

Brinnington Bridge

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This 120-metre span steel railway bridge built in 1988 weighs in at 2,700 tons. It crosses the M60 motorway (then the M66) at Stockport, South-East of Manchester, and is believed to be the longest single span Warren girder bridge in Europe.

The patent for this type of triangular bridge truss was taken out by James Warren and Willoughby Theobald Monzani in 1848. Interestingly this form of weight saving structure was also used in biplane aircraft wing struts and aircraft hangar roof beams both made of timber.

Tipton. It was then stripped down to be transported to the site.

In the meantime, and before the motorway cutting was excavated, the two bridge abutments were built into the ground under both the railway line and what was to be the bridge construction site adjacent to it. The prefabricated bridge was then brought to the site and constructed parallel to the railway line with a steel bridge deck built within it. Four months after fabrications started the largely completed bridge was on the temporary abutments ready to be positioned.



The bridge was to carry an existing double track railway line running into Manchester over junction 25 of the M60 at a 45-degree angle with a clear headroom of 10 metres. The project was complicated by the gradient of the line with a rise of 1.4 metres over the 120-metre span from a road bridge at its south-east end towards Manchester. There was also a requirement that the railway line should be closed for the minimum possible time.

So how do you put a substantial steel bridge across a 120-metre gap whilst at the same time not closing the railway line that it will eventually support? Firstly, it was fabricated and then underwent a trial erection off site at

To those not familiar with civil engineering the next move may be a big surprise. Possession was taken of the railway track which was completely removed from between the abutments.

The entire 11 metre wide bridge was then slid sideways until it was aligned with the railway track at each end. It is this phase that can be seen in the painting of the south east end of the bridge which shows one of the hydraulic jacks that was used. Just a reminder, the structure weighed 2,700 tons and involved precision engineering on a substantial scale. It should also be noted that such slides had not always been successful, fortunately this one was.

The railway tracks were then laid through the bridge and connected at each side with the line re-opened after just a weekend closure! Construction of the motorway then continued with the added challenge for excavator operators who had to cut away the earth under the bridge with its limited but increasing clearance as soil

45-degree rail over motorway crossing. The well thought out overall design adopts clean lines and has permitted speedy erection. Careful attention to the structural details has resulted in an easily inspected and maintained bridge. An excellent example of a modern major truss girder bridge."



Brinnington Bridge crossing the M60 motorway.

Picture courtesy of Google

was removed. The bridge which has an expected 120-year life span is fixed at the north-west abutment with an expansion joint at its south-east end.

The total cost of the project was £5.82m, with the bridge itself costing just over £4m. It was submitted to the, now defunct, Royal Fine Arts Commission whose Judges commented: "This is a bold solution to a difficult

Cuneo's painting, commissioned by Bill Summers (former Society member) for Fairclough Civil Engineering Limited, is now at the Institution of Civil Engineers in London.

It measures 74x100 cms and is part of a small collection that hangs in "Cuneo Corner" which some society members may recall having seen a few years ago.



Terence Cuneo working in his studio on Brinnington Bridge crossing the M60 motorway.