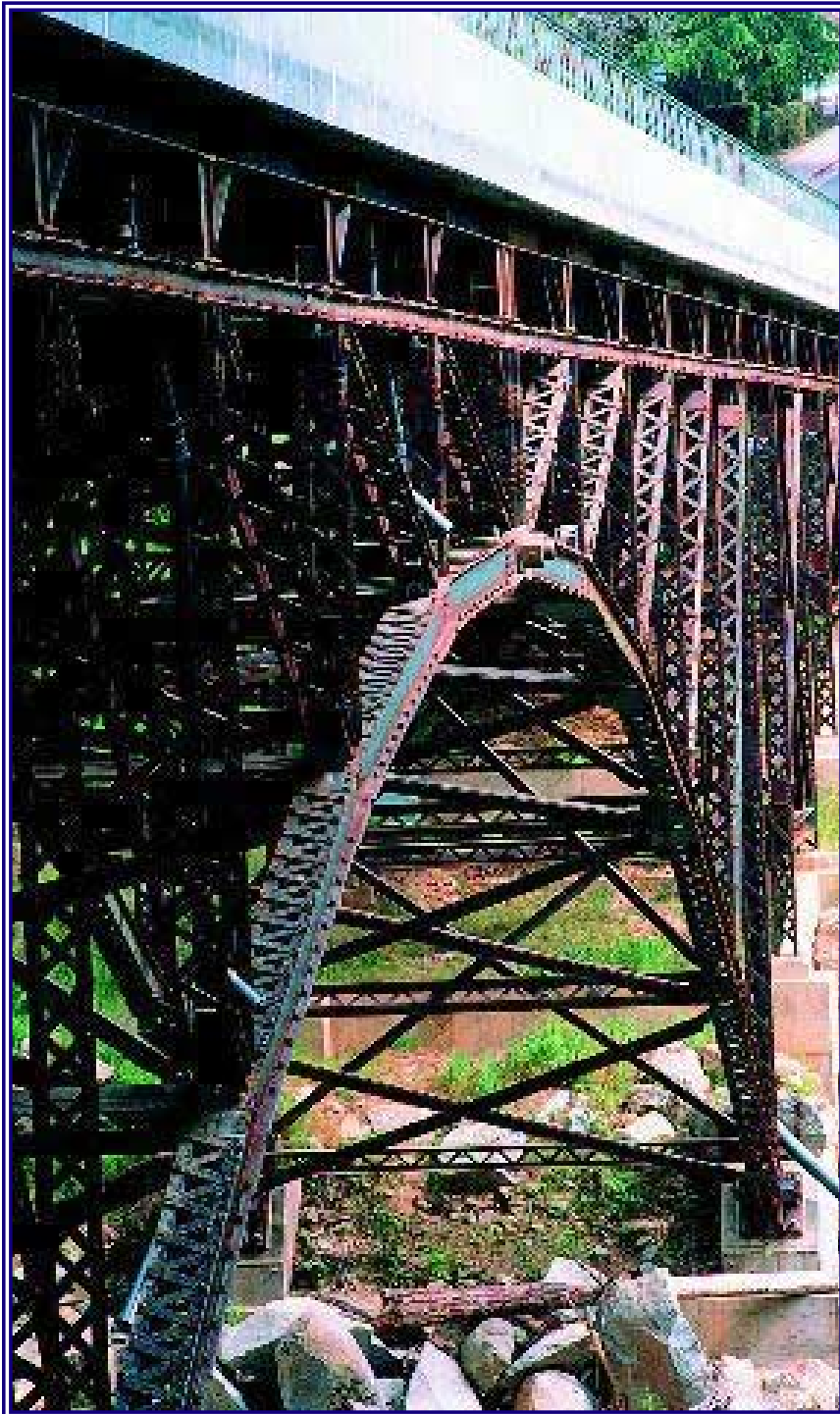


Prize Bridge Award: Award Historic

PINE STREET BRIDGE AT HALLIDIE CROSSING



In 1985, the Gault Bridge in Nevada City, California was deemed eligible for the National Register of Historical Places. Originally built in 1903, the bridge was named after long-time civic leader Alex Gault. The project involved demolition and removal of the existing bridge, which carries South Pine Street over Deer Creek. The bridge provides access from the city's downtown area to the Piety Hill residential area. It was decided that the replacement bridge should be of similar structure in design, resulting in no visual alteration of the historic character of the old structure, but with greatly enhanced load bearing characteristics.

The new Pine Street Bridge really should be referred to an "historical replication" of the Gault Bridge. The project was funded through a National Historic Preservation grant with additional funding from Caltrans and the City of Nevada City.

Pine Street Bridge is structurally classified as a "statically determinate, three hinge, under deck, laced arch truss" bridge. It has two 150'-0" spans with 75'-0" spans between hinges or pins along the bottom chord, is fracture critical and has a concrete deck supported by wide flange floorbeams, with a sub-standard roadway width of 22'-0". It provides 2-way traffic on 11'-0" wide lanes and is approximately 300'-0" long with a pedestrian walkway on one side. Because it was a "Historical Replication", aesthetics governed rather than cost considerations for the design. Pine Street Bridge at Hallidie Crossing

The original bridge was fab-

PINE STREET BRIDGE AT HAILLIDIE CROSSING

Owner:

City of Nevada City (CA)

Designer:

Foster Engineering, Orinda,
CA

General Contractor:

West Coast Bridge Inc.,
Benecia,
CA

Detailer:

McIntyre & Associates, Inc.,
San Ramon, CA

Fabricator:

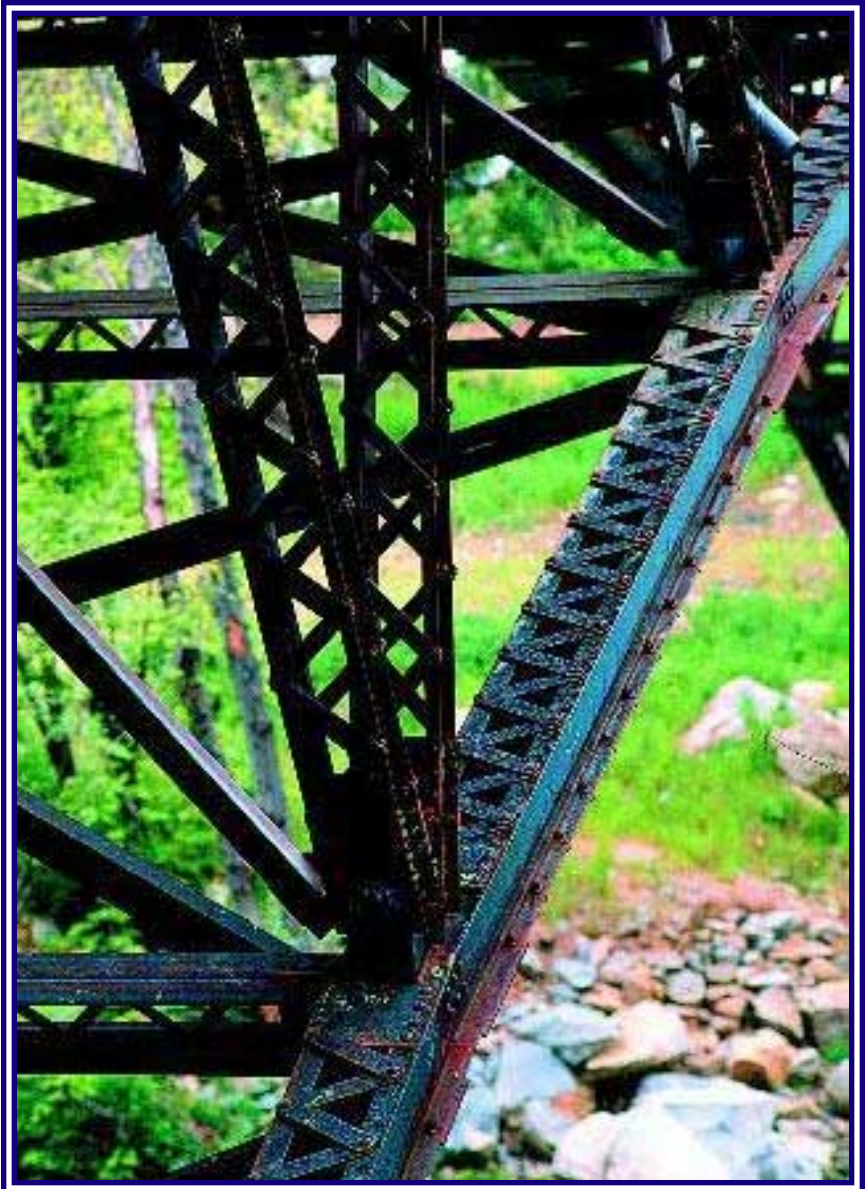
Roscoe Steel & Culvert Co.
(NSBA Member)

Erector:

West Coast Bridge Inc.,
Benecia, CA

ricated with mild carbon steel with riveted lattice truss members and was painted. Due to the extreme difficulty it would take to paint shop-assembled members on this kind of design and considering future maintenance, it was decided that A588 weathering steel would be used throughout on the new Pine Street Bridge. This proved to be aesthetically pleasing for the natural setting of the bridge.

Trusses are spaced back-back channels with offsetting lace (flat) bars either side. To replicate the look of riveted construction on the old bridge an A325 high strength Type 3 “dome-head” bolt was specially manufactured, installed by turn-of-the-nut method. Standard dome-head Tension Control or twist-off bolts were used in other connection areas but couldn't be used in the assembly of the channel truss members because the equipment or gun used to tension the bolts and snap off the





tine wouldn't fit between the channel legs. Beveled washers were used in the bolted truss assemblies to accommodate the slope on the inside of the channel leg. These were specially ordered and cut out of A588 material to meet the requirements for a Type 3-bolt assembly.

The pins used at the hinges to connect truss segments are specified as ASTM A688 Class F with heavy hex nuts per ASTM A194, grade 2. The pins are 6.5" in diameter x 33" overall length with 10.25" of thread both ends. A hole was drilled through the hex nut and pin for a cotter pin to be placed in once the installation was complete.*** ** **