

## MINUTES

### **NCDOT - PCI Technical Committee Meeting**

Structures Design Small Conference Room  
July 23, 2013 - 1:30 PM

Submitted by  
Reid Castrodale, Chair

#### **Attendees:**

**NCDOT:** Brian Hanks, Trudy Mullins, Paul Lambert, Allen Raynor  
**G/C PCI:** Jeff White, Richard Potts, JP Binard, Dillon Lunn, Peter Finsen, Reid Castrodale  
**NCSU:** --

Chairman Reid Castrodale welcomed all to the meeting.

#### **INITIAL DISCUSSION - Camber**

The results of the recent camber research project were informally discussed. NCDOT now has a spreadsheet that implements the approach developed by NCSU as part of the project. The Department is mostly concerned about how cambers will affect box beam or cored slab fit-up in the field. Differences in camber will not be a cause for rejection. Instead, the camber measurements from the plant will be sent to field staff so they can be prepared to address any issues related to camber. They expect that the DOT plant inspector will get help from a yard worker to stretch a string line to measure the cambers.

#### **1. Stressing Strands in the Draped Position**

JP indicated that they stress strands in the draped position as standard procedure for VDOT projects since it is the approach in the VDOT specifications. They usually avoid harping by redesigning for straight strands.

It was reported that girders are fabricated for NJ DOT stress with strands in draped positions, including 180 ft long girders, cast 2 in the bed.

Paul indicated that they might allow stressing in the draped position for beds with only 2 girders. He hasn't approved any such set-ups in quite a while.

Concern was expressed about the friction loss at rollers for members near the center of the bed. It was suggested that there might have been a research project on this in the past. Producers indicated that they carefully maintain the reusable rollers on the hold-ups between girders, replacing them every 20 to 30 uses. It was noted that there is a safety issue when stressing strands that have already been seated at the dead end.

Paul thought it was time for the Department to reconsider this policy. The Department recognizes the safety issues related to raising or depressing draped strands.

**ACTION ITEM:** G/C PCI to provide the Department with examples of specifications that allow stressing of strands in the draped position, such as VDOT and PCI documents. The Department will then review the information submitted.

## **2. Top Strand Debonding**

NCDOT indicated that the only project where this concept had been used was the Washington Bypass Project.

The concrete tensile stress at the top of girders is currently limited to 200 psi in the SDM. In the past no tension was allowed. The Department does not allow an increased tensile stress when reinforcement is provided to carry the full tension force, as permitted by the AASHTO LRFD.

G/C PCI members indicated that top strand debonding allows lower release strengths and better stability for shipping. It also controls cambers and could be used to control stresses at the ends of girders. It is useful for any type of girder that is being stretched to long spans. Waiting for extra strength gain before releasing the prestress can take a fair amount of time, so reducing the release strength in this way is helpful.

The Department agreed to consider this concept. Direction for this concept would probably be placed in the SDM. It is expected that this procedure would most likely be used for design/build projects.

ACTION ITEM: G/C PCI will prepare draft guidance related to this concept.

## **3. Guidelines for Submitting and using a Package of Standard Detensioning Sequences for Strand Patterns**

The concept of having a set of approved detensioning sequences for each plant was discussed. This concept would be used where standard strand patterns are being used for box beams and cored slabs. The NCDOT inspector would then have a binder with the preapproved sequences.

Producers could submit detensioning sequence submittals from previous projects.

A note on the producer's submittal to the DOT would indicate that a preapproved detensioning sequence would be used for the pieces, to limit redundancy and expedite the review process

ACTION ITEM: Brian will send Peter a list of standard strand patterns for cored slabs and box beams. Peter will distribute to producers and they can then develop and submit a package of detensioning sequences to the Department for approval.

## **4. Standard Elongation Calculations for Straight Strands**

Standard elongation calculations would apply to all straight strands, regardless of member type.

Concerns were expressed about how the variation in modulus of elasticity of the strands would be handled. Fabricators responded that the modulus values do not vary as much as they used to. Adjustments can be made for temperature and for modulus of elasticity.

ACTION ITEM: Trudy to create standard format. Peter will distribute to members and Trudy will distribute to non-members. Each producer would then come up with a chart for each bed and each strand type (0.5 or 0.6-diam.).

## **5. Tapered Top Flange Detail**

G/C PCI members indicated that it was easiest to trim the top flange at the end of a beam to the near edge of the web or fillet. The trimming can be done either by forming the taper or by cutting the top flange after casting. It is definitely best to trim only the top flange, and to leave the bottom flange square for all situations.

The Department indicated they would probably handle this with a note or detail on the plans. G/C PCI members should let the Department know if they see details that are not good.

#### **ADDITIONAL DISCUSSION ITEMS**

##### **Topics for G/C PCI Seminar**

Attendees brainstormed some topics for a possible seminar hosted by G/C PCI. Suggestions included: a virtual video or slide show tour of a plant, including the production process; highlighting a particular project (no specific project named); why there are top strands; curved u-beams; and spliced girders (there are a couple of more projects coming up).

The McKinnon Center would be a good place to hold the seminar. Must get on the calendar soon.

##### **Corrosion of Cored Slabs in Tidal Zone**

A project with carbon strands will be starting soon to address corrosion of strands in tidal areas. MI DOT has a similar pooled fund project. There was also some discussion of the properties of stainless steel strands, and the desired level of prestress in piles (900 – 1000 psi).

##### **State-Specific Issues for PCI Certification**

Trudy indicated that she will be preparing a list of items to add to the PCI inspection list.

##### **Upcoming Events**

Dates for several upcoming events were discussed.

##### **ADJOURN**

The meeting was adjourned at 3:30 PM.