



ADSC/WSDOT Joint Meeting
 February 25th, 2016, 8:30 A.M. - 11:30 A.M.
 Fife Project Engineering Office
 6610 16th St. E., Suite A
 Fife, WA 98424

Meeting Minutes

| Attended | Member | Company | Phone | E-mail |
|----------|----------------------------------|--------------------|--------------|--|
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| X | Armour, Tom | DBM | 253-838-1402 | tom.armour@dbmcontractors.com |
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| X | Bill Bennig | Kiewit IWC | 253-255-2376 | bill.binnig@kiewit.com |
| X | Carnevale, Robert | Kulchin Foundation | 425-358-0950 | bob@kulchin.com |
| | Cuthbertson, Jim | WSDOT | 360-709-5452 | cuthbej@wsdot.wa.gov |
| X | Deffenbacher, Jon | WSDOT | 253-589-6100 | deffenj@wsdot.wa.gov |
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| X | Dinneen, Molly | DeWitt | 360-576-8755 | molly@dewittconst.com |
| | Ellis, Susan | FHWA | 360-753-9412 | Susan.Ellis@dot.gov |
| X | Foster, Marco | WSDOT | 360-705-7824 | fosterm@wsdot.wa.gov |
| X | Frye, Mark | WSDOT | 360-709-5469 | fryem@wsdot.wa.gov |
| X | Gaines, Mark ¹ | WSDOT | 360-705-7827 | gainesm@wsdot.wa.gov |
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| | Hagy, Mike | PACO | 805-746-6965 | Mike@PacoEquip.com |
| X | Kvinsland, John | Malcolm | 253-395-3300 | jkvinsland@malcolmdrilling.com |
| X | Johnson, Darrel | PACO | 206-786-7584 | djohnson@pacoequip.com |
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| X | Mizumori, Anthony | WSDOT | 360-705-7228 | mizumoa@wsdot.wa.gov |
| | Morin, Dave | DMI | 206-793-4470 | dave@dmidrilling.com |
| | Olney, Chuck | Rainier Steel | 206-949-7092 | paul@rainiersteel.com |
| X | Owen, Geoff | Kiewit | 360-690-6548 | Geoff.owen@kiewit.com |
| X | Parmantier, Dominic ¹ | CJA | 206-575-8248 | dparmantier@condon-johnson.com |
| | Radom, Greg | DBM | 206-730-1317 | Gregr@dbmcm.com |
| | Rasband, Lance | Malcolm | 253-395-3300 | lancerasband@malcolmdrilling.com |
| | Sexton, Jim | DBM | 253-838-1402 | jims@dbmcm.com |
| | Simmons, Greg | Kiewit | 253-943-4000 | GregSimmons@kiewit.com |
| X | Starceвич, John | Malcolm | 253-395-3300 | jstarceвич@malcolmdrilling.com |
| X | Topham, Dale | Snohomish Co | 425-388-6668 | dale.topham@snoco.org |
| X | Tuttle, John | Sinclair | 661-212-1223 | jtuttle@sinclairwp.com |

¹ Team co-chair



Guests

| Attendee | Company | Phone | E-mail |
|----------------|-------------|--------------|---|
| Russ Blount | Fife | 253-922-2489 | rblount@cityoffife.org |
| Ken Gill | Fife | 253-922-9315 | kgill@cityoffife.org |
| Ken Horton | PCL | 425-394-4232 | khorton@pcl.com |
| Jim Guarre | Berger ABAM | 206-431-2324 | jim.guarre@abam.com |
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| Doug Watt | CJA | 425-988-2150 | dwatt@condon-johnson.com |

1. Welcome/Review of Agenda

Mark Gaines opened the meeting. Several guests were in attendance so introductions were made and the agenda reviewed. No additional topics were added to today’s meeting.

Action Items: No action needed.

2. Review December 17th meeting minutes

Mike Bauer provided comment/correction – no additional comments were received.

Action Items: Mark to incorporate corrections and posted the minutes to the web.

3. Constructability Review – Fife 54th. Ave Grade Separation

Stuart Bennion from Berger ABAM provided an overview of the project along with briefly summarizing the geotechnical conditions.

The proposed project will reconnect properties south of the Union Pacific Railroad tracks to the Fife City Center (north of the tracks) in a safe manner for emergency vehicles, traffic, pedestrians, and bicycles. Consideration of UPRR’s project to extend a siding track, north of its mainline track, across 54th Avenue East has been incorporated into the project. Gates are currently installed that prohibit public traffic from crossing the tracks on 54th.

The proposed undercrossing structure design is based on a “boat” type configuration to isolate the traveled way out of the high water table and allow for a deep undercrossing of the railroad ROW to satisfy vertical clearance requirements. The inside of the boat has grading for the roadway and structural walls to accommodate utilities, a pedestrian sidewalk (west side) and shared-use path (east side). It is proposed that the project will be constructed using secant pile walls as the primary structural elements. Drilled shafts for the secant pile wall are anticipated to be constructed using oscillatory or rotary equipment. The project is currently proposing 6.5 foot diameter shafts for the secant walls so that drilling equipment would have the ability/capacity to drill through and remove numerous buried logs that are anticipated at this site.

Stuart posed the following questions to the Team;



- What equipment has been used to drill large diameter shafts with the presence of buried logs?
- Are other methods available to construct the sides of the “boat”?
- Currently, two proposed methods of constructing the bottom of the “boat” (bottom seal) are being considered;
 - Method 1 - Plain secant pile shafts
 - Method 2 - Excavation and tremie seal

What other methods could be considered for construction of the bottom seal?

- What construction measures could be utilized to ensure proper bonding between the side faces of the secant walls and the bottom seal?
- What is the approximate rate of production of secant pile walls and secant bottom seal (Cubic yard per day) to be considered for construction schedule estimate purposes (i.e. Method 1 above)?
- What recommendations would you propose for handling the high water table and increased water surface elevation from constant drilling?
- Are work mats, quarry spalls, or other access /stabilizing material required? How would you recommend these be paid for within the Contract?

Tom asked Stuart if additional boring will be done. Stuart stated absolutely. The team highly recommended additional borings, possibly larger diameter borings, and sonic cores for additional soil sampling. Trees are known to be encountered and are anticipated from 5’ to 60’ in depth. Deep sewer construction in the area has confirmed this – the trees were deposited during historic volcanic events.

Stuart was asked if struts could be used to reduce the diameter of the shafts. Stuart stated they could be used, but probably wouldn’t be needed with 6’-6” diameter shafts. This shaft size was proposed to assist removal of logs. There was discussion with regards to the tooling of the drilling equipment; it was generally felt that the capacity of today’s drilling equipment can accommodate drilling thru and removal of the woody debris in smaller diameter shafts (possibly 4’ diameter). It was suggested that using smaller diameter shafts with struts would be more cost effective than the current proposal.

Dominic raised concern about the seal on the bottom of the boat and the ability to successfully construct interlocking secants to seal the bottom of the boat. This would be particularly difficult considering the presence of woody debris. There was discussion with regards to letting the Contractor develop a seal design. The owners agreed this might be appropriate but felt they need a biddable approach to facilitate development of a cost estimate at this time. The owner is still in the process of securing the necessary funding for the project. The general consensus of the Team was that a secant pile bottom would be a challenge (not water-tight) and a conventional cofferdam would be a better approach.

There was discussion on the use of deep dewatering for the excavation to facilitate construction of the seal and the bottom of the boat. The secants could be used to assist in



cutoff and dewatering can be done inside the “bathtub”. It was commented that this approach was successfully used to construct the launch pit for the AWV Tunnel project. There was also discussion on whether or not the obstruction item be used to address woody debris. The pro and cons of an obstruction item were debated. Ultimately, the Team suggested that the Contract include a baseline number of logs the Contractor should anticipate encountering as a way to create a level playing field for bidding purposes. The Contractor would need to account for removal of this quantity in their unit bid prices, but if excess logs were encountered, there could be grounds for an equitable adjustment. This approach would also insure the drillers are prepared for and have the appropriate tooling to deal with the woody debris.

Stuart was asked if there were any timing restriction on the work. He responded that short-term stoppages for trains passing (approximately 13 trains per day) will most likely be needed when the shaft work is in close proximity of the tracks.

It was commented that the shaft cap could also be used as a guide wall to drill the secant wall. The guide wall is used as a template to insure good alignment of the shafts and to insure the secant wall is water tight. There was a strong recommendation that a combination shaft cap/guide wall be considered as this may be a good opportunity to save money and eliminate some throw away work.

The owners thanked the team for their comments. The City stated they will make refinements to their plan requested to return in the future for further discussion/comment from the team.

Action Items: Mark will distribute meeting minutes to the Design Team.

4. Action Items;

a) OSU study of high-strength bar as shaft reinforcing

As discussed at previous meetings, this project will focus on the performance of shafts with high-strength steel reinforcing and permanent casing considered as providing structural capacity. This project is being handled as a collaborative project with contributions from the drilled shaft contracting industry. John S. provided an update stating that reaction elements have been installed and we are now waiting for the data from testing.

Action Items: Mark will keep this topic on the agenda. John will forward some additional information to Mark to be distributed to the Team.

b) FHWA/Texas A&M base grouting

This project has not progressed as quickly as hoped. Research was started but then stalled due to the donating Contractor having to pull resources off the project. The research work will not move from Texas A&M to a different research facility as previously thought. The national ADSC is working with FHWA to complete the research. No new update



Action Items: Mark will keep on the agenda.

c) L.F. Payment for Drilled Shafts

Mark has not made any progress on this action item. At the last ADSC meeting it was discussed that contract language be revised so that a satisfactory shaft is paid in full upon satisfactory completion to the transition zone. Mark suggested a possible solution that we revise payment for the shaft to be based on satisfactory completion of the CSL testing.

There was also some discussion about making CSL tubes incidental to reinforcing steel. A comment was made that consideration for how thermal integrity testing would be paid was raised.

Action Items: Mark will keep this item on the agenda and bring draft changes to the team at our next meeting.

d) Specifying vertical elements for soil nail wall construction

Mark F. recommended we continue to evaluate project on a case by case basis and use special provisions to address specific circumstances that may require vertical elements. Face stability of soil nail walls has historically been the Contractor's risk/issue but it is recognized that problems with face stability can create disputes over unstable conditions if encountered. Mark has been unable to find design guidelines for vertical elements because specific conditions can vary so dramatically.

Action Items: Consensus from the team is that WSDOT continue with our current practices and not require vertical elements unless we think there is a high probability they will be needed. Special provision requiring the use of vertical elements will continue to be used based on site specific conditions. This item will be removed from future agendas.

e) Force Account Obstruction Removal - time

Mark has not had an opportunity to work on revised proposed language. The current specification is not addressing concerns related to contract time when removal of an obstruction is impacting critical path of the project. Mark bought up the concept of granting unworkable days if encountering obstructions on critical path work. Mark acknowledged this topic is more aimed at prime contractors and he plans to bring it to the AGC/WSDOT Structures Team. Mark reminded the group of previous discussion and this item will remain on the agenda.

Action Items: Mark will keep this topic on the agenda and update members on discussions with the AGC.



f) Auger cast pile presentation and discussion

Mark requested Dominic give the auger cast pile presentation that he shared with ADSC in December to the Bridge office. WSDOT currently has no specifications for auger cast pile. The team believes auger cast piling may be a good tool for lower risk projects such as some of the upcoming fish passage projects.

Action Items: Mark to work to bring this presentation to the Bridge and Structures Office. Mark will keep this topic on the agenda for the next meeting.

g) Shotcrete as a permanent fascia

Mark shared recent progress with regards towards developing a specification for permanent shotcrete fascia. WSDOT is currently using permanent shotcrete on the AWV North Access contract and it appears to be working well.

Mark asked team members if the use of shotcrete as a permanent wall feature more of a Drilling Contractor issue or a Prime Contractor issue. The team members commented it can be either (- sometimes the Prime and sometimes the Drilling subcontractors).

Action Items: Mark will keep on the agenda and update the team as we obtain more information.

h) Update on drilled shaft testing

Mark provided a brief update on a recent conference call between WSDOT Bridge, Fabrication and Geotech to discuss the responsibility of shaft testing. Currently WSDOT fabrication does the CSL testing and WSDOT Geotech analyzes the data.

WAQTC was also discussed. The attempt with WAQTC is that testing requirements be standardized so that all testing is done the same regardless of who the owner is (State, City, County, Sound Transit, etc.) Once WAQTC is implemented, WSDOT anticipates more QA responsibility will be shifted to the Contractors and owners will assume more of a quality verification role.

Mark believes that we will be shifting CSL the testing requirements to the Contractors in the future. A specification would be developed to describe guidance/expectations for the testing. The prime contractors stated they already do this for DB projects and it works well. It places the Contractor in more control of the project schedule as they do not need to wait for the owner to evaluate the shaft. Oregon is already doing this. It was generally recognized that having a licensed engineer review the data and stamp the acceptance report would work. Dale Topham from Snohomish County (representing local agencies) also felt this would be acceptable.



Thermal Integrity Profiling (TIP) was also discussed with at the conference call. There was no consensus at the conclusion of the meeting, however Mark felt both methods will remain as tools for evaluating drilled shaft competency. Most likely – CSL will remain our primary method for evaluating drilled shafts. The benefits of TIP are in evaluating the adequacy of cover on the outside of the cage. However, the data we have collected to date has been inconclusive and our confidence in the thermal results is in question. If WSDOT continues to move forward with TIP it will most likely be a WSDOT responsibility.

Team members did not have a strong opinion with regards to TIP, but John K. did state he appreciated being able to view the pour in real time.

Mark F. felt there is still value in conducting both TIP and CSL to give a more complete picture of an anomaly as TIP alone is a bit inconclusive.

Action Items: Mark will continue to keep this item on the agenda.

5. Discuss and Review BDM Shaft Section

Mark briefly reviewed and discussed the section of the BDM that identify shaft diameters and available oscillator casing diameters. He requested the team revisit the information in the BDM to insure it is still accurate and applicable to current industry practice.

Action Items: Team members to review the information in the BDM for discussion at our next meeting.

6. ADSC/WSDOT Joint Annual Training

The annual joint training is scheduled for March 31. The ADSC has developed an agenda and Dominic will send the agenda out to the team later today. A brief review of the agenda was done with the team.

Action Items: No further action required.

7. Update on Personnel Changes at HQ Construction

Mark provided an update on recent changes in roles and responsibilities in the Construction office. With the recent departure of several ASCE's and the addition of a new funding package (and more work) – availability of ACSE support has been stretched thin.

Action Items: No further action required.

8. Additional Items



Tom announced that a local Geotech group will be hosting a seminar on Saturday, April 2nd for those that are interested.

Action Items: No further action required.

9. Discuss potential agenda items for future meetings

Anthony requested the team have further discussion with regards to the compressive strength of drilled shaft concrete. We consistently see higher compressive strength in shaft concrete so there may be opportunity reduce shaft sizes based on these higher compressive strengths.

Action Items: Mark will be add this item to the agenda for the next meeting.

Future meeting date: April 28th