Heritage Assessment
Waro Horse Tramline Track

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Cover image: (above) entrance to Kerr and Wyatt's mine, which connected to the tramline still visible in the Waro Limestone Scenic Reserve. Front: Charlie Kerr, George Coutts, unknown, Captain Wyatt, Dooley Reed, Jack Swinbanks, Fred Kells. Back: Jack Kerr. Photo courtesy of the Hikurangi Museum.

Site Overview

The Waro Limestone Scenic Reserve is located on the northern side of Hikurangi, about 16 km from Whangarei. The Scenic Reserve, managed by the Department of Conservation (DOC), consists of limestone rocks which have weathered into remarkable forms (knows as a *karst* landscape). The Scenic Reserve shares a boundary with a reserve managed by the Whangarei District Council (WDC). Lake Waro, an artificial lake created by the quarrying of limestone, is the focus of the WDC reserve.

The historic or cultural values of the rock formations are derived from at least two phases of human activity. In pre-European times Maori used the rocks for a special purpose, and today they are considered tapu[1]. From the late 19th century, the rocks were something of a focal point for Hikurangi coal mining community. Within the reserve are two horse tramlines dating from the late 1890s or early 1900s. The tramlines are recorded by the New Zealand Archaeological Association as Q06/566. This purpose of this report is to describe and assess the historic fabric of the horse tramlines. It is important, however, to acknowledge the intangible cultural/spiritual values of the adjacent karst formations.

History Description

People came to Hikurangi to mill the timber, but they stayed to mine the coal. The Hikurangi coal was discovered in the 1860s[2]. However, the first coal mine did not open until 1889, and efforts to exploit the resource were hampered by difficulties with transport[3]. By the early 1890s, people were trying to remedy this issue. In 1891, James Whitelaw applied for a licence to construct a tramway from Kamo to Hikurangi[4], while others were talking about extending the railway system. The Railway League resolved –

> *That the Government be requested to make provision for the continuation of the railway from Kamo to Hikurangi with a view of developing the Hikurangi coal and in so doing afford employment for the industrial classes and thus check in a measure the exodus of population from our shores*[5].

In 1894, the railway between Hikurangi and Kamo was completed, and the coal-mining industry really got started[6]. Over the subsequent decades, many different mines were in operation. Some were large, owned by the likes of the Hikurangi Mining Company, whereas others were small-scale family operations.

The horse tramlines around the Waro rock formations must have been built between 1894 and 1905. The earliest known record of their existence is a survey plan of 1905. A plan of 1907 shows both tramlines very clearly, connecting with the railway siding. The line to the west of the rock formations is labelled "old tram line (abandoned)". The survey plans show that there were tiny cottages next to the tramline and the limestone formations. We ought to attribute the clumps of daffodils and the (by now) rampant privet to the inhabitants of these cottages.

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[1] Rickard, V. 1984. Archaeological Site Survey of Scenic Reserves in Whangarei County. Unpublished report for the Lands and Survey Department. p. 50.
[2] Malcolm, M. 1997. *Hikurangi: The Story of a Coal Mining Town*.
[3] *ibid*; Ferrar *et. al.* 1925. *Whangarei to the Bay of Islands Geological Survey*. p. 110.
[4] *Northern Advocate*, 7 February 1891, page 2.
[5] Northern Advocate, 4 July 1891, page 5.
[6] Ferrar et. al. 1925. p. 110.

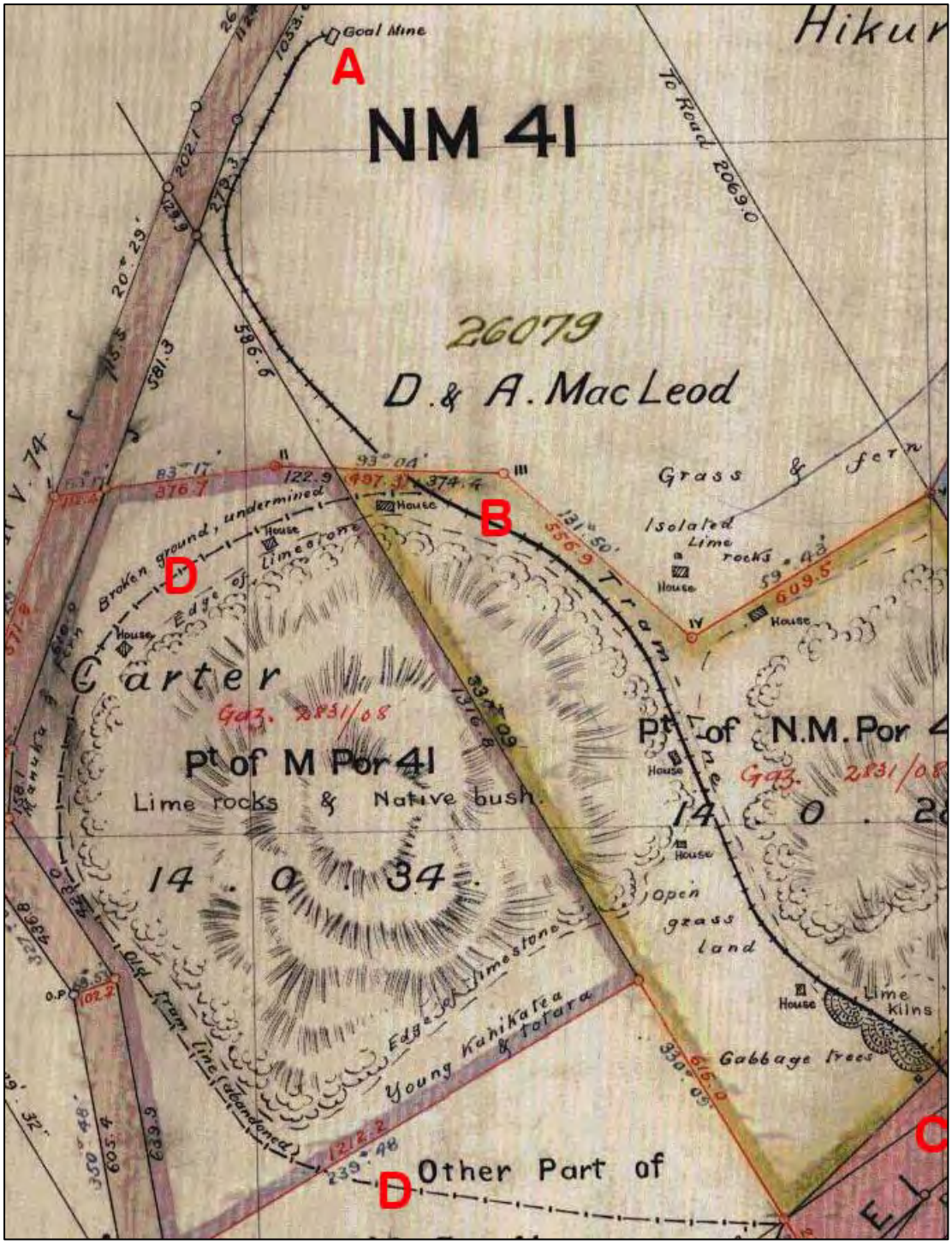


Figure 1: Portion of the 1907 survey plan showing the tramlines, cottages, coal mine, and railway siding. (A) Kerr and Wyatt's Mine (B) eastern tramline (C) railway siding (D) older western tramline. The limestone formations on the right and the lime kilns were destroyed by quarrying.

The tramline line running immediately to the east of the Waro limestone formation connected Kerr and Wyatt's steam powered coal mine to the railway siding[7]. This was a small mine, operated by a co-operative party of about six men[8]. Four to six skips of coal were connected together and pulled by horse from the mouth of the mine (see photo on front cover). It is not known when Kerr and Wyatt's mine ceased to operate.

[7] Malcolm, M. 1997. See sketch map on page V.
[8] Smith, C. 1987. The Hikurangi Coal Fields.

Fabric Description

As shown in figure 1, the "old tram line" skirted the northern and western edges of the limestone formations. This tramline is evidenced by two sections of a raised earthen platform and a trail of coal across the flat ground. A 10 metre length of platform remains towards the south-eastern end of the limestone formations. The platform was required because the area tends to be boggy, due to run-off from a fairly steep slope immediately to the west.

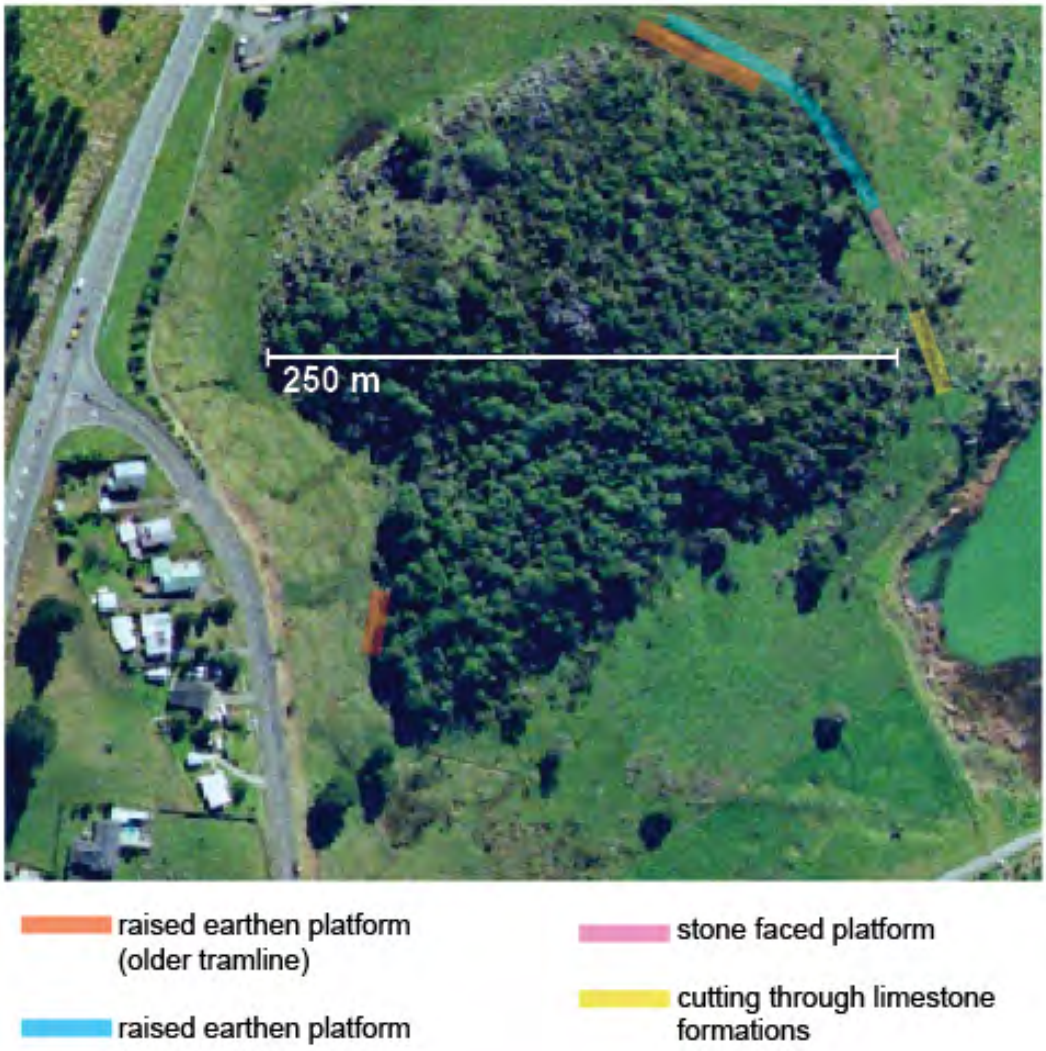


Figure 2: Arial photograph showing areas of raised tramline platform and the cutting through the limestone formations

The platform suffered damage caused by cattle and water, so its original dimensions are difficult to record. The top of the platform measured approximately 1.5 metres across. The platform is at least one metre high, constructed of compacted soil. Coal is present in the soil on top of and around the edges of the platform, evidently lost during transportation. Further north, where the ground surface is flat, the route of the tramline is marked by a trail of coal.

Another section of platform is present at the northern end of the limestone formations. Here, the platform runs roughly parallel with the platform of the eastern tramline for a short distance. The earthen platform of the eastern tramline is tucked right up against the edge of the limestone formations. The platform is about 130 metres long, and a maximum of 2 metres high. The surface of the tramline is uneven, with the occasional hole, or limestone rock jutting out. It is evident that the original surface – upon which the railway lines were laid – is entirely absent. The loss of surface material may have been exacerbated by the presence of cattle.

About 30 metres of the eastern tramline platform is faced with limestone blocks. In some places, the facing resembles dry stone walling; in others it is much more haphazard. The limestone was sourced from the local environment.

South of the stone faced platform the tramline continued through an area of limestone rocks. The builders of the tramline created a cutting or clearing through the rocks, which are a maximum of about 2 metres high in this area. The southern-most section of the tramline (which connected to the railway siding) has been subsumed by limestone quarrying. (Compare figures 1 and 2). The quarry also destroyed the limestone kilns and a cottage site shown in the 1907 survey plan.

The 1907 plan shows that there were little cottages within the bounds of Waro Limestone Scenic Reserve. Figure 3 is based on the recollections of Bob and Evelyn Ackers, who grew up in the vicinity during the late 1930s and 1940s. A comparison of the two images shows that the number of families living around the rocks increased dramatically within a few decades. There is only one house recorded to the south of the rocks in 1907, but Mr and Mrs Ackers remember the names of six families who lived in that area.

There is some evidence of the cottages visible on the ground surface. At the site of the Macnay house (see figure 4), the concrete surrounds of a copper vat are present, as well the remnants of a small concrete platform. Part of the workshop of the blacksmith Harry Thomas (figure 4) is present on a property adjacent to the reserve, along with one of his elaborate iron gates. The residents of the cottages introduced some exotic plant species into the reserve, namely privet, mint, and daffodils. The privet and the mint have become weeds, but the daffodils are restricted to a few clumps.

Cultural Connections

Several Northland iwi have a connection to the Waro limestone formations including Ngati Hau, Ngati Kahu O Torongare, and Ngatiwai.

Although this report is about tangible historic features, it is important to acknowledge the *waahi tapu* status of the limestone formations. No observable evidence of Maori use or occupation of the Waro is visible today. However, it is known that rocks were used for a special purpose in the past, and artefacts have been discovered in more recent years[9]. According to C. G. Cunningham, a Hikurangi coalminer born in 1902, stone axes and guns were among the "old relics" found within the Waro Reserve[10].

[9] Rickard, V. 1984. p 50.

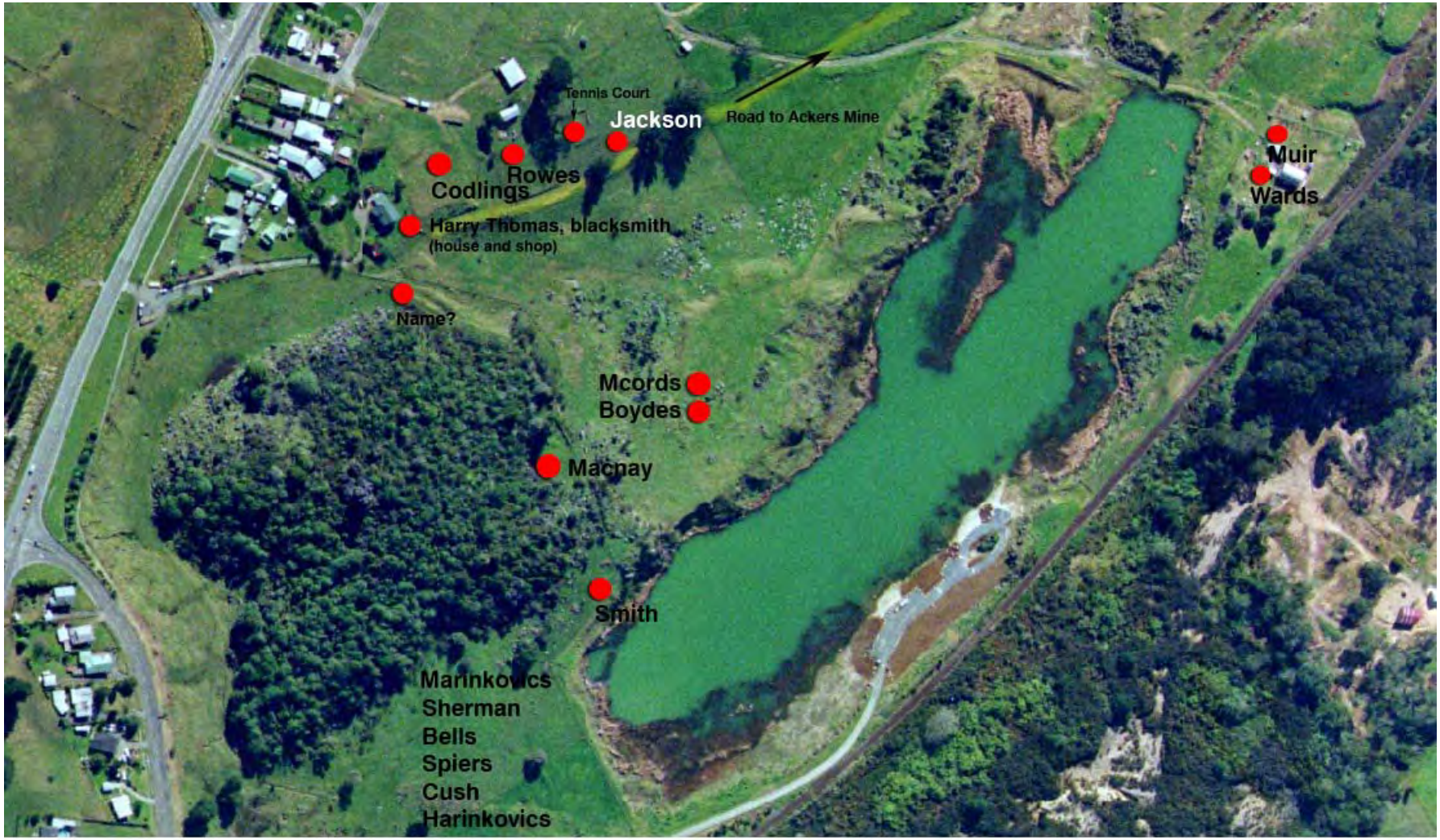
[10] Cunningham, C. G. n.d. Waro and Hikurangi in the Early Nineteen Hundreds. Unpublished manuscript.

> *It is very probable that an intensive investigation of the reserve would show evidence of occupation and further burials. Every precaution will need to be taken to ensure that the area is treated with the respect due to a burial area*[11].

The descendents of the Hikurangi coal miners have a different kind of cultural connection with Waro. Mr and Mrs Ackers describe the limestone formations as a focal point for the community. The rocks, the tramlines, and the cottage sites remind the present generation of the lives of their parents, grandparents and great grandparents.

Figure 3: Close-up of a section of the tramline, showing the rough construction of the stone facing

[11] Rickard, V. 1984. p 50.



Locations of houses around Waro Limestone Scenic Reserve
Based upon information provided by Mr and Mrs Ackers after visiting the site in May 2009

National Context

The earliest railways in New Zealand, built from the 1860s, were actually horse tramlines. The horse-drawn trams were integral to the development of industry in New Zealand. They enabled the resources from hinterland to be taken to the sea, to rivers, or to the main trunk lines. Some were "bush-trams", built with great effort to haul timber out of the forest. Horse-drawn trams were used transport gold-bearing quartz at hard rock goldmines, like those in the Karangahake Gorge[12]. At Dun Mountain, near Nelson, copper ore travelled to the port below via a horse tramline. The Dun Mountain tramline, completed in 1862, was actually the first railway in New Zealand[13]. The first in Northland was built in 1867, a horse tramline for carting coal to the Kawakawa River in the Bay of Islands[14].

Old tramline or railway tracks make good walking tracks. There are a number of walking tracks around the country which, like the track at Waro, follow old tramline routes. The Dun Mountain Walkway, for example, follows the route of the tramline. The Tramline Track on Great Barrier is one of the most visited sites on the island[15].

Significance

A coal mine cannot flourish without an efficient transport system. The coal mines at Hikurangi did flourish, and the horse tramline is a remnant of a linkage between mine and railway siding. Between the 1890s and the 1950s, the Hikurangi coal fields were relieved of about 4.5 million tons of coal. Most of this was mined from entrances near the Waro rocks[16]. Table 1 shows that the relative importance of Hikurangi coal mines increased dramatically between 1895 and 1907. The importance of the coal fields is acknowledged in an official geological report of 1925. The authors describe Hikurangi as "the most important coal-producing area in North Auckland"[17].

Table 1: Coal Production in 1895 and 1907[18]

	1895	**1907**
Hikurangi Coal Production (tons)	24 154	105 307
North Island Coal Production (tons)	135 738	316 977
% of North Island Coal mined at Hikurangi	18%	33%
South Island Coal Production (tons)	740 827	1 514 032

The horse tramlines at Waro are a tangible connection to the early days of the Northland coal-mining industry. They are not associated with important people or significant events. Rather, they reflect the working lives of many people, the growth of a community, and the economic development of the region. For these reasons, the Waro Horse Tramlines may be ascribed historic significance at the local and regional levels.

[12] *Karangahake Gorge Gold Mining History*. Department of Conservation Information Sheet available at www.doc.govt.nz.
[13] For an example see Webber, R. M. 1955. *The Dun Mountain Railway*.
[14] Anon. 1971. Northland Railways.
[15] DOC website www.doc.govt.nz. The track follows the route of tramline used to transport kauri logs using steam-haulers and locomotives.
[16] Smith, C. 1987.
[17] Ferrar *et. al.* 1925:109
[18] Extracted from the *Appendix to the Journal of the House of Representatives* 1896 vol I. section C-3B and 1908 vol. II section C-3A

Sections of the Waro Horse Tramlines have survived by accident, due to the natural values of the adjacent limestone formations. They represent of a once-common mode of transport. Relatively few tramlines have survived; most of the old bush tram routes were destroyed as they were replaced with roads, or converted to pasture or plantation forests[19]. Tramlines associated with mining have been destroyed by subsequent mining or quarrying operations, or by changing land use. (The southern section of the Waro tramline was destroyed by limestone quarrying later in the 20th century.)

Management Chronology

1925	Waro Limestone Scenic Reserve purchased by the Crown to preserve a geological formation threatened by quarrying[20].
1925 – 1978	Reserve vested in the Hikurangi Town Council[21].
1978	Department of Lands and Survey takes control of the Reserve.
1980	Proposal for the adjacent limestone quarry (by then worked-out and flooded) to become a Scenic Reserve. The Department of Lands and Survey produces a *Concept Plan for Future Development* of Waro Limestone Scenic Reserve.
After 1981	Elements of the *Concept Plan for Future Development* adopted, such as developing a track system and providing on-site interpretation of the geological features. The Concept Plan included a track around Lake Waro, which did not eventuate at this time.
1987	Department of Lands and Survey subsumed by the new Department of Conservation.
2010	Geological interpretation signs replaced, and a historic interpretation sign created (topic: coalmining history and the horse tramline). Culverts cleared and drainage trench created adjacent to the western tramline platform. Surface of western tramline platform metalled to create better surface for walking track. Length of the stone-facing of the tramline track repaired[22].

[19] See DOC website "Historic Ongarue Tramway and Spiral". www.doc.govt.nz.
[20] Hawley, J. 1981. Waro Limestone Scenic Reserve: Concept for Future Development. p. 1.
[21] *ibid.*

Repair of Stone Facing

In late 2010, a section of stone-facing approximately 12 metres long was repaired under an Archaeological Authority issued by the New Zealand Historic Places Trust. The stonework in this area was in poor condition largely due to the effects of cattle. The cattle had progressively knocked limestone blocks out of place, and displaced fill from the interior of the platform. The stone-work was repaired using a combination of reassembly and reconstruction. First, the fill which had accumulated along the edge of the platform was removed using a small digger. Many of the original limestone rocks were recovered during this process, and re-assembled in the same rough style as the adjacent section of stonework. More limestone blocks were required to finish the repairs, and these were obtained from a quarry less than 1 kilometre away. Figure 6 shows the repaired section of stonework immediately after completion.

Figure 5: Section of tramline platform prior to reassembly and weed control; the dashed line indicates the length of stone facing which was reassembled

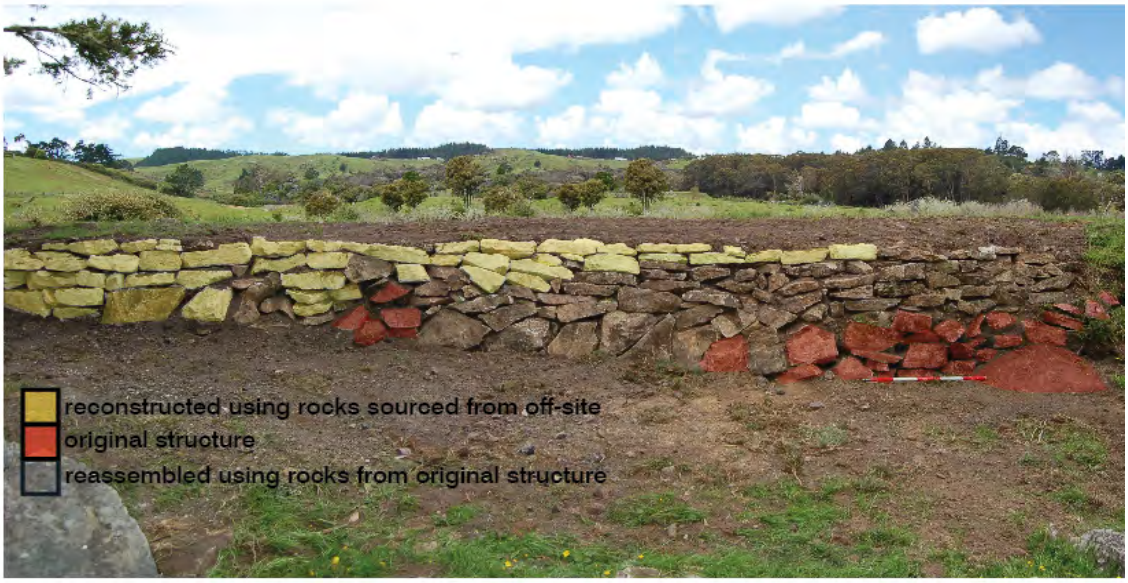


Figure 6: The repaired section of stone facing

Management Recommendations

Cattle, water, and privet are the main threats to the historic values of Waro Limestone Scenic Reserve. During the wetter months, cattle have been having a detrimental effect upon the ground surface. The worst-affected area is adjacent to the south-western edge of the rocks, where water collects at the bottom of the slope. Recent improvements to the drainage system, and the laying of metal on top of the horse tramline platform should improve the situation.

The stone facing of the eastern tramline has suffered damage caused by cattle knocking individual stones out of place. It is hoped that the rebuilding of the worst-affected section will direct cattle along particular routes, thus protecting the stonework.

Privet is having a detrimental effect upon the stone facing of the horse tramline. The species has been taking root in the gaps, pushing the stones out of place as it grows. The privet was most likely introduced in the 19th century as a hedge plant, but it is impossible to discern any of the original hedgerows. Therefore the privet growing in the Waro Limestone Scenic Reserve has no historic value.

It is recommended that –

1. The *waahi tapu* status of the reserve must always be taken into account. The public should be encouraged to keep to the flat ground around the fringes of the rocks. DOC staff should only venture up into the rocks if it is necessary for conservation purposes. Eating and drinking is to be discouraged in the vicinity of the limestone outcrops.

2. If there are no alternatives to grazing the reserve with cattle, then those cattle should be of a small size.

3. The cattle should be removed from the reserve during the wetter months if they are causing damage to the ground surface, or the horse tramline.

4. **Privet.** At a minimum, the privet growing on the horse tramline should be controlled. Ideally, the privet should be controlled across the entire reserve.

5. **Mint.** This herb garden escapee has established itself in the pasture along the eastern edge of the reserve. As with the privet, it is impossible to tell where the original plantings were located. The mint has no historic value.

6. **Daffodils.** The daffodils at Waro are restricted to a few clumps. Given their mode of reproduction, it is probable that the daffodils are growing approximately where they were planted in the first place. The daffodils at Waro can be attributed some historic value as garden remnants which may date to the late 19th or early 20th centuries. The daffodils at Waro should be retained.

Conclusion

The remnants of the Waro Horse Tramlines are a tangible connection to the Hikurangi coal-mining industry, and represent a once-important mode of transportation. The walking track along the surviving sections of tramway is very easily accessible, given its proximity to Whangarei and the main road. The short distance and the flat grade make it suitable for people with lower levels of fitness or physical ability. For these reasons, the Waro Horse Tramline is well suited for educating the public about aspects of the recent history of the Whangarei area.

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Bob and Evelyn Ackers, personal communication

Photograph from the Hikurangi Museum

Location Map