Guidance for Completing As-Built Project Plans

Structure Construction (SC) is responsible for the preparation of as-built structure project plan sheets as specified in the *Construction Manual,* Section 5-104D(2), *Procedure on As-Built Plans for Bridges and Structures*. The current practice is to submit as-built project plans electronically to SC Headquarters (HQ). The as-built project plans can be prepared on a pdf document, or a paper-based copy may be used and converted to PDF prior to submitting to SC HQ. Past practice required as-built project plans to be completed on full-sized (22″ x 36″) project plan sheets. It is no longer necessary to provide as-built drawings on full-sized sheets. Full-sized project plan sheets may be used; however, it is acceptable to use half-sized (11″ x 17″) sheets. Procure a complete set of structure project plans that will be used as a working set to document as-built changes. The as-built project plans shall be in pdf format. 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 to clearly show the details of the change.

All changes in dimension, elevation, detail, etc. must be shown on the as-built project plans as follows:

1. Accurately document change order work affecting structure work on designated as-built structure plans. If new structure plan sheets have been provided for a change order, insert the new plan sheets into the as-built plan set in front of the plan sheet it is replacing. On the plan sheet being replaced, strike through the sheet and specify that the sheet is replaced by sheet xxxRx. The change order number shall be shown where applicable.
2. Accurately document as-built changes on designated working set of structure plans continuously as work is completed with red-colored markings. All corrections must be made in red. 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 Superseded data should be lined out.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 project plan, should be furnished by Structure Design as detailed in #4.
3. The as-built project plan sheets should be stamped “As-Built” with the as-built stamp. Each sheet will include the following identifying information: district, county, post mile, contract number, 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, Structure Design will provide revised or supplemental project plan sheets.

4. Where revised, supplemental, or additional project plan sheets have been furnished by Structure Design, use these project plan sheets to record as-built changes. See *Bridge Design Details,* Section 1-20, *Revisions to Contract Plans*. Revised project plan sheets will replace the original project plan sheet; however, while as-built project plans are in progress, the original project plan sheet is kept with the as-built project plans, and lined through with a note that states "superseded by project plan sheet R1"; if project plan sheet R1 is replaced by project plan sheet R2, project plan sheet R1 is kept with the as-built project plans, lined through with a note that states "superseded by sheet R2", etc. Supplemental and additional project plan sheets should be added to the master as-built project plan set.
5. For precast/prestress superstructures, document any adjustments to the superstructure depths at the supports.

If no changes are made to a project plan 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 the as-built project plans:

1. Elevation and location of all permanent reference points. If possible, show this on the bridge General Plan (GP) of the project plan sheets. (Refer to the *Bridge Construction Records and Procedures Manual*, BCM C-13, *Permanent Reference Elevations,* 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 last paragraph of this section for additional information.)
3. For stream crossings, show the approximate dimension from the bridge soffit to the deepest part of the channel.
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 GP of the project plans.
5. For footings with seal course, show the horizontal dimensions of the seal course (on the GP plan view). Show the bottom elevation of the seal course if different than planned (on the GP elevation or typical section). At footings designated to have a seal course and where no seal course is placed, make a note that "No

Seal Course Was Placed." This information is important for future widening or any future retrofit scheme that would involve footing work.

6. For footings that are poured neat, indicate and draw outline of neat pour. This information is important for work involving the existing footing.
7. Where a utility encroaches on a structure, it will be necessary to show the following information on the as-built project 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.
8. For structures with structural concrete, show the actual percentage of supplementary cementitious materials (SCM) (i.e., fly ash, silica fume) and actual average compressive strength in each element of the structure on the "Concrete Strength and Type Limits" detail shown on the project plans. See Figure 1, *Actual Fly Ash Content and Actual Average Concrete Compressive Strength on As-Built Project Plans,* for an example of the information that needs to be shown.

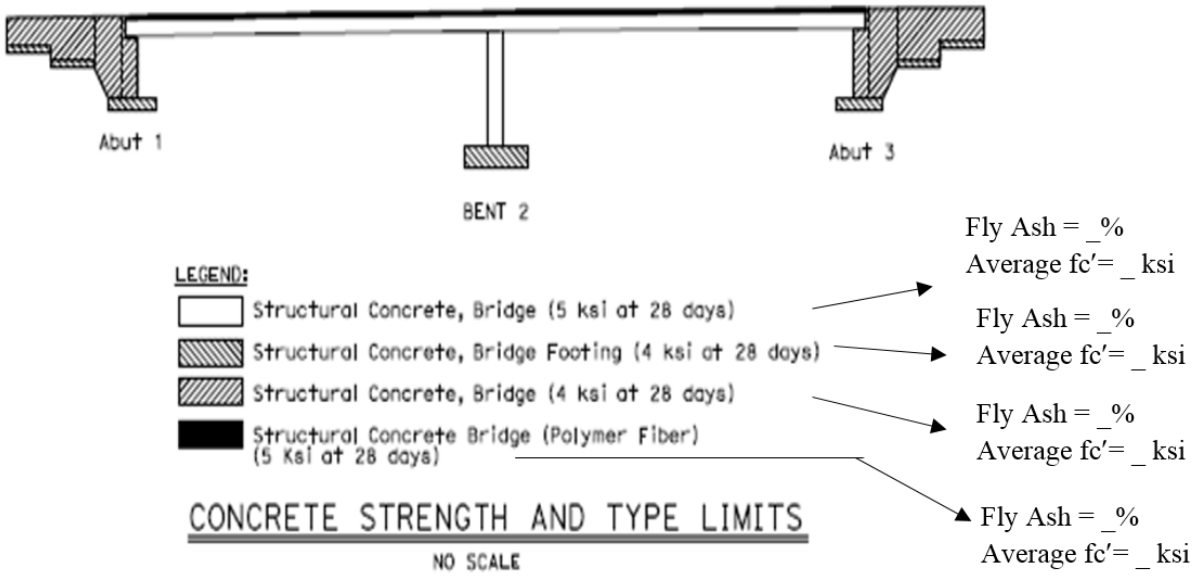

Figure 1. Actual Fly Ash Content and Actual Average Concrete Compressive Strength on As-Built Project Plans.

9. For reinforced concrete structures, show the exact location and type of all:
   a. Ultimate butt splices except for bar reinforcing hoops.

b. Reinforcing steel splices that are not placed in accordance with the project plans and *Contract Specifications*. Refer to Figure 2, *Example of As-Built Project Plan with Coupler Notes*.

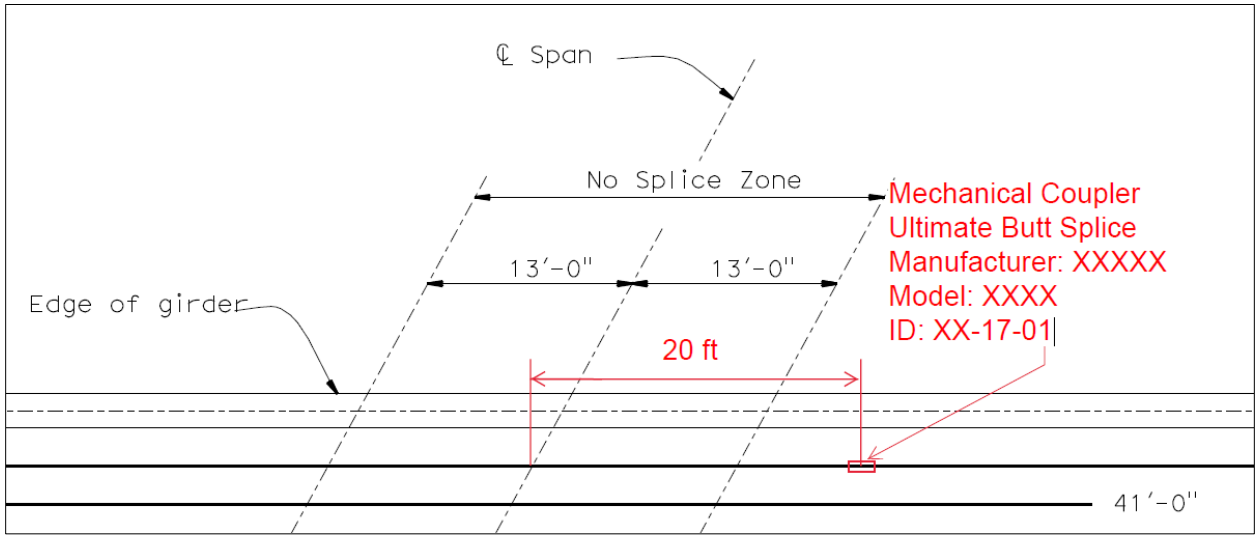

Figure 2. Example of As-Built Project Plan with Coupler Notes

The Structure Representative (SR) should complete the as-built project plans for structure work and return them to the SC Office Associate in SC Headquarters (HQ) in Sacramento as soon as possible after all structure work is finished on the project and no later than 30 days after completion of the structure. On contracts with more than one structure, all as-built structure project plans should be submitted together at the completion of structure work. Stamp completed as-built project plans with the as-built stamp and fill in all required information. A digital as-built stamp for use in Adobe Acrobat is available on the SC website. Each sheet of the as-built structure project plans must be dated and signed by the SR. The SR's name should also be printed in cases where the signature is not legible. As-built project plans submitted by consultant SRs should include the name of their firm on the "Corrections By" line of the stamp. Firm names may be printed by hand.

The preferred method of submission of as-built project plans to SC HQ is by email. Email as-built project plans to sc.office.associates@dot.ca.gov and cc the Office Associate assigned to your geographical area.

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 bridge work. Even if these structures are not detailed on the project plans, the SR must 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 the *Construction Manual,* Section 3-703, *Public Safety*, and in this BCM.