

# Rebuilding the Viaducts

There is no indication that Brunel considered his timber viaducts to be only a temporary measure. He understood how decay could severely limit the life of timber components and he experimented with different treatments (Kyanising and creosote) to minimise this. Some estimates have suggested a working life of 30 years for the timber structural elements but many components achieved 60 years of operation. Furthermore his designs permitted the main structural elements to be replaced without interrupting the traffic.

There are stories that when the viaducts were rebuilt in the Stroud area the timber structures were encased in brickwork rather than removed. This does not seem very likely on several accounts. For example, some of the contract drawings for rebuilding frequently show new masonry piers halfway between the existing timber piers. This would enable much of the rebuilding to take place before interrupting the traffic. Since the lines were all double track it should never have been necessary to halt all traffic as single line working could be employed on the side not being rebuilt at that time. Cutting and laying bricks to fit round the redundant timber structures would be extremely time consuming and in due course the timber would decay and have

zero strength. However, sometimes the masonry occupies the same footprint as the timber piers as shown here at Stratford viaduct behind the Tesco Supermarket at Stroud.

Rebuilding of the timber viaducts on the Stroud line began after 1859 but some continued to be repaired and were only finally replaced at a much later date. The arches at Capels viaduct actually provided some working space for Capels Mill as shown below.

Most of the Cornish viaducts were built on single track lines and it was often necessary to use a different approach to minimise disruption to traffic. Here the replacement viaduct was built in masonry immediately alongside the timber structure. When complete the line was diverted over the new structure. The old timber superstructure and timber piers could then be removed. However the masonry foundations and piers were often left in-situ where they remain today. In effect, they are a monument to Brunel's ingenuity in the use of timber as the main structural material in his railway viaducts.

The last of Brunel's timber viaducts was taken out of service on 21 July 1934 in Cornwall.



GREAT WESTERN RAILWAY.

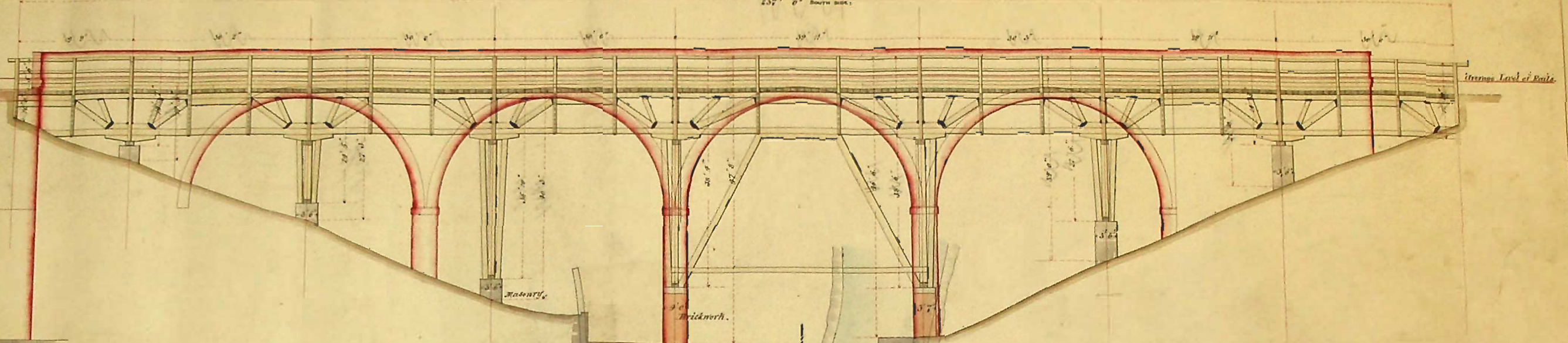
DRAWING Nº 2

# STRATFORD VIADUCT.

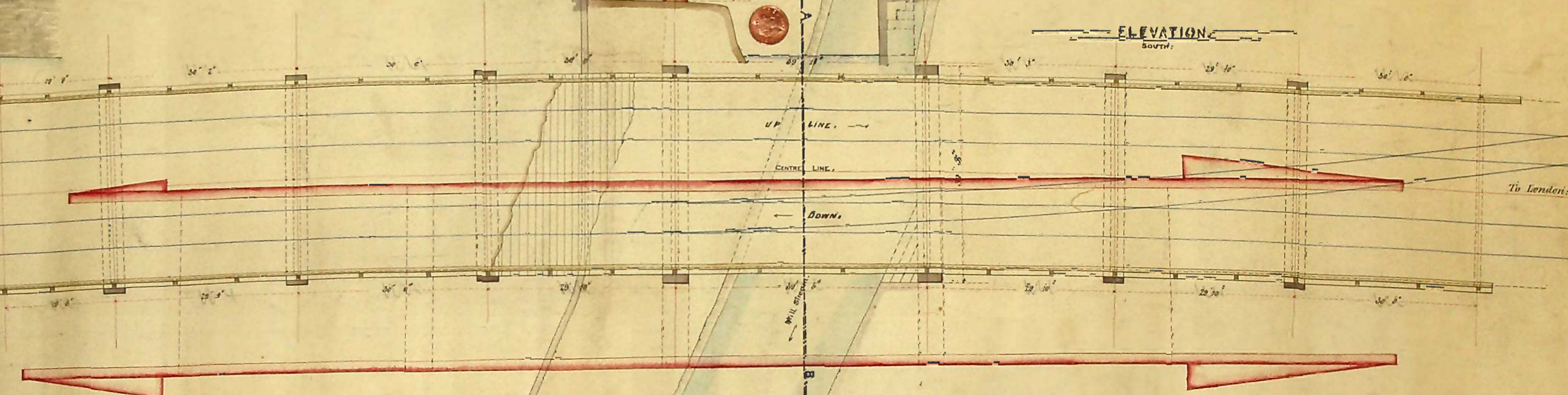
(102° 32' NEAR STROUD.)



240' 0" NORTH SIDE.  
257' 0" SOUTH SIDE.



ELEVATION  
South.



PLAN

Scale. 8. Feet to an Inch.



To London: via Stroud.

Samuel Roberts  
6<sup>th</sup> July 1849





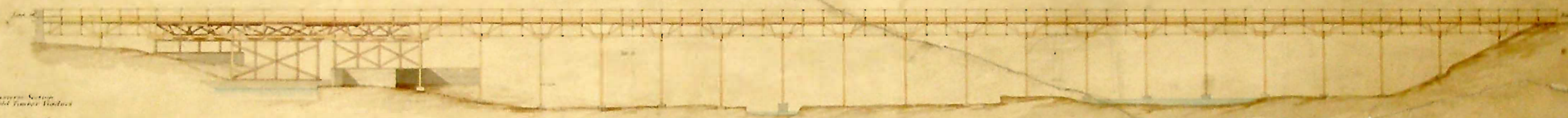


G.W.R. CHELTENHAM BRANCH

CAPELS VIADUCT.



Elevation of old Timber Structure



General Plan

The dotted lines show the Plan of the old Timber Structure

TO BE RETURNED TO CHIEF ENGINEER'S PLAN OFFICE G. W. R. PADDINGTON.

Mell Pond



Scale 20 Ft to an Inch

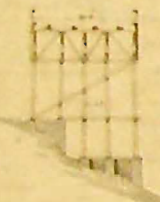
Transverse Section thro' apex of Arch



Transverse Section thro' height of timber structure



Transverse Section of the old Timber Viaduct



Transverse Section through Pier

