STRUCTURAL AND UTILITY SHOP DRAWING REVIEW PROCESS

The following requirements supplement the shop plan submittal procedures and review timeline in the SCDOT Supplemental Specification "Shop Plans and Working Drawings for Structures", dated 1/1/2023, for design-build projects.

Obtain Railroad approval, for any items requiring Railroad review, prior to submittal to SCDOT.

Following SCDOT shop plan approval, have the fabricator of the material component notify SCDOT Office of Materials and Research (OMR) a minimum of 14 calendar days prior to the start of fabrication. Do not begin fabrication or construction of any items prior to receiving SCDOT approval.

1. DEFINITIONS

Structural Shop Plans are shop plans and associated engineering calculations provided for fabricated items that will remain a permanent part of structures such as bridges, retaining walls, box culverts, non-standard drainage structures, and noise barrier walls. Structural shop plans are approved by a SCDOT Structural Design Engineer or designated consultant representative. Retaining walls, noise walls, and foundation designs are also reviewed and may be approved by a SCDOT Geotechnical Design Engineer or designated consultant representative.

Traffic Shop Plans are shop plans and associated engineering calculations provided for structures and foundations permanently supporting traffic control devices, such as overhead sign structures, extruded panel signs, I-beam posts, high mast light poles, signal poles/mast arms, and ITS structures. Traffic shop plans are not covered by this document and shall adhere to the technical provision attachment outlining the Traffic Shop Drawing Process.

Utility Shop Plans are shop plans and associated engineering calculations provided for permanent utility support structures and foundations, such as utility bridges and pump houses. Utility shop plans are typically provided for in-contract utility relocations and are approved by the SCDOT Construction Manager (CM) or designated consultant representative, following approval from the utility owner. SCDOT will transmit the shop plans to the utility owner for review and approval. See TP Section 140 for procedures pertaining to utility-owner review of engineering documents.

Working Drawings are design drawings and associated engineering calculations for temporary structures such as temporary shoring walls and falsework/form systems. Working Drawings are approved by the CM, or designated consultant representative. Working drawing submittals are not covered by this document and shall adhere to the submittal timeline specified in section 725.1.2 of the Standard Specifications.

2. PACKAGES

In order to expedite the review process, multiple shop plan submittals may be grouped together into the following options defining a "package". Items shall be grouped into packages by item type or applicable structure. Shop Plans submitted individually (not in a package defined in

the transmittal) will be considered its own package and subjected to the timeline and flowchart presented herein.

Acceptable Package options:

- One (1) item from Category A
- Up to two (2) items from Category B

CATEGORY A	CATEGORY B
• Structural Steel Girders[1, 4] • Prestressed Concrete Beams[1] • Post-tensioning systems[1] • MSE Walls[3] • Soil-Nail Walls[3] • Pile and Panel Walls[3] • Noise Walls[3] • Precast Culverts • Proprietary Retaining Wall Systems[3] • Utility Structures/Buildings[5] • Other non-standard items of innovation, typically resulting from an approved Alternative Technical Concept.	• Stay-In-Place Formwork[2] • Elastomeric Bearing Pads[2, 4] • Expansion Joint Systems[2] • Closed Drainage Systems[2] • Armor Plates[2, 4] • Anchor Bolts[2, 4] • Bearing/Sole Plates[2, 4] • Tie Rods[2, 4] • Steel Intermediate Diaphragms[2, 4] • Prestressed Concrete Piles[4]

For items not specifically listed, the Contractor shall request a category assignment from SCDOT or its designated consultant representative a minimum of 5 business days prior to submittal.

[1]Up to two (2) bridges combined may be considered one (1) item with unlimited number of span units from the same bridge. Structural Steel Girders and Prestressed Concrete Beams shall be considered separate items.

[2]Unlimited number bridges may be considered one (1) item.

[3]Up to four (4) individual wall locations (continuous runs) may be combined into one (1) set of retaining wall or noise wall shop plans. There is no limit to number of retaining wall types within a continuous run.

[4]Items that do not require a South Carolina Professional Engineer seal.

[5]Separate Utility shop plan submittals are required for each utility owner.

Examples:

Package 001 contains twenty (20) sets of Stay-In-Place Formwork shop plans, one from twenty different bridges.

Package 002 contains two (2) sets of Structural Steel Girder shop plans, one set each from two different bridges, and may contain multiple span units from the same bridge, one (1) set of Anchor Bolt shop plans, and one (1) set of Bearing Plate shop plans.

Package 003 contains one (1) set of MSE Wall shop drawings and calculations which includes two (2) separate wall locations (End Bent 1 wall and End Bent 2 wall); one (1) set of Soil-Nail Wall shop drawings and calculations (one wall location only); and one (1) set of Proprietary Retaining Wall System shop drawings and calculations (one wall location only).

3. TIMELINE & REVIEW TYPE:

The Design-Build engineer of record (Design-Build EOR) provides the primary shop plan review, prior to submittal to SCDOT.

SCDOT and its designated review consultants provide the owner, concurrence review.

Following the EOR review, the Contractor or Lead Designer must transmit the EOR-approved shop plan package via ProjectWise Deliverables Management (PWDM). The initial review period for each shop plan package shall be 15 business days following the date SCDOT receives a compliant submittal package. The Owner Verification (OV) team will notify the appropriate SCDOT offices and consultant reviewers via PWDM notification email of the shop plan package upload. Consultant reviewers will complete reviews in sufficient time to allow SCDOT, or designee, to stamp and return the shop plan package within the 15-day review period.

If the Contractor elects to submit an additional shop plan package prior to completion of a previously-submitted-package initial-review-period, an additional 5 business days will be added to its 15-day review allowance. Each subsequent overlapping package will continue to receive an additional 5 business days of review time.

Example:

Two new packages are submitted to SCDOT within the initial 15 days allotted for Package 001; therefore Package 002 is granted 20 days of review time and Package 003 is granted 25 days of review time.

If, following a compliant package submittal and the initial 15-day review period, SCDOT or designee returns a shop plan package to the Contractor for revisions and resubmittal, the review period for revised packages will be 5 business days following the day of successful transmittal of the revised package. Revised packages are not subject to the extra 5-days of time for overlapping submittals that is applied to the initial review period.

See the flowchart below for illustration of the shop plan review process.

4. FORMAT:

Shop plans must be electronically submitted for review in PDF format via PWDM. Fabricators may either physically or digitally sign and seal shop plans (except for Category B items identified above that do not require a South Carolina Professional Engineering seal and signature).

Digitally-signed shop plans must comply with SCDOT Preconstruction Design Memorandum PCDM-04 titled “Digital Signatures for Licensed Professionals”. If Digitally-signed shop

plans are prepared, the copy that is submitted for the review process shall be a flattened, combined PDF that contains all sheets, includes a signature and date with the P.E. seal, and is able to be digitally stamped by multiple reviewers. Following package approval, any subsequent shop plan revisions, and accompanying as-built plans, the Contractor shall submit the official, digitally-signed set of shop plans as individual sheets.

If physically-signed shop plans are prepared, the plans shall be scanned at a size and resolution that renders all text and detailing legible.

Shop plan sheet sizes shall be either 22”x36”, 22”x34”, or 11”x17” and shall be oriented “landscape” in the package PDF. Leave room on each sheet for two shop plan review stamps.

For calculations that accompany shop drawings, the cover-sheet only shall be signed and sealed by a South Carolina Professional Engineer.

During the review process, each plan sheet that is signed and sealed by a South Carolina Professional Engineer shall receive a stamp by the Design-Build EOR to indicate whether the sheet is “approved” with or without comments marked in red. As an exception, if the entire shop plan set contains no comments in red, the EOR may stamp only the title/first sheet and indicate underneath the stamp that it “Applies to all sheets”.

The transmittal from the Contractor via PWDM shall list all shop plan package content.

Upon review completion, SCDOT or its designated consultant representative will stamp each sheet that is stamped by the Design-Build EOR. The stamp will indicate whether the shop plans are accepted “For-Fabrication” or “For-Fabrication-Comments-In-Red”. The SCDOT transmittal letter will include the date of approval and will be transmitted to the Contractor via PWDM.

Structures and Utility Shop Plan Submittal Flowchart

