



Overhead Sign Structures – General – Construction

Revision and Approval

Revision	Date	Nature of Changes	Approved By
1	04-30-2021	Updated hyperlinks	Michael Francis
0	12-20-2018	Original issue.	Steve Altman

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Background

This process also establishes Structure Construction (SC) roles and responsibilities for construction inspection of overhead sign and bridge mounted sign structures, including inspection for existing sign structures.

In addition, SC also assists Materials Engineering and Testing Services (METS) with quality assurance of overhead sign and bridge mounted sign structures, including quality control for non-destructive testing, walkway safety railing, and Department acceptance of structural materials. Quality assurance requirements are described in *Contract Specifications*, Section 56-2.01D, *Overhead Sign Structures – General – Quality Assurance*.

Prior to reviewing this Bridge Construction Memo (BCM), it is essential to review the *Contract Specifications*, Section 56-2.03, *Overhead Sign Structures – General – Construction*, that this BCM is based on as identified in the title block above. The information in the *Contract Specifications* typically will not be repeated in the text of this BCM.

Process Inputs

1. Fabricated and METS released overhead sign structure

2. Overhead sign support structure in place:
 - a. Overhead sign structure pile foundation in place per [BCM 49-3](#), *Cast-In-Place Concrete Piling*
 - b. Overhead sign structure spread or driven pile footing sign foundation in place
 - c. Bridge or other structure ready to receive bridge mounted sign structure
3. Form [CEM-3101](#), *Notice of Materials to be Used*
4. METS inspection and release documentation

Procedure

1. All work associated with this process is charged as [Project Direct – Construction](#).
2. Inspection of field work for this process is:
 - a. [Continuous](#) for erection and installation of overhead sign structures.
 - b. [Benchmark](#) for review of Quality Control Program.
3. Before construction begins:
 - a. Review and perform work in accordance with:
 - i. Authorized overhead sign structure submittals, per [BCM 56-2.01C](#), *Overhead Sign Structures, Standards, and Poles – Submittals*.
 - ii. [Attachment 1](#), *Sign Structure Installation Guide*.
 - iii. [Attachment 2](#), *Sign Structure Fastener Installation Guide*.
 - iv. *Overhead Sign Structures Guide*, found on the [Signs & Overhead Structures](#) portion of the SES website.
 1. Section 7, *Installation*.
 - v. *Construction Manual*, [Section 4-56](#), *Construction Details – Overhead Sign Structures, Standards, and Poles*.
 - b. Coordinate with District construction for:
 - i. Traffic work window for overhead sign structure installation.
 - ii. Traffic control.
 - iii. All work to be performed during overhead sign structure installation.
 - iv. Agency/utility impacts.
 - v. Coordination for Department-furnished sign materials.
 - vi. Covering sign panels if not for immediate use.

- c. Discuss the following protocol for overhead sign structure fabrication with the contractor during the preconstruction conference:
 - i. Verification that the fabricator is on the METS [Authorized Facility Audit List](#).
 - ii. Use of the [CEM-3101](#), *Notice of Materials to be Used*, and Form [TL-38](#), *Inspection Request*.
 - iii. Request the contractor to notify the Structure Representative of delivery to the fabrication site.
 - iv. Discussion of any potential issues identified during shop drawing review regarding the authorized shop drawings.
- d. Review the Contractor's Critical Path Method (CPM) schedule for the fabrication, delivery, and installation of the overhead sign structure.
- e. Request a copy of CEM-3101 from the Resident Engineer.
- f. Contact the METS Representative (METS Rep) regarding inspection of materials, fabrication, and welding non-destructive testing of overhead sign structure fabrication to:
 - i. Forward the authorized overhead sign shop drawings and welding quality control plan.
 - ii. Verify and obtain a copy of METS inspection forms [TL-28](#), *Notice of Materials to be Inspected at Jobsite*, or [TL-608](#), *Notice of Materials to be Furnished*.
- g. Contact the Structure Policy and Innovation (SP&I) Overhead Sign Structure Specialist for technical expertise to resolve irregular construction issues.
- h. Review the authorized quality control (QC) program submitted with the shop drawings. See [BCM 56-2.01 C](#), *Overhead Sign Structures, Standards, and Poles – Submittals*.
- i. Verify the overhead sign structure location has specified horizontal and vertical clearances.
- j. Prepare Form [TR-0020](#), *Notice of Change in Horizontal or Vertical Clearance*, and submit to the Construction/Maintenance Liaison (Permits) with horizontal and vertical clearances. Report the impaired clearance 15 days prior to erecting the overhead sign structure over traffic.
- k. Verify that the concrete elements supporting the overhead sign structure have attained the required time and compressive strength.
- l. Verify the height and elevation of anchor bolt assembly (when applicable).
- m. Verify the inspection and release of the overhead sign structure with the METS Rep.

- n. Upon delivery of the overhead sign structure:
 - i. Check for inspection release tags, Form TL-624, *Inspection Release Tag* and match with Form [TL-0029](#), *Report of Inspection of Material*.
 - ii. Check for Certificates of Compliance and Buy America Certification.
 - iii. Review the following tables in the *Construction Manual*, found within [Section 6-2](#), *Sampling and Testing – Acceptance of Manufactured or Fabricated Materials and Products*:
 - 1. [Table 6-2.1](#), *Inspection of Fabricated and Manufactured Materials*.
 - 2. [Table 6-2.2](#), *Materials Acceptance Based on Authorized Material List*.
 - 3. [Table 6-2.3](#), *Materials Accepted by Certificate of Compliance*.
 - iv. Check the overhead sign structure for damage incurred during the delivery:
 - 1. If any damage is discovered, request a repair plan from the contractor.
 - v. Check the walkway safety railing wobble per the requirements of the contract documents.
 - vi. Verify the overhead sign structure delivered is the correct one authorized for the specified location, has the correct spelling, and orientation with the roadway.
 - vii. Verify that all connection hardware complies with the contract requirements, have been authorized, and/or are listed on Authorized Material Lists ([AML](#)), etc.
 - viii. Contact the METS Rep if no Form TL-0029 was received or there are no inspection release tags.
 - ix. Check the overall condition of the overhead sign structure to verify compliance with the contract requirements.
 - x. Authorize installation of the overhead sign structure if it conforms to the requirements of the authorized shop drawings.
- o. Department-furnished material:
 - i. Review the contract for any requirements for Department-furnished material.
 - ii. Resident Engineers will coordinate for Department-furnished sign materials to be ordered and ready for timely delivery.
 - iii. Make a physical inspection and inventory to confirm that all Department-furnished sign materials are delivered in good condition.
 - iv. Verify correct spelling of messages on sign panels.

- v. After delivery, the contractor is responsible for any damage to Department-furnished materials.
4. During construction:
- a. Review the lane closure request to verify that the duration and closure limits are sufficient to support the operation and provide feedback to the Resident Engineer.
 - b. Conduct a pre-erection meeting with the contractor to discuss:
 - i. The Installation Quality Control Program
 - ii. Safety (work lights, COZEEP, contingency plan, etc.)
 - iii. Splices
 - iv. Inspection hold points (if necessary)
 - v. Fastener installation and timing of verification
 - vi. Verification of staging area (and closure limits) for equipment and installation
 - c. For field procedures for installation of new or relocated overhead sign structures and bridge mounted signs:
 - i. The Structure Representative (SR) disseminates the latest authorized QC program and shop drawings to all SC field staff:
 - 1. Verify that the contractor is using the same copy.
 - ii. Coordinate inspection with the METS Rep for any field welding. Review the Welding Quality Control Plan and check the Certified Welding Inspector requirements.
 - iii. Coordinate installation of conduits, boxes, and other electrical appurtenances with the District. For relocated structures, verify openings are sized to support new conduit installation.
 - iv. For overhead sign structures:
 - 1. Verify that installation of the overhead sign structure complies with the project requirements and conforms to the authorized Quality Control Plan.
 - 2. Deviations to the QC program require discussion with the SR prior to the change.
 - 3. Verify installation of the fasteners through Direct Tension Indicators or torque, are verified by an approved method. See [Attachment 2, Sign Structure Fastener Installation Verification Guide](#).

4. Verify that the tightening of anchor bolt nuts for poles is performed incrementally and in an alternating pattern to evenly apply force to the connection. Anchor bolts are tensioned to a snug tight condition unless otherwise specified.
 5. Verify rake (lean) of the posts, such that the truss, will be level relative to the traveled way.
 6. Verify that the measured clearances are greater than or equal to the clearance previously reported to Construction/Maintenance Liaison (Refer to Step 3j). Do not allow sign structure to be installed if the measured clearance is less than the previously reported. Discuss with the SR for corrective action. Report final values to the Construction/Maintenance Liaison.
 7. Verify that mortar is placed under base plate *per Contract Specifications, Section 56-3.01C(2)(a), Overhead Sign Structures, Standards, and Poles – General – Construction – Foundations – General.*
- v. For bridge mounted sign structures:
1. Verify that anchors have been or will be installed in accordance with the manufacturer's recommendations to the correct position and dimension.
 2. Verify that anchorages will not penetrate prestressing ducts in post-tensioned box girder bridges.
 3. Resin capsule anchorages (RCAs) are restricted to certain conditions:
 - a. Do not allow RCAs usage in positions where the anchorage is subject to direct, sustained tension.
 - b. Usage of RCAs is allowed when attachments are made in specific locations. Refer to [Attachment 2, Sign Structure Fastener Installation Guide](#) and the [Overhead Sign Structures Guide](#) for additional guidance on the use of RCAs and locations where RCA usage is allowed.
- vi. Upon completion of installation, verify that all temporary shipping, and lifting attachments are removed from the overhead sign structure. Have the contractor repair any damage to the overhead sign structure resulting from the removal of these attachments, including galvanization or painting systems per the *Contract Specifications, Section 75-1.02B, Miscellaneous Metal – General – Materials - Galvanizing.*
- vii. Measure the horizontal and vertical clearances, and report if less than those provided from previous notice per Attachment 2, *Guidance for*

*Completing Required Documents Submitted to SC HQ, of [BCM C-6](#),
Required Documents to be Submitted During Construction.*

1. Note that information on this topic is found within Section 6- *Permanent Vertical Clearance*, of the aforementioned Attachment
 2. Record as-built elevations (and vertical clearance) on sign detail plan sheets.
- d. For existing overhead sign structures:
- i. When removing or salvaging the overhead sign structure:
 1. Confirm removal depths of foundation with the Contractor.
 2. Request, review, and authorize the removal plan.
 3. Coordinate with the receiving site on the timing of a salvage operation (when applicable).
 - ii. When modifying the overhead sign structure:
 1. Review the condition of the structure.
 2. Verify that existing structures to be modified agree with the as-built drawings.
 3. Initiate a Change Order to replace any portion of the structure that cannot be reused.
5. Refer to [Attachment 1](#), *Sign Structure Installation Guide*, for complete instructions.
 6. Authorize installation of the overhead sign structure if it conforms to the requirements of the authorized shop drawings.
 7. Document all field revisions to the contract documents in as-builts. Provide a copy to the pertinent party.
 8. Document all inspection, construction, and quality assurance activities in the daily reports per [BCM C-7](#), *Daily and Weekly Reports*.

Process Outputs

1. Inspection release tags (Form TL-0624, *Inspection Release Tag*, matching Form TL-0029, *Report of Inspection of Material*)
2. Form TR-0020, *Notice of Change in Vertical or Horizontal Clearance*
3. Field welding QA forms (if field welding is performed)
4. Welding inspection reports
5. Buy America Certification from the manufacturer for Federal Aid projects

6. Certificates of compliance
7. Daily reports
8. As-builts
9. Installed overhead sign structure

Attachments

1. [Attachment 1](#), *Sign Structure Installation Guide*
2. [Attachment 2](#), *Sign Structure Fastener Installation Guide*