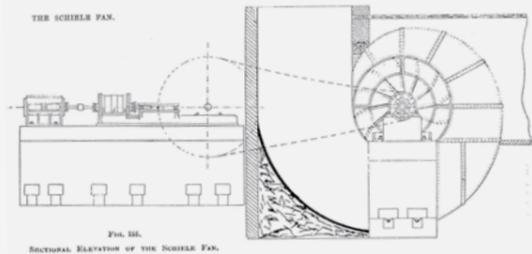


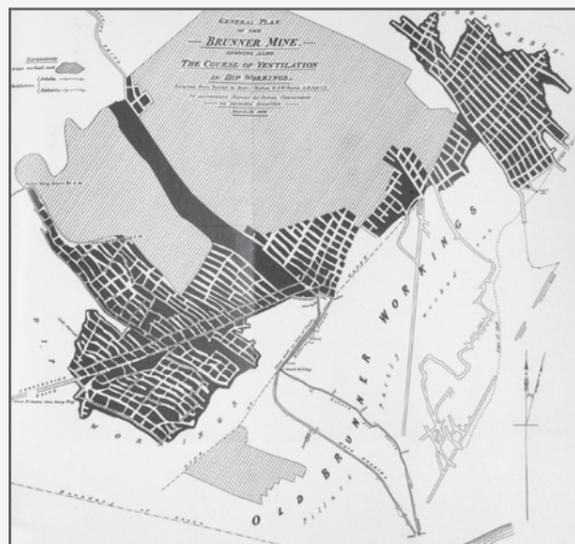
### 3 RETURN AIRWAY

The flow of air is crucial in mining coal. Potentially explosive gases, like methane, released from coal seams must be reliably cleared to maintain mine safety. Ventilation in the first Brunner workings relied on 'natural' means but by the early 1880s coal was being sourced further underground and more efficient mechanical fan ventilation was called for.



The foundation remnants in view once housed a powerful high speed Schiele extractor fan, responsible for drawing an air current through the mine workings. This 9 foot 6 inch (2.9m) fan, installed in 1888, was driven by a steam engine (located right of the tunnel) and was capable of displacing 16000-18000 cubic feet of air per minute.

The main mine entrance tunnel (previously located to the left) acted as the fresh air intake. Air was directed through the myriad of mine tunnels to the working faces via canvas screens known as brattice. These helped separate the good air from the foul air which was then coursed back to the surface via the brick lined 'return airway' tunnel in front of you.



Plan of 1896, showing the ventilation system in the Dip workings of the Brunner mine which was dependant on the schiele fan. Part of the Royal Commission of enquiry report on the Brunner Mine Disaster, 1896.

Brian Wood Collection

The intake and return airway ran parallel underground for about one kilometre before hitting the fault line. The ventilation system continued down into the dip workings – the area where the miners met their death on the day of the Brunner disaster.

Read more about the disaster and the heroic rescue efforts in the interpretation centre.

### 4 'THE MOULDERS WERE THE CRAFTSMEN' AT THE BRICK WORKS

About twelve men and boys were employed in these buildings. The clay dust was apparently unbearable and the only ventilation was through open windows in the pug mill building. Temperatures here were below freezing point in winter while those working in the moulding and drying shed, with its underfloor heating, complained of the heat.



Brunner brick workers in 1905. Brian Wood Collection

*"Our shoes got very hot...sometimes we'd put them in a bucket of water, they would crack and be worn out in a week. We would have to buy new ones which cost us 3/6 to 4/6 a pair. [As boys] we were paid three shillings and six pence a week. We had to carry 2000 bricks a day or face the sack."*

Jack Hartshorne  
Brick boy, c.1912-15.

The moulders were the craftsmen amongst the brickworks' employees. There was a real knack to throwing the pugged clay into a wooden mould. The clay had to be a perfect texture, evenly spread and with no air pockets. Fancy goods such as gas retorts and chimney pots would require large moulds skillfully dovetailed together by the mine carpenter.

*"Jack Temperley was the moulder at Brunner in 1910-15. He was a master of the art of moulding. For big moulds, ground fireclay was sprinkled in the moulds to help prevent sticking."*

Jack Hartshorne  
Brick boy, c.1912-15.

Despite the greater skill required, the moulders surprisingly earned the same as labourers – about 9 shillings a week in 1890. The foreman or boss was on 13 shillings and 4 pence a week.

### 5 FIRECLAY MINE ENTRANCE

You have just walked a short section along what was once a tramway for carting clay from the St Kilda mine (1907-21) to the back of the pug mill. The mine was located upstream of the coke oven's complex. Fireclay from the St Kilda and the North Brunner mines was tapped after the main Brunner mine closed in 1906. Although the clay from these mines was said to be of 'inferior' quality, it helped keep the industry going for another 16 years.



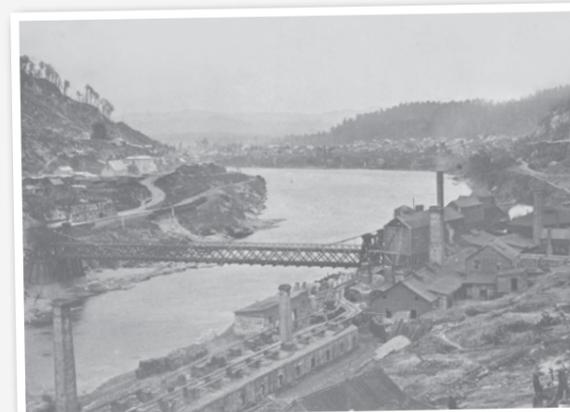
A truck brings fireclay from the St Kilda mine (note bins in background) past the coke ovens to the back of the pug mill, c. 1913.

Brian Wood Collection

This fireclay entrance in front of you was an attempt, in 1917, to source clay for the brickworks' plant. The lack of success was a sign that quality raw material was running low. In 1922 the Brunner fireclay industry ground to a halt. As the years passed, the famous Brunner brick became very desirable, particularly to potters in search of the heat resistant firebrick for their kilns. Unfortunately this 'recycling' from the 1930s to 1970s resulted in the destruction of chimneys, brickworks and coke ovens leaving only remnants on view at Brunner.

### 6 BEEHIVE COKE OVENS

You are looking down on the remains of the substantial beehive coke ovens' complex from the edge of a coke bagging platform, excavated out of rock. At the end of the coking process, coke was drawn from the set of 12 beehive ovens constructed behind each of the arches in view. It was then bagged on the platform.



A view of the coke ovens and brick works with mine bins beyond, c. 1890.

Department of Conservation

Note the remains of the ganister rock façade that once surrounded the whole coke complex and helped insulate the ovens, in effect hiding the shapely brick domes. Initially, ovens were front loaded with coal slack but by 1883 they were being top loaded via a tramway viaduct overhead. The ovens on this side were the last 13 to be constructed (between 1889 and 1890) bringing the total to twenty five ovens.

Coke workers loading out coke to the platform behind, c. 1913.

Brian Wood Collection



Venture to the south side of ovens' complex to find out more about coking and these cleverly crafted beehive ovens.



An L wagon transports fireclay goods and coke to the bridge turntable.

Department of Conservation

As you walk from the coke ovens towards the bridge imagine this early scene, where stacks of bricks lined the railway and L wagons transported loads of fireclay products and coke to the railway turntable and across the bridge to the Brunner railway marshalling yards.

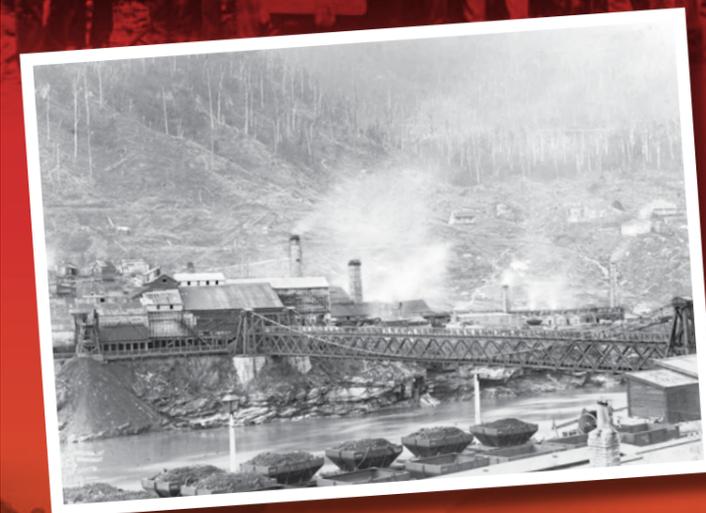
Further reading: Coal Gorge and the Brunner Suspension Bridge, A heritage and Environmental Study, by Brian Wood, Greymouth, NZ, 2004.

{ Brunner is a place for learning, commemoration and reflection. enjoy }

# THE BRUNNER MINE

## INDUSTRIAL SITE

# Visitor Guide



# Brunner, 1864 — 1942

## A Self Guide

Brunner is a site of national significance. It was New Zealand's most productive 19th century coal mine, the site of the country's worst mining disaster and its archaeological remains offer an outstanding example of our nation's industrial heritage.



A view from the back of the fireclay works looking across to the railway yards, c. 1886.

Brian Wood Collection

Brunner, on the edge of the Grey River, became a 'colonial outpost' of Britain's first industrial revolution, supplying most of New Zealand's fuel and power in the form of 'coal'. The rich Brunner coal seam, named after explorer Thomas Brunner, was to become hugely important with British technology and labour making possible the large scale industrial activity at this site. While coal was king here, coke and fireclay products also achieved high acclaim.

Use this self guide and the on-site panels placed along the walkway to help you piece the Brunner story together. Follow the map and look out for the numbered wheel markers that link to the historic sites interpreted in this guide.

Enjoy exploring Brunner.

THIS IS A PROTECTED HISTORIC SITE  
Removal of archaeological  
artefacts is an offence under the  
Historic Places Act 1993.

### BRUNNER LOOP WALKING TRACK

WALKING TIMES (Grade: Easy)

Tyneside Carpark – Brunner Loop Track return 40 min

Taylorville Carpark – Brunner Loop Track return 20 min

Taylorville Carpark – Tyneside Carpark 30 min

#### KEY

Walking Track

Key historic sites



### THE EARLIEST COAL MINE

You are at the 'hot spot' of coal and coke activity during Brunner's pioneer phase. From 1864 to 1876 coal was mined for miles underground then transported in barges down-river to the port of Greymouth. The remaining structures provide us with clues about the activities and technology that launched New Zealand's coal mining industry.

View the panel to help connect the site remains with the early mine scene.

### BRUNNER'S FIRST COKE OVENS

The Nelson Coal Mining Company made up of Australian (Ballarat) investors initiated the coke industry at Brunner. These twin vaulted coke ovens, built in 1868, were made with fire bricks imported mostly from Melbourne.

Coal was trucked from the nearby mine entrance and about 4 tons were manually loaded through each arched opening. After the coal was set alight, the opening was bricked up leaving just a small amount of air. Gases escaped through rear flues. Two days later a few tons of coke was raked out and quenched with water before being bagged on a coke platform in front of the ovens.

The ovens were often in need of repair. The imported bricks were just not up to the job. By 1872 firebricks made from Brunner fireclay were being placed inside the ovens and the coke was said to be 'better and cleaner'.

After the construction of beehive ovens (upstream from the bridge), these twin ovens were used to store mine explosives. Luckily they survived! The New Zealand Historic Places Trust and the Department of Conservation undertook repairs and restoration work on the ovens between 1978-86.



View of Brunner Town in 1870 just upstream from the mine, bins shoots and coke ovens (near the river edge centre of photo).  
Department of Conservation

### Compressor Foundations

These substantial concrete foundations were built to support the air compressor plant requested in 1888. A pair of 26 inch air compressors were ordered to provide for haulage and pumping machinery inside the mine. Compressed air and electricity were becoming popular power sources and by 1899 electricity was being used at Brunner. It is thought that the use of compressors at Brunner was short lived.

### Boiler and chimney remains

The driving force behind much of the Brunner surface and underground machinery came from various boilers on-site. The large steel chimney (bricked around in 1900) provided the draught for the boilers which provided steam power from the 1880s through to the 1920s. Two 30 foot long (9 metre) Lancashire boilers and two Babcock and Wilcox water tube boilers were in place by 1899.

### Brickwork kilns

By 1877, there were two Newcastle kilns built here each capable of firing 2000-3000 bricks. As the brickworks expanded there were eventually a total of five kilns at this site. The external concrete buttress remains were built about 1910 and acted as supports for the kiln structures. These supplemented the earlier straps and ties used to control the expansion and contraction of the kilns during extreme temperature changes.

### Blacksmith, carpenter's shop and mine office sites

The skill of blacksmiths forging iron and repairing mine equipment, coal trucks, and light rail as well as carpenters preparing building and mine timbers, brattice work and making brick moulds, were hugely relied upon.

### Engine and winch house (pre-1883)

A winding engine hauled the coal tubs out of the mine via an endless ropeway, returning the empties in the opposite direction. Once the mine workings extended beyond the Brunner fault into the 'dip workings' in 1884, new mine machinery and technology was needed. A 50 horse power horizontal winding engine was in place in 1886.

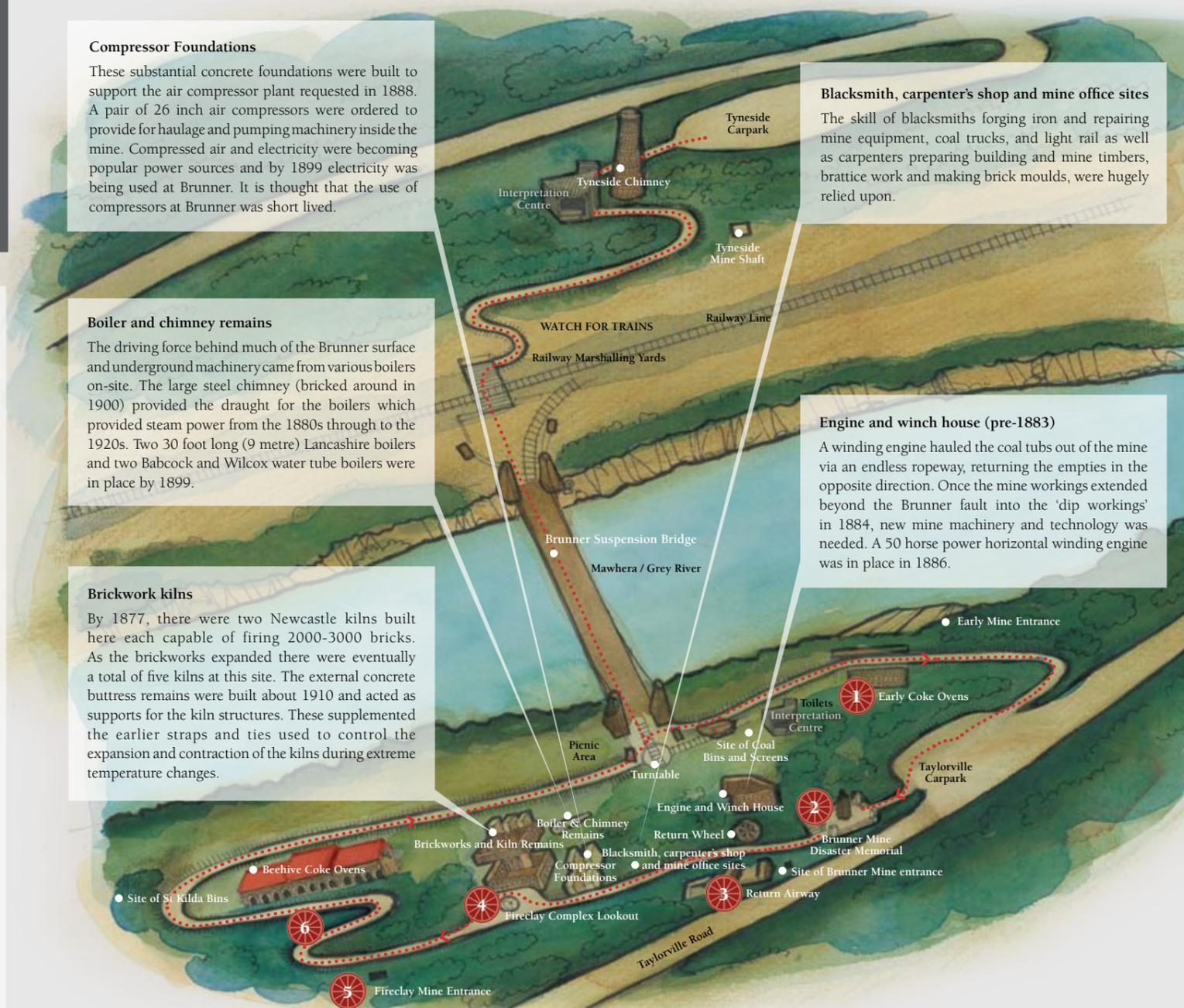


Illustration: Rachel Hirabayashi

### BRUNNER MINE MEMORIAL

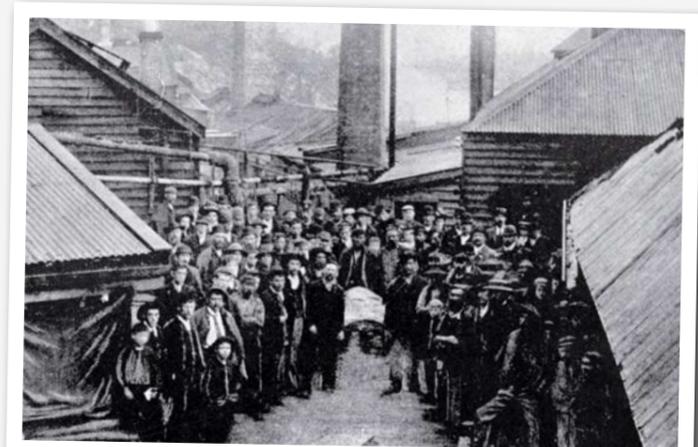
This memorial was built in 1996 to commemorate the centenary of New Zealand's worst industrial disaster which occurred in the Brunner mine on 26th March 1896.

The 'typical' coal miner depicted stands in memory of the men and boys who lost their lives in the underground explosion on that fateful day. There are 65 steps representing each victim of this terrible tragedy.

The memorial has also become a place of commemoration for the victims of other mine disasters and fatal accidents in Grey District coal mines.

Within the next few minutes the track leads to the site of the Brunner Mine entrance and the adjacent return airway tunnel and other structures.

Take a moment to reflect on this horrific event in our nation's history, listen to the audio and delve deeper into the disaster story at the interpretation centre.



'Bringing out the dead – miners and residents assemble near the mine entrance, 26 March 1896.'

History House, Greymouth