

**ASCE – INDOT  
STRUCTURAL COMMITTEE  
MEETING NO. 99 AGENDA**

**March 21st, 2023  
9:00 am, MS Teams and INDOT I-70 Conference Room**

**1. Review and approve Meeting 98 minutes.**

Approved

**2. Bridge Design Conference – Feedback? (Wagner)**

Wagner – Wants more engagement with audience. Could consider panel format for a presentation.

**3. Semi-integral bent details (Wagner, McCool, White, Schickel, Borcherding, Merida)**

Wagner presented draft new semi-integral details for both prestress and steel beam superstructures. Detail based on Illinois standards. No keyways. Longitudinal restraint resistance accommodated by retained aggregate for end bent backfill. McCool suggested including keyways on one end bent if bridge is single span bridge.

Transverse movement control now to be handled by wingwalls / cheekwalls. Designers now to design wingwall reinforcement for this force. McCool mentioned this should only be required for seismic zone 2 or above. New top plate and beam attachment details.

Need to provide guidance for sizing of bolts between bearing assembly top plate and flange connection plate. Committee will provide guidance for assumed location(s) of future jacking relative to location of beams and recommendations for minimum step locations to provide enough room to insert jacks on each side of beams. Details should make sure that bottom ends of beams are encased for corrosion protection.

**4. LRFD vs LFD on Rehabilitation Projects (Hunter White, McCool, Eichenauer, Wenning, Arnold, Hart)**

Hunter replaced by White due to Hunter's reassignment within INDOT. McCool – Steel analysis is progressing. Issues showing up with plate girder analysis. Wenning – Prestress progressing. LRFD not working for beams originally designed with LFD. Starting to look at analysis of old beams with LRFD, but with HS 20 trucks. Arnold –

Deck guidance drafted. Need to consolidate with Item #16, Post-Installed Anchors.

Hailat – Substructure progressing and continuing to be investigated. McCool will set up new recurring meetings. Goal is to finish this task in 2023. Hart added to task group to help with Load Rating considerations.

#### **5. Sand Bag Cofferdams (Hunter, Wagner, Merida, Hailat, Porter)**

Wagner will assume leadership of this group. She will engage INDOT Environmental division. Need to consider post-construction stormwater requirements as well as getting uniformity in terminology between design and environmental.

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

Pohl – Discussions ongoing to change IDM language. Wagner – RC Slab drainage will be performed the same as for an 8" deck. Schickel recommended INDOT post a standard drawing for deck drains in an RC slab to go along with the existing ones for an 8" deck. INDOT will post a retrofit detail as well. Wenning requested we provide details to slope overlays longitudinally in the gutter line to get flat bridges to drain. Could also sump top of drains down 1 inch and then cast down to it. Task group will meet again to address positive drainage for rehab cases.

#### **7. Staged Deck Pours for Steel Bridges (McCool, White, Merida, Borcherding, Reilman, Shaw)**

McCool – Tool for prestressed beams now released to design community. Steel will be more complicated. Development in progress.

#### **8. NEXT Beams (McCool, Hunter, White, Wenning, Arnold, Wagner)**

McCool – Presented on topic at several conferences this year. Now getting feedback from Prestress Services regarding three current INDOT projects with NEXT Beams. Task group now needs to work on IDM language, figures, specifications, etc. May start with a Bridge Design Aid.

**9. Steel / ABC (Arnold, Hailat, McCool, White, Eichenauer, Cowan)**

Task group will meet up after shop drawings reviewed and approved for US 33 over Blue River project. Arnold will send invitation for recurring meetings.

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

White stated that IDM guidance will change, particularly related to allowable load and expansion limits due to shear modulus. Tables in IDM will be maintained, though they do not cover every situation such as the situation where bearing is under an expansion joint and compressive deflection should be checked. Guidance language for these situations will be added. Distance from edge of shims to edge of pad will be updated.

Item can be removed from future meetings.

**11. ABC Worksheet (Schickel, Hunter, McCool, Arnold, White, Cowan)**

Wagner wants to review all INDOT's ABC projects to-date to compile lessons learned. Task group to pick back up in 2023.

**12. Standard Beam Detail Sheets (Lesh, Wenning, Hart, Wagner, Cowan, Spaans)**

Wagner stated not much progress has been made since last meeting. Spaans added to group.

**13. Sample Plans Steel Bridges (Wagner, McCool, Lesh, Schickel, Cowan)**

McCool stated detailing work ongoing for this project. Wagner agreed. Plans to be updated for new details, such as terminal joints. McCool to set up new recurring meeting.

**14. Bearing Retrofits / Rehabilitation (Swiderski, Schickel, McCool, White)**

White – working on details where old rocker bearings can be retrofitted. Task group to start meeting again in next couple months.

**15. Open Pile Bent Rehabs (McCool, Eichenauer, White, Schickel, Arnold, Merida)**

McCool – group to start meeting in April. Need to pull together successful details from multiple firms.

## **16. Post-Installed Anchors (Arnold, McCool, Wagner, White, Porter)**

Arnold stated that Purdue research ongoing. McCool would like to discuss retrofit / replacement of aluminum bridge railing with crash-tested concrete bridge rail. Group will meet in May.

## **17. Reinforcing Cover on Slab Bridges (Schickel, Shergalis, Porter)**

Schickel mentioned that some contractors would prefer to have more than 1" of cover in the bottom of RC slab bridges. Schickel will set up meeting in end of April.

## **18. New Business**

- a. McCool – Deck panels (steel panels, fiberglass panels, etc.). McCool, White, Arnold, Borcherding, Schickel to meet to share details.
- b. McCool – IDM Steel Design chapter update. McCool, Schickel, Hailat, Wagner to meet.
- c. Spaans – Asked about checking of lifting stresses for prestressed beams. White stated that designers should be checking beams for lifting stresses that fall within standard specs. However, McCool stated that current standard specs do not provide specific language for limits. Topic to be investigated further.
- d. Schickel – One district requested that a terminal joint be modified to replace the precompressed foam joint with an SS joint. Wagner requested more details. Wagner and White requested that “Bridge Joint Retrofits” be a new committee item. White (lead), Hailat, Schickel, and Porter will form new task group.
- e. Next meeting scheduled for June 13, 2023 at 9:00 am (est).

### Recurring Business

- Bridge Design Aids Update (Wagner)
- Standards Committee Updates
- Overlay Types (Hunter, White)
- Link Slab Design and Details (Wagner, Wenning, Schickel)
- Research Needs and Innovative Ideas Update (Wagner)
- Concrete mix designs (White, Nelson, Wenning, McCool, Merida)

## Bridge Design Conference Topics

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### 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 use 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)
- Epoxy Anchors (Arnold, Hailat, White, Shaw)
- RC Slab Edge Beam Replacement Details (McCool, White, Shergalis)
- Pile Design for 3-sided structures – Update on potential research project? (White, Schickel, Borcherding, Hunter, Merida)
- STM for End Bents (Arnold, Hailat, Hunter, Schickel, White)
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