

**KYTC Divisions of Construction/Structural Design/Quality Assurance
and
ACEC Bridges, Inspection & Design Sub-Committee
Partnering Meeting**

Friday, November 8, 2013, 10:00 AM – 12:00 PM

Minutes

These minutes provide an outline of discussions at the Division of Construction, Structural Design, Quality Assurance Branch, and ACEC Bridge Sub-Committee partnering meeting held at the Transportation Cabinet Office Building. Those in attendance were:

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| Scott Pennington | Division of Construction |
| Katy Renfro | Division of Construction |
| Erika Drury | Division of Construction |
| Ryan Griffith | Division of Construction Procurement |
| Eileen Vaughan | Quality Assurance Branch (QAB) |
| Michael Vaughn | Quality Assurance Branch |
| Boday Borres | Quality Assurance Branch |
| Shawn Russell | Quality Assurance Branch |
| Mark Hite | Division of Structural Design (DOSD) |
| Bill McKinney | Division of Structural Design |
| Kevin Sandefur | Division of Structural Design |
| David Deitz | Palmer Engineering |
| Craig Klusman | URS |
| David Depp | Johnson, Depp & Quisenberry |
| Doug Burton | Lochner |
| Scott Ribble | Burgess & Niple |
| Daryl Carter | Stantec |

Discussion topics included:

- 1. Purpose** – This meeting was requested by the Sub-Committee in order to bring the Division of Construction and the Quality Assurance Branch into the dialogue that’s been ongoing with Structural Design. The goal is to exchange feedback on design/construction issues that could be addressed/avoided in future projects, resulting in more economical, easier to construct, longer lasting bridges.

2. Division of Construction Discussion Topics

- a) Lessons Learned - QAB distributed a pie-chart of bridge issues from 1996-2013. QAB will distribute the spreadsheet to the group in order to view issue details.

- b) MSE walls - KYTC would like to study issues at bridge ends. Recent failures have been attributed to poor backfill. Current DOSD policy is not allow spread footings on soil behind MSE walls but consideration can be given to pile bents behind walls if needed for R/W or similar issue. Recent issues include panels shifting during/after pile driving (can mitigated by "sleeving" during wall installation), conflicts with adjacent structures, and strap conflicts due to utilities/guardrail. Designers should consider conflicts and constructability, especially on phased projects, during design.

3. Masonry Coating

- a) Possible Elimination – The group discussed the need for masonry coating. A proper surface finish may provide comparable aesthetic benefits to masonry coating. Alternates discussed included stains, sealers, or other coatings but there's some concern over their use on green concrete. A potential study by the Kentucky Transportation Center was recommended. QAB will gather more information and consider possible trial cases.

- b) Specification Description – The KYTC Standard Specifications for Road and Bridge Construction sometimes cause confusion on which elements receive masonry coating applications, especially the case where the substructure is "within 200 feet of a public road". An example was cited where a visible pier for a bridge crossing a stream was within 200 feet of a public road, but did not pass over that road, and the contractor questioned whether the coating should be applied to the pier columns or not. Some construction staff questioned why the pier caps are coated even in cases where the columns are not. The DOSD suggested that may have been from the days of open joints at piers and the intent was to protect the cap from water thru the joint and may not be necessary on jointless bridges.

- 4. Multi-span Steel Bridge Slab Placement Sequence** – Often the EOR is asked to consider pouring sequences that differ from that shown in the plans. In the past, the consultants have performed this additional analysis at no cost. Alternate notes/methods to solve this problem include: not allowing changes to the pouring sequence, including hours in the design or shop drawings phase for consultants to evaluate one extra pour sequence, adding a note that allows a licensed professional engineer in Kentucky (which could be other than EOR) to perform the analysis, or adding note to plans which requiring the contractor to

compensate the EOR for evaluation of other pour sequences. The consensus of the group was to use the last option. A plan note should be included in the plan set explaining this option to the contractor.

5. **Anchor Bolt Installation** – The sub-committee asked how contractors handle avoiding hitting reinforcing steel when installing anchor bolts in pier caps. The concern is that since anchor bolts are installed by drilling/grouting, that the main longitudinal steel could be compromised, reducing the design capacity of the pier. Based on the Construction and DOSD observations, the large steel bars are not easy cut by the standard drills and typically anchor bolt locations are modified if the bars are hit. Also, the contractors typically use Kelligrout, vs the molten lead as called for in the standard specifications.
6. **Steel H Piles / Steel Pipe Piles / Precast Concrete Friction Piles** – The group discussed the use of friction piles and the preferred type. The DOSD has had issues with friction piles in the field, specifically not gaining enough capacity. A recent Daviess County project was cited. The formulas do not appear to accurately predict capacity. The spec currently calls for use of the Engineering News formula but the FHWA recommends the Gates formula, which the DOSD commonly specify in the plans. Concrete piles have been used in the past, but often problems have been encountered while driving a large pile group and with splicing. . The current preference of the DOSD is to use steel pipe piles where friction piles are required, especially in seismic zones.

The group also discussed payment of dynamic testing, specifically initial vs restrrike. QAB asked about the need for payment for both. DOSD explained that the testing requires a specialty contractor for instrumentation, necessitating payment for both.

7. **Simple Span Design of Multi-Span PC beam Structures without Deck Joints** – The current policy is to design simple span for dead load and continuous for live load, with the use of negative moment steel in the deck. Design simple span for both dead and live load was discussed but the DOSD would like to maintain current policy.
8. **Breastwall Abutment Drainage Blanket** – The use of the 45 degree backfill and its drainage, as shown in the standard drawings, behind large breastwall abutments was discussed. Both Construction and the DOSD recommend not specifying fill type and use weepdrains, regardless of heights for breastwall abutments. For integral end bents, the use of French drains is recommended.
9. **Future or New Changes in Procedures** – The Division of Construction is working with the Transportation Center to teach a structures class to the construction staff. The DOSD has recently made updates to the website. No date is available for the release of the Structures Design Manual updates.

10. Future Meetings – Spring 2014 with the Division of Structural Design and annual meetings with the Division of Structural Design and the Division of Construction.

11. KYTC New/Updates – A few days after the meeting, the DOSD shared a new procedure for distributing news/updates related to KYTC Structural Design. On the KYTC web pages, the user can click on the "red envelope" icon at the upper-right corner, to subscribe to various news/update channels for KYTC (including Structural Design updates).