



BRIDGE CONSTRUCTION MEMO 9-1.0
SECTION 9-FINAL RECORDS AND
REPORTS

April, 15, 2004
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As-Built Plans

General

Under present policy, as outlined in Chapter 5 Section 5-104D of the *Construction Manual*, each District is responsible for preparation of “As-Built” road plans while “As-Built” structure plans are the responsibility of the Offices of Structure Construction (OSC).

Structure Representative’s Responsibility

At the start of the job, the Structure Representative should obtain an unmarked copy of all sheets with “Structures” signature blocks to be used for final record drawings. These drawings are to be marked with an “As-Built” stamp.

A copy of the contract drawings may generally be obtained from the Resident Engineer. If the Resident Engineer cannot furnish them, the structure representative should contact the Bridge Project Engineer or Oversight Engineer. The project Engineer has access to the electronically archived advertised set of structure drawings and if needed can authorize the printing of additional copies.

Past practice required as-built drawings to be completed on full-sized (22"x36") plan sheets. It is no longer necessary to provide as-built drawings on full-sized sheets. Full-sized plan sheets may be used; however, it is acceptable to use half-sized (11"x17") sheets. Regardless of the sheet size used, it is imperative that all red-lined changes are legible. Some changes may require additional sketches to be attached in order to clearly show the details of the change.

All changes in dimension, elevation, detail, etc. must be shown on these plans. The contract change order number shall be shown where applicable.

All corrections must be made in Red ink or Red pencil. This is necessary so that the corrections can be easily distinguished on the as-built drawings. Superseded data should be lined out. Do not eradicate original figures, nor make corrections over them. Extensive changes, which cannot be shown clearly on the as-built plan, should be made on a new tracing. These sheets should be stamped “As-Built” and include the following identifying information: District, County, Post Mile (Kilometer Post), Contract Number, Contract Change Order Number, Bridge Number and Name, Sheet Title (general description of change), name of person who designed change, name of person who checked design, date, and the signature and license number of the responsible registered engineer. Normally, if extensive changes are made, the Office of Structures Design will provide revised or supplemental plans.

Where revised or supplemental sheets have been furnished by the Office of Structure Design, make appropriate changes on the original plan sheets or insert the new tracing into the “As-Built” plans.

If no changes are made to a sheet, state, **“No As-Built Changes”**, in Red ink or Red pencil, to eliminate any confusion.

In addition to changes and corrections, the following supplemental information must be shown on “As-Built” plans.

1. Elevation and location of all permanent reference points. If possible, show this on the bridge general plan. (Refer to BCM 2-15.0 of the Bridge Construction Records and Procedures Manual for additional information relative to permanent reference elevations.)
2. For all bridges over a highway, street or railroad, show the minimum vertical clearance above the roadway surface or top of rail. (See the 3rd to last paragraph of this memo for additional information.)
3. For stream crossings, show major differences between the streambed elevations shown on the plans and existing at time of completion of construction.
4. For structures on pile foundations, show the type of pile and average tip elevation for each bent or footing. At locations where variations in penetration are extreme (greater than 10% of the average penetration) show the highest and lowest tip elevation as well as the average. Show this information on the Bridge General Plan.
5. For footings with tremie seals, show the horizontal dimensions of the tremie seal (on the GP plan view). Show the bottom elevation of the tremie seal if different than planned (on the GP elevation or typical section). At footings designated to have a tremie seal and where no tremie seals were placed, make a note that “No Tremie Seal Was Placed”. This information is important for future widening or any future retrofit scheme that would involve footing work.
6. Where a utility encroaches on a structure, it will be necessary to show the following information on the “As-Built” plans:
 - a. Description of the utility or utilities, i.e.; 24" Welded steel pipe or 2-4" ABS Conduits.
 - b. Name of Owner, i.e.; Pacific Gas and Electric or Pacific Bell.
 - c. Location or distance right or left of centerline.
 - d. Show number of Encroachment Permit. This can be found in the project records.
7. For structures with structural concrete, show the percentage of mineral admixture (i.e. fly ash, silica fume) in each element of the structure on the “Concrete Strength and Type Limits” detail shown on the contract plans. See Attachment No. 1 for an example of the information that needs to be shown.
8. For reinforced concrete structures, show the exact location and type of all reinforcing steel splices that are **not placed** in accordance with the contract plans and specifications. If mechanical couplers are used, note the manufacturer and model name. The splice location should be referenced to a known point on the plans.

The Structure Representative should complete the “As-Built” plans for structure work and return them to the Office of Structure Construction as soon as possible after all structure work is

finished on the project and no later than 30 days after completion of the structure. Each sheet of the “As-Built” structure plans must be dated and signed by the **Structure Representative**. The Structure Representative’s name should also be printed in cases where the signature is not legible. On contracts with more than one structure, all As-Built structure plans should be submitted together at the completion of structure work. As-Built plans submitted by consultant Structure Representatives should include the name of their firm on the “Corrections By” line of the stamp. Firm names may be printed by hand.

On contracts where pavement overlays are placed or sign structures are erected, the minimum vertical clearance might be changed on existing structures that may not be part of the contract bridgework. Even if these structures are not detailed on the plans, the Structure Representative shall report the new permanent clearances to the Resident Engineer. The notification procedures for changes in the clearance or permit rating of a structure are addressed in Section 3-705 “Public Safety” of the Caltrans *Construction Manual*.

(<http://projdel.dot.ca.gov/construction/newindex.htm>) and in Bridge Construction Memo 2-20.0 (http://dschq.dot.ca.gov/sc_manuals/construction_records_and_procedures_vol_I/2-20.0_BCM.pdf).

Building Contracts

On building contracts the contractor is responsible for maintaining, completing and submitting Record Drawings (As-Builts) to the engineer for approval prior to acceptance of the contract. It will be necessary to provide the contractor with a complete set of full sized contract plans for recording as-built changes. It is imperative that these record drawings be reviewed for accuracy and completeness periodically during the progress of the work and prior to recommending acceptance of the job. As a minimum, these record drawings shall document:

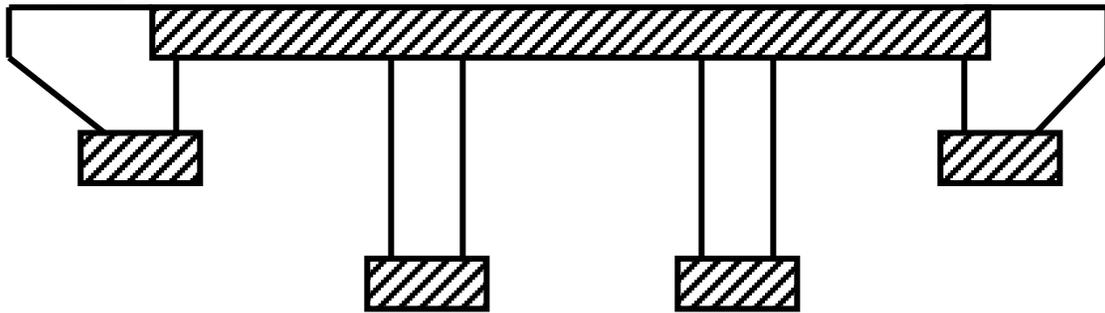
1. Any plan clarifications or change orders.
2. Locations of any underground utilities.
3. The location, size, type, and manufacturer of all major products or components selected by the Contractor for use in the work.

Prior to submitting the final building record drawings to the OSC, the Structure Representative shall stamp each sheet with the “As-Built” stamp, verify all redlines made by the contractor are correct, and sign and date every drawing.

Specially Funded Projects

Specially funded projects entail projects that are within the State right-of-way and are funded by others. Often, OSC personnel will have the responsibility to assure that the structure as-builts and other final records are accurately submitted. See BCM 2-19.0 (Administration of Special Funded Projects) for further information and instructions.

http://dschq.dot.ca.gov/sc_manuals/construction_records_and_procedures_vol_I/2-19.0_BCM.pdf



Concrete Strength and Type Limits



Structural Concrete, Bridge – **25% fly ash**



Structural Concrete, Bridge Footing – **25% fly ash**
(25 MPa at 28 days)



Structural Concrete, Bridge – **25% fly ash in stems and soffit; 10% silica fume in deck**
(31 MPa at 28 days)

Note: Only information shown in **bold face** and underlined next to the above concrete types needs to be provided by the Structure Representative on the as-built drawings.