

DANIEL SMITH INDUSTRIES LTD

JOB PROFILE

Arahura Road Rail Bridge

On Track Bridge No. 6121 / NZTA SH6, Hokitika
West Coast, New Zealand.

Client: NZ Transport Authority / On Track NZ Rail
Design Engineers: On Track Structures Engineering,
Wellington, NZ
Head Contractor: HEB Structures
Project Value: NZ \$24 million
DSI Subcontract Value: NZ \$6 million
Date of Construction: February 2008 to September 2009



General Description.

New combination 220 metre road rail bridge, consisting of 9 no. 24.4 metre spans with 2 lanes and cycle way, plus rail line constructed over flood prone alluvial gravel Arahura River in Westland, New Zealand. Bridge foundations consisted of 1.6 metre diameter x 30 metre deep steel lined pile cassion with insitu concrete pier and abutments. Road spans section consisted of 24 metre prestressed hollow core beams. A steel fabricated I beam girder structure was utilised for the train bridge.

This bridge was constructed on line of existing bridge whilst bridge was still be utilised by both road and rail traffic.

Daniel Smith Industries Subcontract Involvement.

- Manufacture, rolling and submerged arc welding of 1.6 metre diameter pile cassion
- driving and excavation of pile cassion in large diameter boulders, along with the installation and driving of a pile plug to base of pile, placement of reinforcing and concrete to piles and pier stem. All constructed immediately adjacent to the existing / in use bridge
- The manufacture, cartage (by rail) and the lifting into position of 99 no. 24 ton / 24.4 metre precast hollow core beams



- The assembly, transport and crantage of 9 no. 24.4 metre x 68 ton steel girders to rail spans
- The demolition and removal of piles and old wooden bridge structure

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Daniel Smith Industries Equipment / Resources.

- 2 no. Manitowoc M8500 85 ton crawler cranes
- IHI CCH 1500 150 ton crawler crane
- Hyundai 50 and 36 ton excavators
- Nissha NH70 hydraulic pile hammer
- Mitsubishi D1600 down hole grab
- Beam transport equipment
- Demolition jaw / crushers

Daniel Smith Industries Personnel.

Project Manager:	Daniel Smith
On Site Project Manager:	Mike Bell
On site Operators:	Brad McGiffert, Matt Fletcher and Dougal Hurst
On site Concreting Manager:	Paul O'Connor
On site trades people:	Shae Cullen and Jason Fletcher
Prestress Concrete Manager:	Anton Forbes
Prestress Concrete personnel :	Peter Curnow, Jon Tucker and Nick Stevens
Engineering / Welding:	Luke Cooke, Brian Fletcher, Harou Piebenger



Health & Safety / Environmental.

Daniel Smith Industries completed:	2,550 hours of steel welding / fabrication
	4,800 hours of precast manufacture
	6,600 hours of piling operations
	<u>1,460</u> hours of cranae and demolition
	15,410 hours with ZERO accident / incident or near miss

NO Environmental incidents to report.
NO damage to materials or equipment.

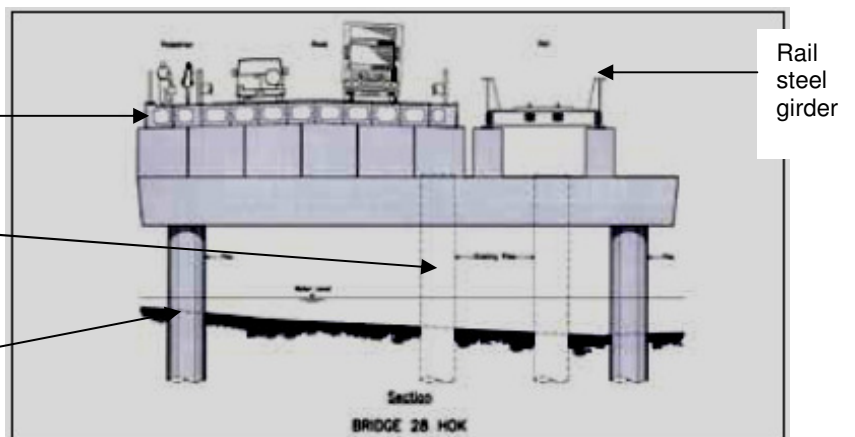
The Arahura Road Rail bridge subcontract was completed safely, on time and at the tendered price, without variations and to the clients and project engineers specification / expectations.

This was achieved because Daniel Smith Industries supplied quality / modern equipment, utilised well planned construction methods and employed a team of 'can do', capable and safe personnel.

Road – 2 lane + walkway
on prestress hollow core beams

Old existing bridge / removed
After new bridge structure constructed

Foundations – 1.6m diameter x 30 metres deep
Reinforced concrete cassion piles



Arahura Road Rail Bridge Typical cross section