

**ASCE – INDOT
STRUCTURAL COMMITTEE
MEETING NO. 92 AGENDA**

**June 24th, 2021
9:30 am, Webex**

1. Review and approve Meeting 91 minutes.

- a. Approved
- b. INDOT ready to host live meetings again

2. Bridge Design Conference – Topic list below (McCool)

- a. McCool – Potentially a hybrid format, both in-person and virtual. If live, recommended going back to 1 day only.
- b. Wagner – Will send survey of participants to Structures Committee. Survey was focused on asking if people prefer in-person or virtual. General feedback is that in-person is desired, but option for virtual attendance is appreciated, particularly by those that work far from Indy.
- c. McCool – Desired location is auditorium, not conference room with tables
- d. McCool – Schedule for February. Wagner agreed and could request auditorium for two possible dates in February. Will try February 22nd (priority) and February 24th (backup). Desire to schedule between INDOT Letting dates.

3. Concrete mix designs (White, Nelson, Wenning, McCool, Merida)

- a. McCool has begun a list of mixes to investigate. Requests White arrange subtask group meetings to continue development. White agreed.

4. Pile Design for 3-sided structures (White, Schickel, Borcharding, Hunter)

- a. White – has a project to investigate now which has discrepancy between original design and construction. Pass until next meeting.
- b. McCool – will send White info on one of his projects with micropiles
- c. Merida – will send White info on a project of his in Davies County where large spread footing was cost prohibitive and was changed in construction to a pile foundation

- d. Wenning – Recommends looking at Maplecrest Road project he did while employed at American Structurepoint. Needs Borcharding to provide info.

5. Semi-integral bent details (Wagner, McCool, White, Schickel, Borcharding, Merida)

- a. Wagner – Meeting regularly. Drafting language and figures for Design Manual. Working on new construction design and details guidance.
- b. Wagner – For rehabs, likely guidance will be developed which will set priorities for design details, etc. to make sure are incorporated. Rehab projects vary so much, that a singular detail will not work with all situations.

6. LRFD vs LFD on Rehabilitation Projects (Hunter, McCool, Eichenauer, Wenning, Arnold)

- a. Hunter – Group is making progress
- b. McCool – Steel design progressing. Most of work has been completed on rolled steel beam design. Will then work on plate girder. Checking actual project headed towards STG 3.
- c. Eichenauer – Two of three substructure components investigated. Still need to check wall pier.
- d. Wenning – Prestress design code checks compared individually. Recommendations being developed. Determining which can be passed on and which need to be checked.
- e. Arnold – Deck design and analysis progressing. Longitudinal negative moment reinforcement and overhang reinforcement currently being investigated.
- f. Hunter – INDOT's policy is to follow the AASHTO Code that is in line with the Code of Federal Regulations. AASHTO LRFD 8th ed. is current requirement. Migrating early is acceptable for designers, i.e. using 9th ed. now is acceptable.

7. Sand Bag Cofferdams (Hunter, Phillips, Merida)

- a. Hunter – Met with INDOT Environmental this week. Relayed current concerns, challenges with means and methods, permit language that isn't easily constructable, etc. Goal is to look at provisions and develop recurring provision

language that is less about construction and/or dewatering type and more about performance. Does not want permit language that dictates means and methods.

- b. Merida – Offered to help. Wants to know what goals for cofferdams are.

Previous experience is inconsistent. Some require completely dry before placing riprap, others don't.

- c. Hunter – Mouser previously did work on pump arounds. We should pick up where she left off. New INDOT Director of Standards will move this work forward, starts in two weeks.

- d. Hailat & Porter volunteered to join task group.

8. PVC Deck Drains on RC Slab Bridges (Shergalis, Wagner, Schickel, Porter, Swiderski)

- a. Shergalis – Not much progress since last meeting. Goal is to eliminate deck drains on Slab bridges and/or use Type SQ or OS drains. Language being developed to guide design to be altered to reduce number of drains.
- b. McCool – Currently has project that does not require drains by design, but INDOT District still wants them.
- c. Porter – Has project that District wants to get rid of PVC drains on a rehab, opposite of McCool's project.
- d. Wagner – Will cover at next INDOT Bridge Asset Managers meeting

9. Staged Deck Pours and Reinf. Details (McCool, White, Merida, Borcharding, Reilman)

- a. Pass

10. NEXT Beams (McCool, Hunter, White, Wenning, Arnold, Wagner)

- a. McCool – Task group meetings started. Currently there are approximately 4 projects that may/will use these beams. Concern is how to cover cost of fabricators purchase of forms. Need to contact other DOTs that use them to learn more information.

11. Steel / ABC (Arnold, Hailat, McCool, White, Eichenauer)

- a. USI continuing to meet internally to develop details for US 33 over Blue River project. Details will be shared with INDOT Central Office within next couple months. Afterwards, they will be shared with this task group to develop general guidance for design community.

12. Bearing Pad Standards (Swiderski, White, Wenning, McCool, Schickel, Merida)

- a. Swiderski – INDOT internal bearing pad design spreadsheet being updated. Progress will be made after that is completed. Goal is task group to meet before next Structures Committee meeting.
- b. McCool – Recommended that Swiderski independently verify designs with spreadsheets from consultants on the committee. Swiderski agreed.

13. STM for End Bents (Arnold, Hailat, Hunter, Schickel)

- a. Several other state DOTs researched.
- b. Purdue, Professor Williams, was contacted to develop final version of STM spreadsheets. They were received by White within last week.
- c. Task group to use Purdue spreadsheets to analyze real projects to determine differences in results and develop guidance.
- d. Current goal is to develop application to FHWA for approval to not require STM for end bents, especially integral end bents, but acknowledge that it should be used for straddle bents and hammerhead piers. This approach is currently used by other state DOTs.

14. ABC Worksheet (Schickel, Hunter, McCool, Arnold, White)

- a. Schickel – Perhaps this should be combined with Item 11 (Steel ABC)?
- b. McCool – Task group meeting to be held which combines Items 10, 11, & 14. Schickel will send invitation.

15. Standard Beam Detail Sheets (Lesh, Wenning, Hart, Wagner)

- a. Lesh – Looking into details to incorporate WWR in beams for shear design.
Standard drawings being updated and changed to remove/simplify information for both design and fabrication.
- b. McCool – Recommended standards show minimum information that should be on plans, both for steel beams and prestressed concrete beams.
- c. Wenning – Will current sample prestressed concrete beam details sheets be kept on INDOT's website (Design Aid) until these new details are posted?
Recommended removing them from website. Wagner concurred. Schickel recommended that the design community be notified that they will be removed, allow a short timeframe, and then remove them. Hart concurred.
- d. Wenning – Current shop drawings being reviewed where designer included note that designer must review and approve the lifting points. This should no longer be done.
- e. Wenning – On title sheets, what should the DES number be for bundled projects for "Construction", lead des or project specific des? McCool agreed that it is confusing. Recommended that either a Design Aid or sample plans for a bundle be posted to provide guidance. Hunter asked Mouser if she has any documentation on the topic that can be shared. He will distribute to Committee once received.

16. Sample Plans Steel Bridges (Wagner, McCool, Lesh)

- a. Wagner – No progress yet. An example rehab project, superstructure replacement with new steel superstructure, will be used to develop sample plans.
- b. Lesh volunteered to join group.
- c. Schickel will send Wagner recent project for reference.

17. Prestressed Beam Lifting loop locations (Wenning, Reilman, Shergalis, Hailat, White)

- a. Wenning – Pass. See Item 15 above. Goal is to make it the Contractor's responsibility.
- b. White asked to be added to task group.

18. New Business

- a. Wagner – STG 3 plans are to be 100%. Requested general feedback and input on an idea: INDOT would like to have load rating memo in hand for STG 3 submittal.

- i. Team discussion on ideas and impacts:

This would require submitting load rating request 6 weeks in advance of STG 3 submission. Would only require completed superstructure details. Member comment: Consultants will then develop all of STG 3 six weeks early, not just superstructure details. Member comment: reconsider STG 2 to include superstructure final design. This change would have to take one or two years. Then load rating could be performed with enough time to change before STG 3 if load rating does not pass. Member comment: Only superstructure elements would have to be final for load rating request. Member comment: Could we only submit superstructure design calculations without final plans as part of load rating request? Comment: INDOT wants plans submitted. Member comment: Could we have consultants perform their own load rating as part of their STG 3 submission instead? Comment: This would require all consultants to have AASHTOWare BrR. Not all do. Comment: Submissions would have to be performed with very specific parameters as this will affect future permit applications and analysis.

Recurring Business

- Bridge Practice Pointers Update (Hunter, Wagner)
- Standards Committee Updates (Phillips)
- Overlay Types (Hunter, White)
- Link Slab Design and Details (Wagner, Wenning, Schickel)
- Research Needs and Innovative Ideas Update (Wagner)

Bridge Design Conference Topics

- US 52 over Mud Creek (ABC) project presentation (P.White)
- Current Research Projects Overview (M.Wenning)

Concrete Mix Designs

- E5 / internally cured concrete
- semi-lightweight
- lightweight
- rapid curing concrete in RCBA (currently a RSP)
- UHPC (nonproprietary)

Research Projects

- Fire Damage on Concrete Bridges
- Seismic Assessment Design and Retrofit
- ABC Guide
- Strut-and-Tie Modeling
 - Pack Rust - Mitigation Strategy Effectiveness
 - Repair and Strengthening of Bridge using FRP
 - A New Approach to Accelerated Fabrication of Steel Bridges: Design, Optimization, and Demonstration
 - Evaluating Reserve Strength of Girder Bridges due to Bridge Rail Load Shedding
 - Pedestrian Bridges -- Development of New Criteria for Design & Construction
 - Seismic Evaluation of Indiana Bridge Network and Current Bridge Database for Asset Management
 - Self Healing Concrete
 - BIM for Bridge and Structures
 - Development of Protocols for Reuse Assessment of Existing Foundations in Bridge Rehabilitation and Replacement Projects
 - Pile Stability Analysis in Soft Soils
 - Legal and Permit Loads Evaluation for Indiana Bridges
 - Use of LRFR Methodology for Load Rating of INDOT Steel Bridges
 - Improved Live Load Lateral Distribution Factors for us in Load Rating of Older Continuous and T-Beam Reinforced Concrete Bridges
 - Shear and Bearing Capacity of Corroded Steel Beam Bridges and Effects on Load Rating
 - Civil Infrastructure Systems Open Knowledge Network (CIS-OKN)
 - Implementation Study: Continuous, Wireless Data Collection and Monitoring of the Sagamore Parkway Bridge

Parking Lot

- Long term deflections in prestressed beams
- Special provision for high strength concrete
- Mild reinforcement in prestressed beams (particularly 401 bars)
- Post Tensioning Specs
- Terminal Joint Details
- Alternate Structure Types
- Continuity of Prestress Concrete Beams (Heidenreich)(**TRB Research**)
- Hydro-demolition (Wagner)
- Fiber Wrap (Jessop)
- High Early Strength Concrete (Nelson)
- Expansion Joints Options (Wagner, White, Eichenauer) (**PP**)
- Load Rating Policy and Procedures (Hunter)
- Approach Slabs (Hailat,)
- Bridge Deck Overhang Design (Wagner, McCool, Hunter, Eichenauer)
- Pile Driving Recommendations
- SIP Forms (Hunter)
- Girder Stability (McCool, Arnold, Porter, Eichenauer, White)
- TS-1 Railing (White, McCool)
- Clear Deck Forms (Schickel)