fabricators.

Reid mentioned that the consultant had indicated that the standard cross-frame details did not work for shallow FIB sizes because of the large curve on the bottom flange did not leave enough room for a connection to the web. The consultant had also mentioned that computed cambers for the FIB girders were small and that negative cambers were possible, apparently because the girders are significantly heavier than the modified bulb-tee girders.

Trey appreciated the receipt of the strand and bearing plate details that were distributed with the meeting invitation. He asked why the plate used 8 – 2 in. long studs rather than 4 – 5 in. long studs. Trey offered to send the bearing plate detail they had developed to G/C PCI for discussion at the Technical Committee meeting.

Reid discussed the proposed FIB strand template that had been distributed with the meeting invitation. A revised version was shared on the screen, which would be distributed prior to the Technical Committee meeting. Proposed mandatory strand locations were noted. Also, it appears that the discussion of slack top strands in the Structure Design Manual should be revised to allow the four top strands shown in the template. Trey noted that the SDM currently calls for a pair of strands near the bottom of the web for securing stirrups. This topic will be discussed at the Technical Committee meeting.

i. Top Strand Details and Notes [Technical Committee]

Reid Castrodale indicated that the remaining items will be discussed at the Technical Committee meeting. He plans to distribute information on the topics prior to the meeting.

j. Welded Wire Reinforcement Standards [Technical Committee]

No discussion at this meeting.

k. Lateral Stability of Girders – Status of NCDOT Design Program and Policy [Technical Committee]

Reid Castrodale indicated that a more focused discussion of the implementation of lateral stability was planned for the upcoming G/C PCEF meeting in August. He planned to pull together additional

information for distribution prior to the meeting. The discussion is intended to focus on implementation of stability design and the consideration of stresses at transfer and during handling and transportation.

Trey indicated that they have begun to compare results from the recently released PCI lateral stability spreadsheet with results from the Department's in-house design program. He reported that they are leaning toward an approach similar to the GDOT table of limiting spans where the designer would be required to perform an evaluation of lateral stability if the span exceeded the limit in the table.

Reid showed an updated version of a proposed limiting span table that was distributed with the meeting invitation. The table includes lifting loop locations based on 1.5 times the depth of the girder (rounded up to the nearest full foot). Lifting locations based on 1.5 times the depth of the girder were assumed in the GDOT lateral stability evaluation table from which this table is derived. It was noted that the distance from the end of the girder to the lifting loop exceeds the distance required by the NCDOT Standard Specifications for the AASHTO shapes.

Reid reported that Jeff White had told him of a recent project with AASHTO Type IV girders where they had moved lifting loops in from the end of a girder to address lateral stability, but the engineer of record would not allow it, insisting rather that the requirements of the Standard Specifications be followed.

The updated proposed limiting span table document includes Table 11-3 from the NCDOT SDM which gives maximum spans used for preliminary design for water crossings. The spans in Table 11-3 are shorter than the limiting spans in the proposed table for all girder sections except one. It was noted that the proposed limiting spans are all shorter than the limiting span values in the similar table in the GDOT design manual. Fabricators reduced the spans in the proposed table from the values in the GDOT table to provide more conservatism based on their experience.

Reid asked why the span lengths in Table 11-3 are shorter than those in the proposed table or the GDOT table. Gichuru Muchane responded that the Department prefers to not push girder spans by using refined analysis and other more aggressive design approaches so that the girders will have reserve capacity. He mentioned that this is especially important for bridges which may be impacted by over height loads. Gichuru also mentioned that span lengths in Table 11-3 had been updated for 0.6-in.-diameter strands.

l. Using Strands for Continuous for Live Load Connections [Technical Committee]

Reid Castrodale indicated that this item is on hold while G/C PCI works out standards with SCDOT.

m. Full-Length Debonding of Strands – General Note for Girders [Technical Committee]

Reid Castrodale mentioned that information on this topic had been sent to the Department and would be discussed further at the upcoming meeting.

n. Web Splitting – Debonding Quantity [Technical Committee]

Reid Castrodale indicated he had not looked at the structural effect of the NCDOT policy of using 50% debonding if web splitting occurs.

4. New Business

Tim Brandenburg asked if any research or other information was available on cracking in partial depth deck panels and cylinder piles. They have been having some issues with these cracks.

Peter Finsen mentioned an article about the Rodanthe project that has been published in the Summer issue of the National Precast Concrete Association (NPCA) *Precast Solutions* magazine. He said that it was very well written, along with some good images. This is a link to the issue: https://precast.org/wp-content/uploads/2020/07/P_Sol_Summer_2020_LowRes.pdf

There was an initial discussion of Prestressed Bridge Design Seminar that was listed on the Technical Committee agenda. The seminar had been planned for November 2020. However, Cabell reported that M&T has cancelled activities through August, and in late August they will probably cancel other meetings through the end of the year. Peter Finsen suggested that a different meeting format may be considered, perhaps presenting a series of shorter online sessions, such as 2 hour long webinars.

Peter Finsen reported that PCI would be releasing a new eLearning system in the next few weeks. This new system will be used for online certification schools. The mix design school will also be offered using the system. The classes are shown on the calendar on the PCI website. Peter will try to let NCDOT know of any items that may be of interest to the Department. Several webinars have also been released related to the design and inspection of various types of concrete anchors.

PCI is planning on having a virtual Committee Days this fall. The PCI Convention is scheduled for Feb. 23-27, 2021 in New Orleans, which will also include The Precast Show and the National Bridge Conference.

G/C PCI is working toward implementing a new website as the previous provide has gone out of business.

5. Project Update

Trey Carroll reported that things are currently very fluid at NCDOT. They are working with the divisions to sort out their project schedules as some projects may be delayed. He recommended that fabricators keep an eye on the NCDOT website for upcoming projects. Many projects are on hold or have been pushed back. The letting for the Harkers Island Bridge project has been delayed until April 2021 because of right of way issues. If the issues are resolved quickly, the project may be moved up. Plans for the bridge are complete.

6. Action Items and Technical Committee Assignments

Items will be reviewed by the Technical Committee meeting.

7.	Next Joint Meetings:	July 30, 2020	1:30 pm – Remote GoToMeeting [Technical Committee]
		November 19, 2020	1:30 pm at NCDOT MTU
		March 25, 2021	1:30 pm at NCDOT MTU
8.	Last PCEF Meeting:	February 6, 2020	10 am – 4 pm (Atlanta, GA)
	Next PCEF Meeting:	August 13, 2020	10 am – 4 pm (Columbia, SC) – now GoToMeeting
		February 11, 2021	10 am – 4 pm (Raleigh, NC)

9. Adjournment – 3:20 pm

Tentative Technical Committee Meeting Agenda

July 30, 2020 at 1:30pm via GoToMeeting

General

1. Review Agenda
2. Review & Approve Minutes of July 11, 2019 Technical Committee Meeting
3. Review Minutes and Action Items for July 16, 2020 Joint Committee Meeting

Main Items

4. Stressing Strands in Draped Position
5. Full-Length Debonding of Strands (General Notes for Girders)
6. Vertical Cracking Inspection and Marking
7. Temporary (Debonded) Top Strands
8. Florida I-Beams (FIBs):
    a. Strand Template
    b. Bearing Plate
    c. Other Details
9. Lateral Stability
10. Standard Welded Wire Reinforcement Option for Girders
11. Use of Strands for Continuity Connection Detail
12. Standard Operating Procedures
13. Standard Repair Procedures

New

14. Cracking along Strands in Partial Depth Deck Panels and Cylinder Piles
15. Mandatory Strand Locations for FIBs and MBTs

Other

16. Future Prestressed Concrete Bridge Design Seminar
17. Update on Status of Bridge Program
18. PCEF Meeting – August 13, 2020 – Columbia, SC