



Bridge Technical Committee – Minutes **Wisconsin DOT, Industry, and Partners**

Thursday November 21, 2019

9:00 – 11:30 AM

SW Region office (Dane – Rock Rooms)

Subcommittee Reports:

1. Bureau of Technical Services – Ready Mix Concrete Subcommittee/Overlay

There are three items still open for discussion by this sub-committee that may move forward soon based on availability of subcommittee:

- Concrete overlays and equipment per the specification (2017 discussion/survey/specification) –The department is interested in moving forward with examination and updates to the current specification (502.3.7.8) that combines the Type E concrete overlay with limited available finishing machines. We will be reaching out to project staff related to past experience. We would like to examine, modify, and propose a solution.
No progress has been made on this topic due to other obligations. The department is interested in addressing this topic soon.
- Pumping of Concrete an air loss (2018 request by Industry for research) – (From Kevin McMullen) Nothing new on the pumping issue. I had a meeting with WRMCA a few weeks ago and there were no stories or concerns shared on air and pumping. I would like to continue to monitor along with you the research being conducted at Oklahoma State University. It continues to show that the pressures put on the concrete in the pump is potentially putting the air into “solution”. And then reestablishes itself. Then, it is also showing that the SAM meter is a better measurement device. It is showing that if you have a good SAM number before the pump, you will have a good SAM number after the pump. Or, if you have a good stable air void structure before the pump, it will still be there after the pump.
- Concrete Masonry Overlay Decks (CMOD) – Overruns and Measurement (December 2018) – Discussion this meeting (see carry over topic #2)

Standing Topics:

- 1. IH-39 (Illinois – Dane County) (Laura Shadewald) – 3 remaining Lets (the last being the corridor-wide polymer overlay contract)**
- 2. Wisconsin Highway Research Program Bridge Items – (Dave Kiekbusch)**

Discussed research in progress: deck treatments, textured epoxy rebar, internal curing, and timber slab bridge ratings.

WHRP: <http://wisconsindot.gov/Pages/about-wisdot/research/whrp.aspx>

Previous Meeting Carryover Topics:

- 1. Bureau of Technical Services is considering implementing a shadow specification for use of the Super Air Meter, SAM, for structures (Jim Parry)**

The Super Air Meter measures the distribution of air in concrete, like hardened air measurement. ASP 6 outlines 1 SAM per concrete paving project. There will be some SAM testing on structures projects in CY2020 by minimum number of yards and not part of the acceptance. Information gathered will be used to determine future acceptance criteria and could help with pumping and air loss issues. This will also be addressed in the December 2019 ASP6. It is being added to the HPCP program Tech-1 and Tech-2 training. Overall, the SAM provides a better understanding of how air is distributed in the concrete.

Action item: Future updates on how this worked for bridge and pavement projects.

2. **Payment of Concrete Overlays, associated Items, and Draft Specifications, Special Provision and Potential Spec change for Concrete Masonry Overlay Decks, Deck Prep 1 & 2, Full-Depth Deck Repair, Joint Repair and Curb Repair. (Bill Dreher).** Bill Dreher discussed an internal WisDOT report related to cost overruns on projects and the structures items that were identified for follow-up. Concrete Masonry Overlay Decks (CMOD) – This item was the top structures item overrun by dollar value. There were 4 bridges in the March 4, 2019 let that are pilots of the SY measurement approach. Bill provided the following lessons learned from the pilot project:
 - There were no overruns on the structures
 - The milling thickness was close to 1” on all of the structures with a 1-1/2” overlay placed.
 - There looks like there was a cost premium for using the SY quantity over historic CY prices.
 - The pilot worked, but the department may stay with CY for the time being. We want to further evaluate before moving forward with SY
 - Dan Kowalski indicated that the pilot projects “were simple” and some of the concerns previously brought up with this spec change remain even if they weren’t seen in these pilots.
 - Matt Grove did ask how (SY) overruns work be addressed? No clear direction currently.
 - The committee that assembled the specs for the pilot will reconvene to review the pilot results and determine if the Department is going to pursue a permanent change to these bid items

3. **STP -107-070 - Erosion Control Structures (Krissy Van Hout)** Request that contractors install the rip rap in front of the abutment along the river up to the break point after the grading is complete prior to pounding piling. The streams that are flashy are the most critical. Turbidity barrier has limited effectiveness in many instances. As example a bridge on the Manitowoc river currently building, the river rises 7 feet in a 2-year event. Krissy lead the discussion on this item. Comments included:
 - a. Placement of riprap prior to abutment construction makes sense if site conditions make it practical. Though, in some instances, riprap may be in the way of abutment formwork.
 - b. This may be an issue with sub-contractors doing different operations
 - c. Other erosion control features may be under-designed.

There were two options for re-wording the stp 107-70 Erosion Control Structures that Krissy went over (attached below). It sounded like the shorter version was generally favored.

Action item: This has not been implemented yet. Krissy has draft spec language. This will go into some projects for the February 1, 2020 PSE’s. It was noted that mobilization multiple times is an issue for contractors. BOS will look at Bridge Manual guidance.

4. **Certifications older than 3 Years (Lucas Haun)** In discussions with material suppliers, specifically those dealing with steel components, if certs that are older than 3 years will not be accepted, this will have a significant impact on the cost of the materials. *(Please reference the CMM 8-45.1.2, which refers to a 2-year requirement, not a 3 year one. This appears to have been in the CMM since at least November 2017 when the section was last updated). (See Attachments)*

This guidance is intended for materials with a limited shelf life (BTC discussion). It is recognized that it is impractical for steel pile. We really need to find out more information CMM 8-45.1.2 and what it is meant to apply to and what is not subject to this guidance.

Action item: This “age of certification exceptions” was discussed at the February MUG meeting. John R. has added some last-minute information to CMM 8-45, so that we can accept some certification information older than two years. It will get into the CMM this spring. Thanks. - **Closed**

New topics:

1. **Deck mounted bridge rails:** How difficult is it to get the anchor bolts aligned correctly? What happens if the anchor bolts aren't aligned correctly? (**Dave Kiekbusch**)
Contractors commented that you need care and quality to place anchor bolts. The acute corners of skewed bridges that have M-Rails can be difficult to place. It was requested to step the bolt assembly back 6 inches to provide more room to fit the assembly. Contractors also requested more flexibility on the nuts and “fixity??” that are acceptable.

Action item: BOS will evaluate provided anchor bolt stick-up lengths and acute corner details.

2. **Projects where piles have been driven in the wrong locations.** We want to remind contractors they may want to double check pile layouts before driving, to help reduce these occurrences. (**Bob Arndorfer**). The department has seen a rise in the number of projects where piles are driven in the wrong location. More care needs to be exercised in the field to avoid driving piles in wrong location.

Action item: None

3. **Current and future for temporary bridges, temporary barriers, (Aaron Bonk)** Developing a new process/approach for these. Aaron provided background on how these structures/widenings/barriers have been handled historically. In general, the Department has designed temporary widenings whereas we've allowed contractors to design temporary bridges. The department is moving toward allowing contractor-designed temporary bridges and widenings in certain projects where it may be more efficient to have the contractor design them to utilize their readily available equipment.

For temporary barriers, there are changes coming to the standard detail drawings being proposed for barrier being placed on timber decking. One of the issues is the clear distance behind the barrier when the barrier is not pinned to a concrete deck. The concept for the new details will be to no longer allow pinned temporary barriers on anything other than a concrete deck. Unpinned barriers will still be allowed to be used in conjunction with a deck offset behind the barrier, and also in conjunction with asphalt overlaid decks. Contractors feel we should pin the barriers on timber with some offset. However, we discussed there are safety concerns with pinning to timber.

BOS provided an update on this this topic. This included MASH testing, anchorage, and deflection requirements. Industry expressed concerns for not having enough time for CRI proposals for temporary bridges and further temporary barrier restrictions (e.g. deflection criteria would increase costs).

Action item: BOS will continue to develop guidance for temporary barriers on structures. Further consideration will be given to requiring that all temporary bridge and widening (contractor-designed) be sent into BOS for review in order to limit the number of different levels of acceptability in the designs as currently is the case when the Regions/project teams review the submittals.

4. **Prestress deck removal/replacement: (Darrin Stanke):** Is there merit to have the DOT define a specific means and method for removal of prestress decks? There is no consistency between districts as to what is acceptable damage to girder tops during demolition. Some allow repair, some want no damage to the girder top and some want girder replacement if top flange damage is perceived as excessive. As contractors, we have no consistent way to bid this as it varies so much by district. **Bill Dreher shared that BOS has a team of engineers that review damaged girder incidents and make recommendations to region construction staff on acceptable levels of damage and repair alternatives. The concept is to promote effective deck removal, minimize damage, consistency in repairs and department response.**

It was also discussed that this would be a good area to form a sub-committee with industry on better criteria of minimizing damage and acceptability of damage and repair methods. This could provide insight into better specification language and consider lesson learned from other states.

Action Item: Aaron Bonk will bring this topic to the Bridge Tech Subcommittee on Design and Construction to work on details for repairs and to further streamline the process that is currently being used to review damaged girders.

5. **Plan accuracy concrete masonry, bridges. (Tim MacLaughlin-Barck):** It is becoming increasingly common for these volumes of concrete masonry, bridges, when calculated by the engineer in the field for payment, come in short of plan quantity. This is a recurring problem that could be eliminated rather easily, either by better QC by the designers, or making it a *P item, with exceptions for more than a 5% variance. **Tim indicated that this was especially challenging issue for smaller bridge contractors. For smaller quantities of concrete there is more of the forming and overhead tied into smaller quantity of concrete. The discussion progressed in the direction that there needed to be more care and better guidance and consistency in the rounding guidelines. It was also noted that field engineers calcs may be more accurate than the design engineers calcs on quantity.**

Action Item: Provide more guidance in the bridge manual or in the transmittal letter for updates to the Bridge Manual. BOS will also bring this topic up at the 2020 Structural Engineers Symposium that will be held with both in-house and consultant design engineers in May.

6. **Pressure on the contractors to complete work in a very short period of time,** forcing contractors to cut corners, push the envelope in terms of worker production and safety to the point of diminishing. **(Tim MacLaughlin-Barck): More discussion on this age hold topic of contract time and the difficulties of completing projects and attracting staff to the bridge construction industry.**

One of the areas of concern is when fall/winter work is completed, how does industry keep their workforce busy and attracted to this industry. **Bill Oliva pointed out that we have developed solutions for accelerated bridge construction (precast piers) that would provide contractors the ability to fabricate these elements over the winter with their own staff. However, contractors have been reluctant to take advantage of these alternatives that serve potentially both the department and industry.**

Industry believe that there should be more flexibility on start dates.

Action Item: Share thoughts on flexibility on start dates with BPD and Regions. Contractors may want to take another look at the ABC Precast piers and other alternatives to keep their workers busy over the winter.

- 7. ECIP pollution prevention update – managing concrete washout (Daniel Schave)
Action Item: Daniel Schave Share thoughts on flexibility
- 8. What are current practice for washing of concrete trucks and discuss an update to the ECIP that will address concern DNR has brought forth to WisDOT. (Daniel Schave)

Standing Item - Specification Changes / Updates – Discussion (Mike Hall)

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Addition to the Agenda:

1. Krissy Van Hout asked industry if and how cofferdams are being backfilled. There was concerns cofferdams weren't being properly backfilled, which could be flagged as a scour issue during an inspection. There was little discussion on this topic.

Attachments:

- **Attachment for Carry Over – Super Air Meter (SAM)**

document1 2/20/19 12:43 PM
 Contact: Chad Hayes 248-5391

(C3) Concrete - SAM

Add 715.2.1(5) to extend SAM testing to all new lab-qualified class 1 concrete mixes including those for structures and concrete barrier.

715.2.1 General
 Add the following as paragraph five.

5) For new lab-qualified mixes, test the air void system of the proposed concrete mix conforming to AASHTO provisional standard TP-118. Include the SAM number as a part of the mix design submittal.

715.2.3.1 Pavements

5) For new lab-qualified mixes, test the air void system of the proposed concrete mix conforming to AASHTO provisional standard TP-118. Include the SAM number as a part of the mix design submittal.

Revise 715.3.1(2) to extend field SAM testing for all class 1 concrete including for structures and concrete barrier.

715.3.1.1 General
 Replace paragraph two with the following:

2) For pavement concrete, also test the air void system conforming to AASHTO provisional standard TP118 at least once per lot and enter the SAM number in the MRS for information only. SAM testing is not required for the following:

- For lots with less than 4 sublots.
- High early strength (HES) concrete pavement
- Special high early strength (SHES) concrete pavement
- Concrete placed under the Concrete Pavement Approach Slab following bid items:
 - Concrete Pavement Approach Slab
 - Concrete Masonry Culverts
 - Concrete Masonry Retaining Walls
 - Steel Gnd Floor Concrete Filled
 - Crash Cushions Permanent
 - Crash Cushions Permanent Low Maintenance
 - Crash Cushions Temporary
- For concrete pavement lots with less than 4 sublots

- **Attachment for Carry Over Item #4 - Certification**

8-45.4 Material Inspection

Move from former CMM 8-45.1.2

All manufactured products, including conditionally approved products that have been previously inspected and tested at the source, must be inspected as soon as possible after delivery to the job site for any evidence of damage or noncompliance.

The project engineer should follow these steps as a minimum for inspection of all materials delivered to the project.

1. Inspect all manufactured and pre-qualified products as soon as possible after delivery.
 - a. Including materials on approved lists, from certified sources, and conditionally approved products.
 - b. Record relevant inspection information in the material record.
2. Verify that products delivered match the certifications, approved lists, etc.
3. Review all certificates of compliance and certified reports of test and analysis. As part of the review process, assure the documents are dated within two years of the project LET date. Older documentation may be acceptable for raw hot-rolled materials, such as piling or black reinforcement steel; the contractor must furnish additional written verification from the source or mill validating the data on certifications older than two years. Project staff is encouraged to contact sources directly if verification cannot be obtained by other means.
4. Ensure that the manufacturer/supplier name, product name, and appropriate ASTM/AASHTO reference and signature and title of the person certifying the product for the company is included. Reviewer initials and dates certificates. Refer to CMM 8-45.3.2.2 for additional details regarding approval by certification

- **Attachment for Concrete Masonry Bridges**

6.4.3 Concrete Masonry Bridges

Show unit quantities to the nearest cubic yard, as well as the total quantity. In computing quantities no deduction is made for metal reinforcement, floor drains, conduits and chamfers less than 2". Flanges of steel and prestressed girders projecting into the slab are deducted.

Deduct the volume of pile heads into footings and through seals for all piling except steel H sections. Deduct the actual volume displaced for precast concrete and cast-in-place concrete piling.

Consider the concrete parapet railing on abutment wing walls as part of the concrete volume of the abutment.

- **Attachment for Specification Changes**

Pollution Prevention

Contractor shall complete this section for the project site, and all areas of contractor proposed temporary activities, which include: equipment staging and material storage areas, borrow and waste sites without an existing WDNR stormwater permit and temporary batch plants

1. Potential Sources of Stormwater Pollution

Identify potential sources of stormwater pollution that will be present during the construction period

- | | | |
|--|--|---|
| <input type="checkbox"/> Curing compound | <input type="checkbox"/> Cement | <input type="checkbox"/> Concrete sealant |
| <input type="checkbox"/> Cleaning soap/ solvent | <input type="checkbox"/> Paint | <input type="checkbox"/> Fertilizer |
| <input type="checkbox"/> Fuel storage | <input type="checkbox"/> Oil/Hydraulic fluid | <input type="checkbox"/> Concrete washout |
| <input type="checkbox"/> Other: Click to enter text. | | |

2. Best Management Practices (BMPs) to Prevent Transport of Pollutants by Runoff

Identify BMPs that will be implemented to prevent pollutants from being transported by runoff into waters of the state. If other BMPs are proposed, provide BMP in "other" box

Use, storage and disposal of chemicals, cement and other compounds and materials used onsite

- Use designated material handling and storage areas, not located in environmentally sensitive areas.
- Store materials (except for bulk materials) under cover or in resealable container.
- Regularly inspect material handling and storage areas to determine if leaks, spills, corrosion and other deterioration have occurred.
- Promptly collect and properly dispose of construction waste.
- Other: Click to enter text.

Equipment fueling and maintenance

- Monitor onsite equipment for fluid leaks, and fix fluid leaks as soon as they are discovered.
- Use drip pans or absorbent materials to prevent spills or leaked fluids from discharging to surface water or stormwater conveyances.
- Other: Click to enter text.

Concrete truck washout (only one BMP is required, more than one can be selected). If concrete truck washout will occur onsite, show location(s) on a site map. For more information regarding concrete truck washout see: <https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/environment/erosion-ctrl-drainage.aspx>.

- N/A, no concrete items on project
- Conduct concrete truck washout on an area of roadway or shoulder base course. Washout shall not runoff into surface waters, wetlands, inlets, curb flow lines or ditches. Contractor shall monitor to ensure no runoff reaches surface waters, wetlands, inlets, curb flow lines or ditches.

Pollution Prevention section for ECIP addition with December 2019 letting

Concrete truck washout (cont.)

- Contain concrete truck washout in a leak-proof container, excavated pit or bermed area. Construct the container, pit or berm so that no overflows can occur due to inadequate sizing or precipitation. Do not locate pits in karst areas or in groundwater. Inspect daily for required maintenance to prevent overflow.
- Contain washout in truck mounted washout system capable of containing all concrete liquids and solids.
- Conduct concrete truck washout at a qualified facility.
- Other: Click to enter text.

3. Hazardous Spill Control and Reporting

A hazardous spill is a discharge of one or more hazardous substances that adversely impact, or threaten to adversely impact, human health, welfare or the environment and requires an immediate response. Identify BMPs that will be utilized to control hazardous spills:

- Maintain onsite spill kits containing appropriate materials and equipment for spill response and cleanup. Appropriate cleanup materials and equipment may include items such as brooms, dust pans, mops, rags, sawdust sand, or other items to adequately stop and cleanup spills
- Cleanup spills immediately and dispose of materials properly.
- Other: Click to enter text.

Spill reporting procedure the Contractor shall follow

The Contractor shall immediately notify the DNR spill hotline of any release or spill of a hazardous substance to the environment in accordance with s. 292.11, Wis. Stats., and ch. NR 706, Wis. Adm. Code. After notifying the DNR spill hotline, notify the DOT project leader. A discharge of uncontaminated sediment is typically not considered a hazardous spill and may not require reporting to the spill hotline.

- The 24-hour toll free spills hotline number is (800) 943-0003. Information about hazardous substance spills is available from DNR's website at: <https://dnr.wi.gov/topic/Spills/>.

All spills must be cleaned up, but it is generally not necessary to report recent spills that are:

- Less than 1 gallon of gasoline
- Less than 5 gallons of any petroleum product other than gasoline
- Any amount of gasoline or other petroleum product that is completely contained on an impervious surface
- Individual discharges authorized by a permit or program approved under Wis. Stats. Chs. 289 – 299
- Less than 25 gallons of liquid fertilizer
- Less than 250 pounds of dry fertilizer
- Pesticides that would cover less than 1 acre of land if applied according to label instructions



Wisconsin Bridge Technical Committee

Date: Thursday November 21, 2019

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Wisconsin Bridge Technical Committee

Date: Thursday November 21th, 2019

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