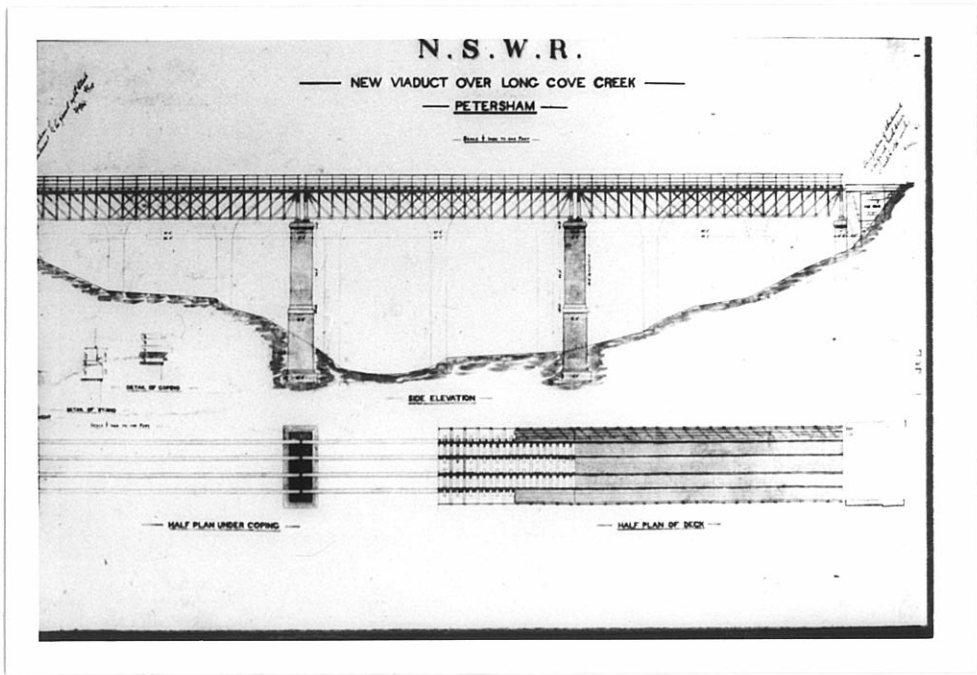


THE
LINVILLE - WHIPPLE
TRUSSES
 AT
LEWISHAM, SYDNEY



NOMINATION FOR AN
HISTORIC ENGINEERING
MARKER

ENGINEERING HERITAGE COMMITTEE
 STDNEY DIVISION, I E AUST
 FEBRUARY 1994

Commemorative Plaque Nomination Form

Date February 1994

To :
Commemorative Plaque Sub-Committee
c/- Local Division office of the Institution
and its Engineering Heritage Committee.

From . . . Engineering Heritage . . .
Committee, Sydney Division

. I E Aust
Nominating Body

The following work is nominated for a :-

- * ~~National Engineering Landmark~~
- * Historic Engineering Marker Award.
*(delete as appropriate)

Name of work 1886 Whipple trusses

Location, including address, and map grid reference if a fixed work

. Over Long Cove Creek, Lewisham, Sydney

. Map grid ref LH283481

Owner State Rail Authority, NSW
.

The owner has been advised of the nomination of the work and has indicated

(attach copy of letter if available) Mr. Goeff Wannan of City Rail has confirmed by
. . . . phone that they agree to the proposed plaquing.

Access to site The trusses are on open display to the public

Future care and maintenance of the work City Rail has agreed to keep the displayed
. trusses in a good state of repair

Name of sponsor

For a NEL, is an information plaque required ?


Chairperson of Nominating Committee


Chairperson of Division Heritage Committee/Panel

HISTORIC ENGINEERING MARKER

WHIPPLE TRUSSES, LEWISHAM

THIS PAIR OF TRUSSES FORMED PART OF THE 1886 RAILWAY VIADUCT OVER LONG COVE CREEK. DESIGNED BY MAX TAYLOR FOR THE EXISTING LINES BRANCH OF THE NSW GOVERNMENT RAILWAYS, THEY ARE PIN-JOINTED TRUSSES DEVELOPED IN AMERICA BY SQUIRE WHIPPLE. THEY CARRIED SUBURBAN RAIL SERVICES FOR 107 YEARS UNTIL REPLACED IN 1993 AND ARE THE ONLY DECK WHIPPLE TRUSSES IN AUSTRALIA.

DEDICATED BY
THE INSTITUTION OF ENGINEERS, AUSTRALIA
AND THE STATE RAIL AUTHORITY, NSW. 1994

THE RAILWAY DECISION - IN SUMMARY

The Lewisham Viaduct is of significance to State Rail and other interested parties because of its mixed ages, its different designs and its visual appeal. It is also an integral part of the railway corridor.

The Linville/Whipple truss bridge is one of three separate bridges - side by side - which span the Hawthorne Canal and is of heritage significance. It carries the "local" tracks - that is, the "all stations passenger" traffic between Strathfield and the CBD.

This particular bridge has undergone extensive and intensive examinations during the past three (3) years following visual checks that identified potential fatigue damage to some structural members. Magnetic particle testing and microscopic examination have confirmed extensive fatigue cracking.

As an engineering precaution, rail traffic must now been limited to 30 km per hour over the Linville/Whipple truss bridge. Heavy load traffic has been excluded from using the "local" lines.

A decision has now been made, based on five (5) technical reports, that the Linville/Whipple truss bridge needs to be replaced for structural reasons.

To continue with the Whipple truss bridge - even if it could be strengthened economically - would restrict the flexibility of the rail system because the original design from last century was for much lower impact and live loads than are required for today's traffic. Current loads as well as traffic density have greatly increased during the second half of this century.

The estimated cost of replacing the Whipple trusses with plate web girders is in the order of \$1.5 million whereas to refurbish and retain the trusses is likely to cost around \$5 million. However the additional expenditure could not guarantee more than a few years of remnant life. Therefore, for engineering reasons and service requirements, the replacement of the Linville/Whipple trusses are proceeding.

However investigations are underway as to the final destination(s) of these trusses. Dr. D.J. Fraser has been commissioned by State Rail to determine and negotiate possible sites where these trusses could be placed on permanent display for future generations.



Stuart Sharp, Heritage Manager



A.P. Boland, Director, Compliance and Review

INTRODUCTION

In October 1993, the 1886 Linville-Whipple truss viaduct over Long Cove Creek, Lewisham, Sydney was replaced. At the time of its construction, Lewisham railway station had not been built so reference at that time was made to the nearest railway station, Petersham. Also, the trusses are now generally referred to simply as Whipple trusses.

The attached photographs provide a visual summary of the replacement project and the following summary sheet explains why this unique structure had to be replaced. The supporting *Conservation Plan and Heritage Study* contains the detailed evidence and a complete documentation of this significant engineering work.

However, the replaced trusses have not been scrapped. Two of them have been placed on permanent display adjacent their original positions over the stormwater channel that is now Long Cove Creek, and the remaining four are stored on railway land at St Marys awaiting reuse.

The displayed trusses are hereby nominated for an Historic Engineering Marker as part of the 1994 celebrations of the 75th anniversary of the Institution of Engineers, Australia.



One of the three sets of Whipple trusses at Lewisham prior to replacement.



A Whipple trusses being lifted out of position, 2nd October, 1993



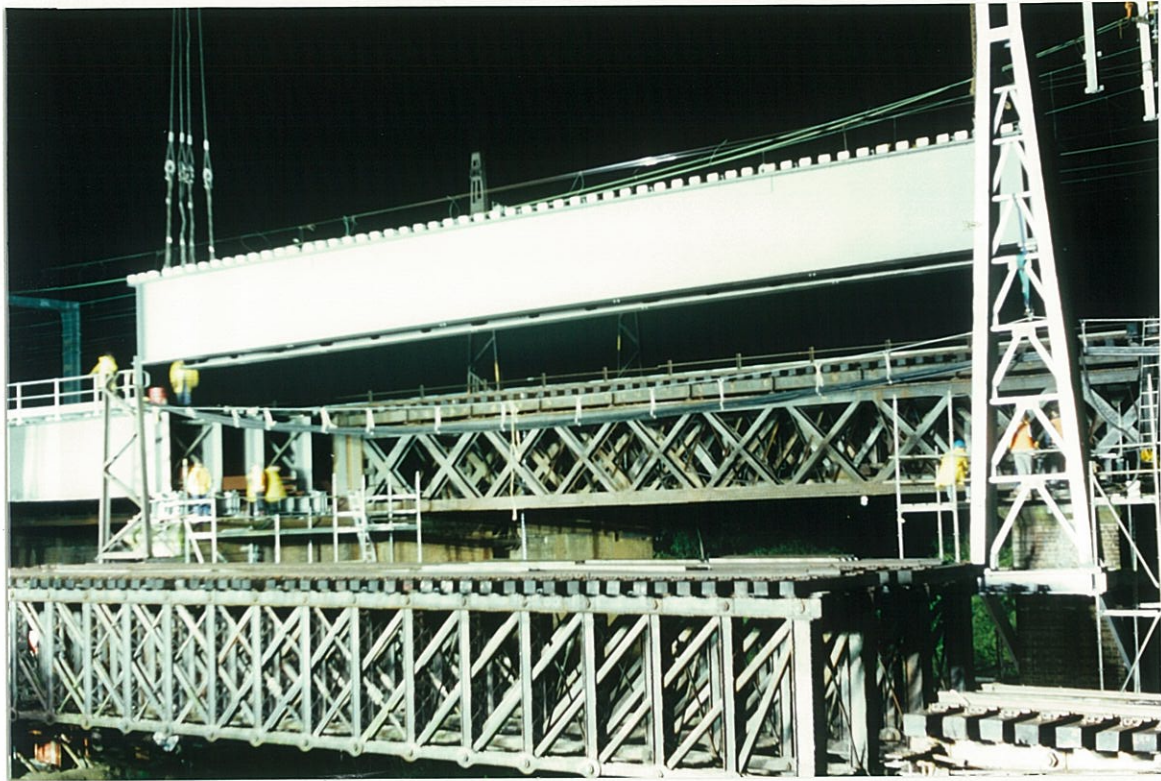
The first of the display trusses on its supports.



Both display trusses in position over Long Cove Creek.



The surplus Whipple trusses were taken to St Marys and stored for future use.



During placement of the new plate web girders in the early hours of 3rd October, 1993, three types of bridge were visible. In the foreground is a replaced 1886 American Whipple truss and in the middle is the 1892 British lattice truss, still in service.



The last plate web girder about to be positioned 11pm 3rd October, 1993.



The completed project, the new plate web girder viaduct and two Whipple trusses on permanent display. The last photograph suggests the HEM plaque could be attached to the 1886 brick pier or to an end post of one of the trusses.