# 2. MINING OVERVIEW

This section summarises the report prepared by Bathurst (2026b)[12] on how Bathurst operates its existing Buller Plateaux mines, from exploration and coal quality assurance through to extraction, blending, and progressive rehabilitation, and why ongoing access to specific high-rank metallurgical coal types and blends is essential to reliably meet steelmakers' specifications.

It places Bathurst's current operations in context, summarises the distinctive qualities of Buller Plateaux coals (high vitrinite, low ash, and very low phosphorus), outlines key mining and rehabilitation activities and describes Bathurst's environmental controls for AMD and long-term rehabilitation practice. It also sets out the multi-pit planning approach that underpins product quality and drives the need for concurrent development approvals to maintain blending flexibility and the necessary delivery of consistent, specification-compliant coking coal for steelmaking.

## 2.1 HISTORY AND SIGNIFICANCE OF THE MINERAL RESOURCE

The Buller Plateaux has a long history of coal mining. **Figure 2-1** showcases the extent of historic underground mining that has taken place within the proposed BPCP area. Its richness in coal was shown by the extensive State Coal Reserves placed by the Crown over the Buller Plateaux. Coal was initially used to power trains and ships from the late 1800s to the mid-1900's. However, by the 1970's, coking coal came to the fore, and exports started to overseas steelmakers.

Clough & Associates completed a baseline study of the area's historic heritage, which includes a description of the history of mining on the Buller Plateaux.[13] A high-level summary of these findings is set out below.

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[12] New Zealand West Coast Coal and Mining Operations, A Technical Reference (Bathurst, 2026b).

[13] Buller Plateau Project, Denniston Plateau, Westport, South Island: Historic Heritage Baseline Study, prepared by Clough & Associates Limited, dated April 2022.

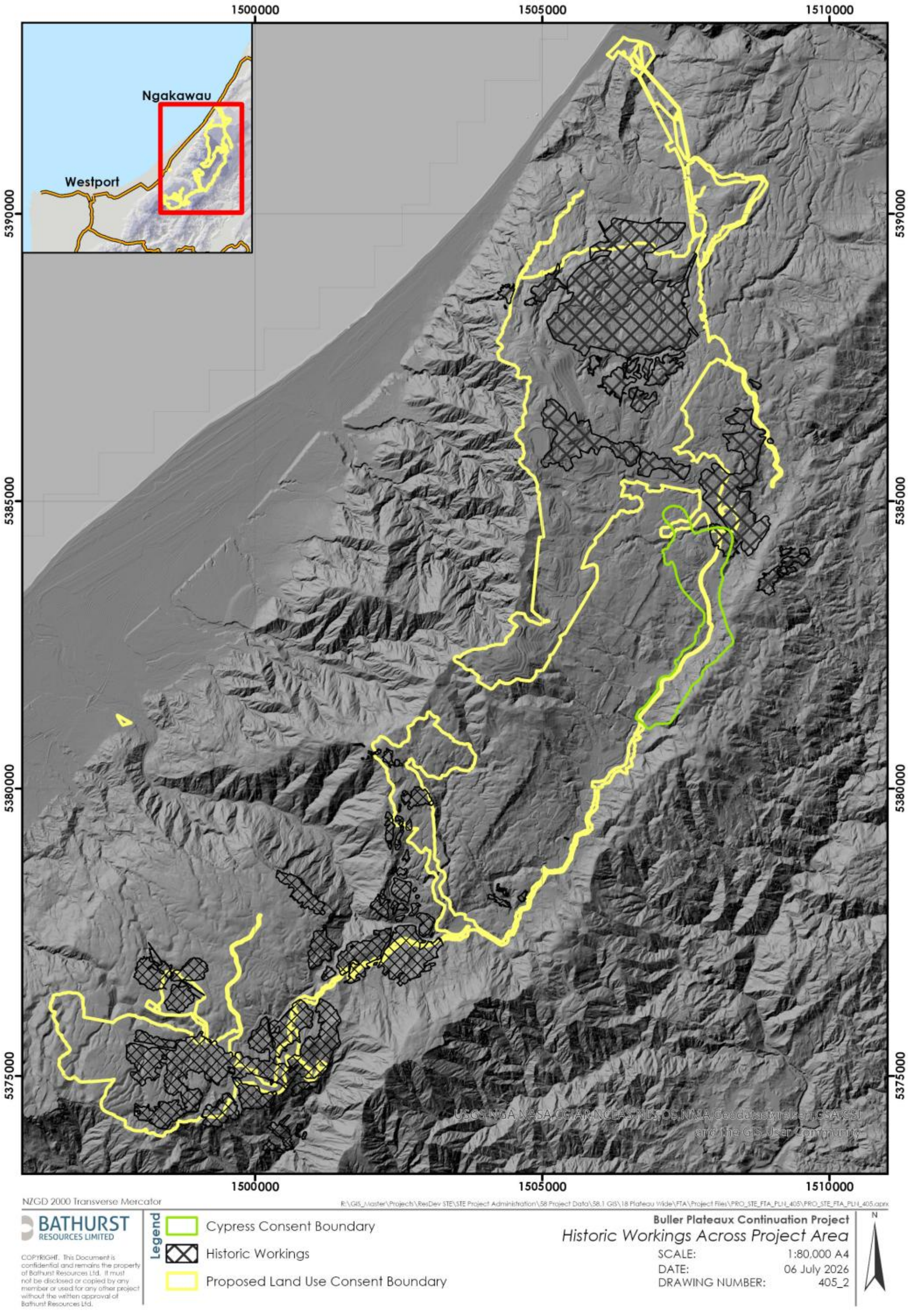



**Figure 2-1: Historic Workings Across the BPCP Project Area**

## 2.2 STOCKTON PLATEAU HISTORY

Coal mining on the Stockton Plateau has a long and complex history dating back to the late 19th century. **Figure 2-2** showcases the historical mine workings across the Stockton Plateau. Mining activity in the wider area began in the 1870s, but large-scale development of the plateau itself commenced in the 1890s, following the Westport Coal Company's establishment of the Millerton Mine. During this early period, coal extraction was entirely underground, supported by major infrastructure such as the Millerton Incline, which transported coal from the plateau to coastal rail and shipping networks.

Through the late 19th and early 20th centuries, underground mining expanded across several areas of the plateau, including Mine Creek and Mangatini. The industry was characterised by significant infrastructure development, including rope roads and New Zealand's first electric railway line, constructed by the Westport-Stockton Coal Company in 1908. By the early 1900s, coal production had intensified, peaking during World War I, though operations were frequently disrupted by industrial unrest and later constrained by the economic downturn of the Great Depression.

Multiple companies operated on the plateau over time, though financial difficulties and declining coal seams led to consolidation and, in the 1940s, to the government's eventual acquisition of the major mining operations. Following state ownership, mining methods began to transition. While underground mining continued in areas such as Mt William, Webb, and McCabe's through the mid-20th century, the introduction of opencast (open-cut) mining marked a significant shift in extraction techniques.

From the 1950s onwards, opencast mining became increasingly dominant due to its operational efficiency and suitability for the geology of the plateaux. By 1980, following the closure of the last underground mine at Mt William, all coal production on the Stockton Plateau was undertaken using opencast methods. Mining has since continued in various parts of the plateau, with total production reaching tens of millions of tonnes.

In summary, the history of the Stockton Plateau reflects a transition from early underground mining supported by extensive infrastructure to modern large-scale opencast operations that continue to define coal extraction in the area today.

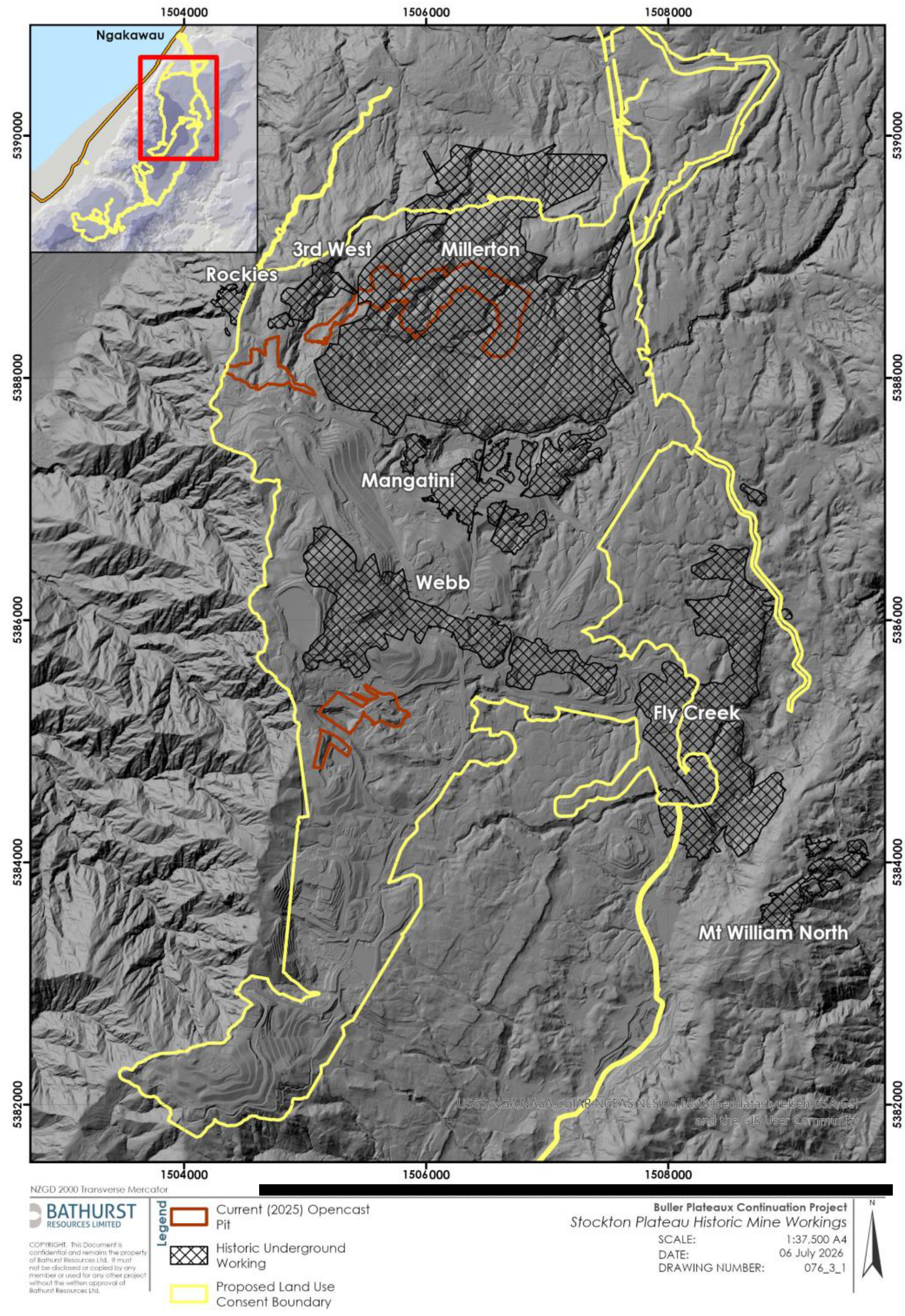



**Figure 2-2: Stockton Plateau Historic Mine Workings**

## 2.3 DENNISTON PLATEAU HISTORY

Coal mining on the Denniston Plateau began in the 1870s and continues to the present day. **Figure 2-3** showcases the historical mine workings across the Denniston Plateau. The Denniston Plateau was home not only to mines but also to several settlements, including Denniston, Burnetts Face and Coalbrookdale.

Coal was transported from the plateau using a range of methods, including rope roads, aerial cableways, and inclines. Central to this network was the Denniston Incline, constructed between 1879 and 1880, which served as the primary transport link between the plateau and sea level. The Incline operated as a self-acting, cable-hauled railway system, using the weight of descending loaded wagons to pull empty wagons uphill, an engineering solution considered highly advanced for its time. It enabled efficient movement of coal from key mining areas such as Banbury, Iron Bridge, and Coalbrookdale, which were connected to the incline via an extensive system of rope roads. The development of this infrastructure supported the rapid growth of the Denniston settlement, which became a major industrial hub on the West Coast. Coal production peaked in 1910, with over 348,000 tonnes extracted, much of it transported via the Incline. By the mid-20th century, advances in transport technology led to a gradual shift away from rope-hauled systems toward road-based haulage. The Denniston Incline ceased operations in 1967, after which coal was transported by truck. Its decline was further cemented by damage sustained during the 1968 Inangahua earthquake. The Denniston Incline is widely regarded today as a highly significant historic feature, both nationally and within the heritage management context of the Buller Plateau, and it sits outside the proposed BPCP boundary.

Coal was first discovered in the Buller District in 1849; however, the gold rushes of 1866-67 in the region generated interest in a number of mineral resources, including coal. The first mine established on the plateaux was Banbury Mine, with coal extraction commencing in 1878. Mining expanded in 1882, including the development of the Ironbridge and Coalbrookdale coal mines. Peak production in Denniston occurred in 1910, with an output of 348,335 tonnes.

Underground mining on the Denniston Plateau continued to expand into the Whareatea area, resulting in further development, including new working entrances. In 1953, the Coalbrookdale mine was henceforth referred to as the Whareatea State Mine. In the same year, a new monocable aerial bucket line was constructed to deliver coal across the plateau to the incline, replacing the long underground and surface haulage systems.

Additionally, the Sullivan mine was opened 1.6 km north of Whareatea along the aerial system. This was the first fully mechanised mine in New Zealand, using belt-and-chain conveyors underground rather than the old hand-truck rail system.

The original (not the currently existing) Escarpment Mine opened in 1963 as an underground operation, a short distance south of Whareatea. Coal was trucked to the Whareatea bins from where the output of both mines was sent away on the aerial. The incline closed in 1967, and motor lorries transported coal down the Denniston road from the Brakehead bins. One year later, the aerial was also abandoned, and the lorries were instead loaded directly at the mines.

The Whareatea Mine closed in 1971, leaving just the Escarpment and Sullivan operational. In 1979, the Escarpment mine was redeveloped as Denniston's first State hydro mine, utilising powerful pumps rather than relying on natural water pressure. Coal blasted from the seams was trucked or sluiced to a sump inside the mine, from where it was pumped through pipes to bins on the surface. When the Escarpment Mine closed in 1982, this method was similarly used to reopen the Whareatea Mine. Pumps enabled mining in previously inaccessible or dangerous areas, resulting in record output.

The Whareatea hydro mine closed in 1988, and the Sullivan West mine ceased production in 1996. Decommissioning work began in July 1998 and included sealing portals and demolishing unsafe structures. This work was suspended the following month as remaining manpower and equipment were relocated to Stockton.

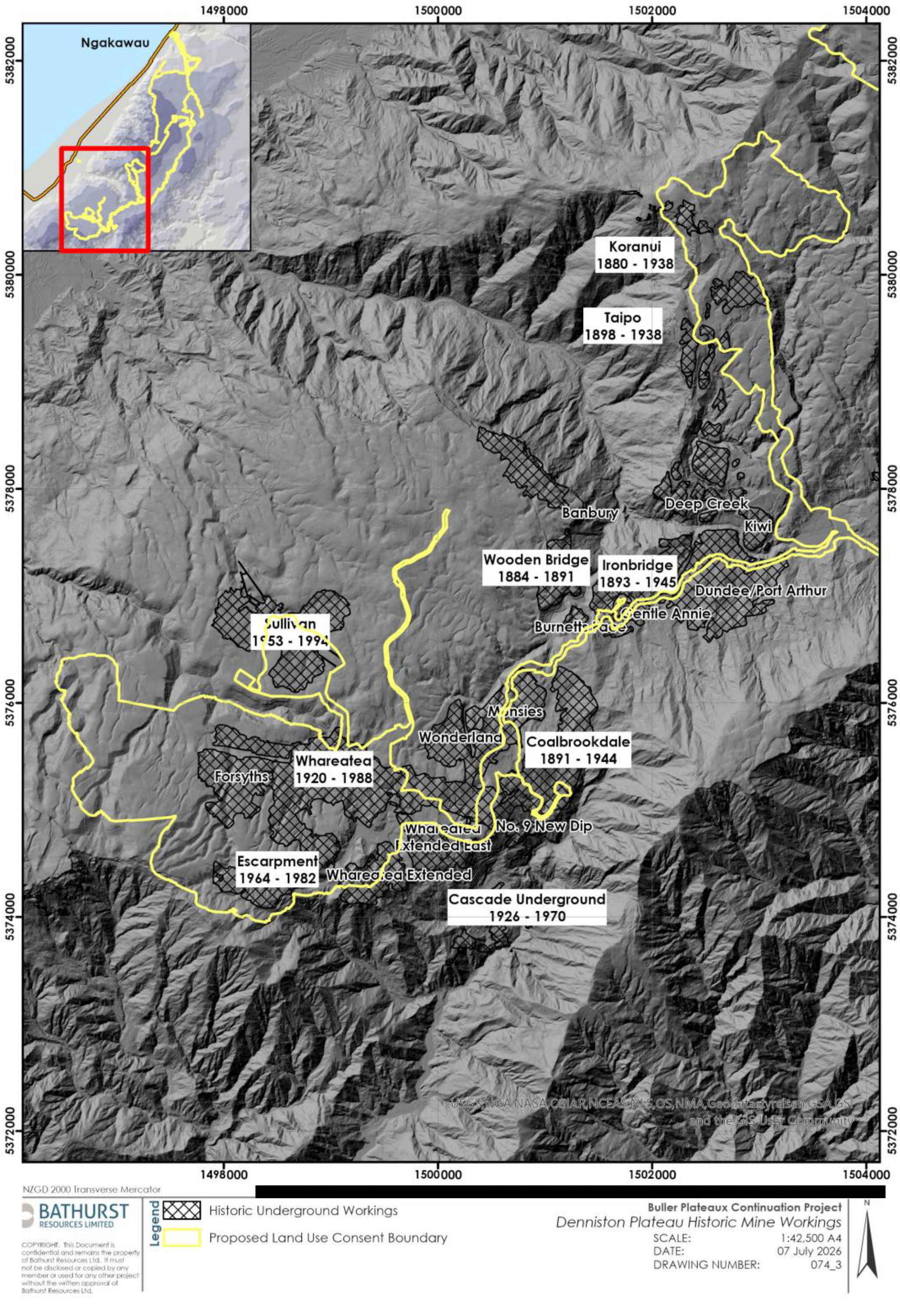



**Figure 2-3: Denniston Plateau Historic Mine Workings**

## 2.4 COAL TYPES AND BATHURST'S TARGETED COAL PRODUCTS

A report prepared by Bathurst (2025), New Zealand West Coast Coal and Mining Operations, as attached in **Part B** to this application, outlines the technical expertise involved in identifying and targeting the coal resource and coal production, and explains the processes undertaken and the reasons behind them.

Not all coal is created equal. Coal varies considerably in age, formation process, chemical properties, and industrial suitability. The Buller Plateaux coals targeted by Bathurst are globally unique. This coal is much younger than most international coalfields, having formed only 30–70 million years ago, and was subjected to rapid coalification driven by tectonic uplift, folding, and metamorphism. This process has produced rare, high-rank bituminous coking coals with exceptionally high vitrinite content (greater than 86%) and unusually low impurity levels, such as ash and phosphorus. These characteristics make Buller Plateaux coals among the highest-performing metallurgical coals available internationally.

Bathurst targets a suite of metallurgical (coking) coal grades located in different areas, including Premium Hard Coking Coal ("**PHCC**"), Hard Coking Coal ("**HCC**"), Semi-Hard Coking Coal ("**SHCC**"), Semi-Soft Coking Coal ("**SSCC**") and Pulverised Coal Injection ("**PCI**") products. Because each grade comes from different physical locations, the grades play specific roles in coke-making and steel manufacturing, and blending these coal types is essential to meet the precise specifications of global steel producers. This variation in coal quality is directly linked to the geological distribution of resources across the Plateau, where different seams and areas yield different coal grades. As such, the BPCP requires developing and operating multiple pits across the site to access and extract these varying coal types concurrently. The high rank, high fluidity, and strong swelling and caking properties of these coals enable the production of a strong, porous coke that withstands the extreme physical and chemical demands inside a blast furnace. Their low ash content reduces slag formation and improves furnace efficiency, while their very low phosphorus content prevents metallurgical brittleness, which is important for high-quality steel output.

As noted in the Pattle Delamore Partners Ltd (2026) report, attached in **Part B** to this application, from an environmental performance perspective, these coal qualities translate directly into lower fuel consumption and reduced greenhouse gas emissions during steelmaking. Due to the coal's high energy density and low impurity levels, steel manufacturers require less coal per tonne of hot metal produced. Independent analysis has confirmed that Bathurst's premium "Alpine" blend reduces blast furnace fuel requirements and avoids approximately 195,000 tonnes of Carbon Dioxide ("$\mathbf{CO_2}$") emissions per year across its global customer base when compared with using other seaborne coking coals,[14] based on independent analysis verified by SGS Laboratories. This is a direct consequence of the exceptionally high vitrinite content, low ash content, and high coke strength, which are intrinsic to the resource rather than artificially induced by processing.

Bathurst's mining operations target seams containing these high-value, low-impurity coking coals, as they are essential inputs to global steel production and cannot be substituted for thermal coal or lower-rank products. As the proposed mine plan advances, the ongoing access to HCC (higher rank, high vitrinite, moderate ash, lower sulphur) is expected to boost coke strength further - a lever that typically drops $CO_2$ for buyers.

## 2.5 HOW WEST COAST COAL FOR STEEL MAKING IS FOUND AND MADE

West Coast coking coal is extracted after an extensive, multi-stage scientific process that ensures the coal resource is well understood, economically viable to mine, and capable of meeting customers' strict metallurgical requirements. Exploration begins with identifying the thickness, extent, structure, and quality of the coal seams. Coal is also examined for key attributes, including sulphur, ash, moisture, and vitrinite content. These are important properties that determine whether the coal is suitable for steelmaking rather than energy generation. Physical samples are necessary for analysis of coal rank, coal type, and mineral characteristics. Such samples are gathered via geological mapping, trenching, subsurface investigations, and drilling (including fully cored holes). This investigation is essential for predicting coal performance in coke ovens and blast furnaces, where only high-rank bituminous coals with specific chemical and petrographic signatures are suitable.

Each coal sample undergoes detailed laboratory analysis to quantify parameters such as ash, volatile matter, sulphur, fixed carbon, fluidity, swelling behaviour, and RoMAX. These characteristics directly control whether the coal can be transformed into strong, permeable coke, the fundamental reductant and structural material required for ironmaking. This is why the West Coast's unique geological history and the resulting rarity of coal are central to the Project's value proposition.

The geological and geochemical data are incorporated into a 3D geological model. This model maps coal seam geometry, predicts variations in key quality parameters, and identifies zones of Potential Acid Forming ("**PAF**") and Non-Acid Forming ("**NAF**") rock. PAF material refers to rock that contains sulphide minerals (typically pyrite), which can oxidise when exposed to air and water to generate acid drainage, whereas NAF material lacks

[14] Buller Plateaux Continuation Project Greenhouse Gas Assessment Report. Pattle Delamore Partners Ltd, 2025.

sufficient sulphide content and does not produce acid under similar conditions. Both PAF and NAF are forms of overburden. These mineral classifications shape both the mining method and the environmental controls required during extraction. PAF rock is isolated, encapsulated, and placed at depth in engineered landforms to prevent oxidation and AMD. NAF rock is used for capping and cover layers for the engineered landforms. This ensures that both the coal being removed and the surrounding host rock are managed responsibly to protect water and soil systems during and after mining.

## 2.6 THE MINING PROCESS

Bathurst's operations on the West Coast use open-cut (opencast) mining, the only feasible extraction method and one well-suited to the region's steep plateaux and structurally complex coal seams. Underground mining methods are not considered suitable for the BPCP due to a combination of technical, safety, and economic constraints. The coal seams across the Project area exhibit significant structural variability, including faulting, seam splitting, and uneven seam thickness, which makes underground extraction highly challenging and inflexible. Underground mining in New Zealand has historically struggled under these conditions, as it is far less adaptable to changes in seam geometry and quality compared with opencast techniques.

Safety considerations also make underground mining unsuitable (and the tragedies at the Strongman mine and the Pike River mine, among others, demonstrate the dangers of underground coal mining). Large parts of the BPCP resource area have already been subject to historical underground operations, resulting in extensive networks of abandoned workings that are often flooded, unstable, and poorly mapped. These conditions introduce substantial hazards, including spontaneous combustion, unstable roof and floor conditions, ground subsidence, and the high risk of encountering voids. Re-entering these areas is neither safe nor feasible.

From an economic perspective, underground mining would require significantly higher capital investment and recover far less coal because it requires leaving structural support pillars in place. In contrast, opencast mining delivers substantially higher recovery rates, enables safe extraction of the remaining coal pillars left behind by earlier underground operations, and provides operational flexibility to manage variable geological conditions.

The open cast process begins with the careful removal and salvage of vegetation and topsoil, which are either stockpiled for later rehabilitation or transferred directly to a final engineered landform ("**ELF**") or storage facility using Vegetation Direct Transfer ("**VDT**") or Slash Direct Transfer ("**SDT**"). The choice of method is determined by soil condition, vegetation type, slope and local topography. Notably, VDT allows intact vegetation, soil structure and root systems to be relocated as a functioning ecological unit, preserving soil biota and native seed banks. This approach markedly accelerates ecological recovery, improves rehabilitation success, and better retains indigenous ecological values when compared with conventional strip-and-stockpile methods. VDT is therefore used wherever practicable throughout rehabilitation activities.

Once surface materials are removed, mining proceeds with the systematic removal of overburden, the rock layers above the coal seam. Depending on rock hardness, overburden is either removed using large excavators and dozers or blasted to fragment the material for excavation. This step is highly controlled, as certain rock layers, particularly PAF materials, are isolated and handled separately from NAF to reduce AMD production.

After overburden removal, the exposed coal seam is extracted using smaller excavators and haul trucks. Depending on the presence of contaminants, this Run of Mine ("**ROM**") coal is either taken directly to the CHPP for washing and separation or dispatched as bypass coal if it contains no contaminants that require processing. Strict separation of coal types and qualities is essential, as different seams contribute specific characteristics needed for the high-value metallurgical blends.

As coal is removed, the mined-out void is usually progressively backfilled to form an ELF. ELFs are engineered, stable landforms that incorporate hydrological controls, encapsulation of PAF, and specific compaction requirements to ensure long-term stability and minimise oxygen and water ingress, thereby reducing AMD generation and the acid-generating potential of any PAF material in the ELF.

The ELF is shaped to blend naturally with the surrounding terrain and is completed by placing topsoil or VDT material, followed by planting and habitat re-creation where needed. Skilled operators use Global Positioning System ("**GPS**") -guided machinery to shape and finish the final landform surfaces. Critical to this rehabilitation process is the installation of water management structures designed to minimise erosion and sediment runoff until vegetation is fully established.

This integrated approach ensures that mining operations efficiently access high-quality coking coal whilst maintaining strong environmental management throughout the life of the project.

## 2.7 BLENDING AND QUALITY REQUIREMENTS

As discussed earlier, effective blending is fundamental to producing a coking coal product that consistently meets the strict specifications required by international steelmakers. As coal seams across the Buller Plateaux vary significantly in quality, no single pit can provide a product that meets all customer requirements. Ensuring the right mix of coals, each with distinct geological and chemical characteristics, is therefore essential to creating reliable, high-value products that perform as expected.

In-pit blending is very common in Australian opencast mining, for example:

> The Goonyella Mine extracts coal from the Goonyella Upper, Middle and Lower seams;

> Peak Downs extracts coal from up to 11 seams, being S, R, Q, P1, P2, Harrow Creek Upper & Lower, Dysart K, Dysart Upper 1 & 2, and Dysart Lower 2 Seams;

> Jellinbah extracts coal from the Pollux Upper & Pollux Lower seams; and

> Lake Vermont extracts coal from Leichhardt & Vermont seams.

At Stockton mine, only the Brunner coal seam (sometimes in several splits) is extracted. However, seam quality varies substantially across the resource, both laterally and vertically within the seam. Blending at Stockton is a complex balancing act between each pit's production schedule and coal rank, ash, sulphur, and FSI. The target of blending is to maximise technical value for the coke maker. By doing so, the coke consumption rate decreases (thereby also reducing carbon dioxide emissions per tonne of hot metal), which adds value to the steelmaker and improves the price position.

Coal blending allows Bathurst to optimise the strengths of each mining area. Some seams provide high-rank, high-vitrinite coal needed for coke strength, while others supply low-ash or low-sulphur coal that is critical for meeting impurity thresholds. By drawing coal simultaneously from Stockton, ESE, MFS, and Cypress pits, operators can combine these complementary qualities to produce stable, predictable coal blends. This multi-pit approach also ensures that coal with less favourable properties can be incorporated into the blend, albeit in smaller quantities, rather than becoming an unsaleable by-product. The multi-pit approach enables Bathurst to meet its obligations under Mining Permits, which require maximising economic recovery of the mineral resource.

Maintaining access to multiple coal sources at any given time is vital for meeting bespoke blend requirements. Mining sequencing must therefore be tightly aligned with blending requirements to ensure the correct volumes of each coal type are available at the right time. If any single pit cannot operate concurrently with others, the full specification envelope cannot be met. This shortcoming would compromise product quality, functionality, and the resource's overall value.

Blending is therefore not just a processing step, but a central strategy underpinning both the commercial viability of the Stockton operation and the success of the wider BPCP. Enabling simultaneous access to the diverse coal types present across the Buller plateau allows the creation of premium products such as the Alpine, PHCC, and Whareatea West HCC blends and ensures that the Stockton infrastructure can continue to operate efficiently while meeting customer expectations.

As previously discussed in **Chapter A.1 – Project Wide Overview**, approval of all Project Sub-Areas is therefore essential to maintain overall economic viability. None of the individual components is viable as a stand-alone operation. Accordingly, Bathurst is seeking to have all proposed Sub-Areas authorised and developed concurrently to ensure operational efficiency and to deliver the anticipated regional and national benefits.

## 2.8 ACID MINE DRAINAGE

The long history of mining on the Stockton Plateau means that some waterways have been affected by AMD for over 130 years. Early mining activities were carried out with a limited understanding of AMD processes, and consequently, little to no treatment was implemented until more recent decades. As a result, AMD remains one of the most significant environmental challenges associated with mining in areas underlain by the Brunner Coal Measures, which contain sulphide-bearing lithologies that can generate acidity when disturbed.

AMD is generated when sulphide minerals within these rocks are exposed to oxygen and water, initiating chemical reactions that produce acidic conditions. This acidic water can mobilise dissolved metals, allowing them to be transported into surrounding waterways. Within the Brunner Coal Measures, this process is particularly relevant due to the presence of PAF and/or high acid-forming ("**HAF**") materials, which contain elevated sulphur content and have a high capacity to generate acidity. In contrast, NAF materials have little to no acid-generating potential and can, in some cases, provide neutralising capacity when appropriately managed.

Bathurst acknowledges that both naturally occurring acid rock drainage and mining-accelerated AMD are characteristic of the sulphide-rich rocks associated with the Brunner Coal Measures. It is also recognised that a substantial proportion of AMD requiring management and treatment at Stockton is of a legacy nature, having already been established prior to Bathurst's ownership of the site.

At the Buller Plateaux, the presence of extensive unrehabilitated historic underground workings, complex geology, and the exposure of PAF/HAF materials mean AMD must be proactively managed throughout the life of mine. While much of the AMD requiring treatment predates current ownership, Bathurst incorporates AMD considerations at every stage of exploration, mining, operations, rehabilitation, and closure. This begins with a comprehensive geochemical characterisation programme in which overburden and coal materials are routinely sampled and analysed to classify rock units into NAF, PAF, and HAF categories. These classifications are then integrated into geological and mining models to guide material handling and placement.

Bathurst implements a suite of well-established AMD mitigation measures across its operations:

> Segregation and controlled placement of HAF rock, ensuring these materials are buried at depth, often below groundwater level, to limit exposure to oxygen to reduce acid generation potential;

> Encapsulation of HAF rock within compacted PAF material as part of ELF construction, creating long-term stable landforms designed to minimise water and oxygen infiltration;

> Integration of water management and drainage controls into ELF and mine design, directing water to containment and treatment systems where required; and

> Application of both active and passive water treatment technologies, including the use of neutralising chemicals and Mussel Shell Reactors ("**MSRs**") to treat acidic or metal-rich waters.

Bathurst's extensive experience working within historically mined areas, where underground workings significantly influence groundwater flow paths, further informs its approach. Interception, control, and treatment of AMD-impacted water are ongoing parts of operations at Stockton and will be central to AMD management for the BPCP.

## 2.9 REHABILITATION AND CLOSURE

Rehabilitation is a core component of modern mine lifecycle planning, designed to minimise environmental impacts during operations and restore ecological function after closure. Contemporary rehabilitation approaches typically begin before mining starts, with ecological surveys and salvage planning for soils, vegetation, and fauna. As mining progresses, rehabilitation is undertaken in phases, minimising the disturbance footprint and allowing rehabilitated areas to develop while other parts of the mine remain active.

Standard rehabilitation frameworks involve:

### 2.9.1 Landform Stabilisation

Once areas are mined, disturbed ground is reshaped to create geotechnically stable landforms, safe slopes, and drainage patterns consistent with surrounding topography. ELFs include layered caps designed to minimise water and oxygen ingress, thereby preventing AMD generation.

### 2.9.2 Soil Reconstruction

Suitable topsoil or subsoil is salvaged, stockpiled, and reapplied to support vegetation establishment. Soil handling aims to maintain structure, microbial communities, and seed banks where possible. Maintaining shallow, uncompacted stockpiles and prioritising fresh soil improve outcomes from progressive rehabilitation.

### 2.9.3 Vegetation Establishment

Revegetation commonly uses a combination of:

- VDT, where intact sods of vegetation and soil are relocated to new sites;
- Planting eco-sourced nursery-grown native species;
- Direct seeding or hydroseeding, especially on steep slopes; and
- SDT, where direct transfer of soil and vegetative material unable to be salvaged as sods is relocated to new sites.

Establishing early stabilising vegetation is essential for controlling erosion, while long-term outcomes depend on selecting species suited to local ecological conditions and their successional potential.

### 2.9.4 Habitat Reconstruction and Fauna Considerations

Creating diverse microhabitats (such as logs, boulders, wetlands, or shrub thickets) supports the return of fauna, including birds, invertebrates, reptiles, and soil organisms. Rehabilitation success is strongly linked to the presence of these structural components and maintaining connectivity to surrounding intact habitats.

### 2.9.5 Monitoring and Adaptive Management

Long-term monitoring of vegetation cover, species diversity, soil health, hydrology, and fauna use is essential. Rehabilitation strategies evolve over time as outcomes are assessed and methods refined. Regulatory frameworks typically require ongoing reporting, weed control, and demonstration that closure criteria have been met.

### 2.9.6 Rehabilitation at Stockton

Rehabilitation at Stockton Mine has evolved significantly over time and has become increasingly effective, particularly where mining and associated rehabilitation methods have been undertaken under Bathurst's management. Ongoing monitoring, research and adaptive management have enabled continuous refinement of rehabilitation techniques, resulting in demonstrably improved ecological outcomes. As of May 2025, approximately 502 ha have been progressively rehabilitated at Stockton Mine towards the approved final landform and land use objectives. A detailed assessment of rehabilitation performance is provided in the Ecological Solutions report *"Assessment of Rehabilitation Outcomes"*, attached in **Part B** to this application. While rehabilitation on the Buller Plateaux presents inherent challenges due to steep terrain, acidic, infertile coal-measure soils, and a harsh climate, Bathurst's sustained investment in research and practice has yielded robust, proven rehabilitation methods that deliver successful, enduring outcomes.

Key rehabilitation approaches include the use of VDT, which is now recognised as one of the most successful techniques at Stockton (**Figure 2-4**). VDT involves lifting intact mats of vegetation and topsoil from stripping areas and relocating them directly to rehabilitation sites. This method provides immediate vegetation cover, retains the existing soil biome, and assists with sediment management. It is particularly effective for low-stature vegetation with dense root mats; however, its application is limited by vegetation type, terrain suitability, and operational constraints, meaning it can only be implemented in select areas. SDT is used in areas where intact vegetation sods cannot be removed. Also referred to as "jumble dumping," this technique involves stripping vegetation and topsoil together and transferring the material directly onto a prepared rehabilitation surface. The material is then carefully spread to optimise rehabilitation outcomes. Once placed, the slash layer provides erosion and sediment control, creates habitat for fauna, and helps maintain the existing seed bank, supporting more rapid natural regeneration compared to replanting alone (EcoLogical, 2026). Where VDT is not practicable and SDT material is unavailable, direct transfer of soil is undertaken to support planting and hydroseeding efforts. In addition, constructed tarns and wetland features play an important role in rehabilitation by providing habitat and supporting aquatic communities, with evidence indicating these systems can become comparable to natural environments over time.

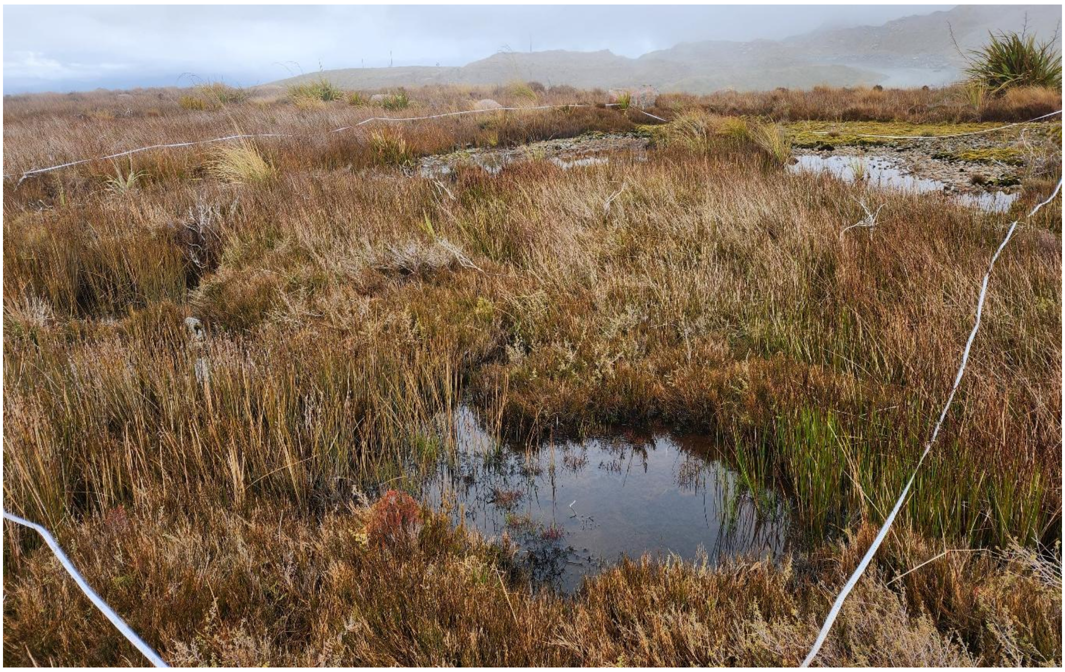

**Figure 2-4: VDT methodology at Bathurst**

Ongoing monitoring demonstrates that Stockton's rehabilitated sites increasingly support indigenous vegetation, birds, invertebrates, and threatened species such as *Powelliphanta* snails, highlighting the effectiveness of sustained, adaptive rehabilitation.

**Figure 2-5: Rehabilitation progression southwest of the A Drive Borrow Pit (Stockton Mine).**

**Figure 2-6: VDT at Stockton Mine**

**Figure 2-7: Rockfield with direct transfer of weathered boulders, incorporating areas of VDT at Stockton Mine (constructed in 2012, photograph taken March 2025)**



420 **Figure 2-8: Constructed tarn/wetland complex at Stockton Mine**

**Figure 2-9: Constructed tarn at Stockton Mine**

Figure 2-10: Constructed tarn at Stockton Mine

425

Figure 2-11: Bryophytes establishing naturally on batter faces at No. 2 South highwalls


Figure 2-12: Rehabilitated former road surface at R6 at Stockton Mine

## 2.10 MINE CLOSURE

The Conceptual Mine Closure Strategy, prepared by Bathurst (2026ag) and informed by technical work undertaken by IEMA, outlines a comprehensive, staged approach to mine closure that focuses on achieving safe, stable, and self-sustaining post-mining environments. At the completion of the BPCP, all areas disturbed by mining will have undergone progressive rehabilitation, including reshaping of landforms, placement of engineered caps, and revegetation. These measures are intended to ensure that final landforms are geotechnically stable, visually integrated with the surrounding landscape, and capable of supporting functioning ecosystems over the long term.

Mine closure is not defined by the cessation of mining activities alone, but by achieving clearly defined closure criteria. At Stockton, closure will be considered complete only once landforms are demonstrably safe and stable, native ecosystems are established, and monitoring confirms that all performance criteria have been met. This evidence-based approach enables the eventual relinquishment of mining permits under the CMA.

For the new project areas, the Conceptual Mine Closure Strategy extends the established rehabilitation framework applied at Stockton. Closure activities will include constructing ELFs, encapsulating PAF materials to mitigate AMD, and staged rehabilitation using topsoil replacement and native vegetation. In some areas, rockfield rehabilitation will be employed to replicate natural sandstone pavement systems. Unlike the legacy AMD issues at Stockton, which require ongoing long-term management, AMD associated with new project areas is expected to require only a limited period of active treatment before transitioning to passive systems, reflecting improved contemporary mining and rehabilitation practices. At UWHR, closure will focus more specifically on reshaping disturbed haul road areas, maintaining sediment controls, and reinstating natural drainage patterns.

Closure will occur progressively but is guided by an overall timeline, with mining at Stockton anticipated to conclude around 2037, followed by final rehabilitation works through to approximately 2046. This will be succeeded by an extended period of monitoring and maintenance to ensure that closure outcomes are achieved and sustained. Across the BPCP, the overarching objective is to restore disturbed areas to self-sustaining native vegetation, stable landforms, and hydrological systems consistent with the surrounding landscape and its ecological and recreational values. While most rehabilitated areas will comprise vegetated landforms, a diversity of features, including wetlands, tarns, rockfields, and pit lakes, will also be established to enhance habitat variety and ecological function.

The closure process also involves removing or remediating contamination and hazardous materials, and decommissioning mining and water management infrastructure unless alternative uses are agreed upon. Disturbed landforms, such as waste rock dumps, will be reshaped to integrate with the natural plateau topography, and enduring water management systems will be reinstated or constructed to support the final landform. In line with mahinga kai principles, water will, where practicable, be returned to its original pre-mining catchments. Rehabilitation will prioritise native vegetation and aim to enhance ecological function by creating features such as wetlands and littoral zones.

Water management, particularly AMD treatment, remains a critical component of closure. At Stockton, the scale of historic AMD necessitates ongoing treatment, with long-term responsibility transferring to the Crown under existing agreements. Bathurst will retain responsibility for AMD generated by its own operations and will contribute financially to the long-term management of such AMD. In contrast, for the new Project Sub-Areas, PAF materials will be managed during operations, and passive treatment systems will be incorporated into final landforms to address residual AMD, with ongoing monitoring to confirm their effectiveness.

After physical rehabilitation is complete, the post-closure phase will involve continued monitoring, maintenance, and land management. This phase is essential to demonstrate that closure criteria have been achieved, focusing on the long-term stability of landforms, the success of ecosystem establishment, and the performance of water management systems. Monitoring results will inform adaptive management, allowing for refinements where necessary, and will provide the evidence required for regulatory sign-off.

Ultimately, the BPCP will be relinquished once all closure objectives have been met and validated through monitoring. At Stockton, this process is governed by existing Crown agreements, with permits relinquished once landforms are stable, ecosystems are established, and compliance with agreed criteria is confirmed. Responsibility for long-term AMD management will then transfer to the Crown.

For the new Sub-Areas, a similar pathway applies, with relinquishment contingent on achieving stable landforms, successful rehabilitation outcomes, and the cessation of active water treatment. Passive systems will continue to be monitored, and long-term management responsibilities for infrastructure will be agreed with landowners and regulators prior to final transfer.