Chapter 8: Temporary Bridges

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8-1 Introduction

This chapter addresses temporary bridge structures that are either designed by the Contractor or included in the contract documents. Temporary bridges play a crucial role in maintaining the continuous flow of the transportation system and ensuring the safety of the traveling public. These structures are designed and installed to provide a reliable crossing over roadways, waterways, or other obstacles when the permanent bridge is unavailable due to damage, maintenance, construction, or emergencies like accidents or natural disasters.

A typical section of a temporary bridge is illustrated in Figure 8-1, and a temporary modular steel truss bridge is pictured in Figure 8-2.

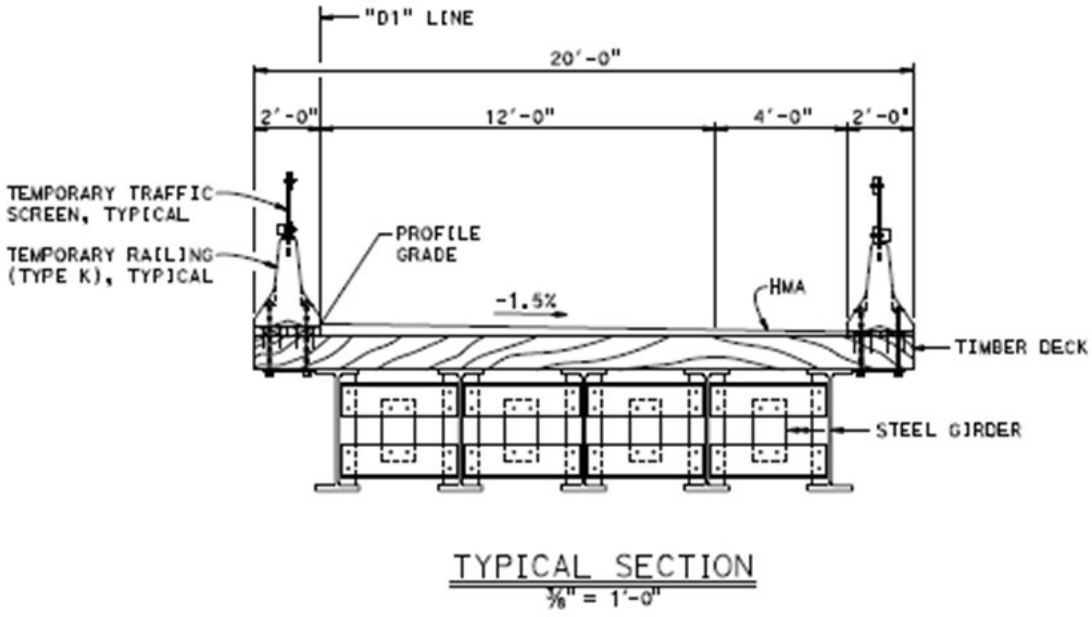

Figure 8-1. Typical Temporary Bridge Section

Figure 8-2. Temporary Modular Steel Truss Bridge – Capell Creek

8-2 Contractual Requirements

Temporary bridges are either specified in the contract documents or proposed by the Contractor. If specified in the contract documents, then the special provisions and project plans will have the requirements for the temporary bridge. Some contracts require a quality control (QC) meeting for the temporary bridge before submitting QC and erection plans. If a temporary bridge was not anticipated during the design phase and the Contractor proposes a temporary bridge for their means and methods, then a change order will need to be written with the requirements for the temporary bridge.

Temporary bridge shop drawings and design calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State. When required by the *Contract Specifications*, independently checked calculations must be prepared, sealed, and signed by an engineer registered as a civil or structural engineer in the State.

The design and construction of the temporary bridge superstructure and substructure components must comply with the requirements of current *AASHTO LRFD Bridge Design Specifications with California Amendments*.

It is the Contractor's responsibility to build, maintain, and remove the temporary bridge structure along with the approaches to the temporary bridge.

8-3 Loads

To follow are loads and considerations for the design of temporary structures:

Service Loads: *Memo to Designers* 15-14, Attachment 1, *Loads for Temporary Highway Structures*, includes loads for temporary highway structures.

Extreme Event Limit State: Seismic design of temporary bridges is required in accordance with *Memo to Designers* 20-2, *Site Seismicity for Temporary Bridges and Stage Construction*.

Temporary Prefabricated Modular Steel Panel Truss Bridges: The requirements for the design of temporary modular steel truss bridges are provided in the *Structure Technical Policy* 17.1, *Design Criteria for Temporary Prefabricated Modular Steel Panel Truss Bridges*.

8-4 Review and Authorization

When the temporary bridge is designed by the Contractor, the shop drawings and design calculations are to be submitted directly to Structure Construction Office Associates (sc.office.associates@dot.ca.gov) and then routed to Bridge Design for review and approval. Shop drawings and design calculations must be sealed and signed by a registered engineer in the State. Details and information that must be included in the shop drawings can be found in the contract documents.

Temporary modular steel bridges designed by the Contractor must be accompanied and supported by independently checked calculations. The independently checked calculations must be prepared, sealed, and signed by an engineer who is (1) not employed by the modular bridge manufacturer and (2) registered as a civil or structural engineer in the State.

The Structure Representative (SR) will review the temporary bridge submittal for completeness and will review portions of the design submittal, such as temporary shoring walls for abutments, that are not reviewed by Bridge Design. The SR will authorize the temporary bridge submittal after receiving approval from Bridge Design and other stakeholders.

8-5 Quality Control Plan

When required by the *Contract Specifications*, the Contractor must submit a quality control (QC) plan for the temporary bridge. The requirements for the QC plan can be found in the special provisions.

8-6 Erection and Removal Plan

Erecting and removing the temporary bridge must be in accordance with the authorized temporary bridge erection and removal plan. The erection and removal plan must be sealed and signed by a registered engineer in the State, and plan requirements can be found in the contract documents.

An erection and removal report must be prepared for each day any erection or removal activities are being performed for modular steel bridges. The report must describe and document all activities and findings. Check the *Contract Specifications* to determine which temporary bridges require this report.

8-7 Material Documentation

Materials used in constructing the temporary bridge must be submitted in accordance with the contract documents. Although not a comprehensive list, material information that must be submitted includes the following:

1. List of any used materials and where the materials will be incorporated in the temporary bridge, on Form CEM-3101, *Notice of Materials to be Used*.
2. Certificate of compliance for the members and fabrication of the modular steel bridge.

All modular steel bridge members, including pins and fasteners, must be listed on Form CEM-3101, *Notice of Materials to be Used*.

8-8 Maintenance

The Contractor is responsible for performing maintenance inspections as required by the contract documents and submitting the required inspection reports to the Department. Inspection frequency, reporting requirements, and corrective action can be found in the contract documents.