BULLER PLATEAUX CONTINUATION PROJECT, WESTPORT, SOUTH ISLAND: ARCHAEOLOGICAL AND HISTORIC HERITAGE ASSESSMENT (PART 4 – STOCKTON AND PEST EXCLUSION FENCES)

Prepared for Bathurst Resource Ltd

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By

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INTRODUCTION

Project Background

Bathurst Resources Ltd (including subsidiary companies, Bathurst Coal Ltd, and Buller Coal Ltd) and joint venture partner BT Mining Ltd (collectively referred to as Bathurst) is seeking authorisation through the Fast-track Approvals Act 2024 (FTAA) to progress the development and mining of coal resources across the wider Buller Plateaux, known as the Buller Plateaux Continuation Project (the Project or BPCP).

The Project covers areas across both the Denniston Plateau and Stockton Plateau, collectively referred to as the Buller Plateaux, located approximately 15 km northeast of Westport on the West Coast of the South Island. The Project covers five Project sub-areas: Stockton (including the Ngākawau Coal Handling Facility and Aerial Ropeway); Mount Frederick South; Escarpment Extended; the Upper Waimangaroa Haul Road; and Cypress (Figure 1).[1]

Due to the large amount of information discussed, the BPCP Archaeological and Historic Heritage Assessment has been divided into six parts, which covers each of the Project sub-areas, the Discussion and Conclusions of the BPCP Project and an Appendix report:

Part 1. Escarpment Extended (ESE) Project sub-area;

Part 2. Upper Waimangaroa Haul Road (UWHR) Project sub-area and Denniston pest exclusion fences;

Part 3. Mount Frederick South (MFS) Project sub-area;

Part 4. Stockton Project sub-area and Stockton pest exclusion fences;

Part 5. BPCP Project Discussion and Conclusions;

Appendix: Historical and Archaeological Background of the Denniston and Stockton Plateaux.

This report is Part 4. BPCP Stockton Archaeological and Historic Heritage Assessment, commissioned by Bathurst and prepared as part of the required assessment of effects accompanying an application under the FTAA, which includes consideration of the heritage provisions of the District Plan (Resource Management Act (RMA)) and the requirement for an Authority to modify various archaeological sites under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA). Recommendations are made in accordance with statutory requirements.

This is an assessment of effects on archaeological and historic heritage values and does not include an assessment of effects on Māori cultural values. It is noted that an assessment of effects on Māori values should only be made by the tangata whenua and this will be provided by tangata whenua as a separate Cultural Values and Impact Assessment. Māori cultural concerns may encompass a wider range of values than those associated with archaeological sites.

[1] Note only continuation of the existing Cypress Mine authorised under existing consents; however Wildlife Act Authorities are required to be renewed, as well as variations to existing conditions to ensure integration with the BPCP.

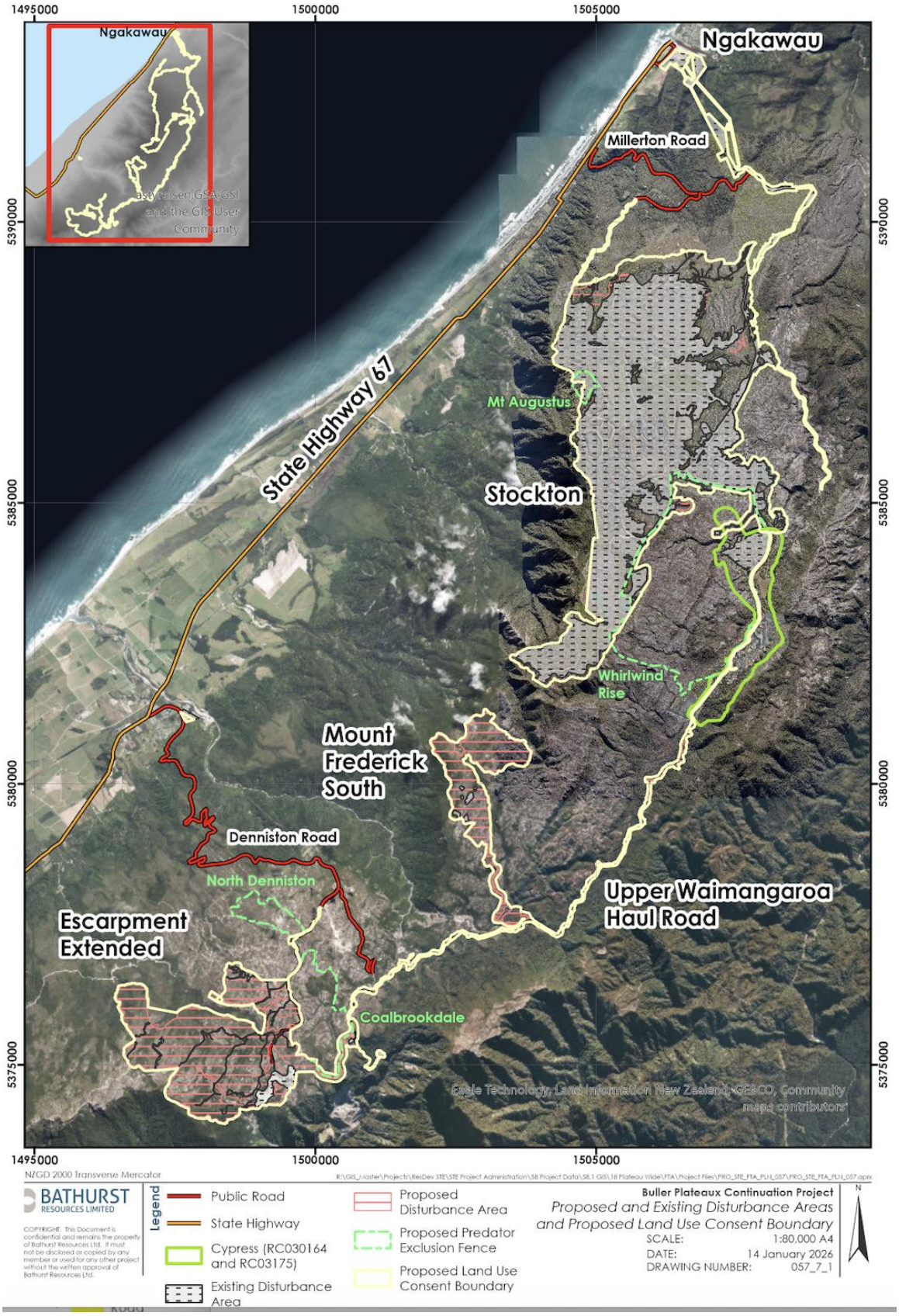


Figure 1. BPCP Project area and the proposed disturbance and consent areas, including the Stockton Project sub-area (source: Bathurst)

Methodology

There has been a great deal of previous historical research, archaeological survey and assessments carried out on the Denniston and Stockton Plateaux, which is summarised in the accompanying Appendix report: BPCP Historical and Archaeological Background. This references the literature and the numerous archaeological reports relevant to the area that were consulted (see Bibliography) and are a main source of information on the historic heritage and archaeological sites on the Stockton Plateau and within the BPCP Area for this report.

The New Zealand Archaeological Association's (NZAA) site record database (ArchSite), Buller District Plan schedules and the Heritage New Zealand Pouhere Taonga (Heritage NZ) New Zealand Heritage List/Rārangi Kōrero were searched for information on sites recorded in the vicinity.

Visual inspection of the Stockton Project sub-area was conducted by the first two authors in November 2024. However, access to sites and areas was restricted at times by modern open-cast mining activities in the surrounding area.

STOCKTON

The Stockton Project sub-area is located on the Stockton Plateau. It covers existing mining operations and coal handling and processing operations including the Coal Handling and Processing Plant (CHPP) located within the Stockton Coal Mining Licence (CML) and ancillary activities which are provided for under two Stockton Ancillary Coal Mining Licences (ACML), including the aerial ropeway and the Ngakawau Rail Loadout area. As Stockton is an existing operational mine, much of the Stockton Project sub-area has previously been disturbed.

Proposed Project

For a detailed description of the Stockton Project sub-area, please refer to the project description within the Assessment of Environmental Effects provided with the application. The proposed disturbance areas and consent areas for the Stockton Project sub-area is shown below in Figure 3~~Figure 3~~.

In addition to the continuation of the existing mining activities and ancillary mining activities at Stockton and Ngakawau beyond 2027, within this sub-area Bathurst proposes to mine additional areas in the north of the Stockton Mine, continue using the existing infrastructure and facilities, carry out further extraction activities in the A Drive Borrow Pit, and develop three additional Coal Fines Storage Facilities (CFSF). Operations are proposed to continue for approximately 11 years, with ongoing rehabilitation, monitoring, maintenance and Active Water Treatment in collaboration with the Crown. The continued use of the Stockton infrastructure will continue for the life of the BPCP.

The total consenting footprint of the Stockton Project sub-area is 1832ha, with 1328ha of existing disturbance (includes up to 31 March 2027) and a planned 31ha of disturbance. A further 473ha is included with the consent area where Bathurst does not intend to disturb, however consent is being sought to do so for contingencies or where further detailed designs are yet to be completed.

Mining is by conventional drill and blast, load and haul open pit mining. Due to the inherent variability of coal quality across the Stockton mine, coal is mined from multiple areas simultaneously to achieve the required coal quality specifications.

The Stockton Mine utilises trucks and excavators for removal of the overburden (or non-coal material) above a coal seam. Coal is loaded using a combination of loaders and excavators with haulage to both the Run of Mine (ROM) hopper (clean coal) and the CHPP (wash coal) using rear dump trucks. The operations are supported by additional equipment, including dozers, graders and watercarts. Existing mining operations are supported by several interconnected haul roads that access the various mining areas. While typically haul roads are semi-permanent features, there is an ongoing need to relocate or extend the haul road network to support operational needs. There are numerous gravel borrow areas where material is sourced for road construction and sheeting to ensure safe access during wet weather conditions.

Waste material from above the coal seams (overburden) is transported to designated areas for disposal. The most common method is to place it in engineered landforms (ELFs) to backfill previously mined areas, effectively utilising the empty spaces created by earlier overburden removal and coal extraction.

BTM owns most of the land that underlies the Stockton CML and ACMLs including seven land titles at Ngakawau where the aerial ropeway and Ngakawau Rail Loadout are located. These titles associated with the Stockton Mine, are subject to obligations to return the land to the Crown on the completion of mining operations and rehabilitation of the land (noting that the Crown will take responsibility for AMD treatment at that point in time).

Buller District Council (BDC), the Crown (DOC, LINZ), and KiwiRail are the other relevant landowners with respect to the Stockton Mine. There are some existing arrangements in place with these landowners. New arrangements will need to be entered into for areas covered by the CML and ACMLs prior to their expiry in 2027 (Figure 3).

Post 2027 Works

In addition to the continuation of the existing mining activities and ancillary mining activities at Stockton and Ngakawau beyond 2027, further disturbance is planned as part of the Project and will be applied for through the FTAA application. The Stockton disturbance schedule is shown below in Figure 4 and includes A Drive, Rockies North, Hope Lyons, Millerton and the A Drive Borrow Pit extension.

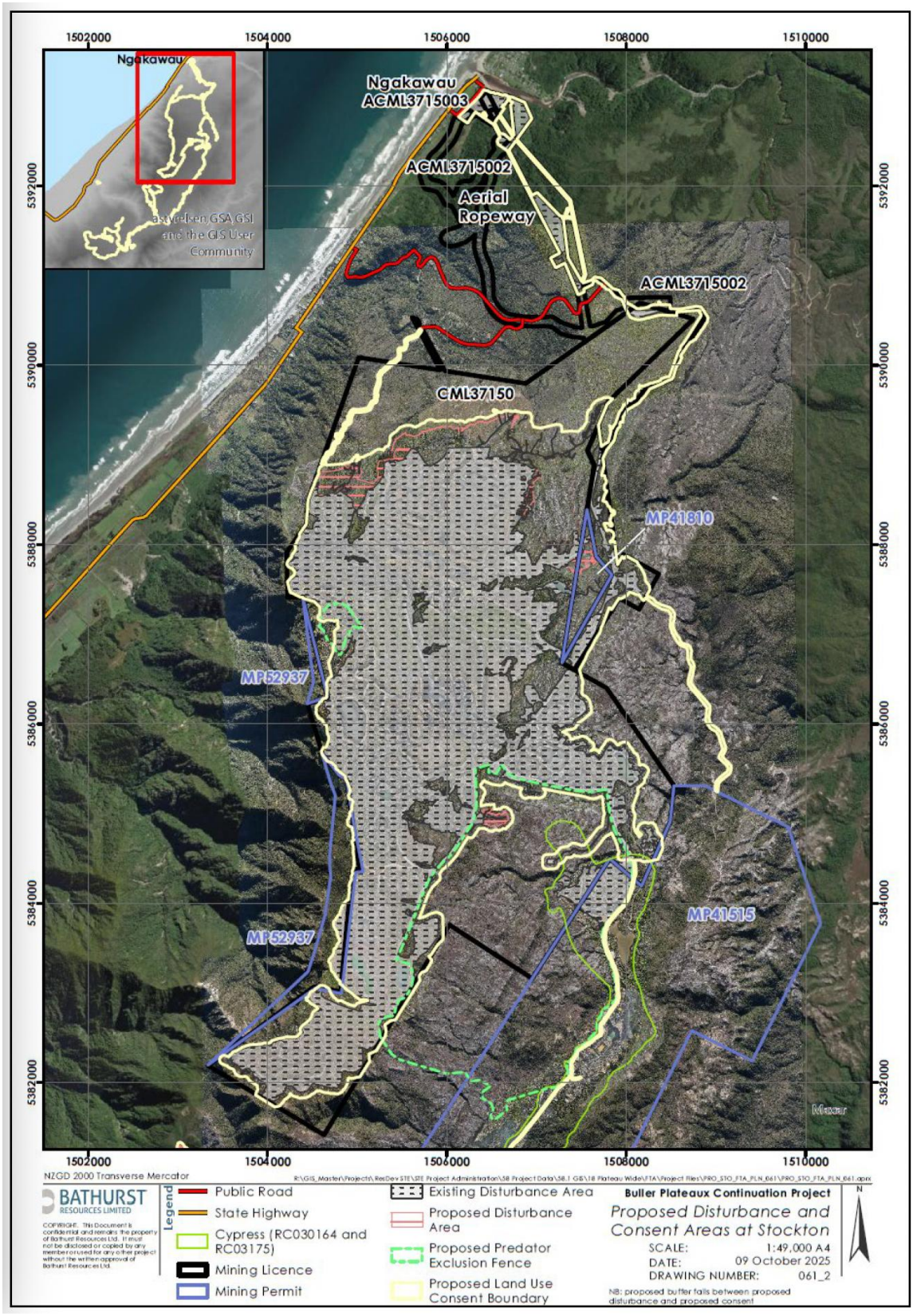
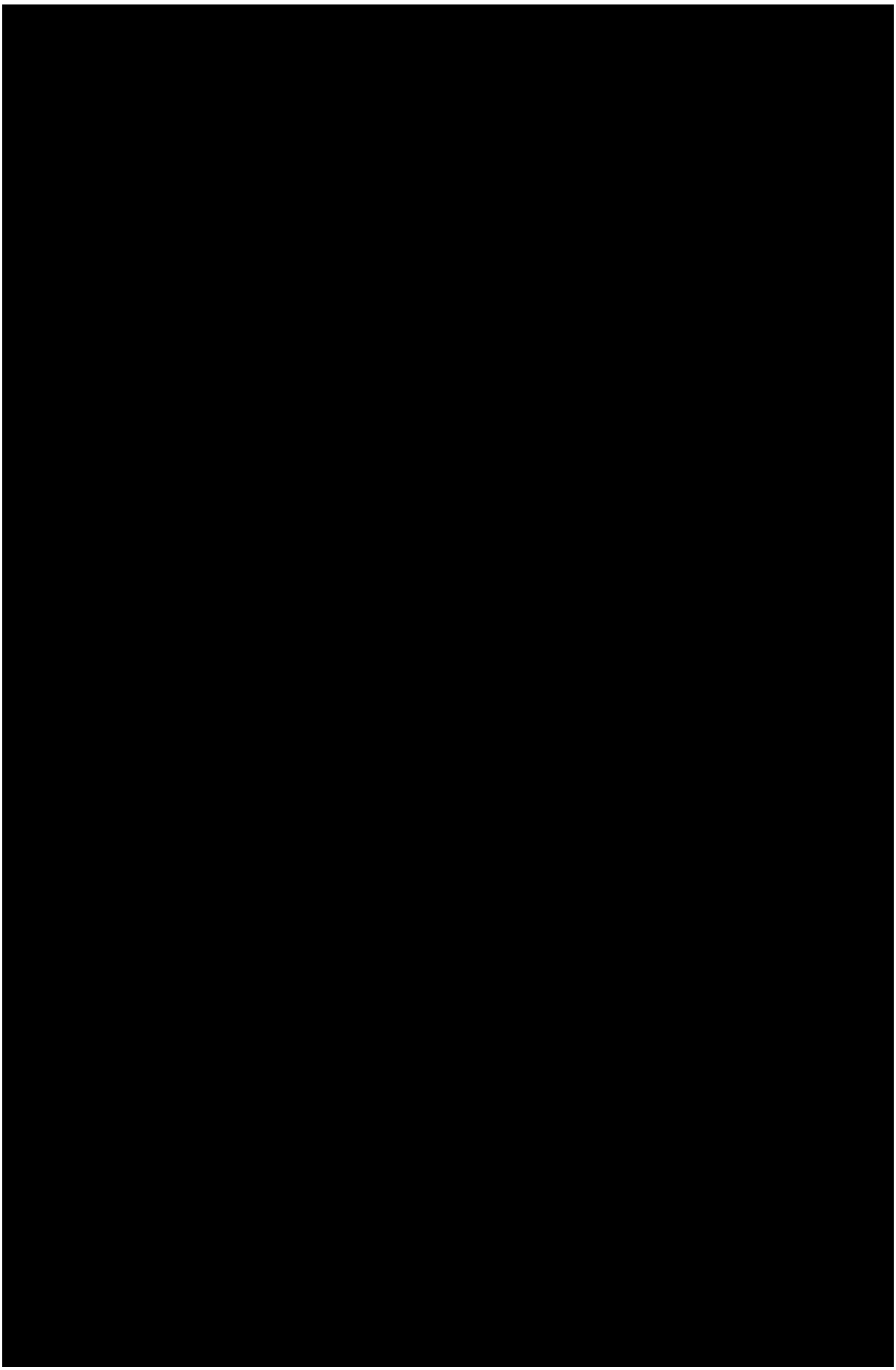


Figure 2. Proposed disturbance and consent areas at Stockton Project sub-area (source: Bathurst)



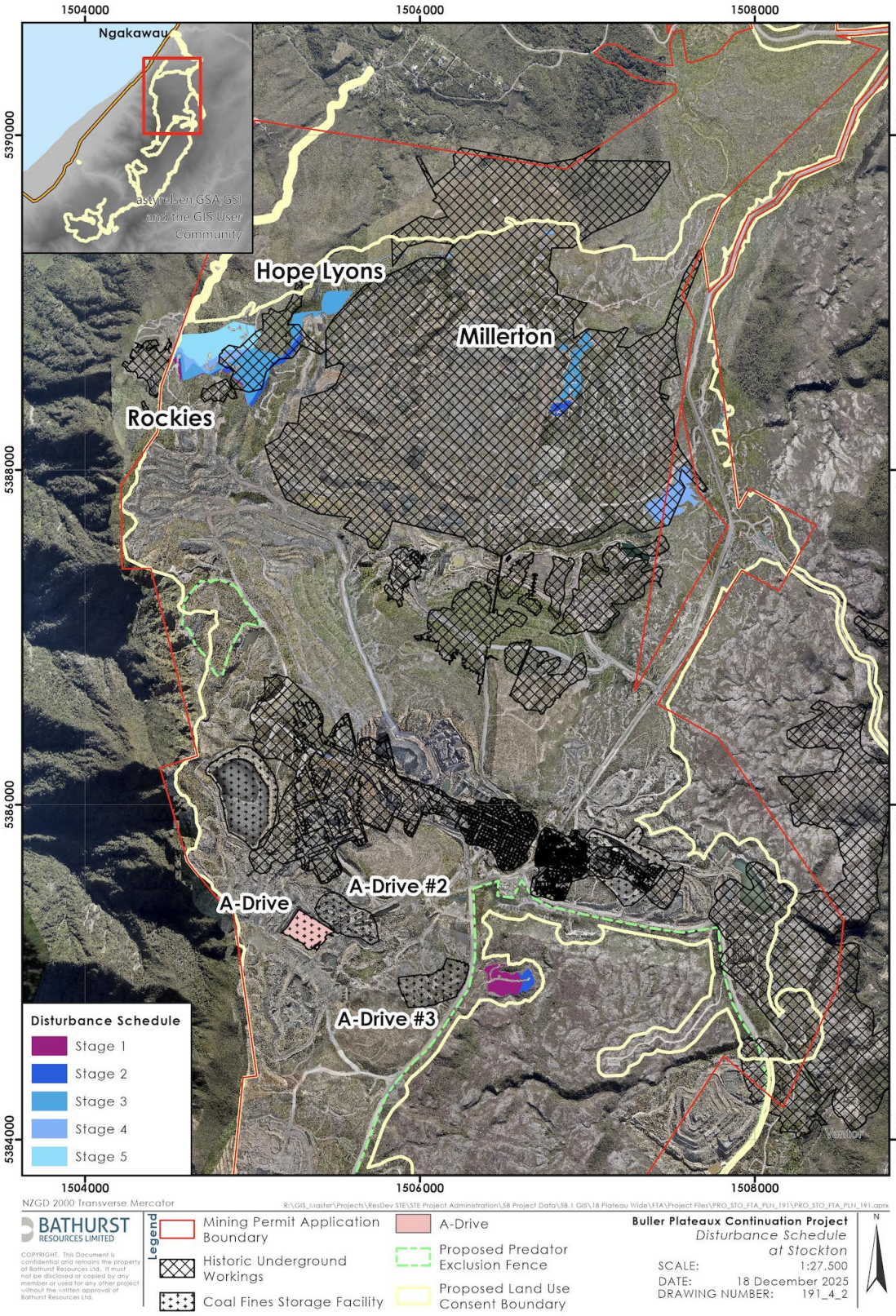


Figure 4. Stockton Project sub-area disturbance areas and schedule (source: Bathurst)

HISTORICAL BACKGROUND

The history of European coal mining on the Stockton Plateau is extensive and has been outlined in detail elsewhere.[2] Coal mining of the Millerton – Stockton area dates from the late 1880s, historically by underground mining (Figure 5). Large scale opencast mining commenced in 1944 and were taken over by Solid Energy as a state-owned enterprise in 1987. Mining has continued until the modern day, gradually spreading out across the plateau.

There has been a great deal of previous historical research, archaeological survey and assessments carried out on the Denniston and Stockton Plateaux, which is summarised in the accompanying Appendix report: BPCP Historical and Archaeological Background. This references the literature and the numerous archaeological reports relevant to the area that were consulted (see Bibliography) and are a main source of information on the historic heritage and archaeological sites on the Stockton Plateau and within the BPCP area for this report.

The Appendix report should be read in conjunction with this assessment report.

[2] Crawshaw 1998: 2; Morgan and Bartrum 1915; Watson May 2023. Also see Bibliography in the Appendix to this report: BPCP Archaeological and Historical Background.

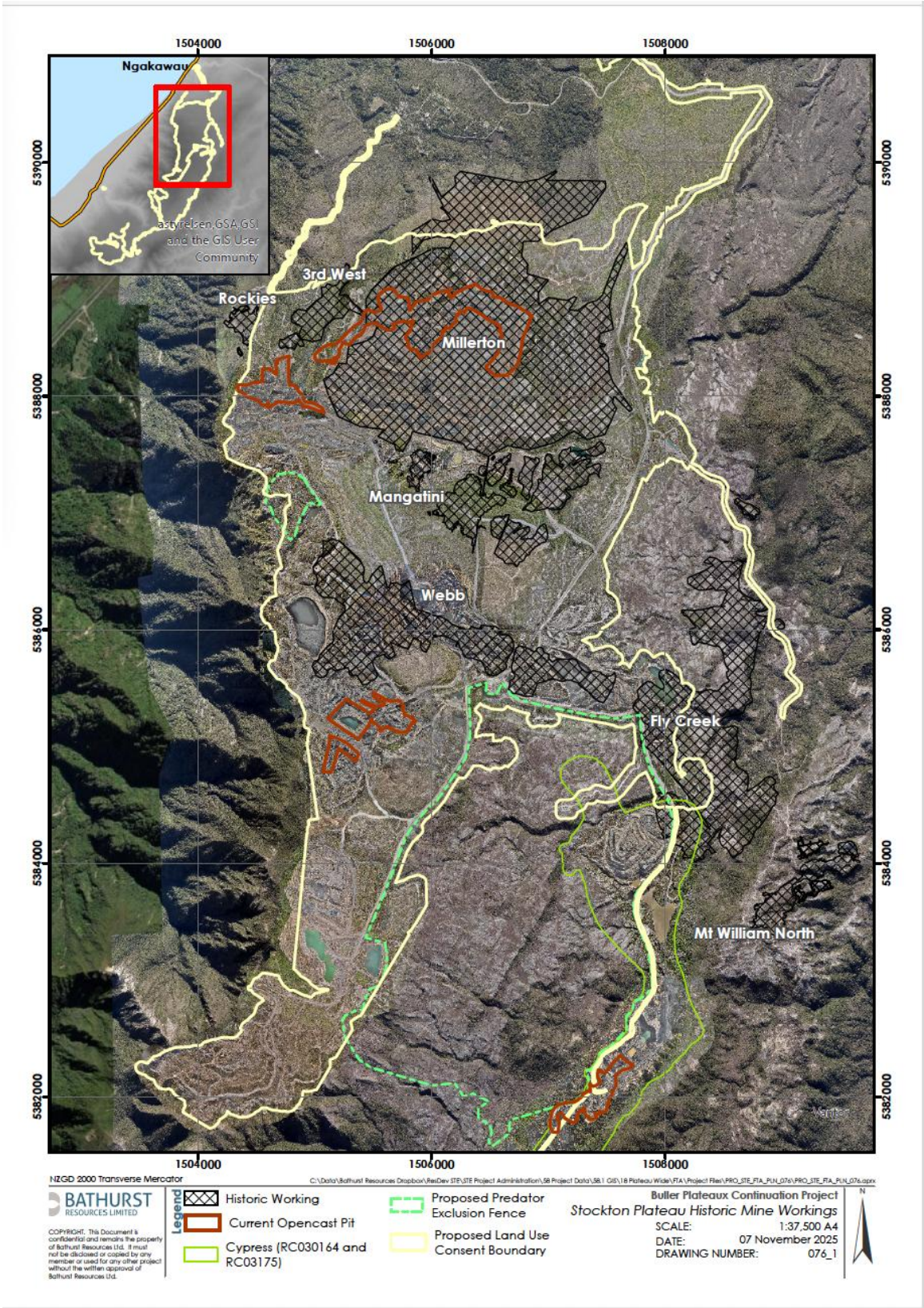


Figure 5. Historic mine workings (black hatching) in the Stockton Project sub-area (source: Bathurst)

ARCHAEOLOGICAL BACKGROUND[3] AND EFFECTS ON HERITAGE SITES

Recorded Archaeological Sites

As a result of previous survey and research, the New Zealand Archaeological Association's (NZAA) site record database (ArchSite) records a number of archaeological sites on the Stockton Plateau and in the vicinity of the Stockton Project sub-area (Figure 6 and Table 1). The number of sites is not exhaustive as it essentially reflects survey coverage and current knowledge and primarily relates to the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA) definition of an archaeological site (provided in Part 5 of this report).

Like the Denniston Plateau, it should also be noted that some recorded archaeological sites include numerous individual heritage places/features over large areas. While not recorded as archaeological sites, it is worth noting that many of the underground workings also remain in situ.

Many other historic heritage sites located on the plateau are not recorded on the ArchSite database because they post-date 1900 (the approach to recording post-1900 sites on ArchSite has not been consistent). Figure 7 is the Stockton Coal Mining License (CML) area historical coal mining plan, which is the result of a contextual study of existing archaeological and other heritage information on the entire Stockton Plateau.[4]

Three archaeological sites are recorded within and in proximity to the Stockton Project sub-area proposed disturbance areas. These sites all relate to late 19th and early 20th century coal mining on the Stockton Plateau – L28/16 Jorgen's Drive, L28/17 Mine Creek Settlement and Infrastructure site and L28/20 Electric Loco Line.

Under the discussion of the Stockton Project sub-area below, these recorded archaeological and other historic features in proximity are mapped and discussed in more detail.

[3] Refer to the accompanying Appendix report for greater detail on the archaeological background of the wider Project area.

[4] An Archaeological Mitigation Plan was part of the agreement of protocols between the New Zealand Historic Places Trust (now Heritage NZ) and Solid Energy concerning their dealings with each other in connection with the Stockton Hydro Electricity Generation Scheme, and the consent area.

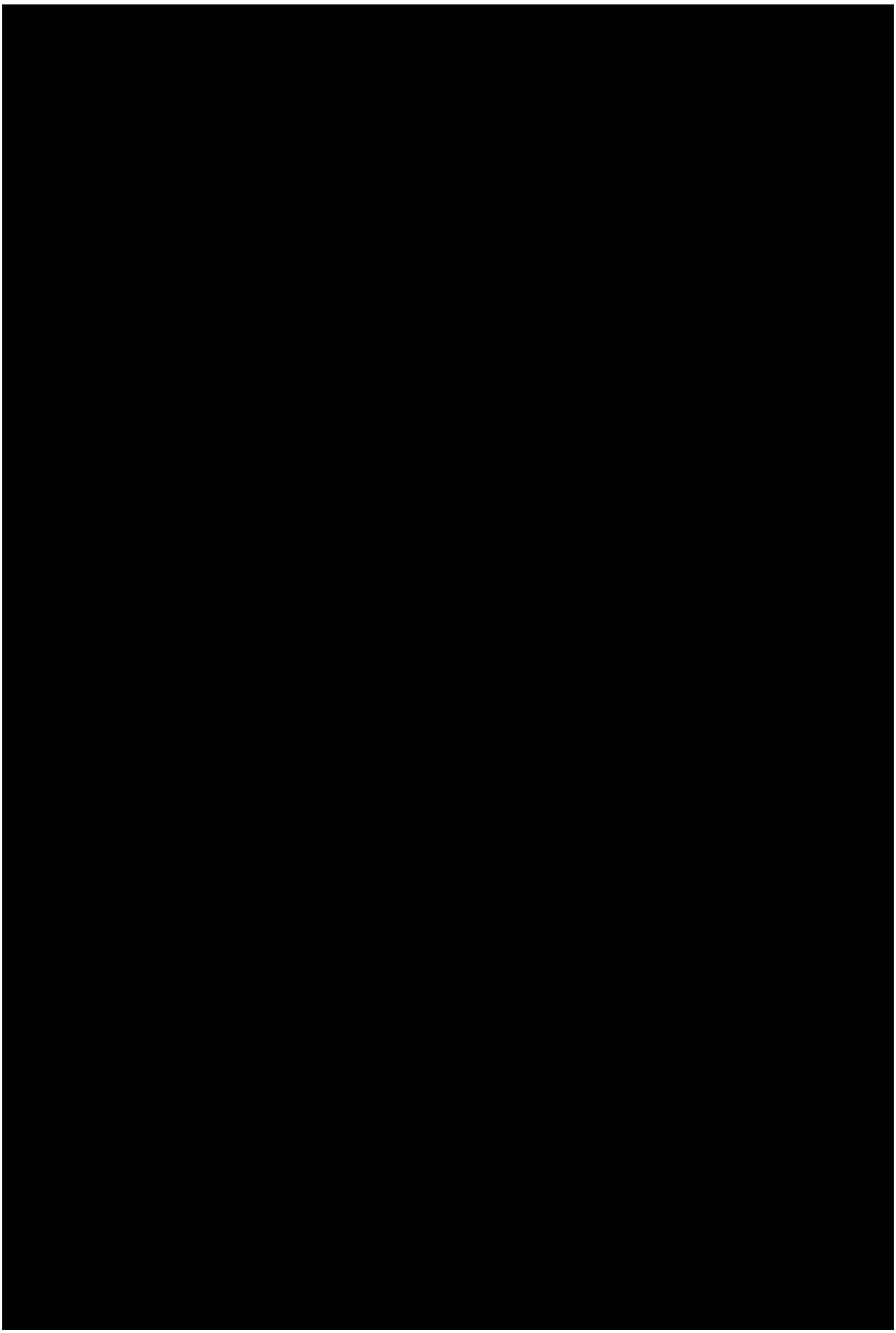


Table 1. Details of the archaeological sites shown on Figure 6. The short description of the physical remains of each site reflects the information in the site record form for the site. Those sites that will be affected by the proposed Stockton Project sub-area are highlighted (source: NZAA ArchSite, 2025)

ArchSite #	Name	Description	Company
L28/6	Charming Creek Railway	Early 20th century tramway in the Ngākawau gorge. Connected to Watson's sawmill. Remains largely intact and in situ.	
L28/8	Millerton Incline	Lower section of the Millerton incline, built 1891-93. The formation remains, along with a tunnel and stone walling.	Westport Coal Company
L28/9	Old Dip Mine	Coal mine portal and self-acting tramway, constructed c.1893-95. Ran from the Old Dip mine portal to the transfer station at Millerton. The remains also include a bins site and a pack track.	Westport Coal Company
L28/10	Mine Creek Mine	Mine portal. Just south of Millerton. Opened c.1898-99. The archaeological remains consist of the portal and the tramway/upper incline.	Westport Coal Company
L28/11	Millerton Bathhouse	Bathhouse building remains. Built 1920. There is a dam nearby.	Westport Coal Company
L28/12		Stone dam, built c.1905. Just south of Millerton. Probably built to supply water to another dam on the Millerton incline.	Westport Coal Company
L28/13	Millerton Dam	Dam, built c.1905-06. No information about its function, etc.	
L28/14	Rockies Mine	A horse tramway, various coal mine workings (mostly opencast) and mining machinery. The mine operated 1924-34.	Westport Main Coal Company
L28/15	Rockies Incline	Incline tramway (self-acting) to transport coal from the Rockies mine to the bins next to the railway line.	Westport Main Coal Company
L28/16	Jorgen's Drive	A tramway formation	
L28/17	Mine Creek	Mining settlement. Partly excavated and part of the site has been flooded. Some building sites remain, including part of the boiler house.	Westport Coal Company
L28/18	Granity Coke Ovens	Built c.1909-10. One of the original six was extant at the time of recording.	Westport Coal Company
L28/19	Stockton Incline	Built 1906-07. There has been some disturbance, but it is still possible to follow most of the formation.	Westport-Stockton Coal Company
L28/20	Electric Loco Line	Built 1906-08.	Westport-Stockton Coal Company
L28/32	Tintown/ Darlington	Mining settlement, initially associated with the electric loco construction. Site largely destroyed by haul road construction.	Westport-Stockton Coal Company
L28/33	Millerton – Mine Creek Pack Track	Pack track built in about 1898 to provide access from Millerton to the new mine portal at Mine Creek.	

ArchSite #	Name	Description	Company
L29/21	Mangatini Creek	Mining settlement. Occupied c.1906 – c.1935. Remains at the time of recording consisted of a culvert and wing walls, as well as some chimney bases.	Westport Coal Company
L29/50	Fly Creek	Coal mine. Worked from the 1920s until 1970, mostly underground, but as a hydro mine from 1953. Bins, fluming and tramway remain, along with bulldozed bridge abutments, a portal, buildings and two dams.	Westport-Stockton Coal Company, State Coal
L29/82	Coal Island	Underground coal mine, first worked in the 1920s. Closed in 1922, then worked as an opencast mine in 1948 by State Coal. Has not been worked since. Some underground workings still extant at the time of recording. Also, a dam, old road formations and the remains of a power/telegraph line.	Westport-Stockton Coal Company, State Coal
L29/83	Mt William	Development of the mine began in 1969, with the first coal produced on 29 Aug 1969. Closed on 30 September 1980. Numerous features remain.	State Coal
L29/97	Sandcap Mine	Historical details are sparse, but it was being worked by 1919. Portals remain, along with two tramways, a winch foundation and seven power poles, along with other scattered remains.	Westport-Stockton Coal Company

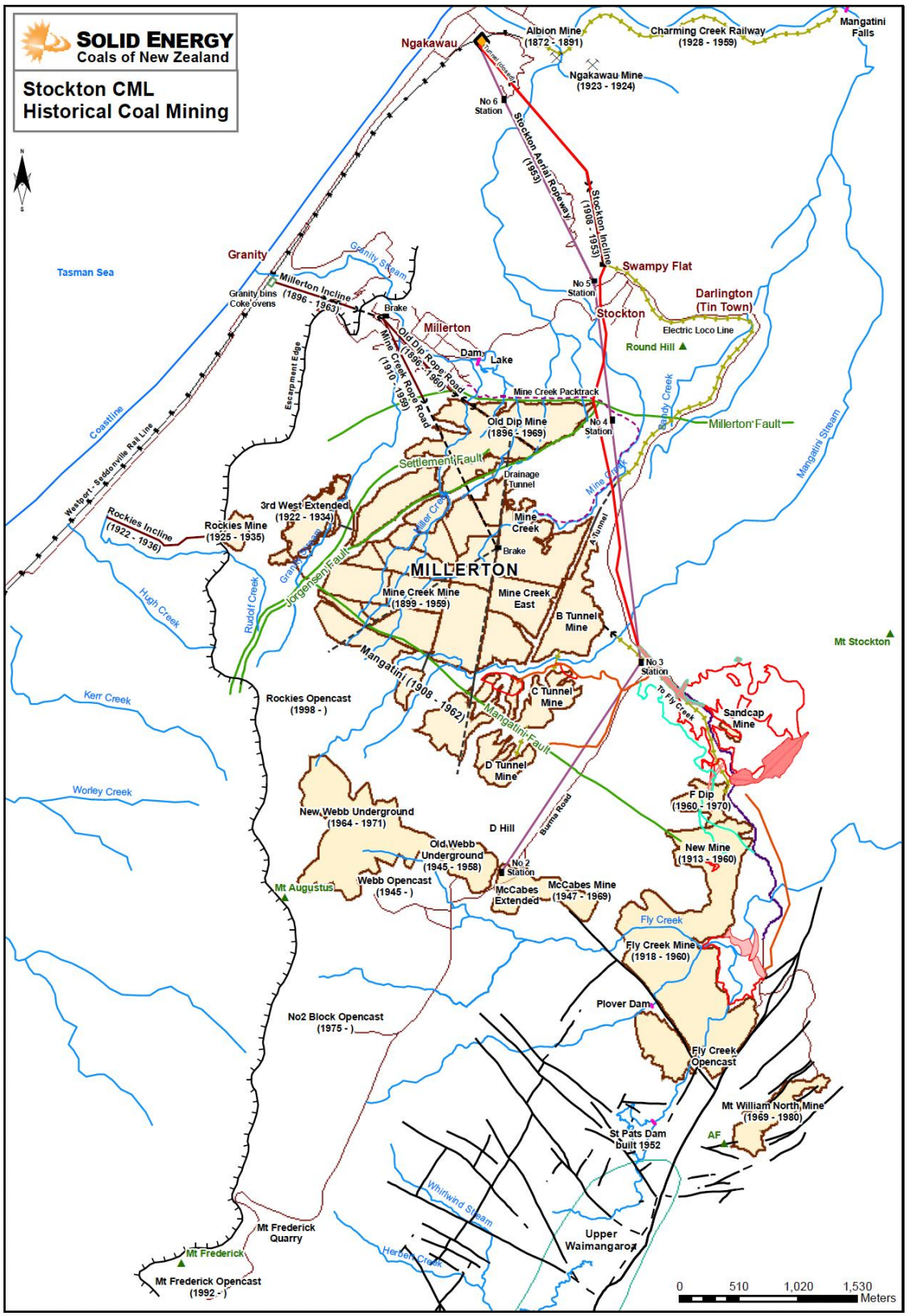


Figure 7. The Stockton CML Historical Coal Mining plan (source: Solid Energy). Note, the solid yellow areas indicate the extent of underground mine workings

Electric Loco Line (L28/20)

Archaeological Background[5]

The Electric Loco Line began being constructed in c.1906-1908 for the Westport-Stockton Coal Company, as the means of carrying coal from their new mine across the Stockton Plateau to the top of the Stockton Incline (at 'Swampy Flat'), which carried the coal down to the bins and railway sidings at Ngākawau. As its name indicates, the line was powered by electricity and was arguably the first electric railway in New Zealand. It operated until 1953, when it was replaced by the aerial cableway (Watson May 2023).

The first section of the Loco Line ran between the south end of 'B' Tunnel and the top of the Stockton Incline (Figure 8). Work must have started on the line late in 1906 or early in 1907. No. 1 Substation was located between Swampy Flat and the mouth of 'A' Tunnel; No. 2 Substation was at the mouth of the latter; and No. 3 was at the furthest end of 'B' Tunnel.

When the Westport-Stockton Coal Company developed the 'C' and 'D' Tunnel mines, to the south of Mangatini Stream, this work necessitated an extension to the mine's haulage system, and a bridge for the Loco Line was built across Mangatini Stream in May 1910, known as Mumm's Bridge. In 1913, work began at New Mine, which was further to the southeast, and led to a further extension of the Electric Loco Line and necessitated the construction of No. 4 Substation. Part of this section of the Loco Line ran through a tunnel, named Mumm's Tunnel. The final extension of the Loco Line came in 1923, when the Fly Creek mine opened (*Grey River Argus* 16/2/1923: 4). Most of this extension was underground, but a short section of the Electric Loco Line was above ground at the bins site for the Fly Creek Mine (Figure 9).

In 1949 State Coal began construction of an aerial cableway to transport the coal, which replaced the Electric Loco Line and the Stockton Incline.

Archaeological survey of the Loco Line was first carried out by Sumner and Sumner (1983) as part of the 'Coalfields Park Report.' Subsequently, archaeological survey and assessment of the Electric Loco Line was carried out by Watson (2008, 2009 and 2010b), as part of an archaeological mitigation plan under Agreement in Relation to the Historic Heritage on the Stockton Plateau and the Stockton Hydro Electricity Generation Scheme. A section of the Loco Line was also revisited by Watson in April 2023 for BT Mining Ltd. At that time relocating some sections of the Loco Line was hampered by the vegetation growth in the intervening years. While the exact location of the Loco Line formation could not always be found, it was clear that the formation had not been disturbed by earthworks or any of the other proposals for which the earlier assessments had been carried out (Watson May 2023:9).

[5] For more detailed historical background to this site see the accompanying Appendix report: BPCP Historical and Archaeological Background.

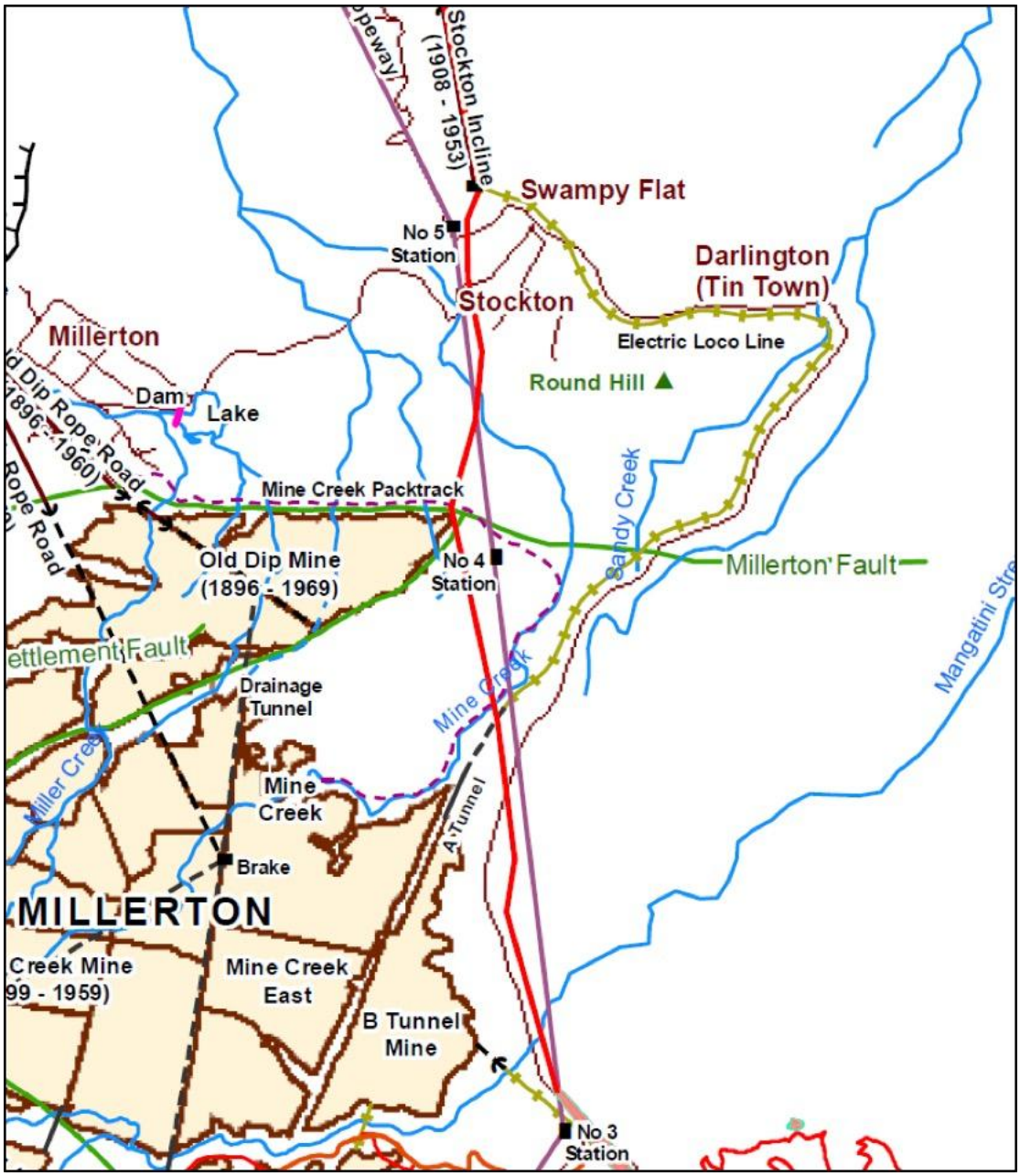
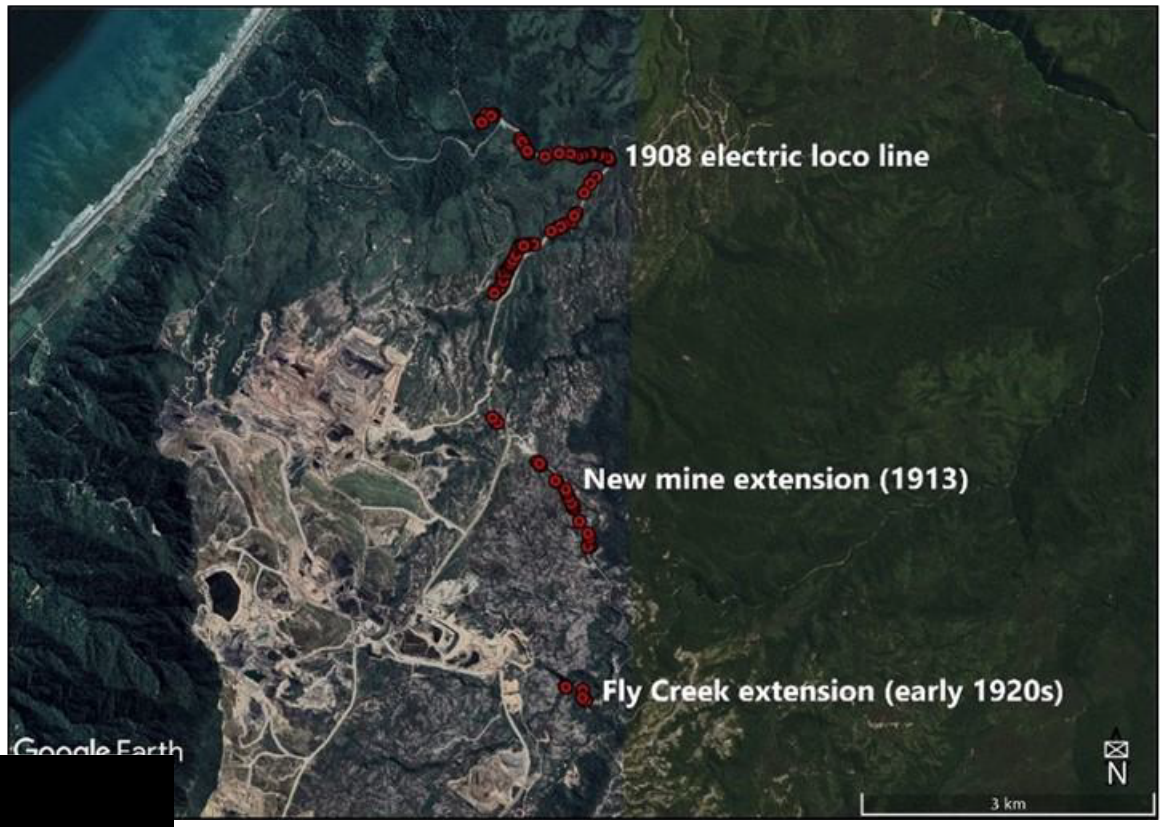


Figure 8. The first section of the Electric Loco Line (in olive green), between the top of the Stockton Incline at Swampy Flat and the southern end of 'B' Tunnel. This section was partly underground through the 'A' Tunnel and 'B' Tunnel (source: Solid Energy New Zealand Ltd)



Electric Loco Line, as recorded in 2008 and 2010. Only the above-ground sections of the line have been recorded archaeologically with GPS waypoints (red dots) (source: Watson May 2023:26)

First Section of Electric Loco Line (1908) [6]

The first section of the Electric Loco Line is discussed here as this is the only part of the line affected by the Stockton Project sub-area of the BPCP.

This section of the Loco Line begins at the top of the Stockton Incline, where it is difficult to make out any definite evidence of the sidings that were in this area. There are scattered concrete foundations here (as well as building remains). From here, it is possible to follow the line briefly before it is cut by the existing haul road.

The line is initially difficult to make out on the south side of the haul road but is obvious by the time it reaches the site of the loco workshop and No. 1 Substation, which lie above the haul road. The workshop site consists of concrete foundations with two 'wells' in between them and the remains of a substation to the south.

The Loco Line then runs above the haul road until shortly beyond the Tintown corner, where the line is on an embankment for most of its length, with some cutting also evident in places (Figure 10). There are the remains of power, telephone and/or telegraph poles on this section, as well as a bridge. Also of note are the remains of a siding just west of the bridge.

[6] Sourced from Watson May 2023.

After the Tintown corner, the loco line is on a small embankment for much of its length and there has been filling across gullies to build the line. There are few features associated with the line until the section leading to 'A' tunnel, where the Loco Line runs through impressive rock cuttings. As with much of the line up to this point, regenerating bush is growing in the cuttings, thus obscuring details associated with the line. Nonetheless, poles are visible along the outside edge of the cutting and there are various metal artefacts attached to the inside wall of the cutting. It is also likely that there were drains running down the inside of the cutting.

The cutting ends shortly before the Loco Line enters 'A' Tunnel and the line has been benched around a rock face (Figure 11). An old coal tub lies at the end of the cutting (Figure 12) and there are various metal and electrical artefacts scattered along the embankment between this point and the tunnel entrance, some of which will be associated with the substation that was at this entrance. The tunnel entrance is in good condition and timbers can be seen inside the tunnel (Figure 13). Here, the Electric Loco Line ran underground through 'A' and 'B' Tunnels, emerging briefly from 'A' Tunnel to cross a small stream before entering 'B' Tunnel (Figure 14). The first section of the line was built as far as the end of 'B' Tunnel (Figure 15).

The underground section of the Electric Loco Line within the 'A' and 'B' Tunnels was not surveyed in 2023 or during the recent field survey due to access restrictions and safety considerations. However, these tunnels were inspected and 3D mapped by John Taylor (formerly of Solid Energy). This information is held in Bathurst Archives and Figure 16 and Figure 17 show an overlay of the 'B' Tunnel portal, alignment and underground workings and an image from the 3D scan of the 'B' Tunnel and intercepting underground workings.

The section of line within 'B' Tunnel is apparently in good condition, with some rails remaining in situ and electrical fittings along the walls of the tunnel (no waypoints were recorded underground). Evidence of other tramways that carried coal to the Electric Loco Line also remain in situ here. From 'B' Tunnel, the line emerges to cross Mangatini Stream, before being cut by the haul road.

Figure 10. A cutting through rock on the Loco Line on the First Section. Note the power poles to the right and the aerial cableway in the distance (Watson Jul 2008)

Figure 11. View from the Mine Creek Pack-Track of aerial cableway crossing the electric railway. 'A' tunnel entrance is in centre of photo (arrowed) (source: Sumner and Sumner 1983)

Figure 12. The remains of a coal tub adjacent to the Electric Loco Line adjacent to the First Section (Watson Jul 2008)

Figure 13. 'A' Tunnel portal (Waypoint 761) (Watson Jul 2008)

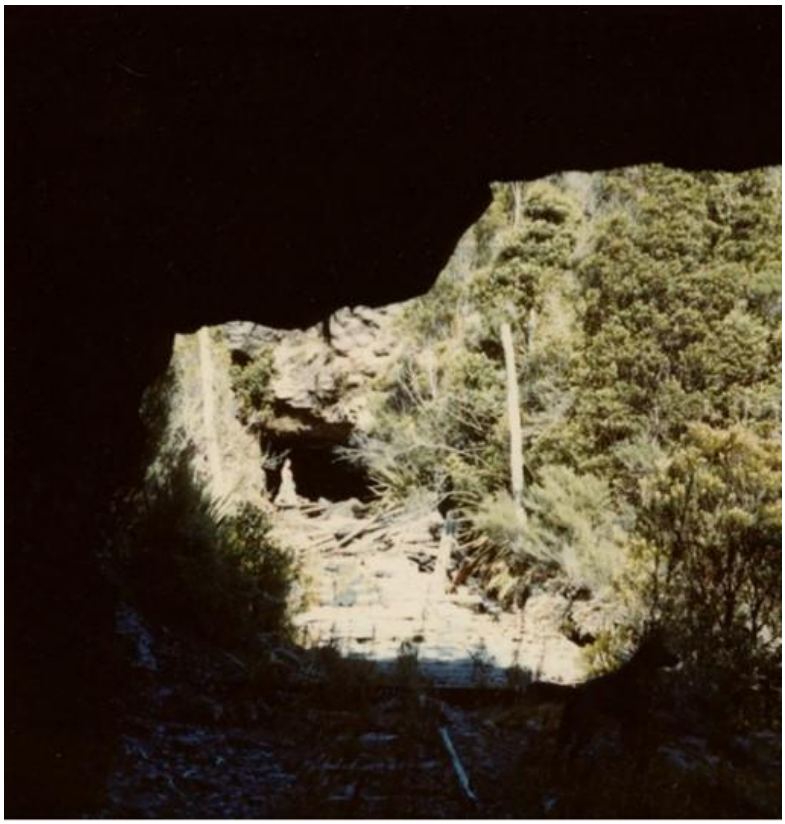


Figure 14. View of the 'B' Tunnel from 'A' Tunnel (source: Sumner and Sumner 1983)

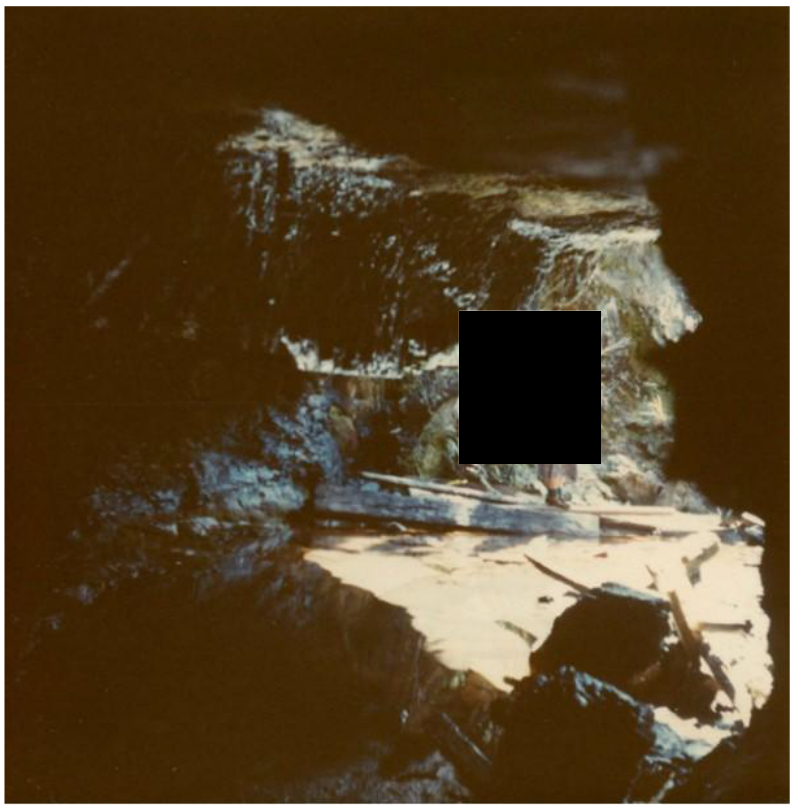


Figure 15. Looking out of 'B' Tunnel (source: Sumner and Sumner 1983)

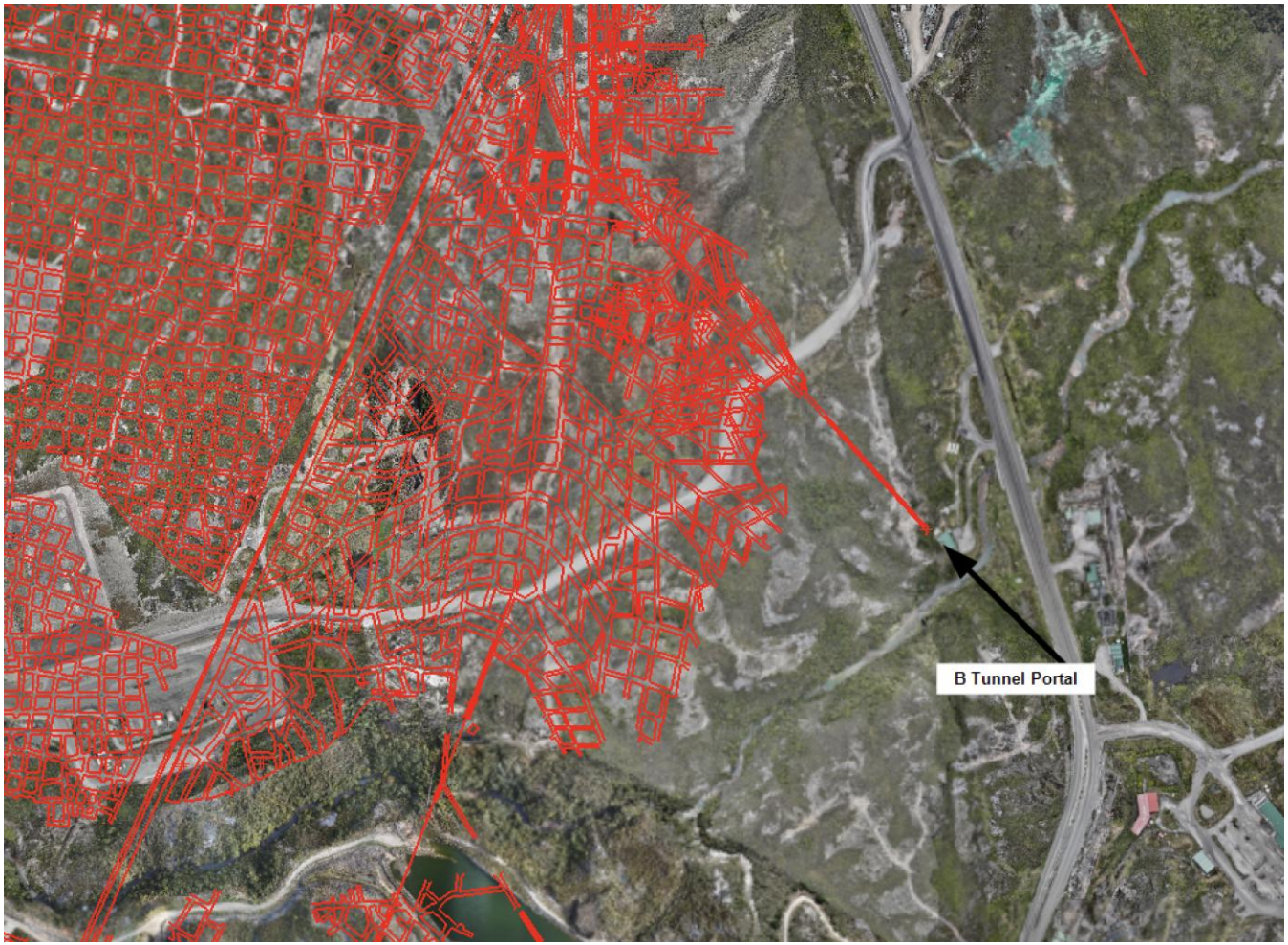


Figure 16. Overlay of the 'B' Tunnel portal, alignment and underground workings (source: Bathurst)

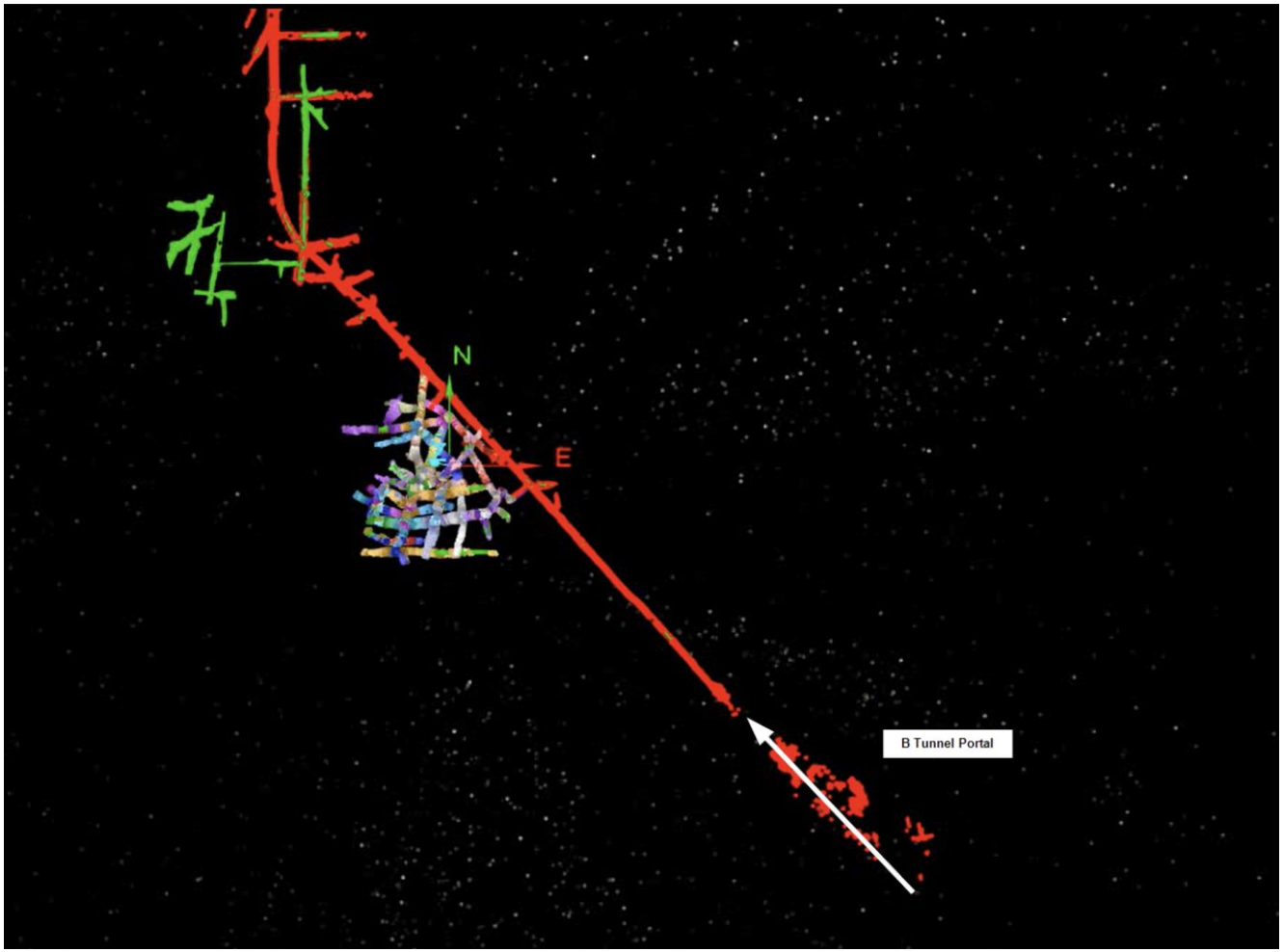


Figure 17. Image from the 3D scan of the 'B' Tunnel and intercepting underground workings (source: Bathurst)

Effects of the Stockton Proposal

The Stockton Project sub-area will destroy an approximately 125m section of the Electric Loco Line at the southern end of the 'B' Tunnel, which is part of the 1908 first section of the Loco Line (Figure 18 and Figure 19). The section of line within 'B' Tunnel has previously been described as in good condition, with some rails remaining in situ and electrical fittings along the walls of the tunnel. The 'B' Tunnel portal (Watson wpt 2) and the initial extent of the tunnel from this portal will not to be affected.

The ongoing loss of sections of the Electric Loco Line over time has had a cumulative effect on this significant site. The formation has been damaged in different places, typically by work on the haul road and particularly on the original 1908 section (it is acknowledged that much of this damage had occurred before the Sumners first recorded the line in 1983 and that the line does not appear to have been damaged since 2008 – Watson May 2023). At this time, approximately 80% of the line remains in situ, with four major cuts in it (Watson May 2023). Destroying a part of the 'B' Tunnel would have a detrimental effect on the heritage values of this site and add further to the cumulative effects on it.

It is worth noting that a major water quality improvement in streams draining the Millerton area (including Granity and Miller Streams, Mine Creek, and Ngakawau River) is anticipated with the four stages of the Mine Creek Sump project/Millerton North Water Project (MNWP). The MNWP would include the construction of significant water management infrastructure to capture and treat Acid Mine Drainage (AMD) from historic and current workings in the Millerton area. Whilst not part of the BPCP, the Millerton AMD plan has provisioned for and complements the current MNWP planning should the Crown opt to proceed with the MNWP in the future.

Constructing the sump will necessitate excavating large quantities of spoil, which will, in turn, require the construction of a dump. Both the dump and part of the pipeline could potentially affect other areas of the First Section (1908 – 1913) of the Electric Loco Line (L28/20) in the future by the proposed laying of a pipe along 540m and burying another 430m section of the Loco Line (Watson May 2023:51).

The Stockton Project sub-area will also affect the eastern edge of the 'B' Tunnel Mine underground workings. These underground workings date from the early 20th century and are well recorded on mining plans (see Figure 16) and have also been previously inspected and 3D mapped (Figure 17).

However, any opportunity to record and recover evidence of the mining techniques employed and the conditions of the workers within the underground workings would contribute to our understanding of mining and miners of this period. It should be noted that safety is an issue that must be taken into account prior to any exploration of underground workings.

Effects of Air Blast and Vibration

Air blast and vibration levels for avoiding structural damage to historic structures have been assessed in the BPCP Assessment of Noise Effects (Marshall Day Acoustics Feb 2026:36).

Guideline vibration limits for '*Structures that, because of their particular sensitivity to vibration, cannot be classified under [Commercial or Residential buildings] and are of great intrinsic value (e.g. listed buildings)'* are provided in the Noise Assessment report. It

is noted that Bathurst already has established procedures that recognise potential damage to historic buildings and monuments from blasting at Stockton. The document, 'Stockton Mine Drilling and Blasting Design Application and Reporting' (STO-TEC-PRO-102 ver 2.0) provides vibration criteria and procedures for controlling ground vibration. The Noise Assessment recommends that this procedure should apply to all project areas, including the Stockton Project sub-area, and that STO-TEC-PRO-102 ver 2.0 is updated with the DIN 4150-3:2016 Guideline values for vibration velocity, for evaluating the effects of short-term vibration on historic structures.

The guideline vibration levels for structures that align with the DIN 4150-3 classification are set out in Table 15 of the Assessment of Noise Effects:

Table 15: DIN 4150-3:2016 Guideline values for vibration velocity, for evaluating the effects of short-term vibration on structures

Guideline values for peak particle velocity at foundation, at all directions, at a frequency of		
1 Hz to 10 Hz	10 Hz to 15 Hz	50 to 100 Hz
3 mm/s	3 to 8 mm/s	8 to 10mm/s

The BPCP Assessment of Noise Effects also recommends that for the protection of sensitive heritage structures:

Blasting vibration shall not exceed the following peal particle velocities when measured at the foundation of sensitive heritage structures:

Peak particle velocity at foundation, at all directions, at a frequency of		
1 Hz to 10 Hz	10 Hz to 15 Hz	50 to 100 Hz
3 mm/s	3 to 8 mm/s	8 to 10mm/s

To assist with the evaluation of potential damage to heritage structures from blasting, historic structures were identified that could be at risk due to their construction and proximity to BPCP activities. This included the adjacent section of the 'B' Tunnel outside the area of proposed disturbance.

It is also recommended in the Noise Assessment report that where the applicable criterion could potentially be exceeded, mine blast engineers employ design steps to implement a 'proximity' blast that will typically include the use of smaller charge weights and blast hole diameters.

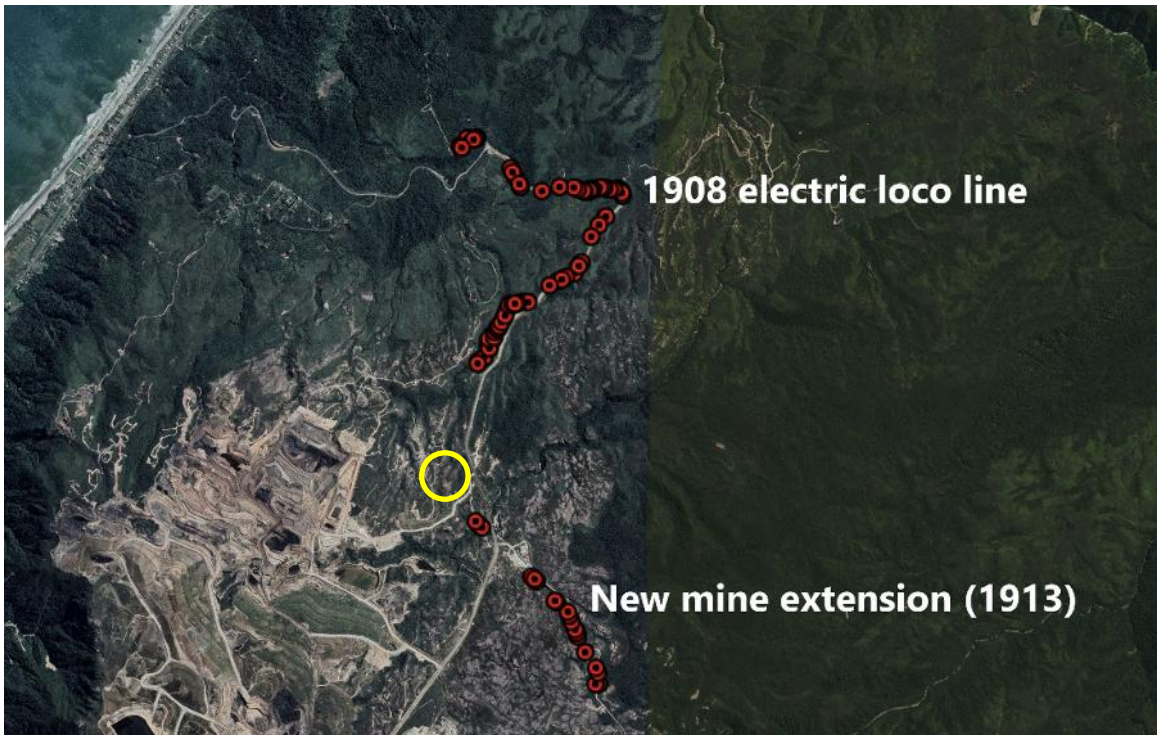
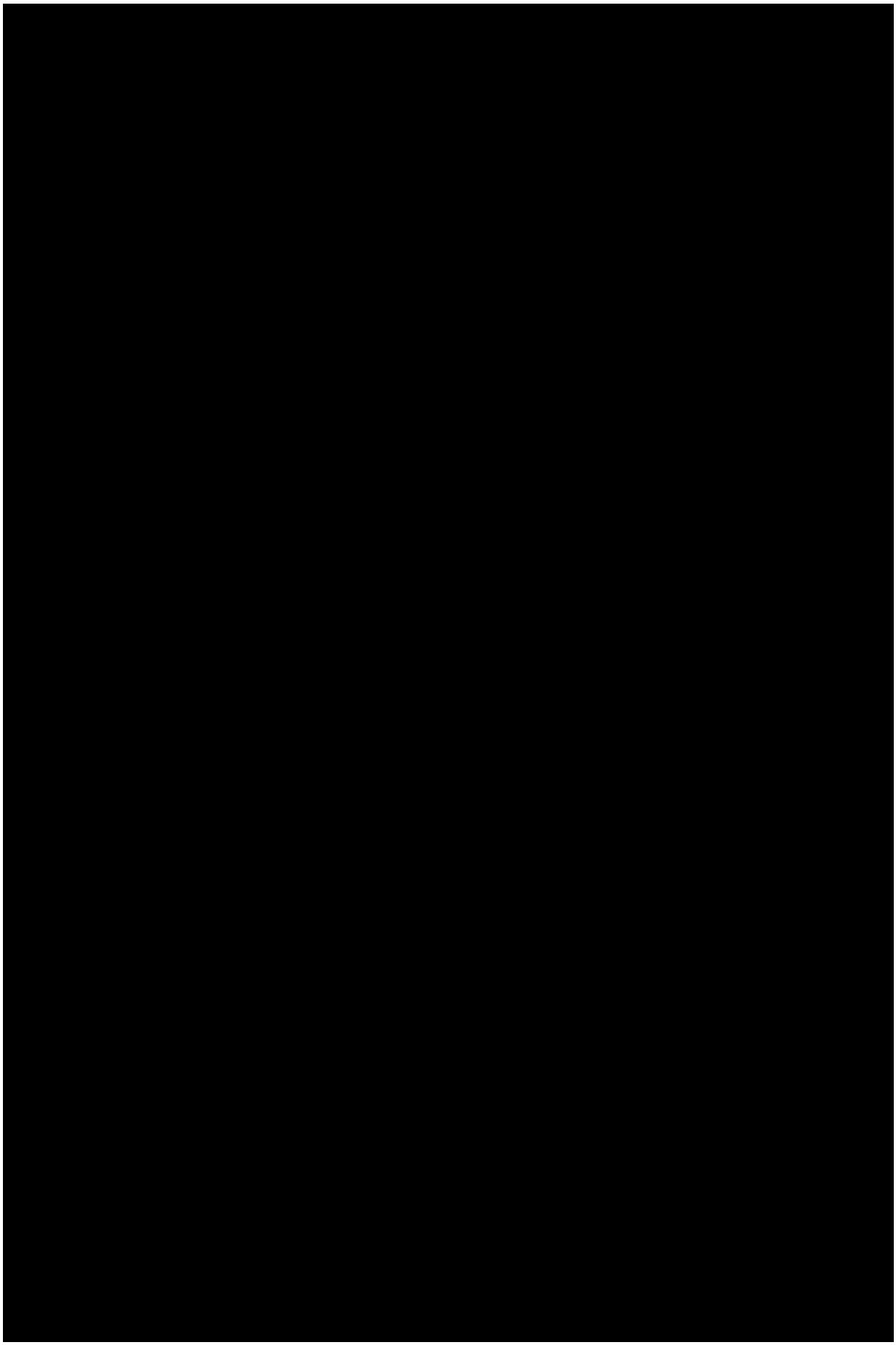


Figure 18. The First (1908) and New Mine Extension (1913) of the Electric Loco Line. The location of disturbance of the Stockton Project sub-area within the 'B' Tunnel is circled (source: Watson May 2023, amended)



Mine Creek Settlement (L28/17)

The site of the mining village at Mine Creek lies on the Stockton Plateau in a narrow valley on either side of Mine Creek stream, which flows from south to north through the settlement site (Figure 6).

Construction of the Mine Creek mine infrastructure began in 1899, when the boiler shed and air compressor house at Mine Creek were built (Figure 20). It is not clear when people began to live at Mine Creek, but it is possible that people were living there while the infrastructure was being built and that more came following the start of mining. The mining township appears to have been abandoned in the 1930s and the powerhouse somewhat later (Figure 21).[7]

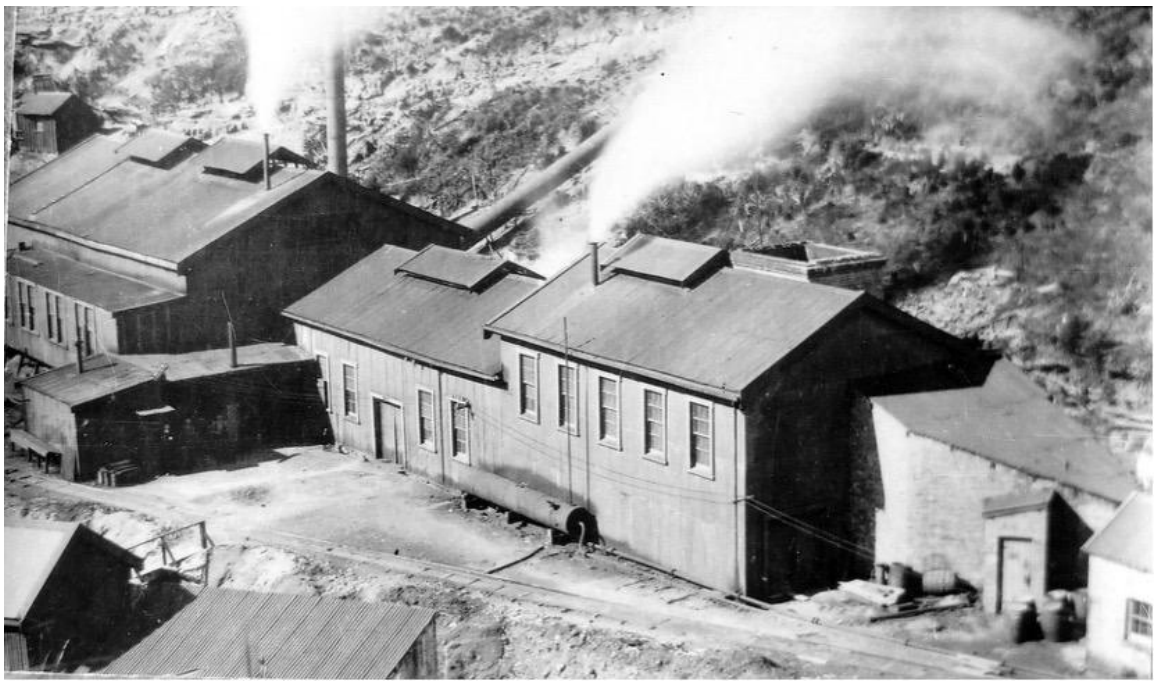


Figure 20. Boiler and air compressor sheds at Mine Creek (source: Coaltown Museum (Ref: MN56) in Watson 2007 Plate 9 Pg. 55)

[7] For more detailed historical background to this site and historic photographs see the accompanying Appendix report: BPCP Historical and Archaeological Background.

Figure 21. Looking south over Mine Creek settlement, with the air compressor and boiler sheds smoking in the background. There is no known date for this photograph but it is likely to be one of the earliest taken of Mine Creek (source: Granity Museum; in Watson 2007:16, Plate 2 Pg.51)

Archaeological Background

The first archaeological survey of the Mine Creek settlement was undertaken by Sonia and Terry Sumner in 1983 (Sumner and Sumner 1983) as part of a broader survey of the archaeological remains of coal mining at Denniston and on the Stockton Plateau. This survey investigated and recorded the remains of both the mining infrastructure and the associated settlements (Figure 22). It detailed the history of the sites and included both historic and contemporary photographs.

They recorded the concrete remains of the bath house, concrete and brick boiler house remnants and the concrete slab and back wall of the compressor and generator shed, ventilation flue (3m x 3m x 4m tall) and two open adits. There was also evidence of domestic buildings, which included miners' huts, a boarding house and a hall. A bulldozed track crossed part of the site and the original benched track to Mangatini ran along above the bulldozed access track.

Mine Creek was subsequently entered into the NZAA Site Recording Scheme by Ray Hooker in 1989, as L28/17.

In 2007 Katharine Watson undertook an archaeological survey of the Mine Creek Settlement, recording heritage features with GPS waypoints (see Figure 23 and Table 2). However, the degree of vegetation made it difficult to locate features that were identified in the historical photographs and the earlier survey by Sumner and Sumner in 1983.

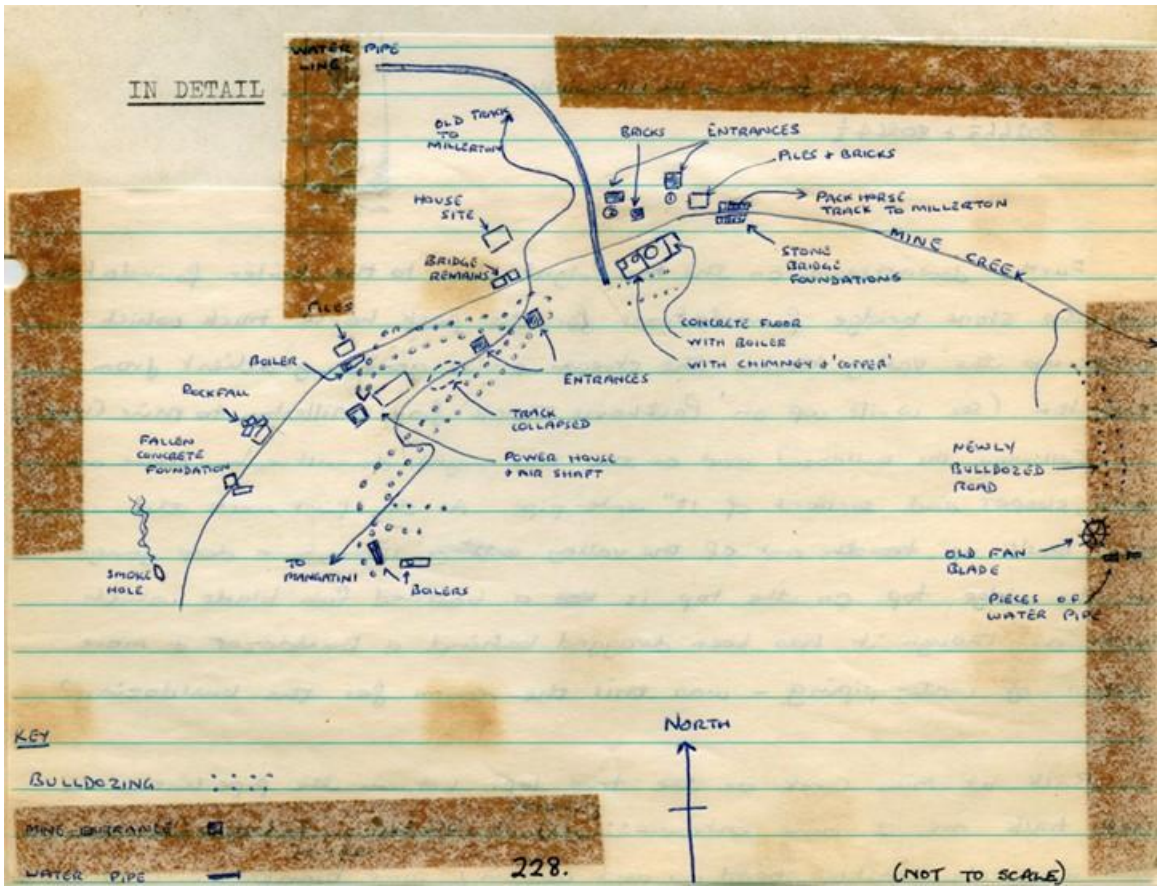
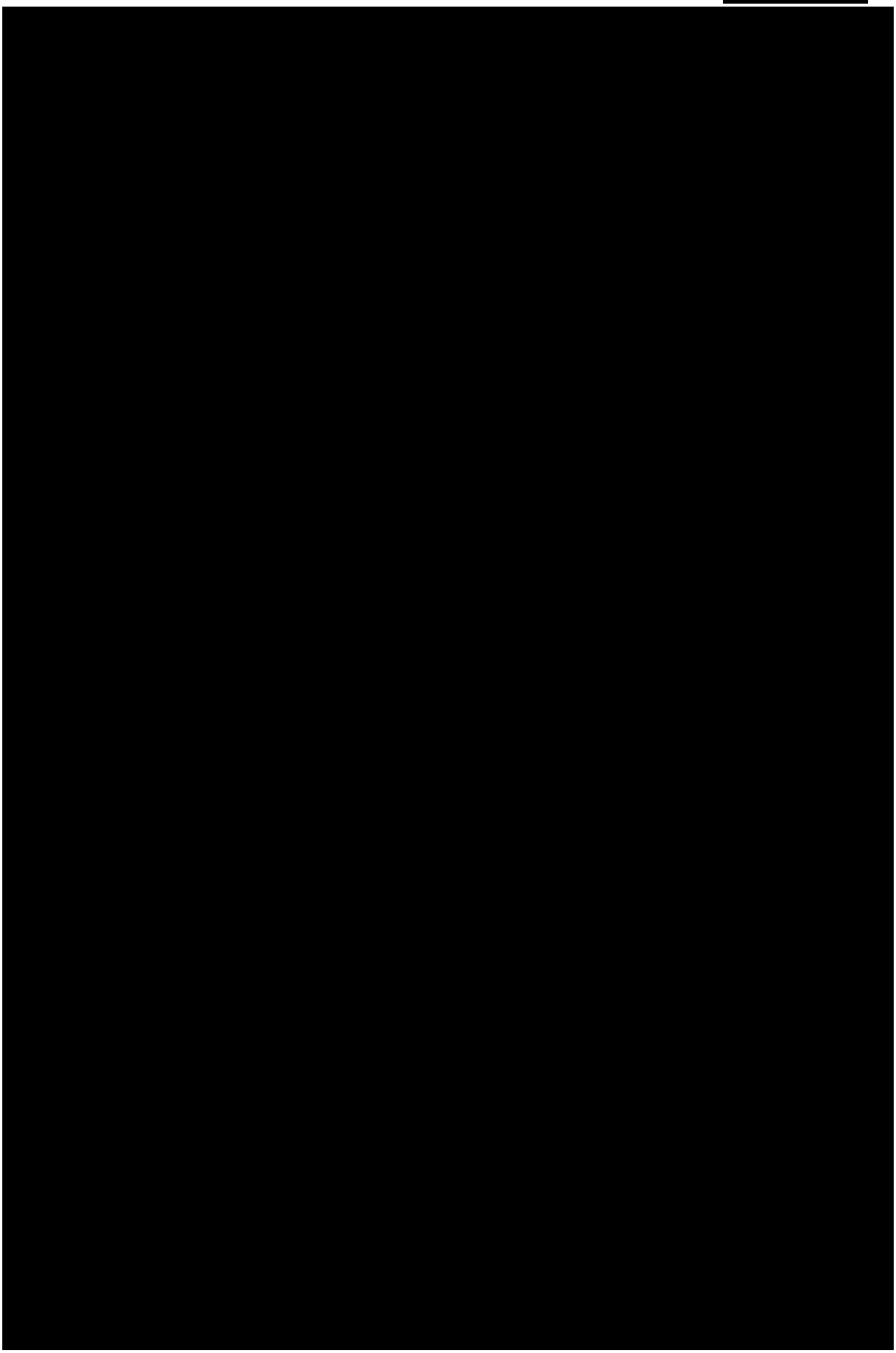


Figure 22. Original sketch of the remains of Mine Creek Mine infrastructure and settlement site (L28/17) in 1983 (Sumner and Sumner 1983)



[redacted]

	Description	Status in 2025
	power/telegraph pole	
	pack track	
	pack track	
	pack track	
	artefact collection	Mapped and partially investigated
	building foundations & terrace	Mapped and partially investigated house
	pipeline	
	pipeline	
	posts/piles	
	formed embankment	Mapped and partially investigated
	formed embankment	Mapped and partially investigated
	mine entrance	
	building terrace/structural remains	
	posts/piles	
	posts/piles	
	posts/piles	
	posts/piles	
	posts/piles	
	building terrace	
	pipeline	
	building remains (bath house)	Area C
	building remains	
	power/telegraph pole	
	embankment	
	embankment	Modified by road
	embankment	Mapped and partially investigated house
	embankment	Mapped and partially investigated
	railway iron	
	pipeline	
	metal pin	
	pipeline	
	coal face	
	coal face	
	Fletcher's Drive mine entrance	Investigated (Area K) Modified by road
	track to Mangatini	Modified by road
	track to Mangatini	Modified by road?
	track to Mangatini	Modified by road?
	brick foundations of the Boiler House flue	Investigated (Area S) Modified by road
	track to Mangatini	Modified by road
	Boilers (not in-situ)	
	power/telegraph pole	
	air compressor sheds	Partially investigated
	air compressor sheds	Partially investigated
	Building terrace at northern end of pack track	
	Collapsed concrete dam upstream of settlement; suppled water to the boilers and the cooling chambers for the air compressors	Buried under mining bund; destroyed?

[redacted]

Description	Status in 2025
brick walling	
Possible magazine with brick walled entrance	Unsafe due to mining bund overhang
rubbish	
wooden drain/flume	
wooden post	
stone revetting at the end of the embankment (associated with a bridge?)	
tramway/embankment that carried coal to the boilers	Investigated (Area L)
tramway/embankment that carried coal to the boilers	Investigated (Area L) Modified by road
tramway/embankment that carried coal to the boilers	Investigated (Area L)
tramway/embankment that carried coal to the boilers	Investigated (Area L)
standing railway iron	
air compressor sheds / brick ventilation flue for the Fan House	Mapped and investigated except for a small part of the compressor shed

Other features, buildings and structures visible in the historic photographs,[8] were not located during either Watson's 2007 survey or the Sumners' survey, despite extensive searching. It is possible that some of these remains may have been destroyed/damaged during later mining work in the area. At least one would have had to have been removed to install a pipeline (Waypoints 9, 10, 22, 35 and 37).

Watson concluded that it was difficult to establish when most of the buildings and structures at Mine Creek Settlement were constructed. The only buildings that were definitely on site prior to 1900 are the air compressor shed, boiler shed and ventilation flue. As such, these are the only features that are definitely protected under the HNZPTA, although further research might establish that some of the other buildings were also constructed prior to 1900 (Watson 2007).

However, in 2009 an archaeological Authority application was made and granted by the Historic Places Trust[9] to Solid Energy Ltd to destroy the remains of the historic Mine Creek infrastructure and settlement site by opencast mining due to underground fires compromising access to the settlement. The Authority (No. 2009/327) was granted with conditions requiring archaeological recording, investigation, sampling, analysis and reporting.

A Research Strategy (Watson n.d.) was prepared and in 2009-2010 archaeological recording, investigation, sampling and analysis of the Mine Creek site took place under the Authority.

While most of the planned areas of the Mine Creek site were investigated, some were not. The following areas were planned to be excavated: limited excavation around the fan house; the compressor shed; two chambers of the boiler shed; the stables; the boarding house; the house site to the north of the boarding house; the house site adjacent to the mine

[8] See historical background to this site and historic photographs in the accompanying Appendix report: BPCP Historical and Archaeological Background.

[9] Now Heritage NZ

portal on the true left of Mine Creek; the bath house area; the area around a concrete pillar on the true left of Mine Creek; [redacted].

The following areas were excavated: one chamber of the boiler shed and most of the compressor shed (wypts 52, 53 and 101); five house sites; an industrial building (the house site to the north of the boarding house); and the terrace adjacent to the portal on the true left of Mine Creek. The planned excavation of another house site, the bath house area (wypts 23 and 25), [redacted]

This was for a variety of reasons. In the case of the stables, vegetation clearance revealed that this area had been bulldozed after the settlement was abandoned. Vegetation clearance in the area of the building site to the west of the fan house revealed piles of concrete but no obvious building site. [redacted]. The magazine had not been a high priority for excavation and there was not sufficient time to investigate this area. Excavation of the bath house area and the boarding house did not take place because as the excavation of buildings proceeded it became apparent that few artefacts were being found and that the most useful information being gained was about the construction of the building. At private domestic sites this information could provide an insight into the world of the person who built and occupied the building, through the size of the house, how well it was built and evidence of attention to detail or display. Construction information, however, about more public buildings was likely to be less useful in informing our understanding of the settlement and those who occupied it. As such, a number of house sites were excavated instead of excavating the bath house area and boarding house.

A topographic survey of the of the Mine Creek settlement area and further GPS recording of artefacts and features were carried out (Figure 24, Figure 25), as well as 3D laser scanning of the fan house / compressor shed and bathhouse (Figure 26). Artefacts from the archaeological investigations and surface collection was undertaken and analysed. To date only a draft preliminary report on the archaeological excavations at Mine Creek has been completed (Watson 2010a).

After the 2009-2010 archaeological investigations a mining road has been constructed through the Mine Creek Settlement, a water pipeline installed along the road alignment and a dam built across Mine Creek to form a large water reservoir in the valley floor (Figure 25). This has modified and removed additional features associated with the Mine Creek Settlement. Table 2 summarises the known state and condition of the historic features at Mine Creek Settlement at the time of this report.

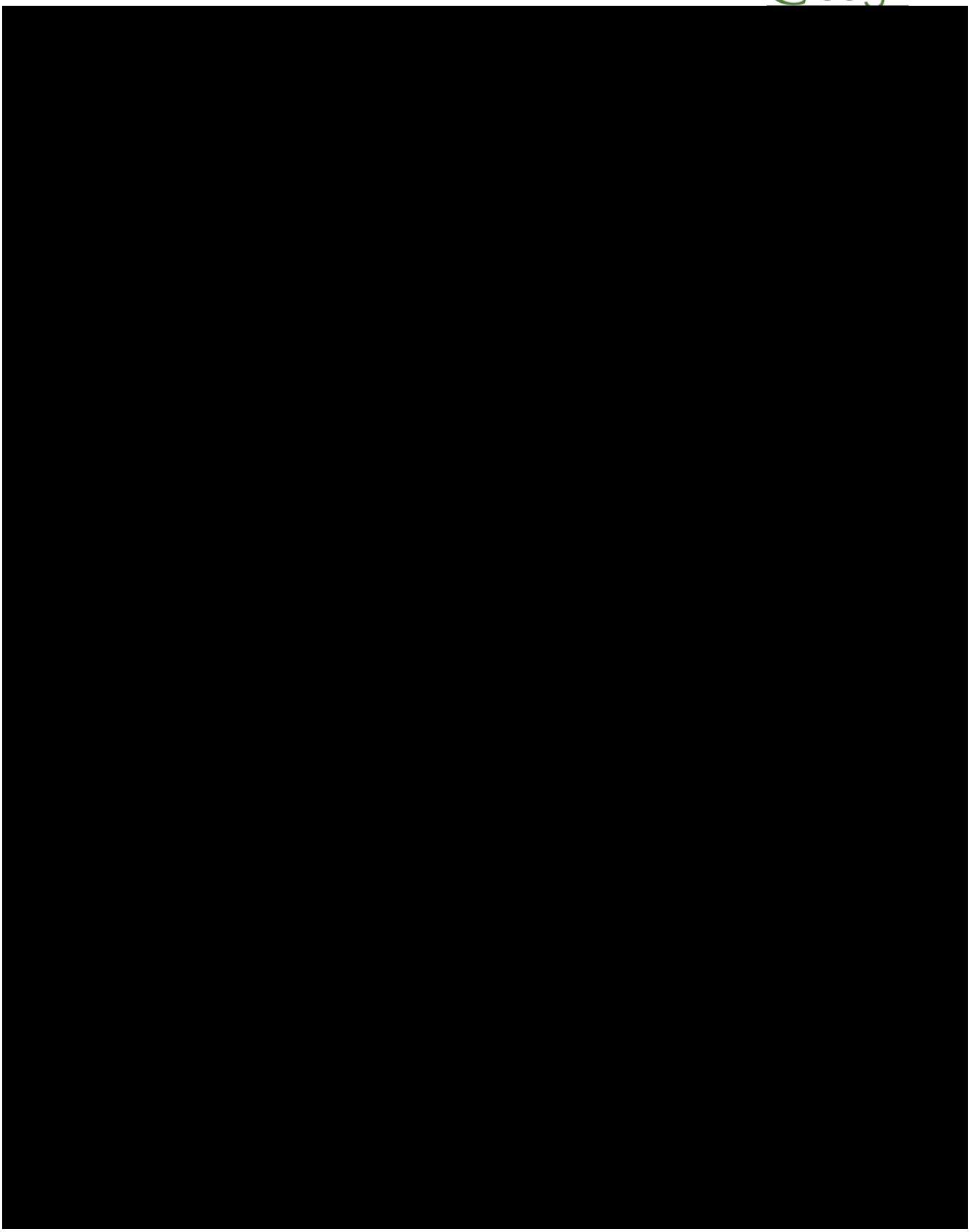


Figure 26. 3D laser scan image of the bath house (the concrete foundation and boiler in the background left) at wypts 23 and 25

Field Survey

As part of this assessment a field inspection of the Mine Creek Settlement and Infrastructure site was carried out on two occasions by the first two authors.

The settlement is overgrown with thick gorse and dense low growing vegetation, making it difficult to identify any but the more prominent features (Figure 27). However, there has been considerable modification to the Mine Creek Settlement site by recent mining activities and prior archaeological investigation under the archaeological Authority. A mining road and water pipeline has been constructed through the centre of the site (Figure 28). Mine Creek has also been dammed to create a large reservoir immediately north and in front of the air compressor sheds and fan house (Figure 25 and Figure 29).

The brick ventilation flue for the fan house is the most prominent structure remaining south of the reservoir (Figure 29). However, other heritage sites were identified including the remains of the wash house and the bath house (wypts 23 and 25) and pack track (wypts 2, 3, 4 and 5) (Figure 30–Figure 32). Other remaining features were hidden beneath the vegetation.

Figure 27. Looking north from the mine road across the former site of the Mine Creek Settlement under vegetation in the valley (2024)

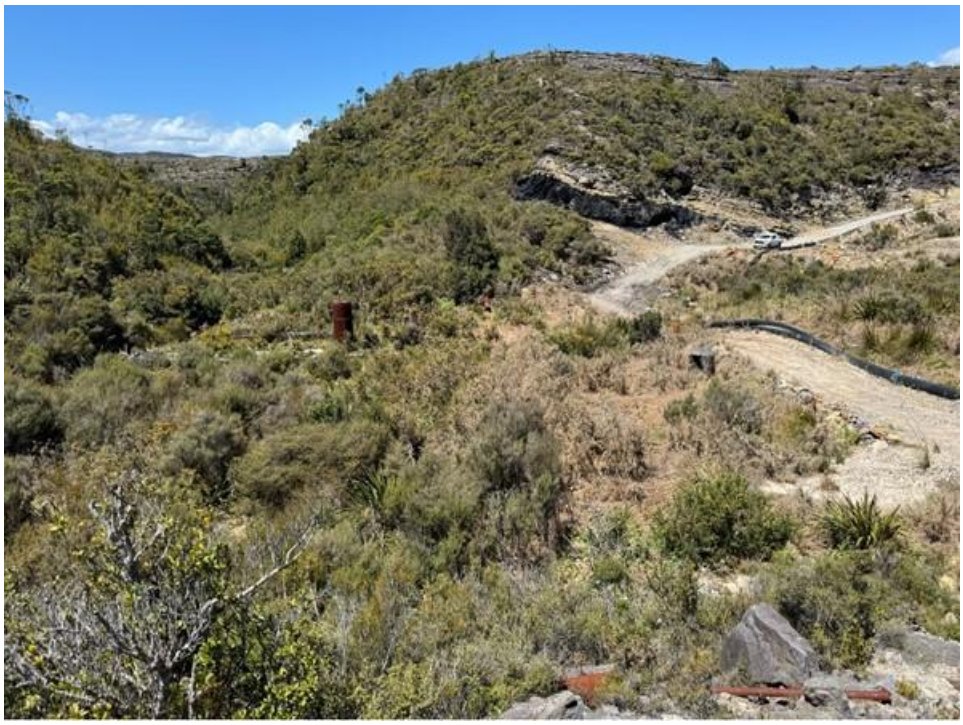


Figure 28. Looking east over the settlement with the mine road through the Mine Creek Settlement site (right), and structural remains of a vertical boiler, a brick fireplace and chimney, a second brick structure, a concrete block and a concrete foundation (wypts 23 and 25, left); and possibly the remains of the wash house (the chimney and a copper base) and the bath house (the concrete foundation and boiler) (2024)

Figure 29. Looking south across the mine reservoir that encompasses Mine Creek to the brick ventilation flue and associated concrete foundations (wypt 101). The site of the air compressor and boiler sheds (wypts 52 and 53) is located on the terrace left of the brick flue (2024)

Figure 30. Remains of the wash house (the fireplace with brick chimney and a copper base in foreground) and the bath house (the concrete foundation and boiler in the background left) at wypts 23 and 25 (2024)

Figure 31. Close-up of structural remains (the concrete foundation and boiler) at wypts 23 and 25 (2024)

Figure 32. Remains of the pack track on the true left of Mine Creek (wypts 3, 4 and 5) (2024)

Effects of the Stockton Project sub-area

According to Project plans the existing planned disturbance (as at 1 April 2027) under current resource consent will destroy approximately the southern half of the Mine Creek Settlement and Infrastructure site, as provided for by the 2009 archaeological Authority (No. 2009/327) to destroy the remains of this site by opencast mining (see Table 2 and Figure 33). The recorded features within this area of disturbance include the power house complex (boiler house, air compressor shed and fan house with brick ventilation flue), the magazine and associated terrace, tramway embankments, coal face, Fletcher's Drive mine entrance, remains of a concrete dam and part of a track.

According to the draft preliminary report (Watson 2010a) on the archaeological excavations at Mine Creek and examination of topographic survey plans and excavation field notes provided by Katharine Watson to Bathurst, these features within the areas of proposed disturbance were recorded, mapped and the majority archaeologically investigated under Authority in 2009-2010.

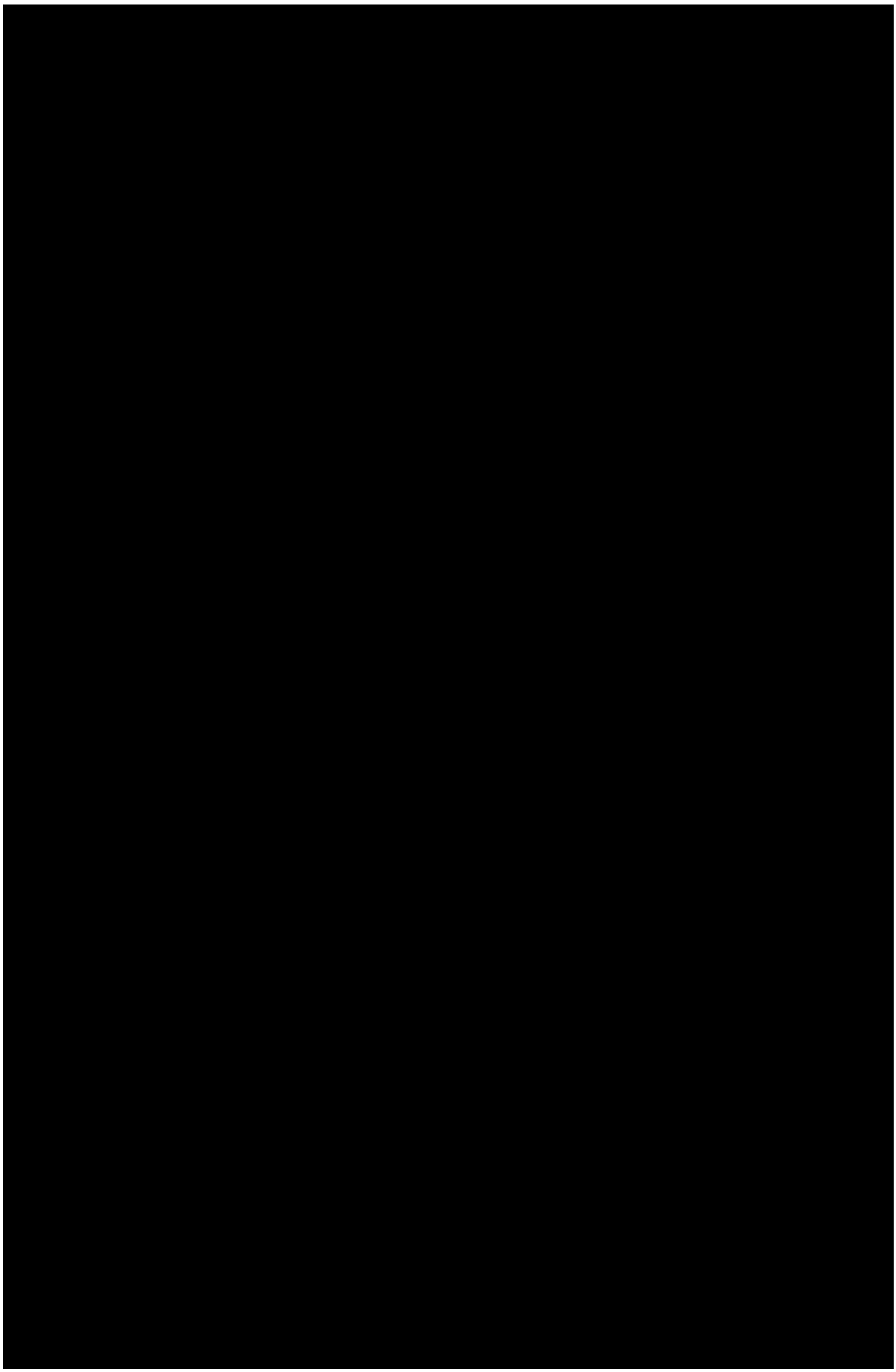
[redacted] It consists of a rectangular area which has been hollowed out of the hillside with a brick entranceway and an associated terrace. Watson speculated that there may have been another structure here.

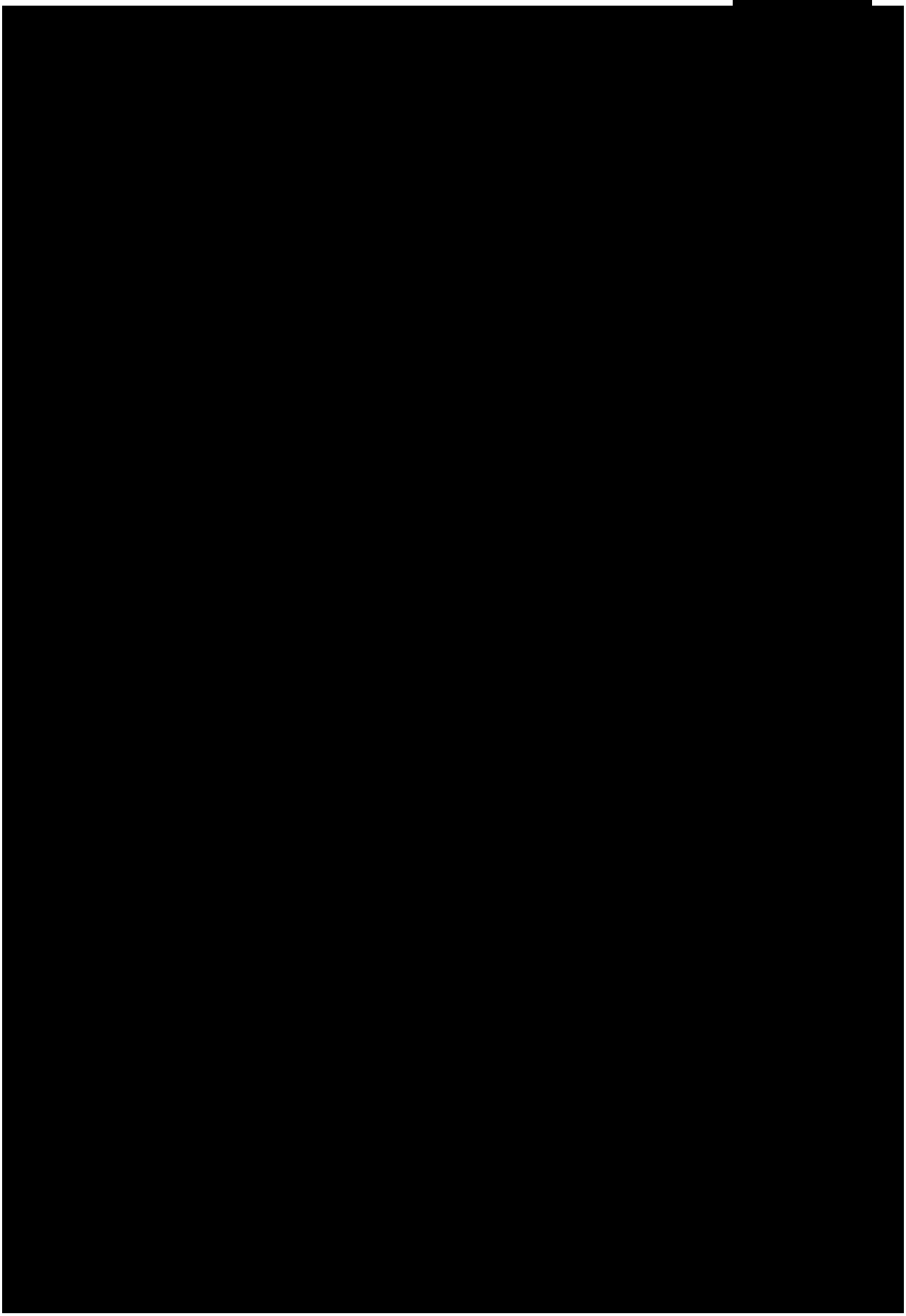
An additional area of planned disturbance (following 1 April 2027) as part of the BPCP Stockton Project sub-area is proposed immediately east of the Mine Creek Settlement site. There are no identified heritage features within this additional area of planned disturbance,

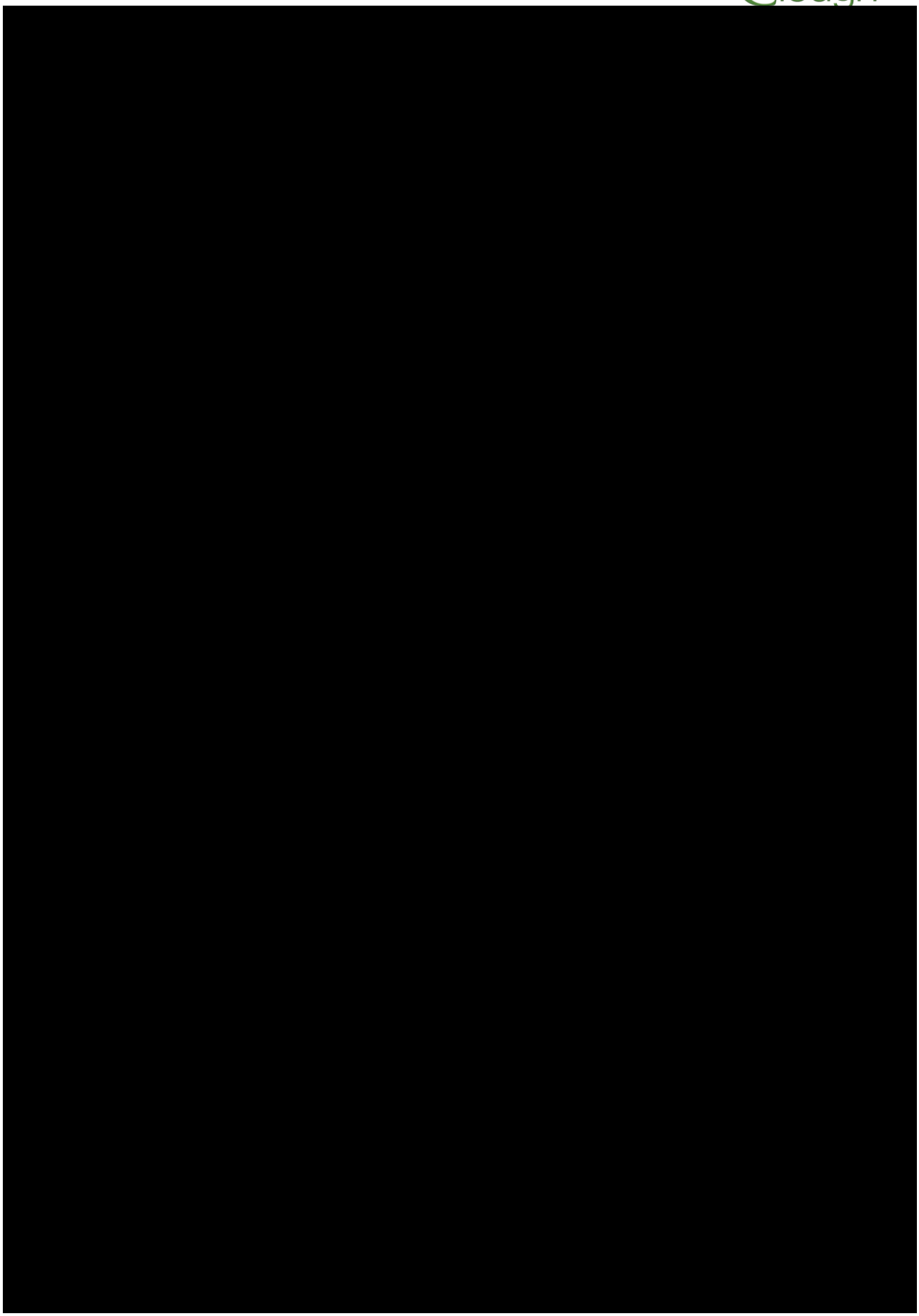
however, it may contain unrecorded associated subsurface archaeological remains associated with the Mine Creek site (Figure 33).

As the archaeological Authority No. 2009/327 has expired (as at 9 July 2014) Bathurst is proposing to re-apply for an Authority from Heritage New Zealand to destroy part of the Mine Creek Settlement and Infrastructure site by opencast mining. The proposed Authority area will include the existing planned disturbance (as at 1 April 2027) that was provided for under the previous Authority and the additional area of planned disturbance (following 1 April 2027).

The Stockton Project sub-area will also destroy historic underground mine workings associated with the Mine Creek East Mine that date from the late 19th century (Figure 34). The underground workings (north-east section) typically comprise of 'bord' (cut tunnels) and coal columns 'pillar' workings and areas of 'pillared' workings from the 1950s (Figure 35). These underground workings are well recorded on mining plans and understood, however, any opportunity to record and recover evidence of the mining techniques employed and the conditions of the workers within the underground workings would contribute to our understanding of mining and miners of this period. It should be noted that safety is an issue that must be considered prior to any exploration of underground workings.







Jorgen's Drive (L28/16)

Jorgen's Drive (L28/16) is located on the western edge of the Stockton Plateau in the vicinity of 20th century mines at Rockies and the 3rd West Extended (Figure 6).

Archaeological Background

Jorgen's Drive was constructed in c.1925 above and east of Rockies Mine on the Stockton Plateau. It was built for a proposed tramway alignment that was supposed to link the west section of Mine Creek mine with further seams to the south. However, fire in the western section forced abandonment of the proposal. Jorgenson was either an engineer or the manager who initiated the tramway (NZAA site record L28/16).

Jorgen's Drive consists of a straight tramway formation some 700m long and 3-4m wide, running northeast-southwest, climbing gradually to southwest (Figure 36). There are cuttings, stone-faced benching and three embankments crossing gullies up to 8m high. When it was recorded in 1989 it was undamaged and covered with tussock and manuka (NZAA site record L28/16).

Jorgens Drive has been recorded as archaeological site L28/16 in NZAA ArchSite.

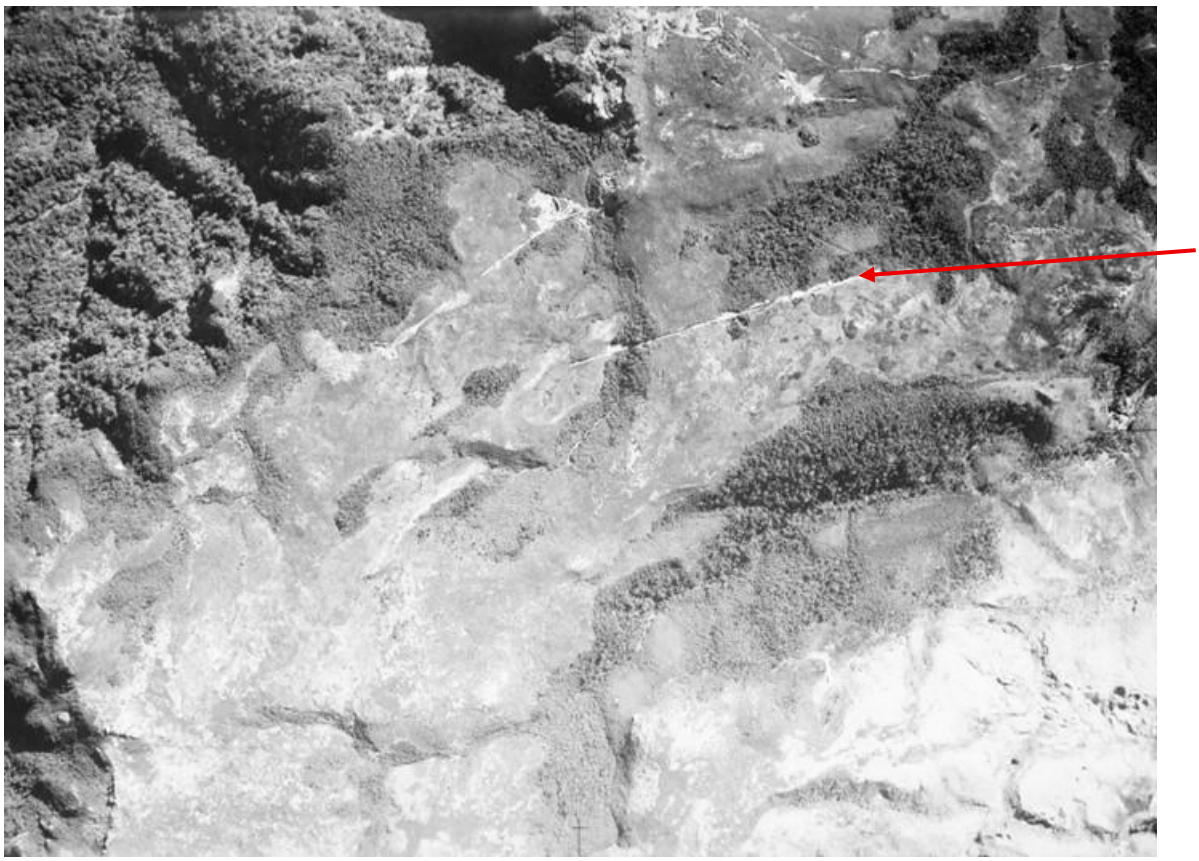


Figure 36. 1943 aerial photograph showing the cutting of Jorgen's Drive (arrowed) (Retrolens SN264 Run No. 778 Photo. 4)

Field Survey

As part of this assessment a brief field survey of the Jorgen's Drive was carried out by the first two authors. Access was, however, restricted due to modern open-cast mining activities in the surrounding area.

A section of Jorgen's Drive was relocated in November 2024. The drive has been intercepted and modified by modern mining where roads have been cut through the drive in at least two places along its length (Figure 37). Otherwise, the drive appears to remain intact and undamaged but covered in thick tussock, manuka and other native scrub (Figure 38 and Figure 39).

Figure 37. Looking southwest from the mine road that has cut through and removed a section of the drive. The second author (arrowed) stands in the southern surviving section

Figure 38. A close-up of Figure 32 showing the scale of the tramway cutting formation now covered in vegetation

Figure 39. Looking northeast with one of the authors standing in the tramway cutting formation

Effects of the Stockton Project sub-area

The proposed Stockton open-cast mining will remove approximately half (350m) of the 3-4m wide tramway formation, including some cuttings, stone-faced benching and embankments across gullies (Figure 40).

The Stockton Project sub-area will also destroy historic underground mine workings in this area associated with the 3rd West Dip Section and Extended Section that date from 1922 to 1934. The 3rd West Dip Section underground workings (east extent) were accessed through a stone drive (Lyons Tunnel) completed in 1922 and comprise of 'bord' (cut tunnels) and coal columns 'pillar' workings. The 3rd West Extended Section (west extent) comprise of both lower and upper 'bord' (cut tunnels) and coal columns 'pillar' workings and areas of 'pillared' workings (Figure 41).

These underground workings are well recorded on mining plans and understood, however, any opportunity to record and recover evidence of the mining techniques employed and the conditions of the workers within the underground workings would contribute to our understanding of mining and miners of this period. It should be noted that safety is an issue that must be considered prior to any exploration of underground workings.

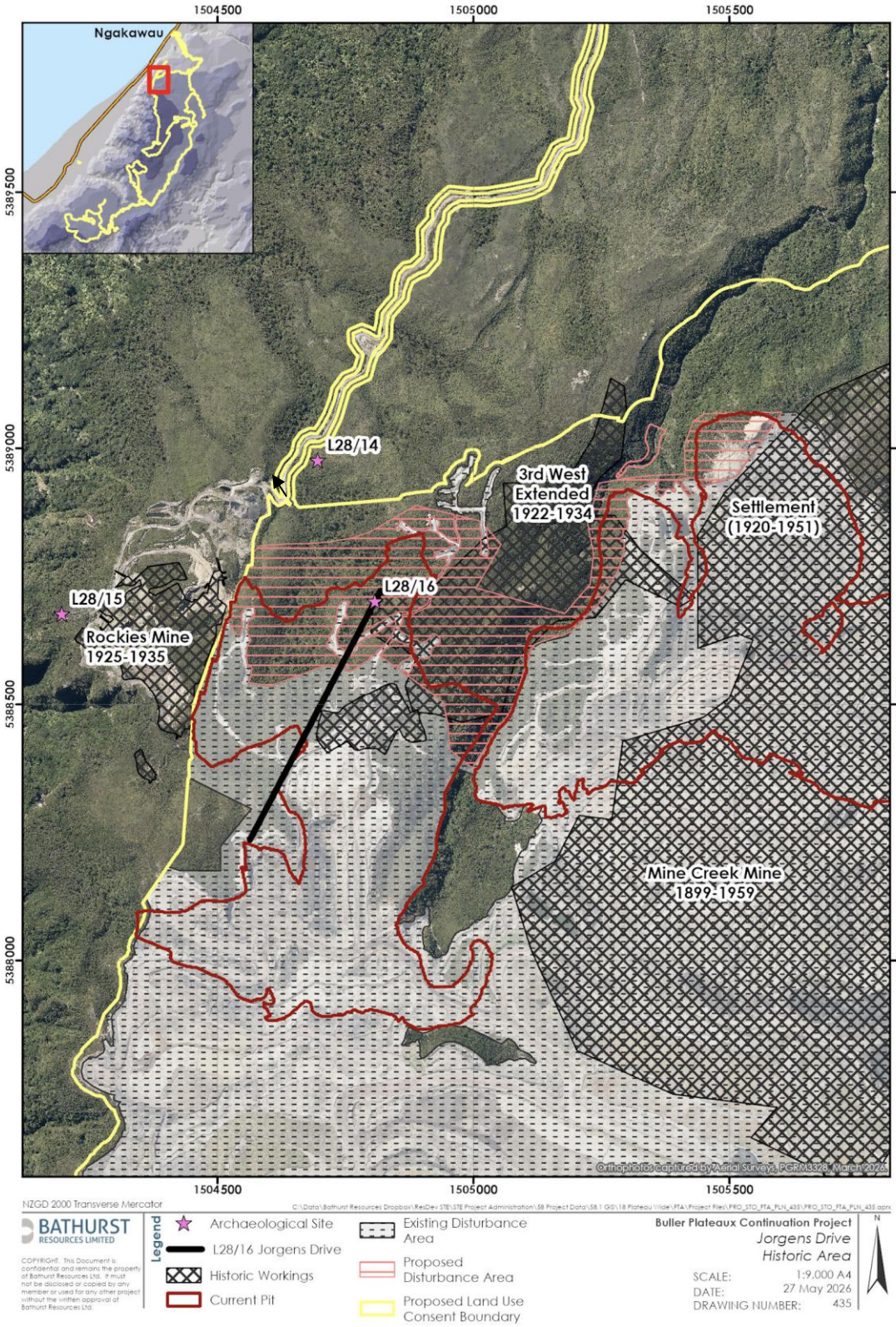
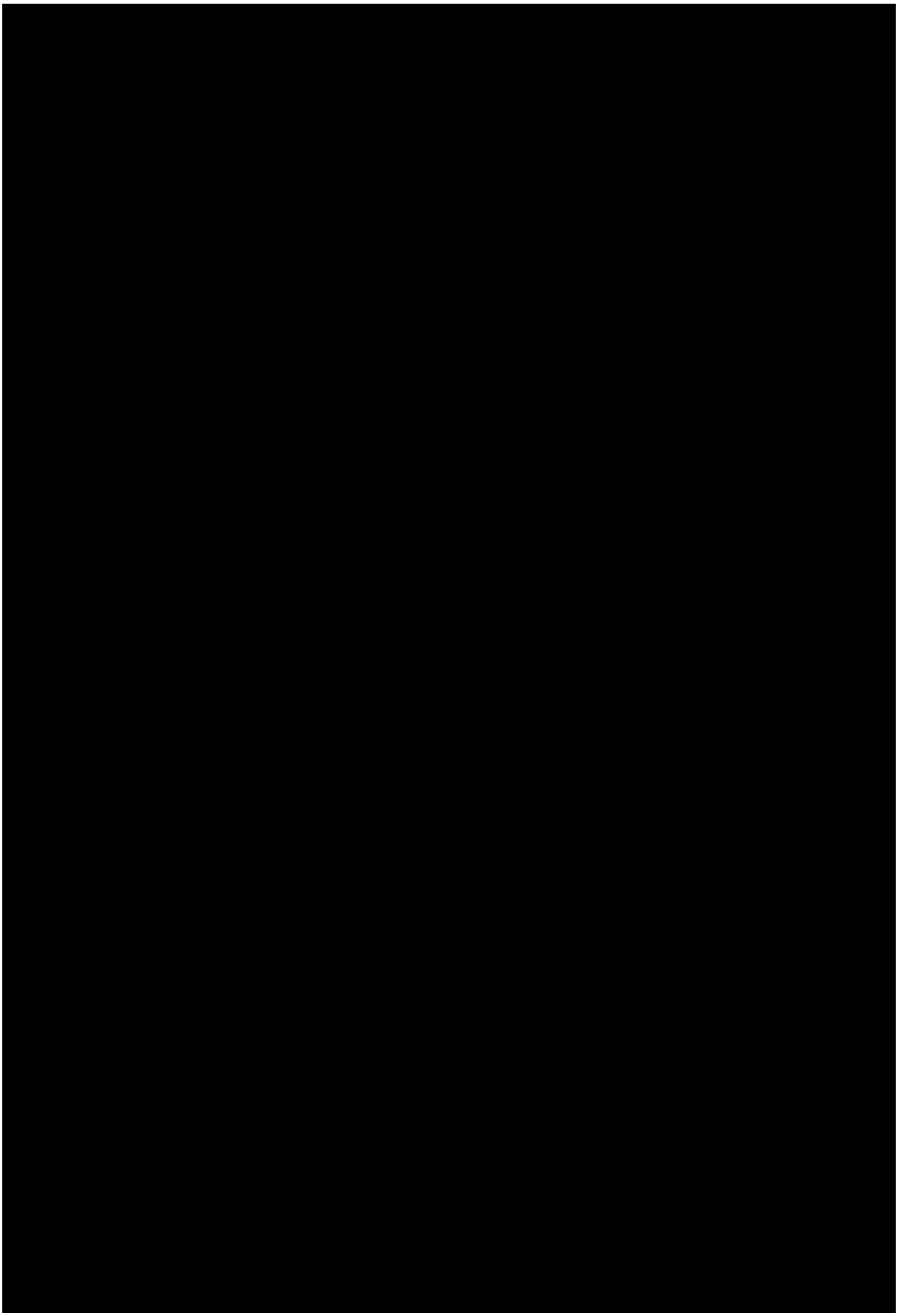


Figure 40. The location and approximate extent of Jorgen's Drive (black line) that will be affected within the proposed Stockton opencast at the 3rd West Extended Mining area (orange hatching)



STOCKTON DISCUSSION AND CONCLUSIONS

Summary of Results

The Stockton Project sub-area will destroy a section of the 'B' Tunnel of the Electric Loco Line (L28/20), which is part of the 1908 First Section of the Loco Line. The Electric Loco Line was constructed for the Westport-Stockton Coal Company, as the means of carrying coal from their new mine across the Stockton Plateau to the top of the Stockton Incline. It was powered by electricity and was arguably the first electric railway in New Zealand. It operated until 1953, when it was replaced by the aerial cableway.

According to Project plans the existing planned disturbance (as at 1 April 2027) under current resource consent will destroy approximately the southern half of the Mine Creek Settlement and Infrastructure site, as provided for by the 2009 archaeological Authority (No. 2009/327) to destroy the remains of this site by opencast mining. An additional area of planned disturbance (following 1 April 2027) as part of the BPCP Stockton Project sub-area is proposed immediately east of the Mine Creek Settlement site. There are no identified heritage features within this additional area of planned disturbance, however, it may contain unrecorded associated subsurface archaeological remains associated with the Mine Creek site. Mine Creek Settlement and Infrastructure site (L28/17) began construction in 1899 and continued until the mining township was abandoned in the 1930s.

The Stockton Project sub-areas will also destroy part of the Jorgen's Drive (L28/16), a tramway alignment that was constructed in c.1925 to link the west section of Mine Creek Mine with further seams to the south. It will also destroy late 19th century historic underground mine workings associated with the Mine Creek (East) Mine at Mine Creek (L28/17), and 20th century historic underground mine workings at the 'B' Tunnel Mine and the 3rd West Dip and Extended Mine (1922-1934).

Māori Cultural Values

This is an assessment of effects on archaeological and historic heritage values and does not include an assessment of effects on Māori cultural values. It is noted that an assessment of effects on Māori values should only be made by the tangata whenua and this will be provided by tangata whenua as a separate Cultural Values and Impact Assessment. Māori cultural concerns may encompass a wider range of values than those associated with archaeological sites.

The historical association of the general area with the tangata whenua is evident from the recorded sites, traditional histories and known Māori place names and is considered in more detail in the accompanying Appendix report: BPCP Historical and Archaeological Background.

Te Rūnanga o Ngāti Waewae are the Papatipu Rūnanga with manawhenua in the the Kawatiri (Buller) district. As with other areas of Te Tai Poutini, the coastal hills and plateau areas north of the Kawatiri (Buller) River are part of the larger network of trails, trading routes, pā and kāinga sites, mahinga kai, and other areas of cultural significance (Te Rūnanga o Ngāti Waewae 2026).

There are currently no known archaeological sites of Māori origin recorded within the Stockton Project sub-area. However, the absence of evidence and is not necessarily

evidence of absence; particularly, as much of the historic mining evidence and disturbance is associated with underground mining on the Denniston Plateau.

Archaeological/Historic Heritage Value and Significance

Part of the Stockton Project sub-area at the Stockton Electric Tramway (Loco Line) (L28/20) 'B' Tunnel is located on land administered by DOC, therefore, the Conservation Act 1987 is also relevant for this Project sub-area. The values of historic heritage resources on conservation land need to be assessed to establish their significance and what the appropriate management strategy is, given that level of significance, irrespective of whether they have archaeological restrictions under the HNZPTA or heritage restrictions under the District Plan.

The West Coast Regional Council's (WCRC) Regional Policy Statement (RPS) (Jul 2020: Chapter 4, Method 3) identifies several criteria for evaluating the significance of historic heritage places. These are based on the criteria for inclusion in the New Zealand Heritage List/Rārangi Kōrero set out in Section 66 of the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA) and are:

a) The extent to which the place reflects important or representative aspects of New Zealand history;

b) The level of association of the place with events, persons, or ideas of importance in the history of the (district/region);

c) The importance of the place to Poutini Ngāi Tāhu;

d) The level of community association with, or public esteem for, the place;

e) The potential of the place for public education;

f) The level of technical accomplishment or value, or design of the place including the rarity of technical accomplishment or design;

g) The symbolic or commemorative value of the place;

h) Whether it is an historic place known to date from early periods of the district's settlement i.e., such items are likely to be included in the schedule;

i) The rarity of the type of historic place; and

j) The extent to which the place forms a key part of a wider historical and cultural complex or historical and cultural landscape.

In addition, Heritage NZ has provided guidelines setting out criteria that are specific to archaeological sites (condition, rarity, contextual value, information potential, amenity value and cultural associations) (Heritage NZ 2019: 9-10).

The archaeological value of sites relates mainly to their information potential, that is, the extent to which they can provide evidence relating to local, regional and national history using archaeological investigation techniques, and the research questions to which the site could contribute. The surviving extent, complexity and condition of sites are the main factors in their ability to provide information through archaeological investigation. For example, generally pa are more complex sites and have higher information potential than small midden (unless of early date). Archaeological value also includes contextual (heritage landscape) value. Archaeological sites may also have other historic heritage

values including historical, architectural, technological, cultural, aesthetic, scientific, social, spiritual and traditional values.

Three sites within the Stockton Project sub-area have been evaluated according to the relevant statutory criteria and scheduled for protection on the BDP Schedule 14.1 Historic Places. These are the Electric Tramway (Loco Line) – BDP L28/109 and NZAA L28/80); the Mine Creek Settlement – BDP L28/106 and NZAA L28/17; and Jorgen's Drive – BDP L28/105 and NZAA L28/16. However, none of these sites are included on Schedule One: Historic Heritage Items and Areas, of the Te Tai o Poutini Plan (TTPP).

Stockton Plateau Heritage Landscape

The only other place comparable to the coal mining landscape of Denniston Plateau for scale of coal mining and a continuum of the history of mining is on the Stockton Plateau. However, the Stockton mining sites have been significantly affected by continued ongoing mining operations.

Several historic coal mining sites on the Stockton Plateau are actively managed by the Department of Conservation (DOC). A 500-hectare historic and ecological reserve was established at Millerton on the Stockton Plateau in 2003 and added to in 2005 (by DOC and Solid Energy) (Millerton-Stockton Historic Area). At that time a Memorandum of Understanding (MoU) between Solid Energy New Zealand Limited (subsequently assigned to BT Mining Ltd), the Millerton and Plateau Protection Society Incorporated (MAPPS), DOC and BDC reinforced that the vision, goals and objectives of the reserve were to preserve and enhance the historic and natural heritage while providing access for visitors. Much of the infrastructure of the Millerton Mine lies within this reserve, including the portals of the Old Dip and Mine Creek mines, parts of the rope roads for each mine, the bathhouse and the pack-track.

Stockton Electric Tramway (Loco Line) (L28/20)

The Stockton Electric Tramway (Loco Line) (L28/20) has been evaluated according to the relevant statutory criteria and has been scheduled for protection on the BDP (Schedule 14.1 Historic Places – L28/109). It is not however, scheduled in the TTPP.

The tramway operated almost continuously from 1908 until 1953, when the aerial ropeway began working.

The archaeological and other heritage values of the Electric Loco Line were also discussed in relation to the criteria in the WCRC RPS by Watson (2008, May 2023), who concluded that this site has high historical, archaeological, technological and contextual values. Overall, the Electric Loco Line is of high significance. We concur with the level of significance assigned and the assessment is summarised below.

The electric loco line is an important part of the story of both coal mining and electrification in Aotearoa New Zealand, and particularly for our understanding of the development of the coal mining industry in the Buller region. Coal mining was an important motive and power source during the 19th and early 20th centuries and, as such, was an important and potentially highly profitable industry. It has been an important component of Buller's economic and social history since the 1870s, with many in the region having worked in the mines, or in industries that supported coal mining.

It also has high historical values due its association with the Westport-Stockton Coal Company, which was an important player in the history of coal mining, both nationally and particularly in the Buller region, and for its association with the development of electrical

motive power in New Zealand. The Westport-Stockton Coal Company's mine on the Stockton plateau was the first mine in the country to be developed with electricity as the main motive power, although it was not the first mine to use electricity, or even the first mine to use electricity haulage. It may, however, have been the first mine to develop electric haulage from the outset.

The electric loco line at Stockton is a significant milestone in the development of electric railway in New Zealand. The Westport-Stockton Coal Company's use of electricity from the outset was also an important milestone in the increasing use of electricity in Aotearoa New Zealand, and reflects the importance of industry – and particularly mining – in the use and development of this technology.

The Electric Loco Line is a rare site type and arguably one of the first electric railway lines in the country. While the whole of the Electric Loco Line is rare, it is the first section (from the top of the Stockton Incline to the A Tunnel portal) that is considered nationally significant, as this section was the first electric railway line built in New Zealand. The oldest section of the line is also significant because it contains a range of in situ features.

The electric loco line is of technological significance as it was associated with the early use of electrical power in Aotearoa New Zealand, and was arguably the first railway line to use this technology. This was due not just to its use of electricity, but also to the unusual gauge used and 'the early use of 3 phase a.c. [alternating current] transmission to the substations and mine' (Harris 2008).

The electric loco line is a significant part of a much larger coal mining landscape or context that takes in the Stockton Plateau as a whole. This extends the Westport-Stockton Coal Company's landscape to include the subsequent mining of State Coal, which continued to use the loco line for nearly 10 years after it took over the Stockton mine. The Westport-Stockton Coal Company began operations in the early 1900s and continued to operate until it was taken over by State Coal Mines in 1944. For almost the entirety of that period, the loco line was a key part of the haulage system that transported coal from the mines down to the bins at Ngākawau and on to the port at Westport – all of the company's coal that left the plateau was carried off via the loco line. This is an archaeological landscape that remains surprisingly intact today and thus quite legible, from the powerhouse at Ngākawau (although not the original bins), the Stockton incline, the settlements (Tintown more than Stockton) and the mines themselves, including the workings. The losses to this landscape have come about as a result of subsequent mining and, while not a justification for this, this represents the continuing story of mining on the plateau. The archaeological landscape is a particularly important one, given the ongoing significance of coal mining – especially on the Stockton plateau – for the Buller region.

Mine Creek Settlement (L28/17)

The Mine Creek Settlement (L28/17) has been evaluated according to the relevant statutory criteria and has been scheduled for protection on the BDP (Schedule 14.1 Historic Places - L28/106). It is not however, scheduled in the TTPP.

Mine Creek Settlement has also been previously assessed as having moderate to high significance, chiefly because of its archaeological potential, its historical associations and the broader landscape of which it is part (Watson 2007). This landscape is that of the Westport Coal Company, one of the key players in the development of coal mining on the West Coast, and thus in the history and economy of the coast. Mine Creek was a small, isolated, short-lived coal mining settlement occupied in the early years of the 20th century,

following the expansion of the Westport Coal Company's Millerton Mine, and lasted approximately 30 years.

It was considered by Watson in 2007 as the best preserved of such settlements on the West Coast (and possibly throughout New Zealand). However, since that time part of the site has been destroyed by mining activity in the area, environmental processes and previous archaeological investigation under an Authority from Heritage NZ. Remaining features are buried beneath gorse and little of the settlement is visible today, with the industrial structures being the most prominent surviving features. Of the humble domestic dwellings that once stood here, there is little left, although previous archaeological survey and investigation in 2009-2010 have managed to relocate a reasonable proportion of the remains of buildings and structures that once made up this settlement.

While Mine Creek Settlement has potentially good interpretation values because of its archaeological potential, its historical association with the Westport Coal Company, and its position within that company's archaeological landscape, it is located within an active mining site which restricts any access and any education potential.

According to Watson (2007) it was difficult to establish when most of the buildings and structures at Mine Creek settlement were constructed. The only buildings that were definitely on site prior to 1900 are the air compressor shed, boiler shed and ventilation flue. As such, this is the only site that is definitely protected under the HNZPTA.

Overall, the Mine Creek Settlement and Infrastructure site (L29/17) is now considered to have moderate significance given the modification to this site since 2007 by modern mining activities and archaeological investigation under a Heritage NZ archaeological Authority.

Jorgen's Drive (L28/16)

Jorgen's Drive (L28/16) has been evaluated according to the relevant statutory criteria and has been scheduled for protection on the BDP (Schedule 14.1 Historic Places - L28/105). It is not, however, scheduled in the TTPP.

Jorgen's Drive dates from c.1925 and is not an archaeological site (pre-1900) as defined within the HNZPTA as it post-dates 1900. Overall, this site is considered to have limited to moderate significance.

This site consists of an isolated 700m long cutting with stone-faced benching and embankments. It is relatively intact except for recent damage in one section by a modern mining road. There is limited known historical information about this tramway drive, except that it was supposed to link the west section of Mine Creek mine with further seams to the south. It is associated with Jorgenson, who was either an engineer or the manager who initiated the tramway. The site is part of the story of coal mining on the Stockton Plateau. This site is not aesthetically notable, is very inaccessible within an active mining area and almost invisible under thick native vegetation.

Underground Mine Workings

The late 19th to early 20th century historic underground mine workings affected by the Stockton Project sub-area – Mine Creek (East) Mine, 'B' Tunnel Mine and 3rd West Extended Mine (1922–1934) are well recorded and understood, although their current state and condition are unknown. They are of limited heritage significance, however, any opportunity to record and recover evidence of the mining techniques employed and the conditions of the workers within the underground workings would contribute to our understanding of mining and miners of this period.

ASSESSMENT OF HISTORIC HERITAGE EFFECTS AND MITIGATION

The nature and significance of the historic heritage places within the Stockton Project sub-area have been assessed above. The potential impact of the proposal on the identified places is now considered, particularly in relation to direct physical impacts as well as setting and context.

The likely adverse effects on historic heritage because of the Stockton Project sub-area of the BPCP and associated infrastructure, and recommended mitigation measures, is outlined below in Table 3.

In addition to specific mitigation recommendations for direct adverse effects on heritage sites, additional initiatives are also proposed to address any shortfall in mitigation recommendations because of the effects of the BPCP project on heritage sites.

It is recommended that prior to the commencement of activities associated with disturbing identified archaeological and historic heritage sites within the Stockton Project sub-area, that Bathurst commission the development of a Historic Heritage Management Plan (HHMP)[10] with stakeholders for the Project sub-areas to:

- Document and describe the strategy, objectives and actions that Bathurst propose to mitigate adverse effects on archaeological and historic heritage sites during the pre-construction, construction and post-construction phases of each of the Project sub-areas;
- Document and describe the strategy, objectives and actions that Bathurst propose to provide additional historic heritage compensation measures to address any shortfall in specific mitigation measures for adverse effects on historic heritage within the Project sub-areas;
- Demonstrate compliance with the conditions on the Stockton Project sub-area in statutory approvals.

For practical implementation the HHMP will incorporate the Archaeological Management Plan (AMP) for the Mine Creek Settlement and Infrastructure site (L28/17) covered by an Archaeological Authority under the FTAA.

[10] For example a HHMP was developed and completed previously for the prior Bathurst Escarpment Project.

Table 3. Adverse effects of the Stockton Project sub-area on historic heritage, proposed mitigation/additional initiatives and overall effects after mitigation

Site / Heritage Feature(s)	Nature of adverse effects	Proposed Specific Mitigation Measures	Objective(s) of mitigation and link to effects (loss mitigating)	Additional initiatives recommended to address any shortfall in mitigation	Overall Effects (after mitigation)
Electric Loco Line (L28/20)	Destruction of approximately 125m of the 1908 underground evidence of the 'B' Tunnel of the Electric Loco Line. The destruction of early 20th century underground mine workings associated with the 'B' Tunnel Mine.	In accordance with a HHMP: Avoidance and protection of the remaining sections of the Loco Line (i.e. marked on disturbance [construction/mining] plans and within 'no-work' exclusion zones (GPS fencing in machines), barriers/fences around features) in proximity to modern Stockton Mining activities to prevent inadvertent damage. During the construction and operation of Stockton the ability to access and enter the 'B' Tunnel and underground workings is limited due to safety considerations. Notwithstanding this, where there will be opportunities for Bathurst	Protection of remaining heritage features Recovery of historical information	Compensation funding for future Denniston historic enhancement work[11] agreed with DOC (and other interested parties if relevant). Agreed enhancement work options could include: Supporting the development and maintenance of an additional heritage recreation opportunity offsite. Reestablishing public access from the west to historic mining and milling sites at Charming Creek.	Moderate Adverse Effects

[11] Similar to compensation provided in 2014 following the granting of resource consent to Bathurst and an Access Arrangement with DOC allowing the company to expand mining activities on the Denniston Plateau. Compensation projects chosen for funding and agreed to in a Compensation Deed of the access arrangement. The sites chosen at that time for historic enhancement utilising the compensation fund were Conns Creek, Coalbrookdale and Burnett's Face.

Site / Heritage Feature(s)	Nature of adverse effects	Proposed Specific Mitigation Measures	Objective(s) of mitigation and link to effects (loss mitigating)	Additional initiatives recommended to address any shortfall in mitigation	Overall Effects (after mitigation)
		staff/Contractors during construction and operation record and photograph exposed workings and features of interest and retrieve items that might be useful for displays and interpretation by the methods outlined in the HHMP. Artefact recording, collection and deposit if discovered			
[redacted]	Existing planned disturbance (as at 1 April 2027) under current resource consent will destroy approximately the southern half of the Mine [redacted]	An Archaeological Authority (re-application) is being applied for under the Fast Track process for existing planned disturbance (as at 1 April 2027) under current resource consent and planned disturbance (following 1 April 2027) as part of the BPCP to cover the Mine Creek Settlement. In accordance with a HHMP: Avoidance and protection of the remaining features of Mine Creek outside areas of proposed disturbance (i.e. marked on disturbance [construction/mining] plans and	Protection of remaining heritage features Recovery of historical information	The completion of any outstanding investigation, research and analysis as part of the archaeological work required under condition of archaeological Authority No. 2009/327. The completion of the outstanding Final Authority report on archaeological work required under condition of archaeological Authority No 2009/327, including one article detailing an aspect of the results of the investigation prepared to a professional standard of publication. The custodianship of artefacts recovered during archaeological work at Mine Creek Settlement and Infrastructure site (L28/17) will be finalised in consultation with Bathurst, the Northern Buller Museum	Minor Adverse Effects (given that most effects have previously been mitigated)

Site / Heritage Feature(s)	Nature of adverse effects	Proposed Specific Mitigation Measures	Objective(s) of mitigation and link to effects (loss mitigating)	Additional initiatives recommended to address any shortfall in mitigation	Overall Effects (after mitigation)
	concrete dam and part of a track. Destruction of other possible unrecorded subsurface archaeological remains associated with Mine Creek within an additional area of planned disturbance (following 1 April 2027). The destruction of underground mine workings associated with the Mine Creek East Mine that date from the late 19th century.	within 'no-work' exclusion zones (GPS fencing in machines), barriers/fences around features) in proximity to modern Stockton Mining activities to prevent inadvertent damage. During the construction and operation of Stockton the ability to access and view underground workings is limited due to safety considerations. Notwithstanding this, where there will be opportunities for Bathurst staff/Contractors during construction and operation record and photograph exposed workings and features of interest and retrieve items that might be useful for displays and interpretation by the methods outlined in the HHMP. Artefact recording, collection and deposit.		Granity (items from Stockton) and Kawatiri Westport Museum (where appropriate).	
Jorgen's Drive (L28/16)	Destruction of approximately half (350m)	In accordance with a HHMP: Pre-commencement recording of Jorgen's Drive, including	Recovery of historical information	n/a	Minor Adverse Effects

Site / Heritage Feature(s)	Nature of adverse effects	Proposed Specific Mitigation Measures	Objective(s) of mitigation and link to effects (loss mitigating)	Additional initiatives recommended to address any shortfall in mitigation	Overall Effects (after mitigation)
	of the 1925 Jorgen's Tramway Drive.	Structure recording to Level III in Heritage NZ 2018 Guidelines.			
3rd West Extended Mine (1922 – 1934	Destruction of 20th century underground mine workings	In accordance with a HHMP: During the construction and operation of Stockton the ability to access and view underground workings is limited due to safety considerations. Notwithstanding this, where there will be opportunities for Bathurst staff/Contractors during construction and operation record and photograph exposed workings and features of interest and retrieve items that might be useful for displays and interpretation by the methods outlined in the HHMP. Artefact recording, collection and deposit.	Recovery of historical information	n/a	Minor Adverse Effects

General Mitigation of Heritage Effects of Stockton

It is recommended that the following historic heritage mitigation measures are adopted and implemented by a HHMP for the Stockton Project sub-area:

- Where the proposal will affect any archaeological remains at the Mine Creek Settlement (L28/17) and underground mine workings associated with the Mine Creek East Mine, an Archaeological Authority is required as part of the Fast Track Approval process prior to the start of any works that could impact on pre-1900 subsurface remains. An Archaeological Management Plan (AMP) will be submitted with the Authority application that will provide procedures to be followed for recording any pre-1900 archaeological evidence before it is modified or destroyed under the Authority.
- The completion of any outstanding investigation, research, analysis and final reporting as part of the archaeological work previously required under condition of archaeological Authority No 2009/327. Including one article detailing an aspect of the results of the investigation prepared to a professional standard of publication.
- During the construction and operation phase of Stockton the ability to view and record underground workings is limited due to safety considerations. This includes the Electric Loco Line (L28/20) 'B' Tunnel. Notwithstanding this there may be opportunities for Bathurst staff/contractor[s] to photograph, record and retrieve items that might be useful for displays and interpretation as outlined in the HHMP.
- Where heritage remains of the Jorgen's Drive (L28/16) are affected that post-date 1900 and are therefore not an archaeological site as defined by section 6 of the HNZPTA, pre-commencement survey and recording of heritage features is recommended, including Structure Recording to Level III in the Heritage NZ 2018 Guidelines.
- Avoidance and protection measures should be put in place so that the remaining sections of the Loco Line and the heritage features at Mine Creek Settlement outside of proposed disturbance areas but in proximity to proposed Stockton works are not inadvertently impacted upon (i.e. marked on mining plans and within 'no-work' exclusion zones (GPS fencing in machines), barriers/fences installed around features.
- Adoption of Noise Assessment recommendations based on guideline vibration limits for historic structures. This included the adjacent section of the 'B' Tunnel outside the area of proposed disturbance.
- New recording and research results should be disseminated to Heritage NZ, DOC and Buller District Council (Cultural Heritage Inventory), as well as the public and deposited with local archives/heritage groups and organisations (e.g. Millerton and Plateau Protection Society Incorporated (MAPPS)).
- To address shortfalls in specific site mitigation, additional initiatives are recommended, as follows:

    1) Bathurst should fund agreed future Stockton historic enhancement work with DOC (if relevant) and other interested parties as per Table 3. Agreed enhancement work could include:

- Supporting the development and maintenance of an additional heritage recreation opportunity offsite. Reestablishing public access from the west to historic mining and milling sites at Charming Creek.
- The completion of any outstanding investigation, research and analysis as part of the archaeological work required under condition of archaeological Authority No 2009/327 at Mine Creek Settlement (L28/17).
- The completion of the outstanding Final Authority report on archaeological work required under condition of archaeological Authority No 2009/327 at Mine Creek Settlement (L28/17), including one article detailing an aspect of the results of the investigation prepared to a professional standard of publication.
- The custodianship of artefacts recovered during archaeological work at Mine Creek Settlement (L28/17) will be finalised in consultation with Bathurst, the Northern Buller Museum Granity (items from Stockton) and Kawatiri Westport Museum (where appropriate).

Overall Effects of Stockton

The Stockton Project sub-area will destroy an approximately 125m long section of the 'B' Tunnel of the 1908 Electric Loco Line (L29/20). The Electric Loco Line was constructed after 1900 and is thus not protected by the archaeological provisions of the HNZPTA. It is, however, listed in the BDP Schedule of Historic Buildings and Sites (L28/109, coal tramway), therefore, resource consent is required to impact on this site.

Over time, the Loco Line formation has been damaged in different places, typically by work on the haul road and particularly on the original 1908 section. At this stage, approximately 80% of the line remains in situ, with four major cuts in it. Destroying part of the B' Tunnel (approximately 125m) would contribute to the cumulative effect of the ongoing loss of sections of the Electric Loco Line, which is a site of high heritage value.

The Stockton Project sub-area will also destroy approximately the southern half of the Mine Creek Settlement and Infrastructure site, as previously provided by the 2009 Archaeological Authority (No. 2009/327). The recorded features within this area of disturbance include the power house complex consisting of the boiler house, air compressor shed and fan house (brick ventilation flue), [redacted]. It will also destroy underground mine workings associated with the Mine Creek East Mine that date from the late 19th century.

Mine Creek Settlement (L29/17) has been previously modified under NZHPT Authority 2009/327 for destruction by opencast mining, resulting in the prior archaeological investigation of a number of heritage features at this site. The Mine Creek Settlement is also listed in the BDP Schedule of Historic Buildings and Sites (Schedule 14.1 – L28/106) and resource consent is therefore required to impact on this site.

The Stockton Project sub-area will also destroy approximately half of the c.1925 Jorgen's Tramway Drive (L28/16). This site is listed in the BDP Schedule of Historic Buildings and Sites (L28/105); therefore, resource consent is required to impact on this site.

Areas of underground workings associated with 20th century mines – 'B' Tunnel Mine and 3rd West Extended Mine, will also be destroyed by the Stockton project sub-area. This will have no more than minor adverse effects as the heritage significance of these is limited.

The progressive reworking of underground mines through opencast methods at Stockton has already had a significant effect on earlier mining sites. There is excellent existing baseline survey and recording of surface heritage features within the Stockton footprint as a result of past survey and research. Also, the extent of the underground mine workings occurred in relatively recent times and they are, therefore, well recorded and understood.

Overall, the effects on historic heritage after recommended mitigation are likely to be minor – moderate adverse effects.

Conclusions

- The proposed Stockton Project sub-area will remove part (approximately 125m) of the underground remains of the 1908 'B' Tunnel of the Electric Loco Line (L28/20) and destroy early 20th century underground mine workings associated with the 'B' Tunnel Mine.
- The Electric Loco Line was constructed after 1900. Accordingly, there is no statutory requirement for Bathurst to apply for an archaeological Authority under the HNZPTA before commencing construction and mining. It is, however, listed in the Buller District Plan Schedule of Historic Buildings and Sites (No. 109, coal tramway); therefore, resource consent is required to impact on this site.
- The proposed Stockton Project sub-area will destroy approximately half of the Mine Creek Settlement and Infrastructure site (L28/17), including the remains of the power house complex, and other possible unrecorded subsurface archaeological remains, and destroy underground mine workings associated with the Mine Creek East Mine that date from the late 19th century.
- In 2009 an Authority (No. 2009/327) was granted by Heritage NZ to Solid Energy Ltd to destroy the remains of the historic Mine Creek infrastructure and settlement site by opencast mining with conditions requiring archaeological recording, investigation, sampling, analysis and reporting. Some of these condition requirements are still outstanding. As Authority No. 2009/327 has expired an archaeological Authority is being re-applied for under the Fast-track Approvals Act 2024 process to cover the Mine Creek Settlement and Infrastructure site (L28/17) and any pre-1900 underground mine workings associated with the Mine Creek (East) Mine for existing planned disturbance (as at 1 April 2027) under current resource consent and planned disturbance (following 1 April 2027) as part of the BPCP Stockton Project sub-area.
- The Mine Creek Settlement is also listed in the Buller District Plan Schedule of Historic Buildings and Sites (Schedule 14.1 – L28/106) and resource consent is therefore required to impact on this site.
- The proposed Stockton Project sub-area will remove approximately half (350m) of the 1925 Jorgen's Drive (L28/16). This is also listed in the Buller District Plan Schedule of Historic Buildings and Sites (Schedule 14.1 – L28/105), requiring resource consent before it can be modified.
- The proposed Stockton Project sub-area will destroy 20th century underground mine workings at the 3rd West Extended Mine (1922 – 1934).

Overall, the effects on historic heritage after recommended mitigation are likely to be minor – moderate in relation to the proposed Stockton Project sub-area.

STOCKTON RECOMMENDATIONS

- Resource consent is required to impact on scheduled items in the BDP (Schedule 14.1 Historic Places) – Stockton Electric Tramway (Loco Line) (L29/20) Ref No. L29/109; Mine Creek Settlement (L29/17) Ref No. L29/106; and Jorgen's Drive (L28/16) Ref No. L28/105.
- Prior to the commencement of activities associated with disturbing identified archaeological and historic heritage sites within the Stockton Project sub-area, Bathurst should commission the development of a Historic Heritage Management Plan (HHMP) with stakeholders for the Project sub-areas in order to:
  - Document and describe the strategy, objectives and actions that Bathurst propose to mitigate adverse effects on archaeological and historic heritage sites during the pre-construction, construction and post-construction phases of each of the Project sub-areas;
  - Document and describe the strategy, objectives and actions that Bathurst propose to provide additional historic heritage compensation measures to address any shortfall in specific mitigation measures for adverse effects on historic heritage within the Project sub-areas;
  - Demonstrate compliance with the conditions on the Project sub-areas in statutory approvals.
- An Archaeological Authority is required before any work can be carried out that may affect the site L28/17 Mine Creek Settlement and Mine Creek (East) Mine (*Note that this is a legal requirement*). The conditions should include archaeological monitoring, recording and investigation of any archaeological features and remains associated with this site that may be affected within the Project sub-area, and any other archaeological remains uncovered during earthworks.
- Heritage remains of the Jorgen's Drive (L29/16) post-date 1900 and are therefore not an archaeological site as defined by sec 6 of the Heritage New Zealand Pouhere Taonga Act 2014. However, pre-commencement survey and recording of heritage features is recommended, including Structure recording to Level III in the Heritage NZ 2018 Guidelines.
- Accidental discovery protocols should be included as a condition of resource consent, and an advice note reminding Bathurst of their obligations under the Heritage New Zealand Pouhere Taonga Act 2014 with regards to archaeology. These would apply to areas not covered by the Archaeological Authority.
- Protection measures should be put in place so that the remaining sections of the Electric Loco Line (L29/20) and heritage features at Mine Creek Settlement (L29/17) in proximity to proposed Stockton works are not inadvertently impacted upon. For example, their locations marked on development plans and 'no-work' exclusion zones (GPS fencing in machines), and barriers/fencing installed around the features/sites in the vicinity of construction works.

STOCKTON PEST EXCLUSION FENCES

Four long-lasting pest free enclosure fences are proposed on various parts of the Denniston and Stockton Plateaux as part of the BPCP Project. Of the four proposed fences two are located on the Denniston Plateau – Denniston North and Coalbrookdale, and two on the Stockton Plateau – Mt Augustus and Whirlwind Rise (see Figure 42).

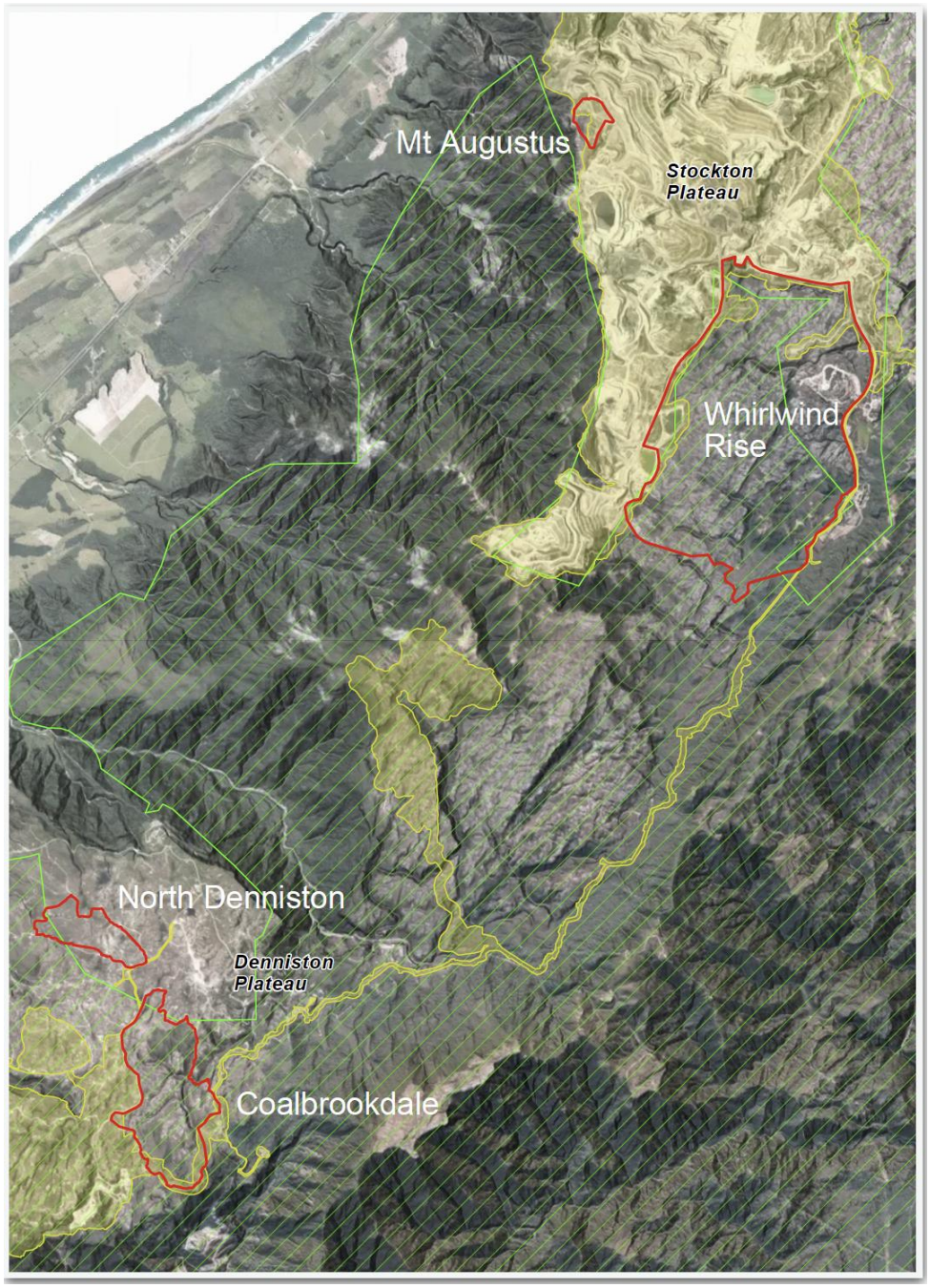


Figure 42. Location of the proposed pest free enclosure fence sites (red outlines) on the Stockton and Denniston Plateaux (source: Alliance Ecology)

The same fence design is proposed for all four sites. The posts are treated radiata pine, with a minimum small end diameter of 150 mm. They provide outstanding support when driven into drilled holes at 2m spacings. The fence has a 400 mm wide mesh skirt, buried where substrates allow, or cemented and bolted directly to exposed sections of rock (Figure 43).

A variety of different culvert systems allow water to pass under the fence, with the size of the pipes, concrete wing-walls and screens dependent on predicted flows. The larger units incorporate hinged flap gates which open during floods then close afterwards.

The use of machinery for access and construction is required for all fences. Post holes will be drilled due to the typical substrate of the wider plateaux with exposed rock slabs, rock cobbles and drifts of fine sediment.

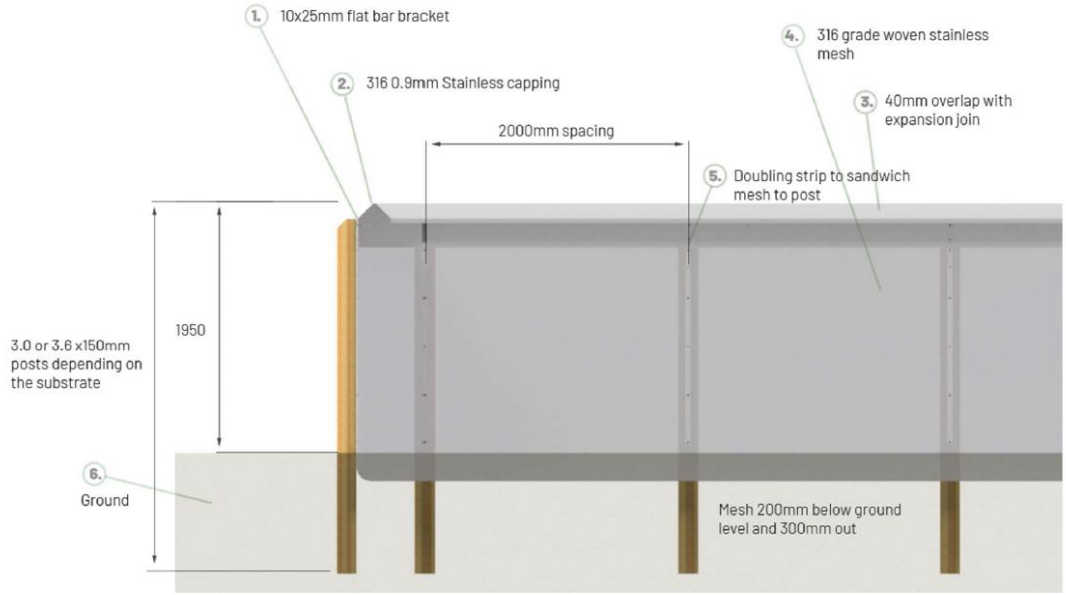


Figure 43. Standard design of Pestproof Fences Ltd stainless stell pest exclusion fence (source: Pestproof Fences Aug 2025: fig 3)

Mt Augustus

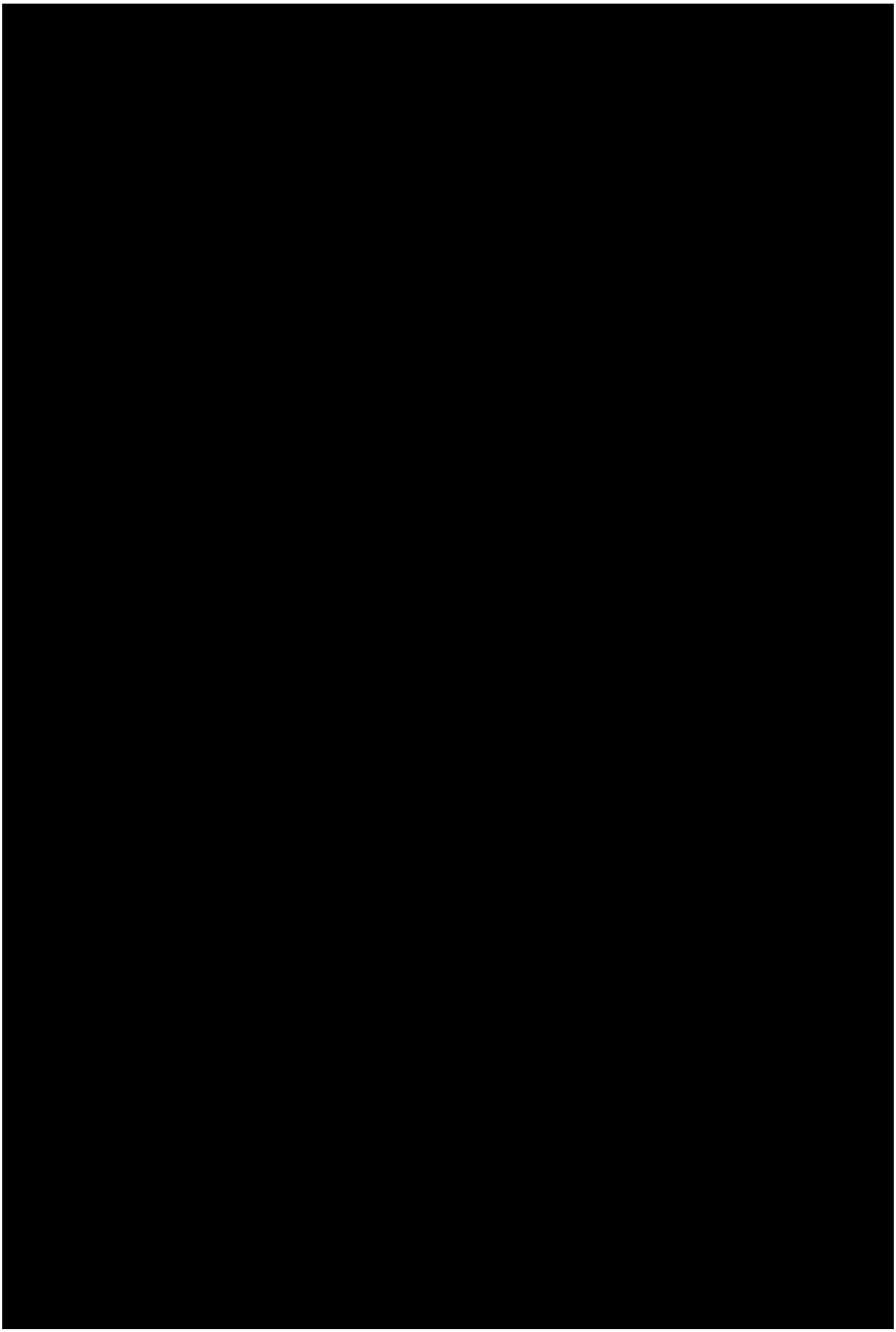
The proposed Stockton Mt Augustus fence will enclose 14.63 hectares (ha) (Figure 44). Approximately 40% of the proposed fence route is on existing roads and tracks, with the remainder requiring establishment. In most places this would be achieved by bulldozing a 3m wide bench. A 10m long section down a cliff would have to be built by hand.

Figure 44. The proposed fence route for the Mt Augustus site (outlined in red) on Stockton Plateau

Effects of the Stockton Mt Augustus fence

The proposed Stockton Mt Augustus fence is located outside any areas of historic mining and there are no recorded archaeological or other historic heritage features located within the area of proposed fence disturbance (Figure 45).

There are no known effects on archaeological or historic heritage sites or features from the proposed Stockton Mt Augustus fence.



Whirlwind Rise

The proposed Stockton Whirlwind fence is the longest (11,930m) of the proposed fences on the two plateaux and by far the largest of the proposed enclosures (nearly 700 ha) (Figure 46). About 75% of the proposed fence will be built on or alongside existing roads and tracks, with minimal additional earthworks required to establish a suitable platform. The build platform for the remaining 30% will, however, have to be established from scratch on predominantly sandstone pavements to the south of Whirlwind Rise. Four large culverts and numerous smaller ones are required for stream crossings.

Figure 46. The proposed Whirlwind Rise site (outlined in red) on Stockton Plateau

Effects of the Stockton Whirlwind Rise fence

The eastern side of the proposed Whirlwind Rise fence skirts the western edge of the historic coal mining area of Fly Creek (L29/50) (Figure 45). This coal mine was worked from the 1920s until 1970, mostly underground, but as a hydro mine from 1953. Bins, fluming and tramway remain, along with bulldozed bridge abutments, a portal, buildings and two dams. However, the proposed fence alignment through this area will be built entirely on or alongside existing roads and tracks, with minimal additional earthworks required to establish a suitable platform.

There are no known effects on archaeological or historic heritage sites or features from the proposed Stockton Whirlwind Rise fence.

Conclusions

- There are no known effects on archaeological or other historic heritage sites or features from the proposed Stockton Mt Augustus and Whirlwind Rise pest free enclosure fences.

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NZAA ARCHSITE SITE RECORD FORMS

Refer to the accompanying Appendix report: BPCP Historical and Archaeological Background – Appendix 2