

Construction

Falsework used for this bridge was built in two stages. The first stage supported just the arch. Once the concrete for the arch was placed and cured, the first stage falsework was removed and a second tier of falsework was erected on top of the arch to support the superstructure formwork.

Summary

This was a challenging structure to build in many respects, but the result of overcoming the challenges is a new structure that fits well in the canyon it traverses, both aesthetically and with its improved capacities. 

David Clark is a structure representative and resident engineer for structure construction, Division of Engineering Services, California Department of Transportation (Caltrans) in Chico, Calif.

For additional photographs or information on this or other projects, visit www.aspirebridge.org and open Current Issue.



Pile Driving Analyzer®
Trust. Period.

The best system for Dynamic Load Testing of **any type of deep foundation.**

On site or remotely with **Site Link**

Conforms with ASTM D4945. May also be used for Rapid Load Tests and SPT hammer calibration.

With iCAP®: Fully automated capacity by Signal Matching during the test.



sales@pile.com
+1 216-831-6131 www.pile.com/pda

AESTHETICS COMMENTARY

by Frederick Gottemoeller



It is great to see that arches are making a comeback. Too often, structural type decisions are influenced by assumptions that what was economical somewhere else will also be economical here. In recent years, we have seen many concrete segmental box girders and even continuous bulb-tee bridges in this span range, even in locations like this one that seem ideally suited to an arch. The fact that this elegant bridge was also economical to build shows that each site needs to be looked at with a fresh eye. The conventional wisdom might be wrong.

If you ask a non-engineer to sketch a bridge it will almost always look like an arch. The form is in our collective memory. When an arch is placed in a steeply sided canyon, such as this one, the visual interaction of the arch and the canyon walls directly evokes the forces at work. Anyone can intuitively understand what's happening, even if they can't express it in words. That's what makes arch bridges so memorable.

The elegant simplicity of this bridge makes it more memorable than most. The Swiss do this kind of arch very well; this bridge reminds me of the best of their bridges. The simplicity begins with the decision to use a box girder for the deck. This keeps the spandrel spans the same as the side spans, establishing a constant span rhythm all of the way across the bridge and reducing the lines of spandrel columns to a mere three. The full-width box girder also conceals all of the diaphragms and webs that would otherwise make the upward view of the bridge complicated and distracting. The spandrel columns are also simple rectilinear shapes. Finally, the taper of the arch ribs adds a subtle grace note that makes the ribs look less massive than they are.

It is clear that Caltrans is proud of their work here. They have constructed an overlook where visitors can view and appreciate the bridge. It is well worth the money.