

WAITEKAURI RIVER RAILWAY BRIDGE No 8, WAIKINO



Location: East of the Waikino Railway Station.

Heritage Status

HDC Heritage Category: **C** -Heritage Item. National or Outstanding Regional Significance. Rare feature.

Other: Feature on the Goldfields Railway Inc route between Waikino Station and Waihi Station

Physical Description: Double span Howe through wooden truss bridge with counter struts in the two central bays. The railway bridge is 154.5 feet (47metres) long and constructed on a concrete foundation. (See plans included with associated pictures).

Associated structures: Waihi railway line, Waihi Railway Station

Other known names:

Notable features: 24 metre long wooden trusses with counter struts in the two central bays.

Style: Howe Through Truss bridge

Materials: Iron bark timber, steel, concrete foundation

Date of Construction: 1904-05

District Plan

Schedule Number:

HAU447

Heritage Category: C

Heritage Type:

- Wahi Tapu
- Cultural Landscape
- Building
- Group of Buildings
- Structure
- Monument
- Historic Place
- Archaeological Site
- Other

Date Period:

1904-05

Significance:

- Archaeological
- Architectural
- Cultural
- Historic
- Scientific
- Technological

Thematic Context

- Maori
- Early Settlement
- Industry
- Extraction
- Forestry
- Agriculture
- Transport
- Communication
- Commerce
- Residential
- Social/Cultural
- Civic
- Health
- Educational
- Church/yard
- Other

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History: The No 8 Waitekauri River Railway Bridge was constructed in 1904-05, probably by the Public Works Department (PWD). The design used was a Howe Truss, patented by William Howe in 1840. The Howe Truss bridge design utilised both wood and wrought iron, because wood was difficult to use as a tension member. The metal verticals functioned as tension members and the wooden diagonals functioned as compression members. The Howe design was an improvement on the earlier all wooden designs, but was associated with a number of bridge structural failures. Eventually this design was replaced by all metal truss bridges.

The iron bark wooden trusses for the bridge were supplied by the Kauri Timber Company from Australia through JH Wallace contractors.¹ Completion of the railway bridge was part of the work required to link Waihi to the main North Island Trunk network. The link was completed in 1905 and for the next 23 years Waihi was the end of the line. In 1928 the link to the Bay of Plenty District was added by extending the Waihi railway line east to Taneatua. The extended line that passed through the Waihi station was known as the Frankton to Taneatua branch line until 1978.

“The closure, on 12 September 1978, of the Waihi section to commercial traffic was brought about by the need for a shorter and more viable route to carry the ever increasing export tonnage to the port of Tauranga. The Paeroa to Waihi section was never originally intended as a “through line”. Its narrow tunnel, steep gradients and tight curves were, as traffic increased, becoming more difficult to maintain. A nine kilometre-long tunnel cut through the main dividing range to the south of Waihi better served the needs of the port and the opening of the Kaimai Tunnel in 1978 concluded the working life of the Paeroa to Apata section. Soon after closure the track structure was dismantled with the exception of the 6 kilometres of track between Waikino and Waihi.”ⁱⁱ The Waikino to Waihi line and the rail engineering and architectural structures on the line are significant heritage markers of the transportation history of the district and region.

Architect:

Designer: William Howe (design patent 1840)

Builder: (probably) Public Works Department

Engineer: Public Works Department

History of changes: In 1991 the timber stringer span was replaced by steel by the Goldfields Steam Train Society.

In 2000 timber treatment by the Department of Conservation Forest Research Team. The report notes: “Some of the major components of a Howe truss bridge, built from durable Australian hardwoods, were treated with preservatives applied to the surface and inserted into holes bored into the components. The preservatives included two copper naphthenate formulations, two formulations based on 2-(thiocyanomethylthio) benzothiazole (TCMTB), two boron-based products and an oxine-copper formulation. The application methods, preservative characteristics and preservative costs are described. Adequate surface retentions were achieved

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with all chemicals although two coats were required for the oxine-copper and one of the copper naphthenate formulations. Although there appeared to be significant differences in retentions and costs the relative benefit of the products will only be determined by a long-term monitoring programme.”ⁱⁱⁱ

Condition: Very good

Integrity: Very good

Current Uses: Goldfields Railways Inc. railway line from Waikino to Waihi

Former Uses: Railway, Waihi link to the main North Island rail network

Registered owner: Goldfields Railways Inc.

Legal Description: Closed Railway Survey Office Plan 12046I

Reference Source:

Bowater, Rob 2011 Waitekauri River Railway Truss Bridge No. 8. Report provided to Hauraki District Council Planning Department.

Comp T Allan and Donald Jackson 1977 Bridge Truss Types. National Park Service Technical Leaflet. Washington D.C.

Page, Dave and Gavin Durbin 2000 In-service wood preservative test on the Howe truss railway bridge, Waikino. Science & Research Unit, Department of Conservation, Wellington.

Public Works Department n.d. (on copy) Paeroa Waihi Railway. PWD Map 20444

The Goldfields Express July-August 2010:3 www.waihirail.co.nz

Terry, JA 2011 The 1947 Proposal for our Waitekauri (No 8) Bridge. Goldfields Express January/February 2011 goldfieldsrailway@xtra.co.nz

Waitekauri Railway Bridge 2011 www.waihirail.co.nz/history

ⁱ Bowater, 2011:1

ⁱⁱ www.waihirail.co.nz/history

ⁱⁱⁱ Page and Durbin 2000:1

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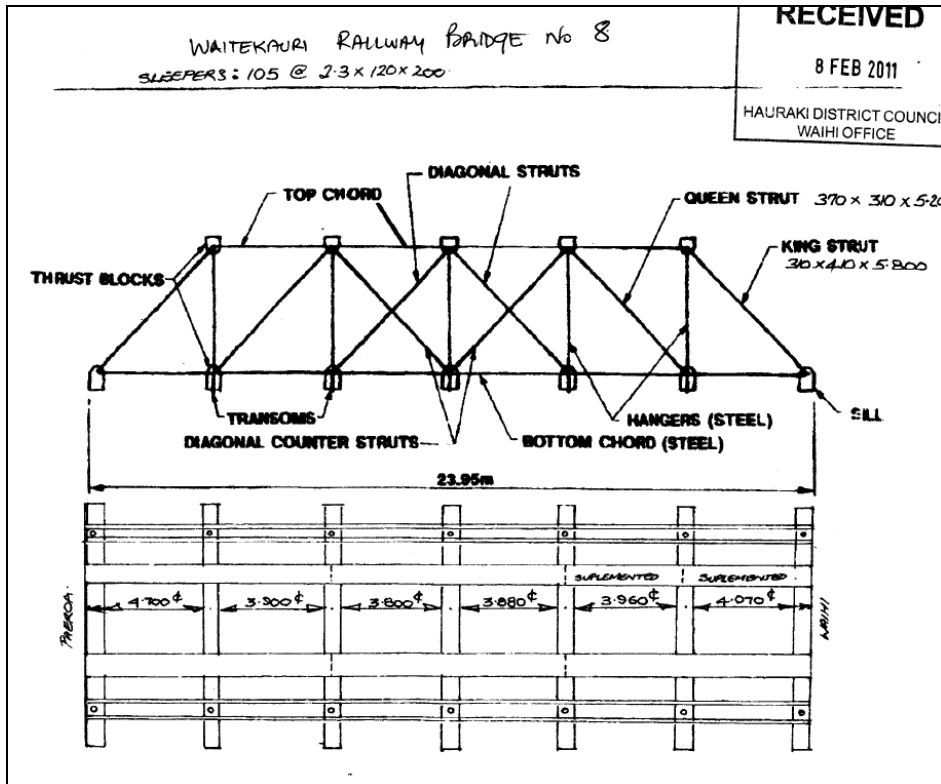
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Associated Pictures:



Plan of Waitekauri Railway Bridge No 8 (Bowater 2011)

Historic Heritage Inventory



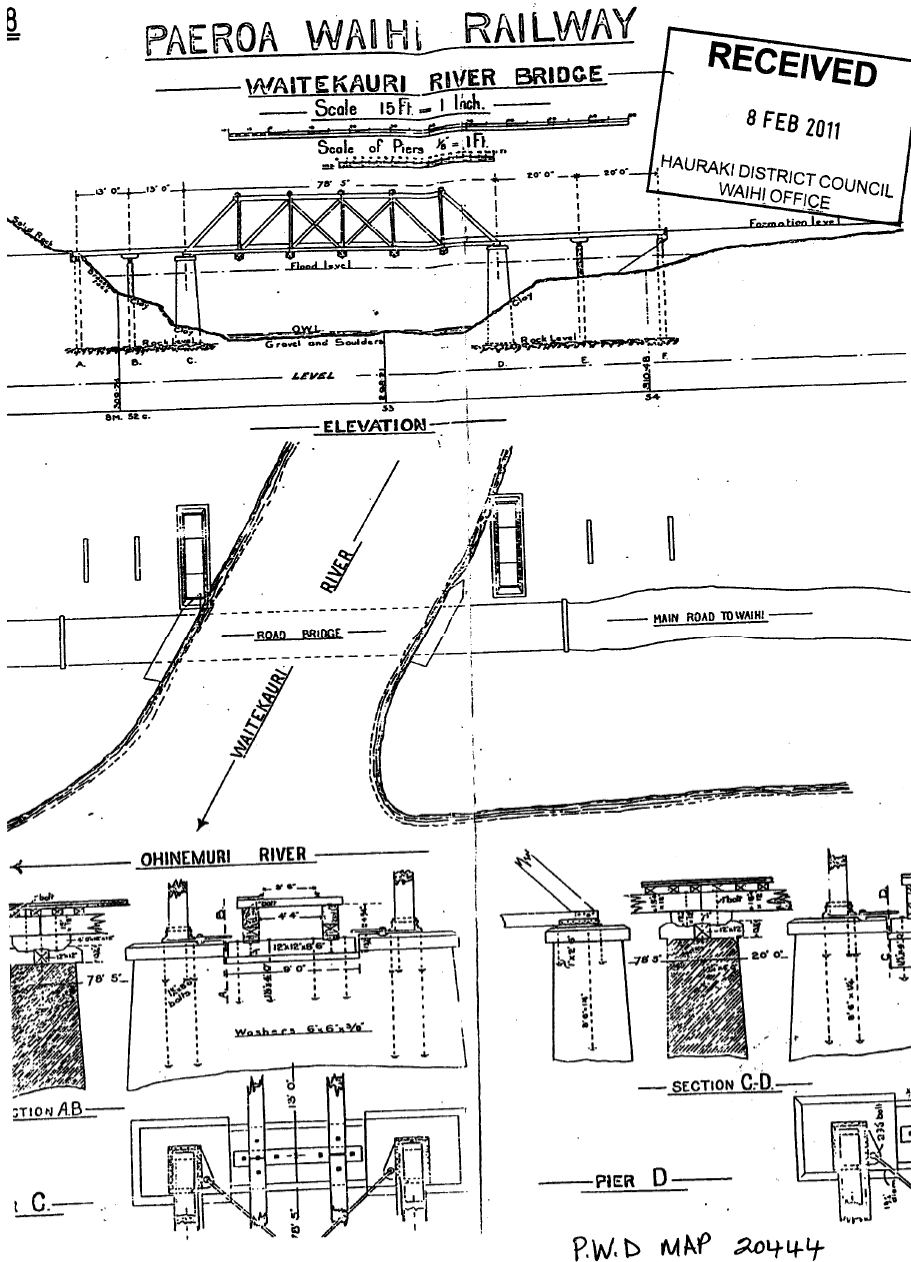
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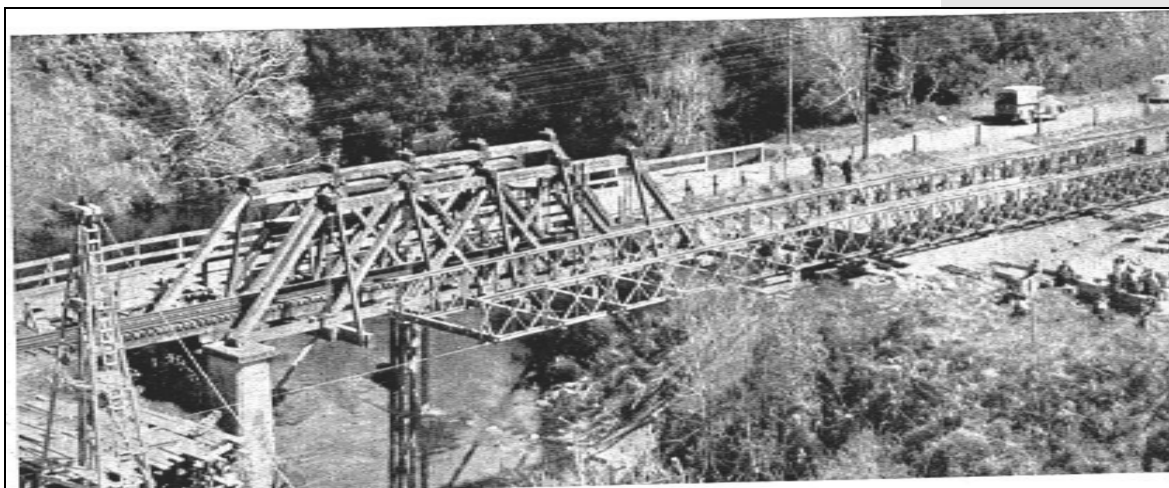
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Waitekauri Bridge, Maintenance Work (The Goldfields Express July-August 2010:3 www.waihirail.co.nz)



Waitekauri Bridge No 8, During replacement of the road bridge in 1947, note the bailey bridge being erected adjacent to the rail bridge (The Goldfields Express January/February 2011 goldfieldsrailway@xtra.co.nz)