

Working Drawing Procedures **Including Shop Drawing and Falsework Review Procedures**

Version 12/1/2022, Recent changes highlighted

To make the review process more efficient, the Department encourages the Contractor to submit electronic copies of shop drawings and design calculations for approval in lieu of printed copies. Every submittal must include the contract number, Contractor's name, and contact person with contact information. All drawings and calculations should be submitted in the units used for the contract. Regardless of the submittal process described below, Contractors shall communicate directly with the Project Engineer/Construction Project Manager/Project Supervisor (PEMS) to keep them informed of the status of submittals.

A. LPA Contracts

For LPA contracts, review of all shop drawings and other items listed in Part C are the responsibility of the LPA or their designated representative. Contractors on LPA projects are to submit shop drawings and falsework plans as directed by the LPA. Questions about LPA procedures should be directed to the District Local Projects Administrator.

Structural Members and Components

Shop drawings for structural members and components are to be submitted to the LPA or their designated representative for review and approval. Since the Department is responsible for fabrication inspection of structural members, upon completion of the shop drawing review, the LPA or their representative should forward an electronic copy of the approved shop drawings to the Department's Office of Bridge Design, at BridgeDesignOffice@indot.IN.gov.

Approval of Pile Driving Equipment

The Contractor shall submit to the LPA or designated representative, a completed pile and driving equipment data form at least 15 calendar days prior to driving piles. The Engineer of Record (EOR) shall review for acceptance the pile and driving equipment data form. The pile and driving equipment data form is available on the Department's website. The Contractor will be notified by the LPA or designated representative, of the acceptance of the proposed pile driving system within 15 calendar days of the receipt of the pile and driving equipment data form. Acceptance of pile and driving equipment does not relieve the Contractor of the responsibility to provide equipment suitable for driving the specified piling to the required bearing without damage. The LPA or designated representative shall notify the Department's Geotechnical Services Division at geotech@indot.in.gov and the Engineer of the acceptance of the proposed pile driving system.

B. Design-Build Contracts

Responsibilities and procedures for shop drawing review and approval is typically described in the design-build contract documents. If not otherwise described in the contract, then the procedures or portions thereof for State Contracts are to be followed.

Structural Members and Components

Once the shop drawings for structural members and components are approved by the responsible party as called out in the contract documents, they are to be submitted by the Contractor directly to Burgess & Niple, Inc. at shopplanreview@burgessniple.com for contract document management and to be achieved to ERMS.

Depending on the design-build contract documents, either the Department or Contractor will be responsible for fabrication inspection of structural members and components. If inspection is the responsibility of the Department, then the Contractor shall email StructuralMemberQAInspection@indot.in.gov prior to shop drawing approval. This will ensure inspection services are coordinated and available, as fabrication cannot begin without them.

C. State Contracts

The following procedures have been implemented for submittal and review of shop drawings, falsework drawings and related items as described below. If the District has any concerns about the structural integrity of any shop drawings submitted with a Professional Engineer stamp, they should contact their Division of Construction Management and District Support Field Engineer for further assistance.

1. Structural Members & Components

Shop drawings for the following items are to be submitted by the fabricator or supplier directly to Burgess & Niple, Inc. for review and approval. Shop drawings must be in accordance with the applicable specifications. These items do not require a Professional Engineer stamp for submittal. Any RFI correspondence between the fabricator/supplier and EOR that occurred post bid must be submitted with the shop drawings.

- Structural steel & structural concrete members
- Modular expansion joints
- S-S joints
- Elastomeric bearings.

Shop Drawings must include the following criteria:

- Contract Number with Prefix
- DES/Project Number and Lead DES Number
- Bridge File Number
- County
- State
- Location Description

Shop drawings are to be sent to Burgess & Niple at shopplanreview@burgessniple.com. Their office phone number is 317-237-2760. Burgess & Niple will send approved shop drawings to the Department's Division of Bridges at BridgeDesignOffice@indot.IN.gov for distribution to the District Construction office.

2. Mechanically Stabilized Earth (MSE) Retaining Walls

MSE Wall shop drawings and design calculations must be stamped by a Professional Engineer and submitted by the Contractor electronically to the Department's Geotechnical Services Division at MSEWallShopDrawings@indot.in.gov and the EOR for review and approval. The contract number shall be part of the subject line.

The EOR, as part of review, should complete the MSE Wall Shop Drawing Review Checklist. An editable copy of the MSE Wall Shop Drawing Review Checklist is available from the Department's [Editable Documents webpage](#), under Geotechnical. The MSE Wall Shop Drawing Review Checklist is optional for submittals made prior to 5/1/2021.

The EOR will attach a cover letter and send a copy of approved shop drawings to the Contractor/submitter and to the District Construction office for further distribution.

3. Sound Barrier Systems

Shop drawings and calculations for sound barrier systems are to be submitted by the Contractor or fabricator directly to the EOR for review and approval. The plans and calculations must be stamped by a Professional Engineer. The designer will attach a cover letter and send a copy of approved plans and calculations to the submitter and to the District Construction office for further distribution.

4. Precast Concrete 3-Sided Structures and Box Culverts (Effective with January 2016 lettings)

Shop drawings and design calculations are to be submitted for all precast concrete 3-sided structures and for precast concrete box culverts that have a dimension or design earth cover not listed in Table 1 of ASTM C 1577. Shop drawings and design calculations must be stamped by a Professional Engineer. Shop drawings for 3-sided structures must include details to provide sufficient horizontal restraint (prior to backfill being placed) unless the design demonstrates such restraint is not required. Load rating calculations must be included for structures whose span measured along the centerline exceeds 20 ft, except where the height of cover is greater than 8 ft and exceeds the perpendicular span length.

Plans and calculations should be submitted by the Contractor to the PEMS. The PEMS should send the shop drawings directly to the EOR for review and approval. The EOR should return the reviewed shop drawings to the PEMS.

For structures that require load rating, the Contractor should copy the EOR on the submittal to the PEMS, and the EOR should submit a New Design request in the Load Rating Request Application (LRRR) via ITAP. The EOR should upload the shop drawings, load rating calculations, and load rating summary (RPD 700-B-310d) with the New Design LRRR request. An automated email notification will be sent from LRRR to the EOR when the load rating review is complete. If the EOR's review requires revisions to the shop drawings that affect the load rating, a resubmittal in LRRR is required.

5. Welded Wire Reinforcement

Shop drawings must be stamped by a Professional Engineer. Shop drawings and design calculations are to be submitted to the PEMS for locations where the Contractor proposes to substitute welded wire reinforcement in lieu of the reinforcing bars shown on the plans.

The PEMS should send the drawings and calculations directly to the EOR for review and approval and copy the Office of Bridge Design Manager at BridgeDesignOffice@indot.IN.gov. The EOR will send approved shop drawings to the PEMS for distribution to the Contractor.

6. Traffic Items

Shop drawings for Signing, Signals, and Lighting will be reviewed and approved by the Department's Office of Traffic Design and Review. These items typically include all overhead sign structures, signal strain poles and cantilevers, high mast lighting, luminaries, and light poles. Plans and calculations should be submitted by the Contractor to the PEMS and forwarded to the Office of Traffic Design Manager at: TrafficDesignReview@indot.IN.gov for review and approval.

The Office will distribute approved shop drawings to the PEMS for distribution to the Contractor.

7. Falsework and Temporary Bridge Drawings

Falsework drawings for the following items are to be submitted to the PEMS. Each drawing must include the contract number, Contractor's name and must be stamped by a Professional Engineer.

- Cofferdams
- Deck falsework – temporary
- Coping falsework
- Falsework for reinforced concrete slab superstructures
- Falsework for hammerhead pier caps
- Designs for temporary bridges for runarounds.

Temporary bridge design submittals must also include design calculations.

The PEMS will review drawings for compliance with the specifications and the specific job conditions only. Questions should be directed thru the Area Engineer and District Construction office.

8. Permanent Metal Deck Forms

Shop drawings submitted by the Contractor must be stamped by a Professional Engineer. Shop drawings for permanent metal deck forms are to be submitted by the Contractor to the PEMS for review for compliance with the specifications and the specific job conditions only. The Division of Construction Management and District Support maintains a deck form calculation spreadsheet that can assist in review of metal deck forms if concerns arise

9. Foundation Seals and Deck Pour Sequences

Requests for use of foundation seals not shown in the plans are to be submitted to the Department's Geotechnical Services Division at geotech@indot.in.gov for review and approval. The submittal must include the contract number, contractor's name and indicate the location and dimensions of the seal. The Office will distribute approved requests.

Planned deck pour sequences are to be submitted by the Contractor to the PEMS. The PEMS should send the deck pour sequence directly to the EOR for review and approval and copy the Office of Bridge Design at BridgeDesignOffice@indot.IN.gov.

The EOR will distribute approved requests.

10. Approval of Pile Driving Equipment

The Contractor shall submit to the Department's Geotechnical Services Division, a completed pile and driving equipment data form at least 15 calendar days prior to driving piles. A copy shall also be furnished to the Engineer. The pile and driving equipment data form is available on the Department's website. The Contractor will be notified of the acceptance of the proposed pile driving system within 15 calendar days of the receipt of the pile and driving equipment data form. Acceptance of pile and driving equipment does not relieve the Contractor of the responsibility to provide equipment suitable for driving the specified piling to the required bearing without damage.

11. Stream Crossings and Work Bridges

Proposals for stream crossings and work bridges for construction traffic are to be submitted to the District Construction office for review and approval. If the proposal varies from any of the contract's environmental permit conditions, the Contractor must obtain approval for the change from the appropriate agency.

12. Miscellaneous

Shop plan submittals for miscellaneous items not covered by the above (post tensioning plans, non-standard manholes, etc.) should be submitted thru the PEMS. The PEMS should work thru the District Construction office and the Division of Construction Management and District Support to determine the approval process for these items.