

## AGC/WSDOT Structures Team December 10, 2010 Meeting Minutes

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### Guests

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Meeting minutes were prepared by Mark Gaines, WSDOT Assistant Construction Engineer, [gainesm@wsdot.wa.gov](mailto:gainesm@wsdot.wa.gov).

**Topics** – Constructability of Puyallup River Work Bridge, Joint Annual Meeting on January 6<sup>th</sup>, WSDOT projected workload, shaft slurry spoils disposal, Section 2-09.3(3)B excavation submittals, Section 6-03.3(29) shear stud field install waivers, mass concrete cooling.

The meeting commenced at 9:00 a.m.

### **1. Constructability of the Puyallup River Work Bridge**

The Olympic Region is seeking constructability feedback for a work bridge over the Puyallup River that will be part of the Puyallup River Bridge replacement project. The Puyallup River Bridge will be replaced in two phases; the northbound structure is slated for an October 2011 Ad date with the southbound structure following in October 2015. The Project Engineer, Dean Moon introduced the project and Anthony Mizumori from the Bridge and Structures Office described the specific details of the work bridges.

Anthony referenced the handout that showed the plan view for the work trestle. The in-water work window is from 16 July to 1 October; the work trestle and the drilled shaft casings need to be installed during this period. For permitting purposes, the contract will specify limits on pile diameter, number of piles, vertical clearance to the trestle, etc. Scour and backwater effects preclude additional piles or trestle structure, and also prohibit a trestle that spans completely across the river. The preliminary design assumes that a pile embedment of 30-40 feet for a 24" diameter close-ended pile will provide about 200 tons of capacity. Another environmental constraint is that the number of pile strikes will be restricted to 250 per day.

The Project Team also pointed out challenges for piles that will be placed near the existing levy. Artesian pressures have been identified below the sand layer at this location. If the piles penetrate through the sand layer, the contractor will be required to extract and grout the pile casing to seal off artesian pressure.

Considering these assumptions and permitting constraints, the Project Team provided a series of questions. A summary of the comments from the AGC Members is as follows:

- Suggest getting permitting for more piles right around the piers. Preliminary details look a little light on the number of piles in this area.
- Square footage of trestle is probably OK, but more piles may be needed.
- May want to extend trestle to provide containment of shaft spoils/slurry around the shaft.
- 250 blows/day isn't much. Even with vibrating the piles most of the way, it may take 60-100 blows to proof the piles. The restriction of 250 blows/day will limit production to 2-3 piles/day.
- None of the AGC Members liked the idea of having to extract piles and grout near the existing levy. The Project Team should consider alternatives to this (such as leaving the piles in place).
- Consider permitting to allow all the piles to be cut off at the mud line and left in place.
- Consider a test pile program to help optimize the design. Perhaps a test pile could be added to the outfall project that will be advertized shortly.

- Has an analysis been done for the girder setting operation? Girder setting work (rather than shaft drilling) may govern the size and capacity of the trestle.
- Consider leaving part of the trestle in place after the northbound project for use in the southbound project.

The restrictions on blows/day and concern about pile production rates led to further discussion about pile design. Mo asked the AGC if it would be possible to design the work trestle piles for vibratory installation only. He referenced the Manette Bridge project where piles were installed with a vibratory hammer and never proofed. Would it be possible to take this same approach for the Puyallup River Bridge project?

Mowat/Manson responded that if you proof the piles, you can use a factor of safety of about 1.5, but if the piles are only vibrated without proofing, the factor of safety goes to 4.0. In most cases, this makes a vibratory-only installation not economically feasible. On Manette, the piles were being driven into very dense glacial till; based on the contractor's past experience in this material, they were comfortable not proofing the piles.

**Action Item:** Scott Ayers to provide written comments to Mo within 10 working days.

## 2. **Review/Approval of October Meeting Notes**

One comment was submitted prior to the meeting, and the minutes were updated accordingly. There were no further comments.

**Action Item:** Mark G. will post minutes to the WSDOT HQ Construction website.

## 3. **Joint Annual Meeting January 6<sup>th</sup> Fircrest**

The Joint Annual Meeting has been confirmed for January 6<sup>th</sup> at the Fircrest Golf Club. The Structures Team has suggested two presentations; the Manette Bridge Project and the Willamette River Bridge Project. Mo asked if there was any other feedback from the Team. It was suggested that the focus of the presentations should be on projects, not politics. The Team would enjoy hearing from perhaps one politician, but would prefer the rest of the presentations to highlight the great projects that are being built across the State.

**Action Item:** Mo to provide this feedback at the lead team meeting later today.

## 4. **WSDOT Projected Workload**

Mo provided the Team with an update on WSDOT's outlook for construction work. He will forward a slide to the Team that shows we are currently near the peak workload, with a significant drop-off in construction over the next four years. WSDOT currently has 2800 employees involved in delivery of the construction program. In order to "right-size" the agency for the reduced construction work, WSDOT plans to reduce 400 FTE's in the 2011-2013 biennium, and another 400 FTE's in the 2013-2015 biennium.

Jugesh shared that the Bridge and Structures Office is anticipating a significant impact from these reductions. In 2011-2013, the funding for direct project support is reduced by 60%. The current estimates show direct project support at zero in the 2013-2015 biennium. In the

Southwest Region, Alan Hendy stated that their workload is stable for 2011-2013, but they estimate cutting about 40 FTE's in 2013-2015. Scott Ireland shared that Olympic Region will need to cut 40-50 FTE's by the end of 2011 and another 40FTE's by 2012 or 2013.

One AGC Member asked about WSDOT's perspective on Public-Private Partnerships (PPP). Mo responded that WSDOT is interested in PPP and has a small group working in this area, but so far there are no specific PPP projects in the works.

**Action Item:** No action needed.

## 5. Action Items

### I. Section 2-09.3(3)B Excavation Submittal

Mark Frye handed out the changes he has made to the specification. These revisions still require a submittal for excavations less than 10 feet in height, but the submittal is now simpler. Mark also provided a comparison between the standard specifications and the Washington Administrative Code (WAC) for excavations.

The AGC questioned why a submittal was necessary for excavations less than 10 feet in height. They pointed out that there are lots of other areas where WSDOT doesn't require a submittal, such as fall protection, ladders, confined spaces, etc. It was discussed that the WAC already requires this level of work to be done before excavation is performed. After some discussion, Mark agreed with removing Item 5 (monitoring plan) from the list of requirements. Mark will also look at requiring no submittal for cuts that are less than four feet in height.

AGC suggested including some thresholds in the Specification that define when an engineered submittal is required. As an exaggerated example, a 12 foot deep cut that is laid back with 4:1 slopes would probably be fine without any submittal. Per the specifications, this cut would require a PE stamp.

Mark will continue to work on updating the specification. He welcomed any further input from the AGC Members.

**Action Item:** Mark F. to incorporate changes described above and make additional improvements. He will provide an update at the next meeting.

### II. Section 6-03.3(29) Shear Stud Field Install Waivers

Mo asked for an update about whether AGC Members were able to get waivers to install steel girder shear studs at the Fabricator. Ryan Olson confirmed their waiver was approved; they will be shop-installing shear studs. The general consensus of the Team was that WSDOT shouldn't mandate when and where the shear studs are installed. Mo will work on revising the specification so it accommodates both field- and shop-installed shear studs.

**Action Item:** Mo to update the specification as described above.

### **III. Mass Concrete Cooling Pile Data**

Ryan Olson asked for some thoughts from WSDOT on where and why concrete cooling pipes are being required. He referenced the Manette Bridge Replacement project where cooling pipes were required in the shaft caps and crossbeams. The cooling system has initial installation costs and costs to maintain and operate the system after concrete is placed. It was discussed that there have been even larger concrete placements on past projects that used no cooling pipes and showed no signs of thermal cracking. AGC asked for WSDOT's thoughts on where things are headed with respect to mass concrete and requirements for installing cooling pipes.

WSDOT responded that all concrete placements greater than 6'-0" in the least dimension could be prone to thermal issues. The shaft caps and crossbeams on the Manette project were exceptionally large and were located in a marine environment. As a result, WSDOT decided to include thermal limits and cooling pipes in the project. WSDOT will continue to make this evaluation on a project-specific basis.

There was further discussion about why WSDOT is taking a prescriptive approach to potential heat-of-hydration issues. On Manette, the contractor requested to put together an engineered thermal control plan in lieu of the cooling pipes, but was told WSDOT wouldn't entertain such a proposal. Jugesh responded that WSDOT should allow either a cooling pipe system or an engineered thermal control plan keep from exceeding thermal differentials. It was discussed that on future projects, cooling pipes could continue to be shown in the plans, but the specifications could allow an engineered thermal control plan in lieu of the cooling pipe system.

**Action Item:** No action needed.

### **6. Shaft Slurry and Spoils Disposal**

Prior to the meeting, Mo had sent a link to the group; he encouraged everyone to take a look at this information. The Department of Ecology is now classifying shaft slurry and shaft spoils as prohibited discharge; this means that these materials need to be disposed of at a solid waste facility. There are currently two active construction projects where the shaft work has been completed but the slurry is sitting in tanks on the job site because there's no place to take it.

The Association of Drilled Shaft Contractors (ADSC) has written letters of concern to both Paula Hammond and the Director of the Department of Ecology. There is a meeting set up for December 14<sup>th</sup> to discuss this further. Mo is providing this information to the AGC so they can take whatever action they deem appropriate.

**Action Item:** No action needed.

The meeting adjourned at 12:00 pm. The next meeting is scheduled for Friday, January 21<sup>st</sup>.