# Sign Structure Installation Guide

The following is information to assist SC staff with inspecting the installation of overhead sign structures.

1. The Structure Representative (SR) will disseminate the latest authorized plans and shop drawings to all SC field staff:
    a. The Assistant Structure Representative (ASR) will verify that the Contractor is using the correct authorized copy.
2. Review the *Contract Specifications* Sections 49, *Piling;* Section 55, *Steel Structures;* Section 56, *Overhead Sign Structures, Standards, and Poles*.
3. Review the *Overhead Sign Structures Guide*[1] (e.g., Section 7, *Installation*).
4. When applicable, review welding requirements in the *Contract Specifications*. Refer to the *Overhead Sign Structures Guide* Section 3, *Welding*.
5. Check the station, offset, and elevation of the overhead sign structure relative to the contract plans. Verify that the overhead sign structure has the necessary or specified vertical clearance, based on the base plate elevation.
6. Check the foundation and bolt template for proper orientation; typically, the long axis of the foundation is parallel to the traveled way.
7. Review contract *Information Handout* and log of test borings to anticipate the elevation of groundwater in relation to the foundation report.
8. For spread footing foundations, review the *Foundation Manual,* Chapter 4, *Footing Foundations.*
9. For CIDH pile foundation installation, review BCM 49-3, *Piling – Cast-In-Place Concrete Piling*. A CIDH pile may require a wet hole method if groundwater is encountered. Refer to the *Overhead Sign Structures Guide* Section 6*, Foundations and Anchorages.*
10. Consult with the electrical engineering units regarding all electrical components. Check the electrical (E) contract plan sheets for the lighting requirements of the overhead sign structure to allow for conduit installation in the sign foundation. Coordinate with Caltrans Electrical for any required construction support, and refer to BCM 87, *Electrical Systems*, for additional guidance.
11. Check the spacing, orientation, and elevation of the finished anchor bolts. Note any differences (or settlement):
    a. Prior to concrete placement, verify that the template holding the anchor bolts is correct (hole size, orientation, spacing, etc.)

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b. Always make sure the anchor bolt assembly is set to err on the conservative side to exceed (rather than reduce) the vertical clearance requirement.

12. For CIDH concrete pile foundations, verify that the concrete has been in place seven full days before erection of the overhead sign structure.
13. For bridge-mounted signs, verify that the concrete elements have attained a compressive strength of 2500 psi prior to installation of the sign.
14. Prior to drilling anchors into the side of a bridge girder, verify that the prestressing steel is not in conflict.
15. Anchor bridge mounted sign structures as detailed on the contract plans and shop drawings. Consult the Caltrans Authorized Materials List (AML) for proper application of anchorages.
16. Check the sign structure for damage in transit after delivery to the project site. Collect the Materials Engineering and Testing Services (METS) Inspection Release Tags.
17. Verify that all components of the overhead sign structures are manufactured according to the authorized shop drawings. Refer to the *Overhead Sign Structures Guide* Section 7, *Installation*.
18. For single post signs with cantilevered truss, verify post is shown on the correct side of the truss.
19. Review connection details in authorized shop drawings and applicable contract requirements. Refer to the *Overhead Sign Structures Guide* for detailed information. Also see Volume II of the *Bridge Construction Records and Procedures Manual* Section 55, *Steel Structures*.
20. Conduct a pre-erection safety meeting with the Contractor and ASRs prior to erection of the sign to discuss the requirements of the authorized quality control plan, including but not limited to the following:
    a. Sign handling is safe and appropriate, for example:
        i. Verification of staging area (and closure limits) for equipment and installation.
    b. Splices of sign truss are correctly assembled utilizing direct tension indicators.
    c. Discuss fastener tension verification to coordinate inspection times and access (for QA acceptance).
21. Verify the rake (lean) of the post for a post-type overhead sign structure, such that the truss will be level relative to the traveled way.
22. Verify that the Contractor adheres to the erection plan and discuss changes to the plan with the SR prior to the actual change.

23. Measure the vertical clearance of the completed overhead sign structure and complete the Clearance Diagram on Form TR-0020[1], *Notice of Change in Vertical or Horizontal Clearance,* per guidance in the *Construction Manual* Section 5-101E, *Contract Administration – Traffic Operations Forms*. Take measurements at the point of minimum vertical clearance. Re-measure the vertical clearance if the surfacing below is altered during the life of the contract.
24. If the measured vertical clearance is less than the minimum values shown on the contract plans, remove the truss and do not reinstall it until a corrective plan is authorized.
25. Document as-built changes on the as-built project plans.

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