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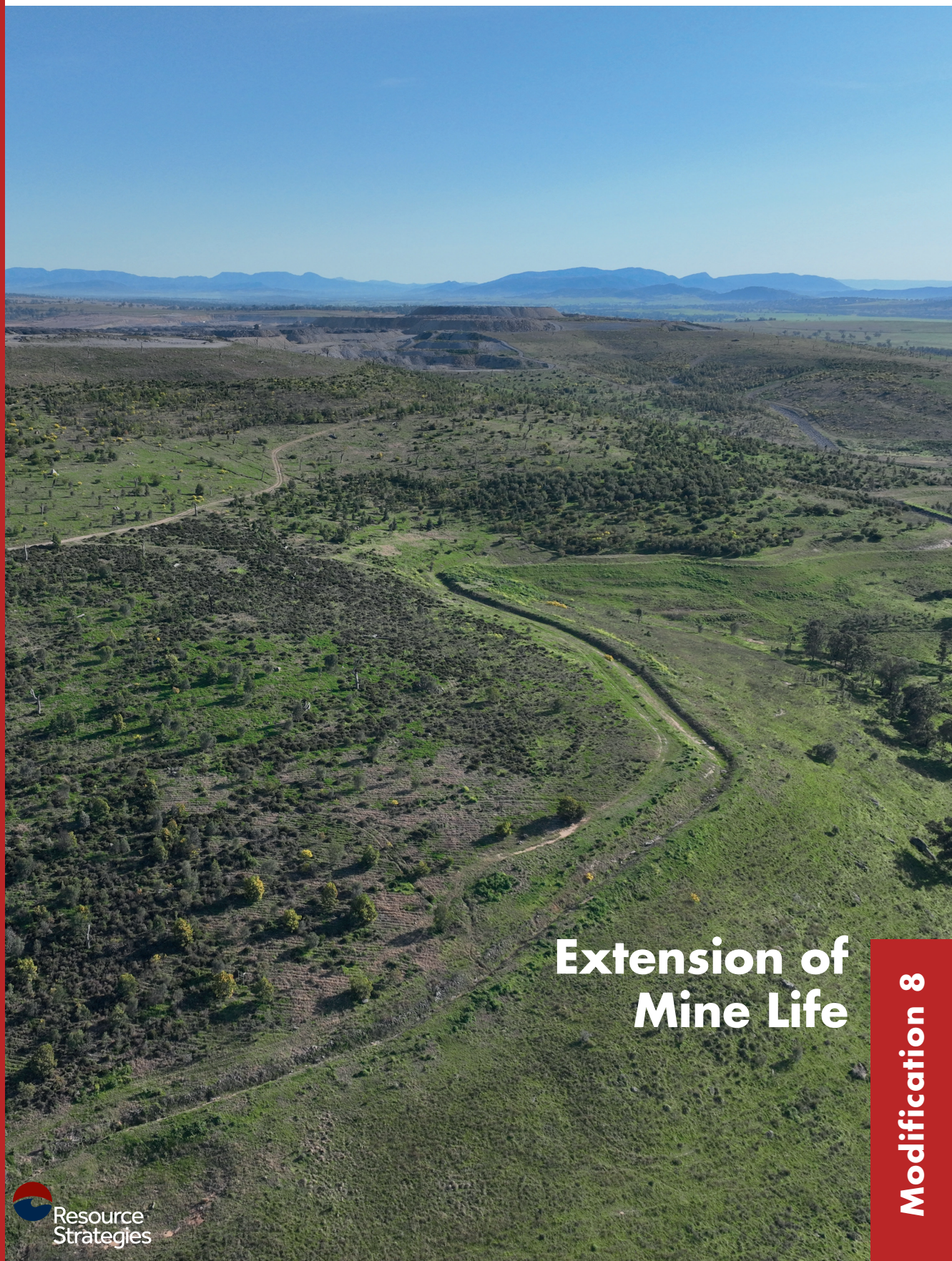
Mount Pleasant Operation

A JOINT VENTURE WITH JCDA Japan Coal Development Australia



Extension of Mine Life

Modification 8

Resource Strategies

EXECUTIVE SUMMARY

This document is a Modification Report for a proposed modification to the Mount Pleasant Operation Development Consent DA 92/97 sought under section 4.55(2) of the New South Wales (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act), herein referred to as the Modification.

MACH Mount Pleasant Operation Pty Ltd is the manager of the Mount Pleasant Operation as agent for and on behalf of the unincorporated Mount Pleasant Joint Venture between MACH Energy Australia Pty Ltd (95 per cent [%] owner) and J.C.D. Australia Pty Ltd (5% owner)[1].

Mount Pleasant Operation

The approved Mount Pleasant Operation is an open cut coal mine and associated infrastructure located approximately 3 kilometres north-west of Muswellbrook, within the Muswellbrook Local Government Area.

The Mount Pleasant Operation is located in a significant mining region that includes a wide range of existing operational open cut and underground coal mines (Figure ES-1).

Since it was originally granted in 1999, Development Consent DA 92/97 has been modified on six occasions.

The Mount Pleasant Operation produces thermal coal using open cut mining methods and has an approved operational capacity of up to 10.5 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal until 22 December 2026 under Development Consent DA 92/97 (as modified).

The approved Mount Pleasant Operation includes a Coal Handling and Preparation Plant (CHPP) and a rail loop and spur, conveyor and load-out facility connecting the mine to the Muswellbrook-Ulan Rail Line.

MACH acquired the Mount Pleasant Operation from Coal & Allied Operations Pty Ltd (Coal & Allied) on 4 August 2016.

MACH commenced mining operations in late 2017, in accordance with Development Consent DA 92/97 (NSW Approval) and EPBC 2011/5795 (Commonwealth Approval).

Mount Pleasant Optimisation Project

In 2020, MACH lodged a Development Application and accompanying Environmental Impact Statement for the Mount Pleasant Optimisation Project for assessment under the EP&A Act.

The Optimisation Project involves extraction of additional coal reserves within the Mount Pleasant Operation Mining Leases and an increase in the rate of coal extraction to 21 Mtpa ROM.

The Mount Pleasant Optimisation Project would allow the Mount Pleasant Operation to continue mining operations until 2048, and support the ongoing employment of the existing workforce and significant additional contributions to the local, NSW and Australian economy.

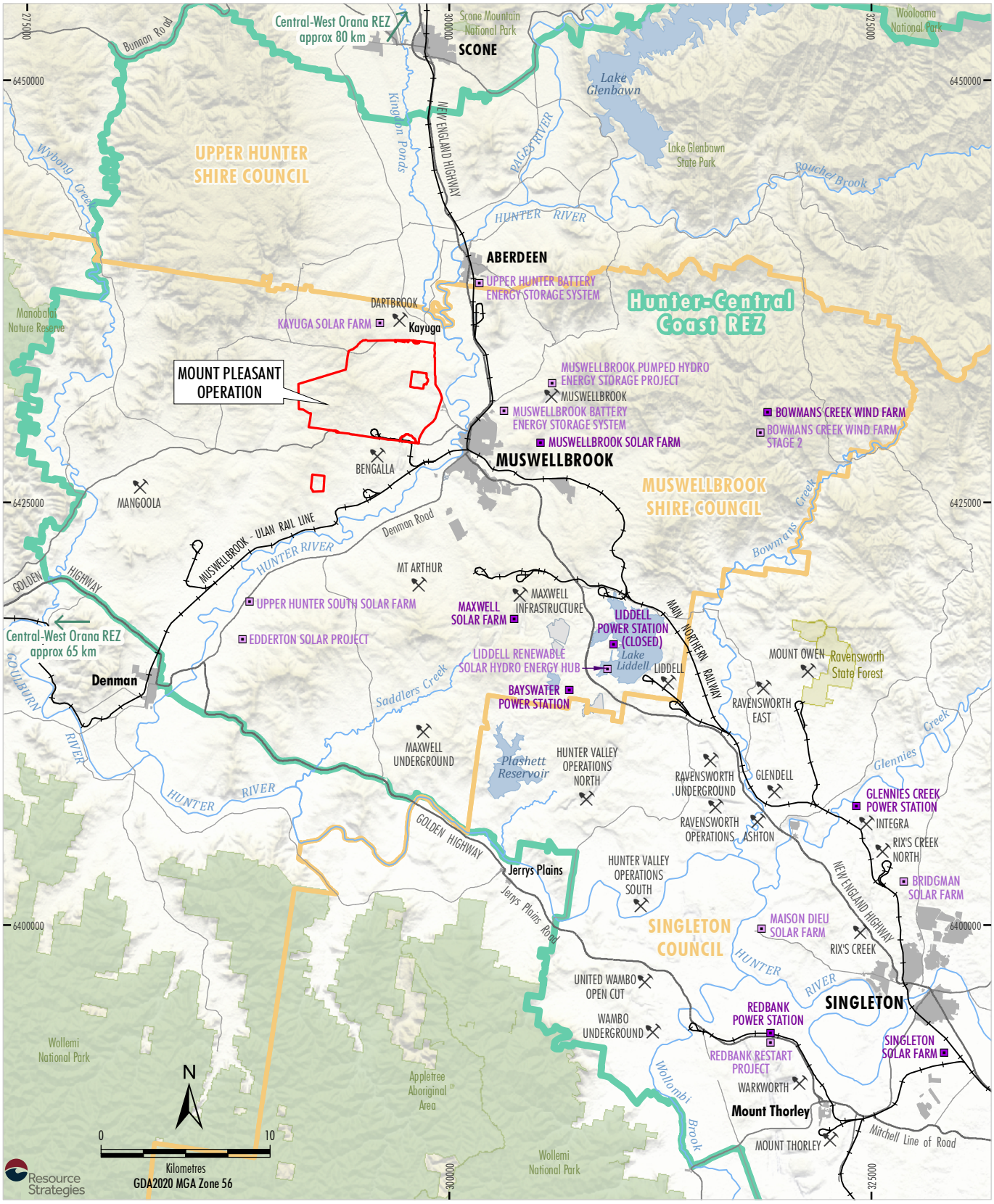
On 6 September 2022, the NSW Independent Planning Commission (IPC) approved the Mount Pleasant Optimisation Project (State Significant Development [SSD] 10418) in accordance with Part 4 of the EP&A Act.

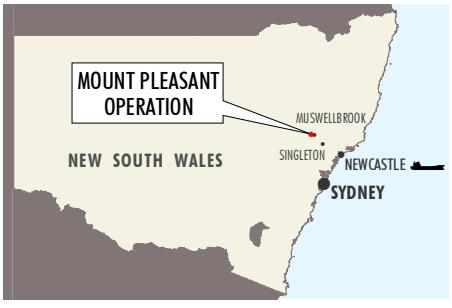
The Denman, Aberdeen, Muswellbrook and Scone Healthy Environment Group Inc applied for a judicial review of the IPC's decision in the NSW Land and Environment Court (LEC). The LEC dismissed the judicial review application on all grounds in August 2024.

On 24 July 2025, the NSW Court of Appeal upheld a single ground of appeal relied on by Denman, Aberdeen, Muswellbrook and Scone Healthy Environment Group Inc and remitted the matter to the LEC to determine whether to make orders pursuant to the NSW *Land and Environment Court Act 1979* which, if complied with, would validate Development Consent SSD 10418 (Validating Orders). In December 2025, the High Court granted special leave to appeal against the Court of Appeal's judgement.

Consistent with MACH seeking NSW approval for the proposed Mount Pleasant Optimisation Project, an action to increase open cut coal extraction and additional land disturbance associated with a revised Northern Link Road alignment was also referred to the Commonwealth under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in July 2020.

[1] MACH Mount Pleasant Operation Pty Ltd and the unincorporated Mount Pleasant Joint Venture are herein referred to as MACH.





Source: NSW Spatial Services (2025); EnergyCo (2024)

LEGEND

- Mining Operation
- Existing/Approved Major Energy Generation Site
- Proposed Major Energy Generation Site
- Railway
- National Parks and Wildlife Estate
- State Forest/Reserve
- Local Government Boundary
- Hunter-Central Coast Renewable Enery Zone (REZ)
- Mining Lease Boundary (Mount Pleasant Operation)

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MOUNT PLEASANT OPERATION

Location of the Mount Pleasant Operation

Figure ES-1

A delegate of the Commonwealth Minister determined on 26 August 2020 that the proposed action is a "controlled action" and therefore the action (EPBC 2020/8735) also required approval under the EPBC Act. The EPBC 2020/8735 action was approved with conditions by a delegate of the Commonwealth Minister on 24 September 2024.

Strategic Context for the Modification

It would be MACH's preference to proceed with the Mount Pleasant Optimisation Project (and hence surrender the original NSW approval - Development Consent DA 92/97).

However, until MACH is in a position where it is able to surrender Development Consent DA 92/97 with confidence that it can rely on SSD 10418 for the Mount Pleasant Optimisation Project, MACH will continue to rely upon Development Consent DA 92/97.

In the absence of this legal certainty, MACH is seeking a Modification to Development Consent DA 92/97 to continue permitted mining operations to 2032 for the ongoing benefit of MACH, employees, contractors and the regional community.

Description of the Modification

The Modification would include the following key changes to the approved Mount Pleasant Operation under Development Consent DA 92/97:

- a six year extension of permitted (ROM coal) mining operations to 31 December 2032; and
- an increase in the approved ROM coal extraction rate from 10.5 Mtpa to 12.5 Mtpa.

During the period of the Modification[2] and in the absence of SSD 10418, operational employment would be up to a maximum of 575 personnel, which represents an increase above the operational employment required to sustain 10.5 Mtpa, and a reduction of around 125 employees compared to the current workforce relied on under SSD 10418 (Plate ES-1).

Plate ES-1 – MACH Personnel at the Mine Infrastructure Area

The Modification would involve no material changes to existing:

- mining tenements;
- mining methods;
- primary site access;
- electricity supply and distribution;
- Mine Infrastructure Area;
- CHPP, coal stockpile and rail loading facilities;
- rehabilitation objectives and methods; and
- hours of operation and key on-site activities.

The extent of mining within the Development Consent DA 92/97 approved surface disturbance plan/area proposed within the life of the Modification is shown on Figure ES-2.

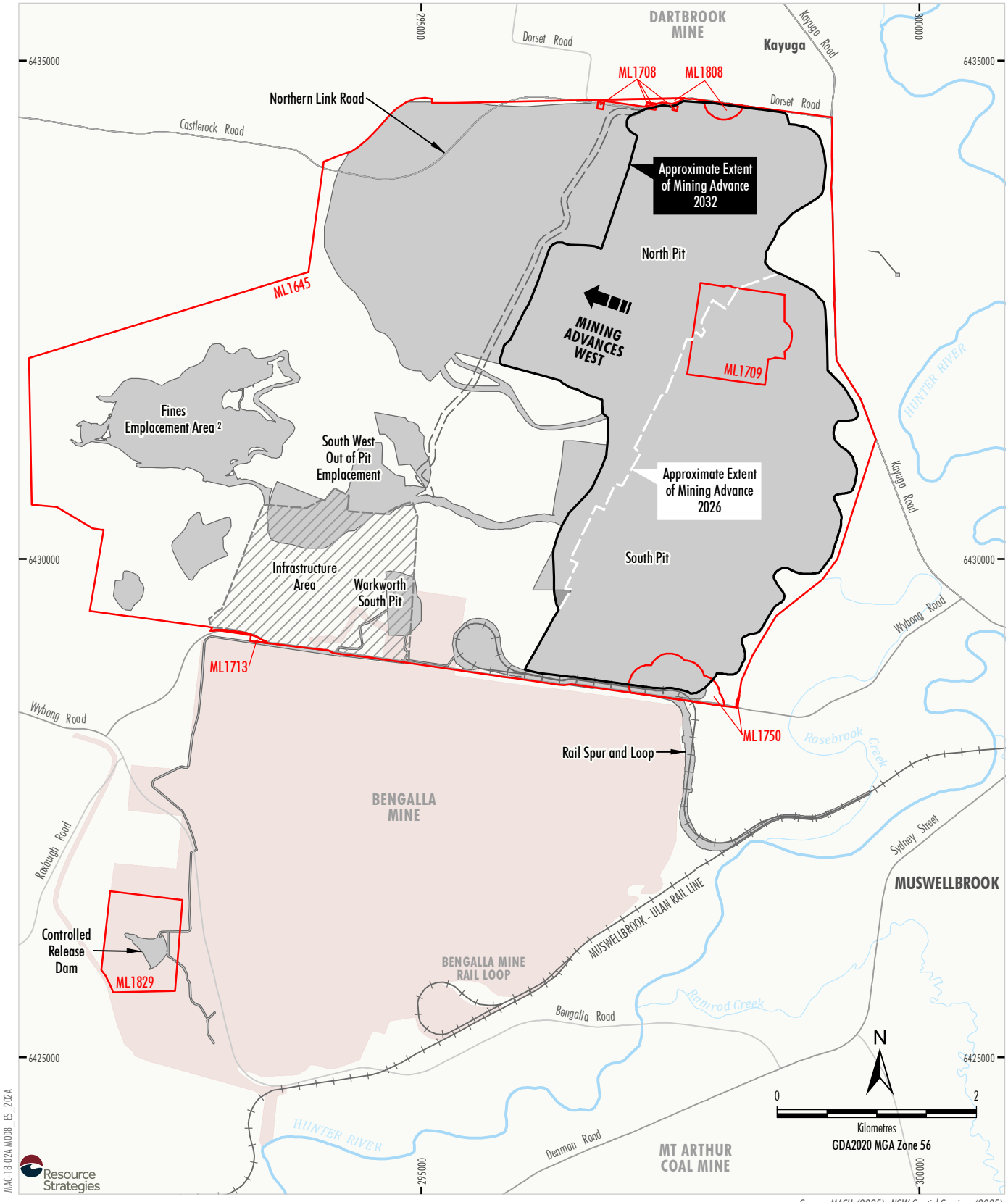
Engagement

Contemporary and targeted consultation has been conducted for the Modification. Key comments and issues raised during consultation have been considered and addressed in preparation of this Modification Report.

Many local stakeholders consulted expressed significant concern about the implications of the Mount Pleasant Operation closing in December 2026 in the absence of the Modification (and/or the Mount Pleasant Optimisation Project).

Other key concerns included the continuation of cumulative impacts with other mining operations on local amenity, primarily air quality and noise, and potential cumulative interactions with renewable energy development in the region.

[2] The period of the Modification is nominally 1 January 2026 to 31 December 2032.



Source: MACH (2025); NSW Spatial Services (2025); Department of Planning and Environment (2016)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Approved Surface Disturbance Plan - DA 92/97 [1]
- Services Corridor Being Developed Under SSD-10418 to be Used Under the Modification
- Extension of Open Cut Mining and Emplacement Area (Land Lawfully Disturbed under SSD-10418)
- Revised Infrastructure Area Envelope
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

[1] Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

[2] The general arrangement of the Fines Emplacement Area has been amended from the area shown in DA 92/97 to reflect as-built structures.

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MOUNT PLEASANT OPERATION

Overview of the Modification

Figure ES-2

Environmental Assessment Context

MACH has limited the currently proposed extension of the permitted period of mining operations from 2026 to 2032 in this Modification.

The Modification disturbance area in the period to 2032 would be constrained to within the Mount Pleasant Operation approved surface disturbance plan/area[3] (Figure ES-2). Development Consent DA 92/97 indicates that MACH may extend the period of permitted mining operations via a modification to facilitate ongoing approved surface development in this area.

Notwithstanding, in this Modification Report, MACH has conservatively assessed and considered the potential impacts of the Mount Pleasant Operation continuing to 2032, inclusive of description of potential impacts within the approved surface disturbance plan/area.

Key Environmental Assessment Outcomes

MACH could operate the Mount Pleasant Operation incorporating the Modification in accordance with existing criteria and performance measures as set out in Development Consent DA 92/97 and the existing environmental management framework with only minor augmentations.

MACH has undertaken a review of the potential environmental impacts of the Modification to identify key potential environmental issues requiring assessment. The key environmental issues identified are summarised in Table ES-1.

Table ES-1
Key Outcomes of the Environmental Review

Environmental Aspect	Summary of Environmental Assessment Conclusions	Key Mitigation Measures for the Modification
Operational Noise	With the implementation of MACH's noise management measures (including noise attenuated major mobile plant), the noise envelope of the Mount Pleasant Operation incorporating the Modification would effectively be unchanged from the approved mine.	MACH would develop a noise bund in advance of the mining operation moving into North Pit and would continue to position the bulk of mobile equipment during the night-time to optimise the noise shielding provided by the Eastern Out-of-Pit Emplacement. MACH would continue to implement the existing real-time noise management system and associated response protocols in the Noise Management Plan.
Air Quality	Air quality modelling indicates that no additional exceedances of applicable Development Consent DA 92/97 air quality criteria are predicted to arise at any privately-owned residences as a result of the Modification. One privately-owned parcel of vacant land would be afforded acquisition upon request rights for air quality (this land parcel already has acquisition upon request rights for noise impacts).	The real-time air quality monitoring system and response protocols detailed in the Air Quality and Greenhouse Gas Management Plan would continue to be implemented, including proactive and reactive management measures.
Water Resources	The Modification would not result in a material change to the groundwater and surface water impacts of the previously approved Mount Pleasant Operation. The outcomes of contemporary site water balance modelling undertaken for the Modification are not materially different to the outcomes of water management system modelling undertaken for the previously approved Mount Pleasant Operation.	Water monitoring and management at the Mount Pleasant Operation would continue to be undertaken in accordance with an approved Water Management Plan. MACH would maintain appropriate groundwater and surface water licences in accordance with the relevant water sharing plans.

[3] Refer to, amongst other things, Figure 3 in Appendix 2 of DA 92/97.

Table ES-1 (Continued)
Key Outcomes of the Environmental Review

Environmental Aspect	Summary of Environmental Assessment Conclusions	Key Mitigation Measures for the Modification
Biodiversity	The Modification does not involve any additional surface disturbance beyond the already approved surface disturbance area depicted and described in Figure 3 in Appendix 2 to Development Consent DA 92/97.	Key biodiversity management measures at the Mount Pleasant Operation would continue to be implemented for the Modification, including the implementation of progressive rehabilitation (Plates ES-2 and ES-3).
Aboriginal Cultural Heritage	Approximately 29 Aboriginal cultural heritage sites, primarily assessed as being of low significance within the approved surface development area/plan would be salvaged in the period between 1 January 2026 and 31 December 2032, dependent on pit progression and the location of ancillary infrastructure. The Modification would not cause, within a regional context, a loss of heritage resources that could be viewed as being very rare or unique, or unlikely to exist elsewhere.	Cultural heritage at the Mount Pleasant Operation would continue to be managed in accordance with an approved Aboriginal Cultural Heritage Management Plan. MACH would separately seek an Aboriginal Heritage Impact Permit/s (AHIP/s), in consultation with Registered Aboriginal Parties (RAPs), to authorise salvage of those sites not covered by an existing AHIP. If required, MACH would lodge variation application/s to extend the life of AHIPs #C0002092, #C0004783 and/or #C0002053 to align with the revised period of permitted (ROM coal) mining operations.
Social and Community Infrastructure	The potential impacts of the Modification are a continuation of the social impacts currently being experienced from the Mount Pleasant Operation. Negative social impacts would continue to be experienced by people in close geographical proximity to the current operation, while positive social impacts would continue to be experienced generally over a wider geographical area.	MACH would continue to work with local government and the community to minimise potential social impacts of the Modification and maximise potential opportunities. MACH would continue to implement and improve existing management plans, procedures and personnel that address existing social impacts.
Visual/Final Landform	The continuation of mining to 2032 and the ongoing northern and western development of the Eastern Out-of-Pit Emplacement would alter the views of the Mount Pleasant Operation, particularly when viewed from Muswellbrook, Aberdeen and other local public vantage points. Overall, landscape and visual impacts associated with Modification would be largely consistent with previously assessed and approved impacts at Mount Pleasant Operation.	Visual and landscape treatments and mitigation measures have been incorporated in the design of the Modification to reduce visual impacts in Muswellbrook and other local vantage points. Final landforms incorporate micro-relief and emplacements designed to improve topographic linkages with surrounding natural landforms (Plate ES-3). Existing lighting mitigation measures would continue to be applied to minimise direct and indirect lighting impacts.
Greenhouse Gas	The approved total ROM coal extraction and annual projected greenhouse gas emissions of the Mount Pleasant Optimisation Project are already included in NSW' greenhouse gas projections out to 2048. The Modification's greenhouse gas emissions would represent a smaller subset of the projected SSD 10418 emissions. Based on internal projections, MACH could comply with Commonwealth Safeguard Mechanism requirements to 2032.	MACH has prepared a Climate Change Mitigation and Adaptation Plan to document reasonable and feasible Scope 1 and Scope 2 greenhouse gas mitigation measures that could be applied at the Mount Pleasant Operation, which has been provided to the Environment Protection Authority and Department of Planning, Housing and Infrastructure for consultation. This would be updated to incorporate the Modification. MACH would continue to comply with its obligations to report greenhouse gas emissions and energy consumption/production under the Commonwealth *National Greenhouse and Energy Reporting Act 2007* (NGER Act) and the associated Safeguard Mechanism.

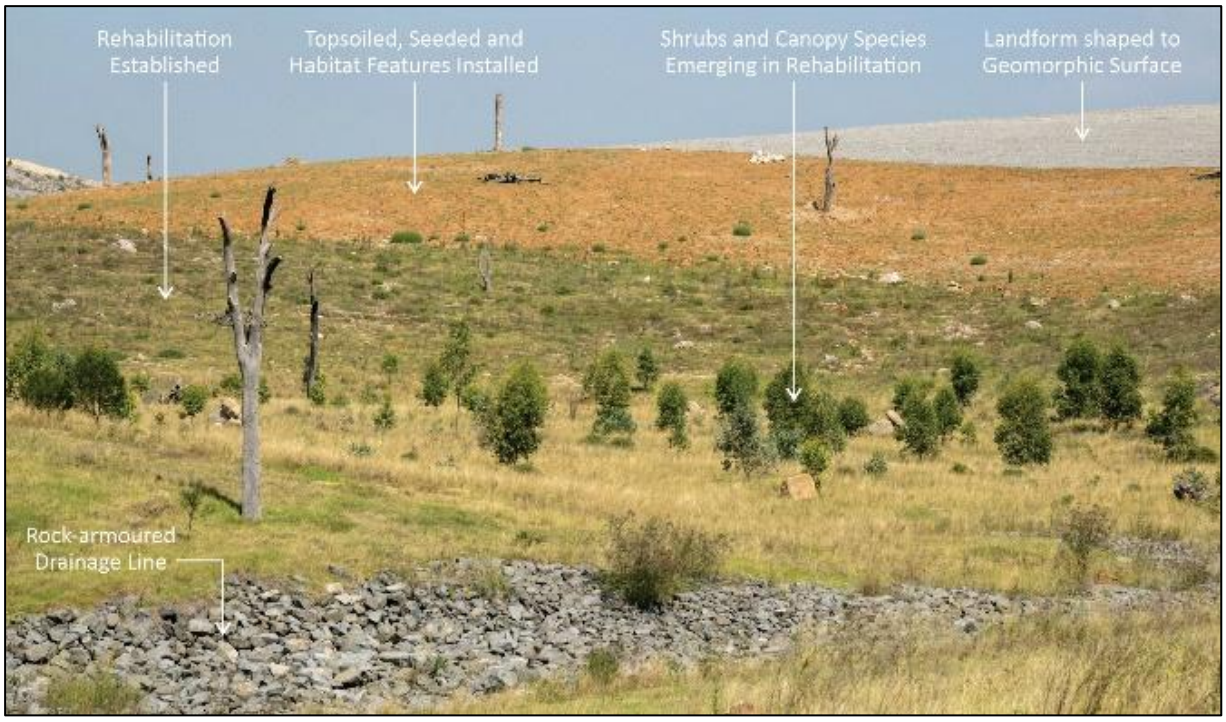


Plate ES-2 – Progressive Rehabilitation of the Eastern Out-of-Pit Emplacement

Plate ES-3 – Geomorphic Features on the Eastern Out-of-Pit Emplacement

The environmental reviews conducted for the Modification indicate that the Mount Pleasant Operation environmental management and monitoring measures being applied by MACH could continue to be effectively applied to minimise the potential impacts on existing environmental values and the nearest private dwellings.

Summary of Modification Report Findings

The Modification would not significantly increase potential environmental impacts in comparison to the approved Mount Pleasant Operation.

The Modification would facilitate the following key socio-economic benefits:

- retention of approximately 575 full-time equivalent positions during the Modification period, preventing the complete loss of employment that would otherwise occur upon cessation of mining by 22 December 2026;
- direct and indirect flow on economic effects of continued and increased ROM coal production in the six year extension period (2027-2032);
- continuation of existing Voluntary Planning Agreement payments to Muswellbrook Shire Council; and
- the continuation of and incremental increases in royalty payments to the NSW government from MACH coal product sales[4].

The Economic Assessment indicates the Modification would result in a total net benefit to NSW of $776 million in Net Present Value terms.

The Modification would also allow for MACH's continued support for local and regional businesses, and investment in social enterprises, sporting groups and community groups within the region for an additional six years.

Conversely, in a scenario where the Modification is not approved and MACH is also not in a position to carry out the Mount Pleasant Optimisation Project pursuant to a development consent and EPBC Act approvals:

- the Mount Pleasant Operation would cease to be permitted to carry out coal extraction under Development Consent DA 92/97 by 22 December 2026 (and would operate for a significantly shorter period than the originally assessed/approved mine life of 21 years);
- the significant operational employment and direct flow-on economic effects of the Mount Pleasant Operation would cease by 22 December 2026;
- the mine would largely remain in South Pit and mining operations would not be extended to access the valuable coal resources within North Pit in the period 2027 to 2032; and
- final landform changes associated with the Modification and proposed continuation of mining to 2032 under Development Consent DA 92/97 would not occur.

The proposed Modification to extend operations under Development Consent DA 92/97 would involve a range of positive socio-economic effects, but also the continuation and extension in time of current environmental impacts from the Mount Pleasant Operation.

This Modification Report has demonstrated that MACH could continue to operate the Mount Pleasant Operation (as modified) in accordance with existing criteria and performance measures in Development Consent DA 92/97 and the existing environmental management framework with only very minor augmentation of the existing Development Consent DA 92/97 conditions.

MACH considers that the material and essential features of the Mount Pleasant Operation would remain substantially the same as the approved mine. MACH also considers that the consent authority can be satisfied that the Mount Pleasant Operation incorporating the proposed Modification satisfies the 'substantially the same development' test.

In weighing up the main environmental impacts (costs and benefits) associated with the proposal, as assessed and described in this Modification Report, the Modification, on balance, is considered to have significant merit and be in the public interest.

[4] **As of Quarter 2 2025, the Mount Pleasant Operation has already contributed more than $650 million in royalty payments to the NSW Government for State infrastructure and services.**

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES (CONTINUED)

LIST OF PLATES

LIST OF PLATES (CONTINUED)

LIST OF GRAPHS

LIST OF CHARTS

LIST OF ATTACHMENTS

LIST OF APPENDICES

1 INTRODUCTION

This document is a Modification Report for a proposed modification to the Mount Pleasant Operation Development Consent DA 92/97[5], herein referred to as the Modification.

MACH Mount Pleasant Operation Pty Ltd is the manager of the Mount Pleasant Operation as agent for and on behalf of the unincorporated Mount Pleasant Joint Venture between MACH Energy Australia Pty Ltd (95 per cent [%] owner) and J.C.D. Australia Pty Ltd (5% owner)[6].

The Modification will be sought under section 4.55(2) of the New South Wales (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.1 APPLICANT'S DETAILS

MACH Energy Australia Pty Ltd (ACN 608 495 441) is the applicant for the Modification on behalf of the unincorporated Mount Pleasant Joint Venture. The contact details for MACH Energy Australia Pty Ltd, as agent for and on behalf of both owners, is:

MACH Energy Australia Pty Ltd
PO Box 407
NEWCASTLE NSW 2300
Phone: 1800 931 873

The MACH website is:

https://machenergyaustralia.com.au/

Primary access to the Mount Pleasant Operation mine site and administration office is provided from Wybong Road, Muswellbrook.

1.2 SUMMARY OF THE APPROVED MOUNT PLEASANT OPERATION

1.2.1 Background

The approved Mount Pleasant Operation is an open cut coal mine and associated infrastructure located approximately 3 kilometres (km) north-west of Muswellbrook in the Upper Hunter Valley of NSW (Figures 1 and 2).

The Mount Pleasant Operation is located in the Sydney Basin (Figure 1), a significant mining region that includes a wide range of existing operational open cut and underground coal mines.

The Mount Pleasant Operation Mining Leases are wholly located within the Muswellbrook Local Government Area (LGA) (Figure 2).

The Mount Pleasant Operation produces thermal coal using open cut mining methods and has an approved operational capacity of up to 10.5 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal until 22 December 2026 under Development Consent DA 92/97 (as modified).

The approved Mount Pleasant Operation includes a Coal Handling and Preparation Plant (CHPP) and a rail loop and spur, conveyor and load-out facility connecting the mine to the Muswellbrook-Ulan Rail Line.

Other major components include:

- multiple open cuts;
- multiple out-of-pit waste rock emplacements;
- Mine Infrastructure Area (MIA);
- water management infrastructure;
- ROM and product coal stockpiles; and
- Fines Emplacement Area.

MACH acquired the Mount Pleasant Operation from Coal & Allied on 4 August 2016. MACH commenced mining operations in late 2017, in accordance with Development Consent DA 92/97 (NSW Approval) and EPBC 2011/5795 (Commonwealth Approval). The history of these approvals is explained further below.

1.2.2 NSW Approvals History

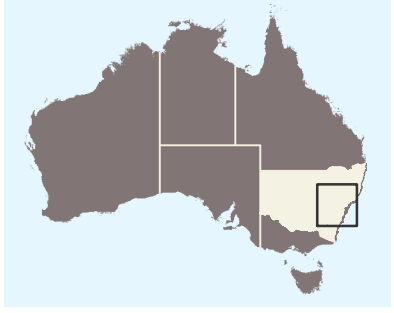
The potential environmental impacts associated with the development of the Mount Pleasant Operation were originally assessed in the *Mount Pleasant Mine Environmental Impact Statement* (1997 Environmental Impact Statement [EIS]) (ERM Mitchell McCotter, 1997a).

Development Consent DA 92/97 for the Mount Pleasant Operation was granted by the (then) NSW Minister for Urban Affairs and Planning on 22 December 1999.

[5] https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=DA92/97-MOD-6%2120231110T021954.099%20GMT

[6] MACH Mount Pleasant Operation Pty Ltd and the unincorporated Mount Pleasant Joint Venture are herein referred to as MACH.

Source: NSW Spatial Services (2025); EnergyCo (2024)



LEGEND
- Major Railway
- Highway
- Renewable Enery Zone (REZ)
- Coalfield

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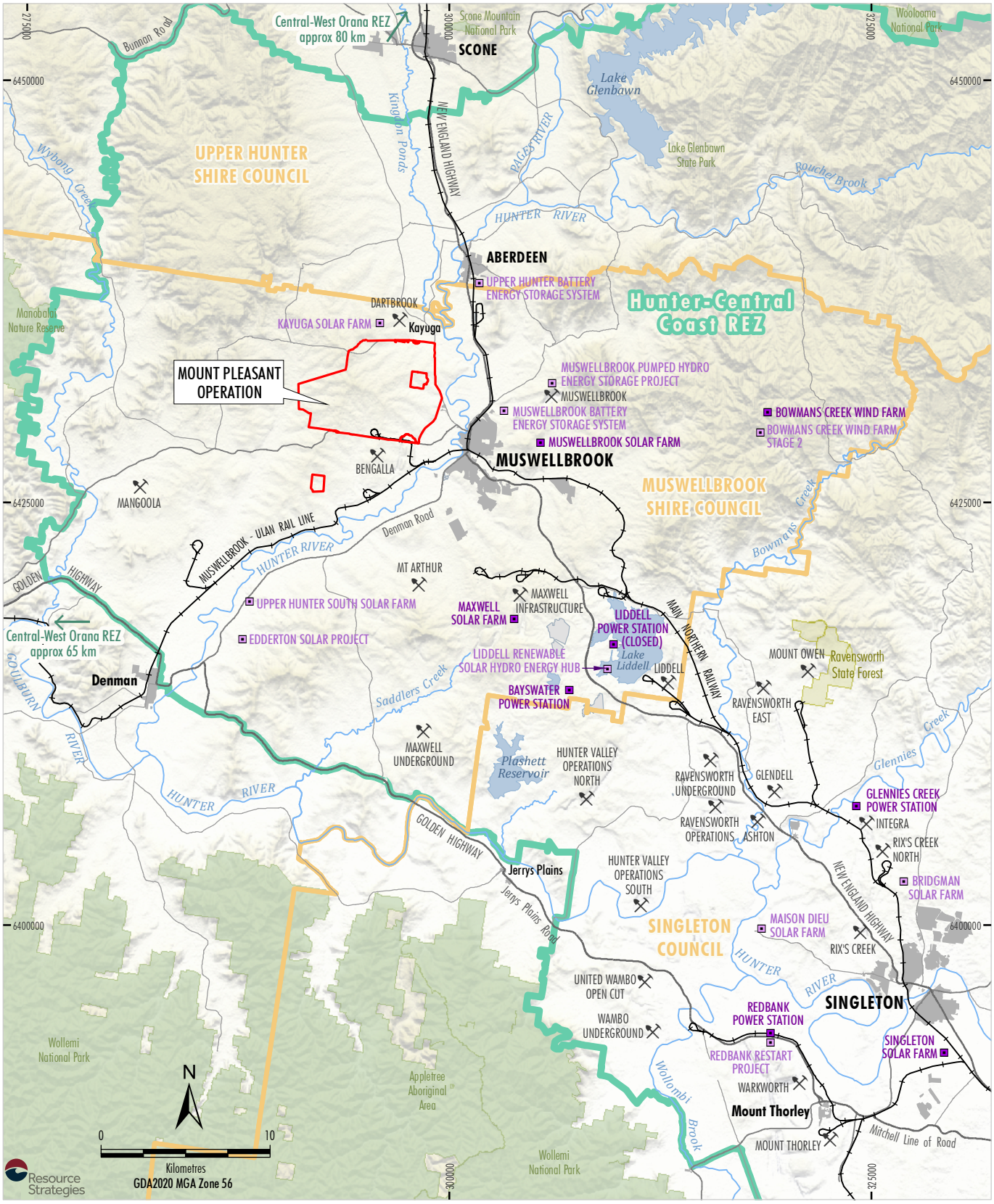
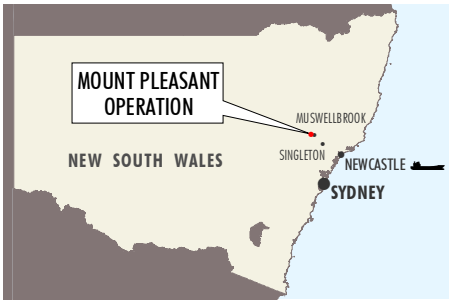
MOUNT PLEASANT OPERATION

Regional Location

Figure 1



Source: NSW Spatial Services (2025); EnergyCo (2024)



LEGEND

- Mining Operation
- Existing/Approved Major Energy Generation Site
- Proposed Major Energy Generation Site
- Railway
- National Parks and Wildlife Estate
- State Forest/Reserve
- Local Government Boundary
- Hunter-Central Coast Renewable Enery Zone (REZ)
- Mining Lease Boundary (Mount Pleasant Operation)

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MOUNT PLEASANT OPERATION

Location of the Mount Pleasant Operation

Figure 2

When Development Consent DA 92/97 was granted in 1999, the Mount Pleasant Operation was permitted to carry out mining operations for a period of 21 years from the date of the granting of the Development Consent DA 92/97. This was reflected in Condition 1.2.1 of Development Consent DA 92/97, which initially permitted mining operations until 22 December 2020.

Since it was originally granted, Development Consent DA 92/97 has been modified on six occasions:

- **Modification 1** (approved 19 September 2011) included: construction of a conveyor and service corridor to the existing rail facilities at Bengalla Mine, relocation of approved mine infrastructure (within a design envelope) and updates to operational noise conditions.
- **Modification 2** (approved 29 March 2017) relocated the South Pit Haul Road.
- **Modification 3** (approved 24 August 2018) extended the time limit for open cut mining to 22 December 2026, involved a toe extension to the Eastern Out-of-Pit Emplacement and incorporated micro-relief and geomorphic features in the final landform design.
- **Modification 4** (approved 16 November 2018) permitted duplication of the approved rail spur, rail loop, conveyor and rail load-out facility (i.e. the Stage 2 rail infrastructure), duplication of the Hunter River water supply pump station, water pipeline and associated services, and demolition and removal of redundant approved infrastructure.
- **Modification 5** (approved 29 June 2022) addressed an error in the drafting of DA 92/97.
- **Modification 6** (approved 8 November 2023) allows for the construction and operation of a transmission tower to re-transmit local digital television signal from the existing Broadcast Australia site at Rossgole Lookout.

While a Modification 7 (with a similar scope to this Modification) was previously proposed, that proposal was withdrawn in November 2024 such that this Modification is identified as Modification 8 rather than Modification 7.

In 2022, MACH obtained a separate NSW State Significant Development (SSD) consent for the Mount Pleasant Optimisation Project (SSD 10418). Development Consent SSD 10418 is not the subject of this modification application (Section 1.3).

1.2.3 Commonwealth Approvals History

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) commenced in 2000, after Development Consent DA 92/97 for the Mount Pleasant Operation was granted in 1999.

In June 2010, Coal & Allied submitted a Referral of Proposed Action (EPBC 2011/5795) to the then Commonwealth Department of Sustainability, Environment, Water, Population and Communities.

The Mount Pleasant Operation was determined to be a “controlled action” in 2011, and was subsequently approved in 2012 under the EPBC Act (EPBC 2011/5795). This EPBC Act approval (as varied) remains in effect until October 2040.

MACH also obtained a Commonwealth EPBC Act approval (EPBC 2020/0735) for aspects of the Mount Pleasant Optimisation Project (SSD 10418) that are additional to activities previously authorised under EPBC 2011/5795 (Section 1.3).

1.2.4 Coal Resources and Open Cuts

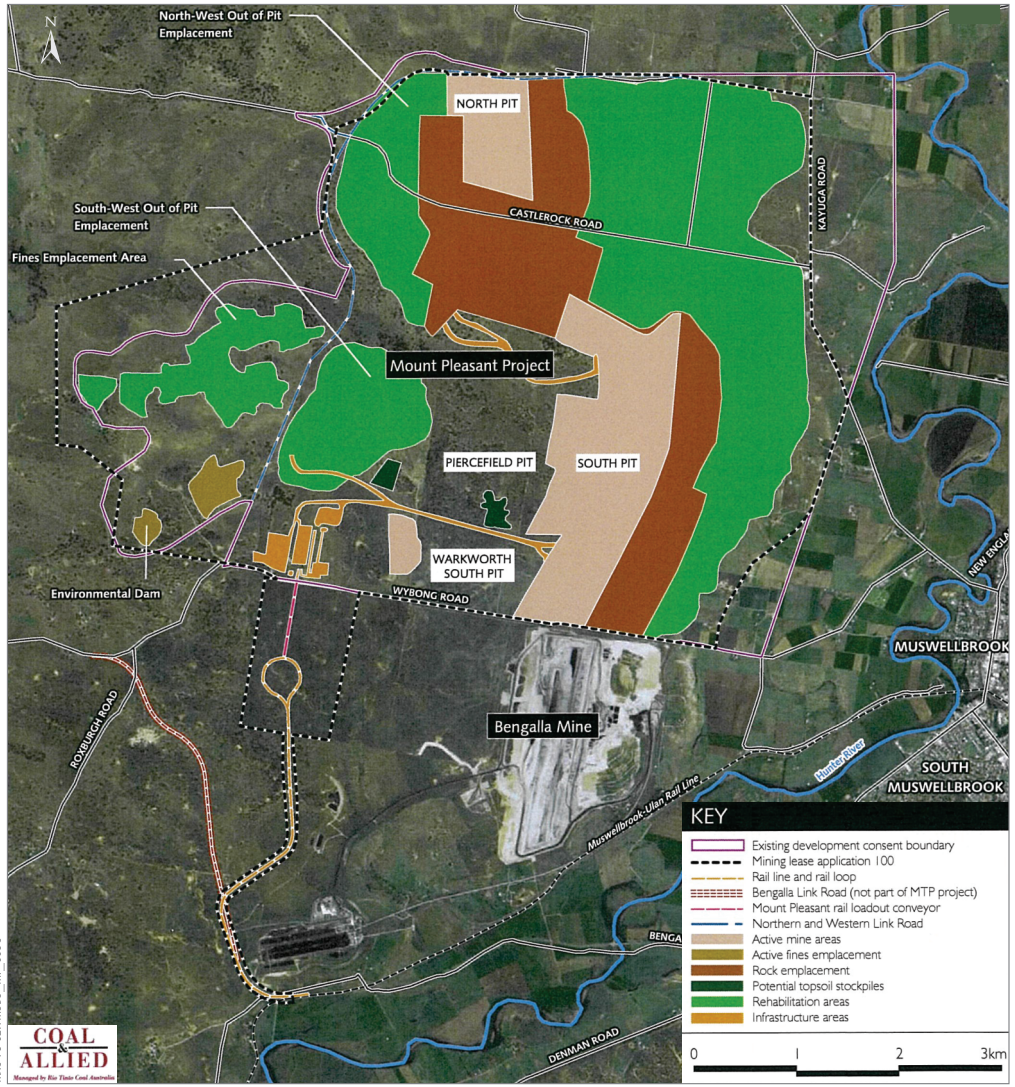
The Mount Pleasant Operation coal resources are located in the Permian Wittingham Coal Measures. The Mount Pleasant Operation includes four named open cuts (i.e. South Pit, North Pit, Warkworth South Pit and Piercefield Pit[7]) to recover economical open cut coal resources (Figure 3a).

Mining at the Mount Pleasant Operation is currently being undertaken in South Pit using conventional truck and excavator fleets, with no coal extraction currently planned to occur in North Pit prior to the end of 2026, in the absence of the Modification (Figure 3b).

1.2.5 Coal Processing

ROM coal from the active open cut is hauled to the ROM dump hopper or ROM stockpile, and either fed to the CHPP or, if quality permits, can be supplied directly to product stockpiles following sizing (i.e. bypass coal).

[7] The Piercefield Pit is an open cut that was planned to commence early in the development of the Mount Pleasant Operation before being ultimately subsumed by the South Pit.



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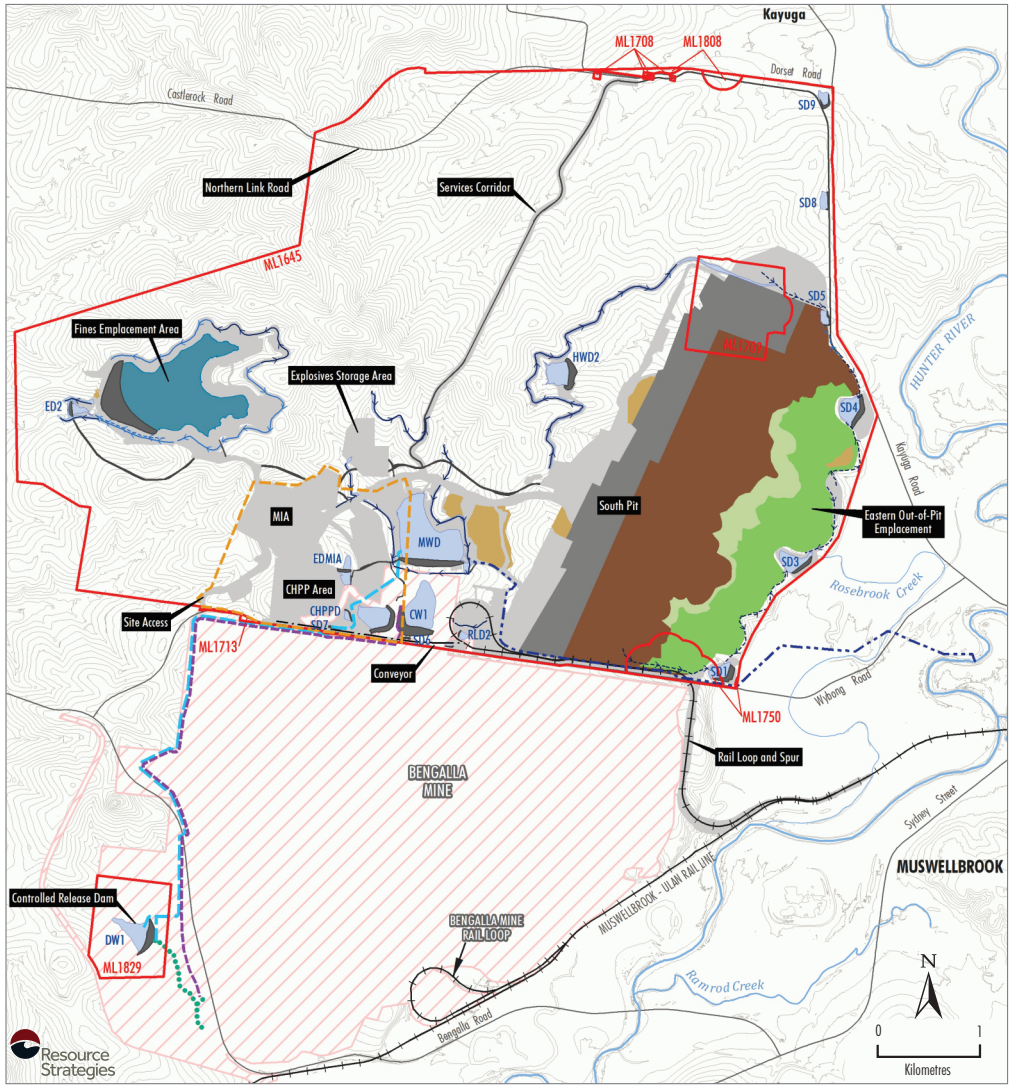
Source: Coal & Allied (2010)



Source: MACH (2025)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Infrastructure Area Envelope
- Active Mining Area
- Active Overburden Emplacement Area
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile
- Access Road
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Existing Collection Drain
- Proposed Collection Drain
- Existing Diversion Drain
- Proposed Diversion Drain
- Diversion Structure
- Water Dam
- Fines Emplacement Area

Indicative Water Transfer Alignments

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Approximate Extent of Scour Protection
- Bengalla Mine CW1 Pipeline

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MOUNT PLEASANT OPERATION

Approved Project - Year 20 Mine Plan
(2010 Modification 1)

Figure 3a

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MOUNT PLEASANT OPERATION

Conceptual General Arrangement - Year 2026
Without Modification 8

Figure 3b

The existing CHPP comprises two single stage coal processing modules (Plate 1) that include coal sizing, screening, de-sliming, and washing. Fine CHPP rejects report via pipeline to the Fines Emplacement Area, while coarse rejects are trucked to the open cut for co-disposal with waste rock.

Plate 1 – Existing CHPP Modules and Materials Handling Systems

1.2.6 Mine Infrastructure Area

The existing MIA comprises a range of supporting infrastructure, including administration, parking, machinery assembly and laydown areas, workshops, fuel and water storages and a range of other supporting facilities.

1.2.7 Waste Rock Management

Initially, all mined waste rock (including overburden and interburden) was hauled out-of-pit to either the Eastern Out-of-Pit Emplacement or used to construct visual bunds. However, as mining has advanced, a larger proportion of waste rock produced at the Mount Pleasant Operation is now progressively placed within the mined-out void.

The Eastern Out-of-Pit Emplacement forms a significant noise and visual barrier between the operations and Muswellbrook, facilitating the mining fleet operating in less exposed areas during the night-time (Plate 2).

Plate 2 – View of South Pit and Eastern Out-of-Pit Emplacement (Looking North)

1.2.8 Water Management

The Mount Pleasant Operation water management system comprises a number of dams, the open cut and the Fines Emplacement Area, together with pumping transfer systems and drains.

The water management system is progressively developed in concert with the advance of the open cut activities.

Licensed water extraction primarily occurs from the Hunter River and the open cut, while excess water can be discharged to the Hunter River via controlled releases under very wet climatic conditions.

1.2.9 Rehabilitation and Final Landform

Rehabilitation is undertaken progressively to facilitate a safe, stable and non-polluting final landform. Final landforms incorporate micro-relief, with drainage lines designed to replicate natural geometry, and emplacements designed to improve topographic linkages with the surrounding natural landforms (Plate 3).

The originally approved Mount Pleasant Operation included three out-of-pit emplacement areas, comprising Eastern, South-west and North-west Out-of-Pit Emplacement areas (elevations up to approximately 320 metres [m] Australian height datum [AHD]) and two final voids associated with the North Pit and South Pit open cuts and a smaller third final void (Figure 4a).

These originally approved landforms were generally not reflective of geomorphic landform design principles, and revegetation was to comprise a combination of woodland and grassland (Figure 4a).

In contrast, should mining at the Mount Pleasant Operation cease in 2026, one final void would remain in South Pit and the Eastern Out-of-Pit Emplacement would be the only out-of-pit emplacement developed (Figure 4b).

Consistent with the requirements of Development Consent DA 92/97, the outer batters of the Eastern Out-of-Pit Emplacement are being revegetated to native woodland vegetation communities (Figure 4b). Progressive rehabilitation commenced in the south-east of the Eastern Out-of-Pit Emplacement and is a strong focus of MACH's day-to-day operations at the site (Plate 4).

Plate 3 – Geomorphic Features on the Eastern Out-of-Pit Emplacement

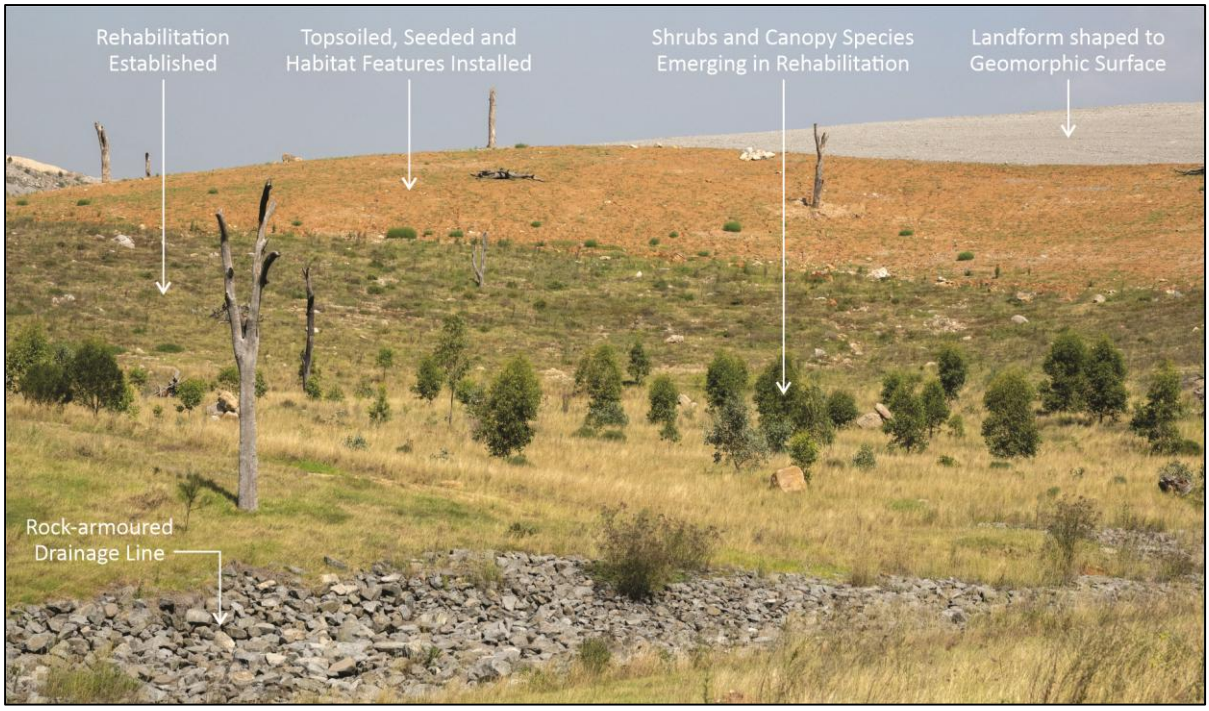
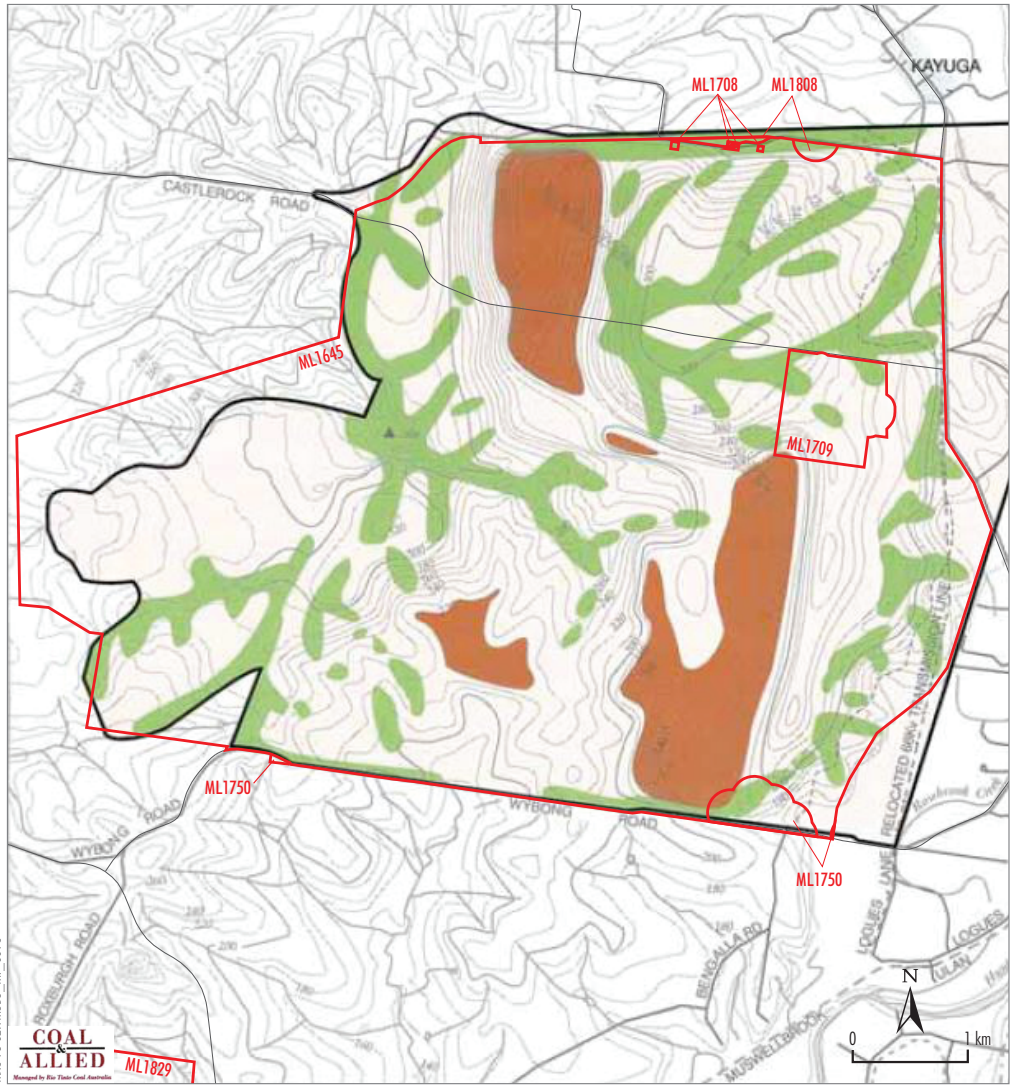


Plate 4 – Progressive Rehabilitation of the Eastern Out-of-Pit Emplacement



MAC-18-022A MODB_MT_001C

Source: Coal & Allied (1997)

LEGEND
- Mining Lease Boundary (Mount Pleasant Operation)
- Project Boundary
- Final Void
- Native Vegetation
- Pasture

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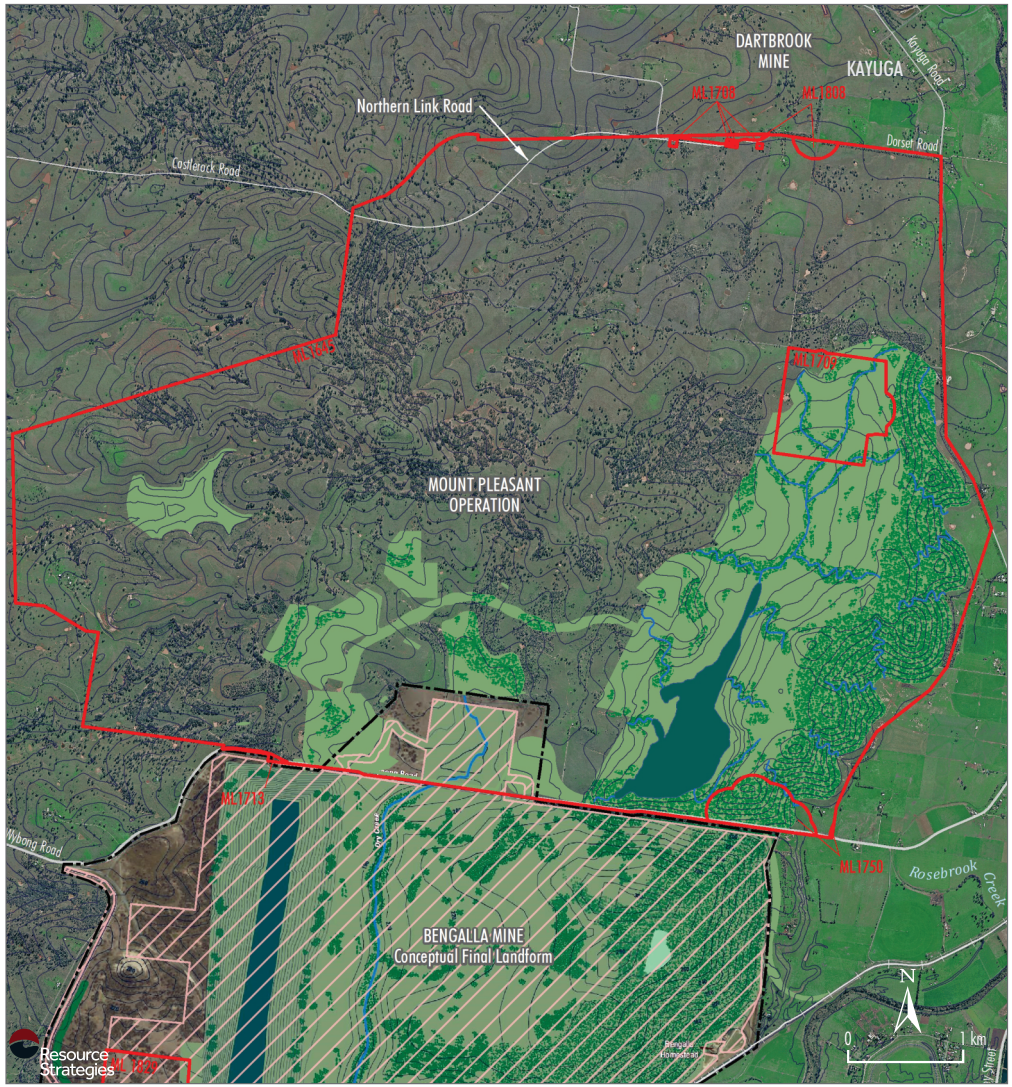
MOUNT PLEASANT OPERATION

Originally Approved 21 Year (1997 EIS)
Indicative Final Landform

Figure 4a



Source: MACH (2019, 2025); Bengalla Mine (2016)

LEGEND
- Mining Lease Boundary (Mount Pleasant Operation)
- Final Void
- Final Rehabilitation
- Drainage Line
- Bengalla Mine Conceptual Final Landform *
- Project Boundary (Appendix 9 of Development Consent SSD-5170) (Dated February 2023)
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

* Digitised from Appendix 9 of Development Consent (SSD-5170) and amended in the Mount Pleasant Operation CHPP area.

Note: Figure excludes some project components such as water management infrastructure, infrastructure within the Infrastructure Area Envelope, offsite coal transport infrastructure, road diversions, access tracks, topsoil stockpiles, power supply, temporary offices, signalling, other ancillary works and construction disturbance.

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MOUNT PLEASANT OPERATION

Modification 3
Indicative Final Landform
December 2026

Figure 4b

1.2.10 Biodiversity Offsets

The total Mount Pleasant Operation approved surface disturbance area encompasses approximately 2,650 – 2,700 hectares (ha)[8].

The Mount Pleasant Operation Development Consent DA 92/97 was granted in December 1999, prior to the implementation of offsetting policies in NSW. While no biodiversity offsets are required for the approved development under Development Consent DA 92/97 (except in relation to the disturbance of some minor areas of native vegetation associated with Modification 6), some 12,875 ha of biodiversity offsets have been established for the Mount Pleasant Operation for the purpose of the Commonwealth approval (EPBC 2011/5795) (Figure 5).

MACH has also provided some $2 million Australian Dollars (AUD) to date towards priority recovery actions for the Regent Honeyeater (*Anthochaera phrygia*) and Swift Parrot (*Lathamus discolor*) under EPBC 2011/5795.

As mining activities would be largely restricted to South Pit in the period of mining to December 2026 (based on current mine planning), the surface disturbance area at the end of 2026 would be less than the approved total surface disturbance area.

1.2.11 Workforce

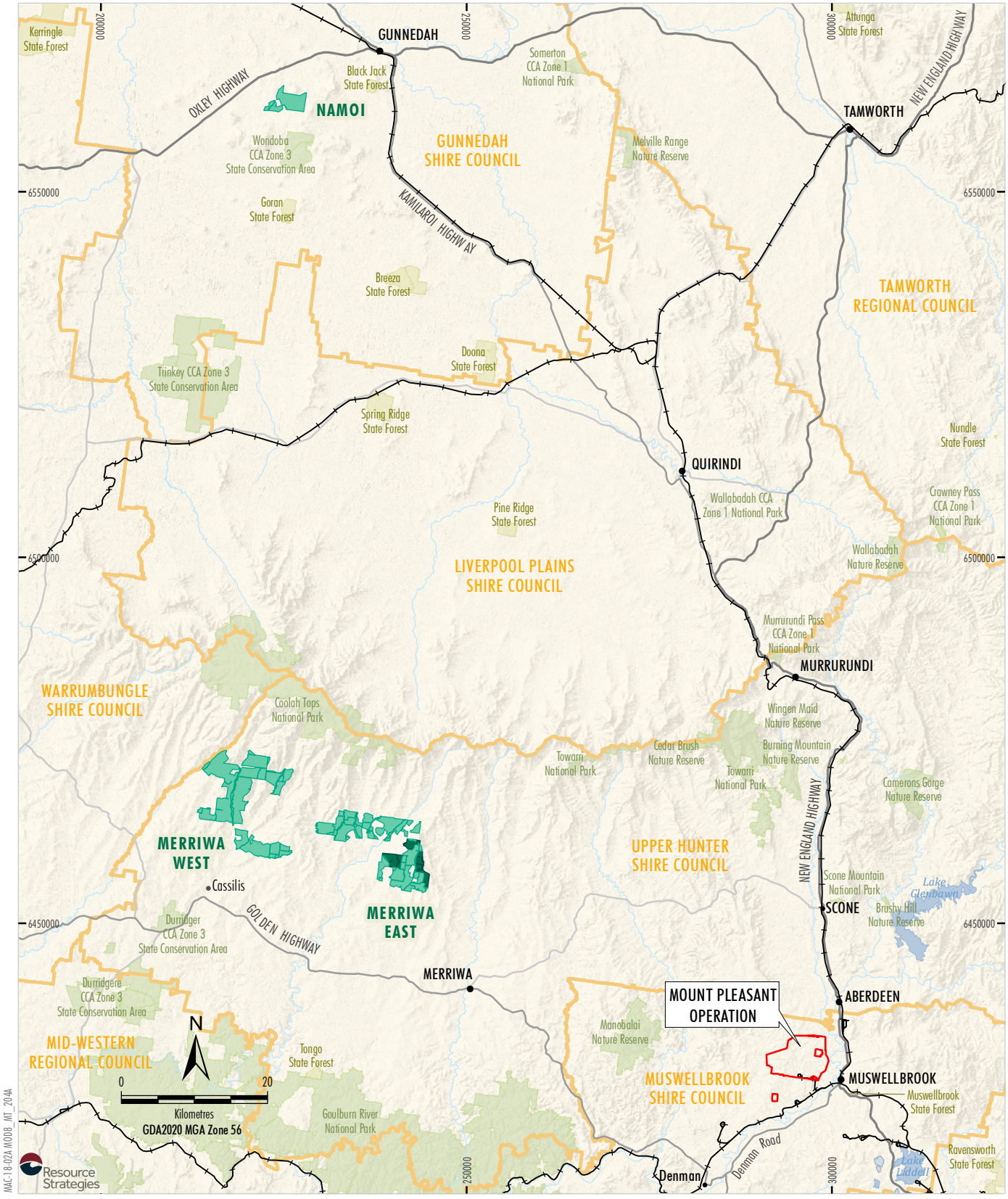
The Mount Pleasant Operation was originally approved with an operational workforce of up to approximately 380 personnel. However, as at the writing of this Modification Report (Quarter 4, 2025), the full-time equivalent workforce of the Mount Pleasant Operation is currently approximately 570 personnel[9] in supervisory and mining roles (Plate 5) and 130 personnel in coal processing, sustaining projects and other support roles.

Construction activities at the site have also at times required up to approximately 500 personnel.

Plate 5 – MACH Personnel at the MIA

[8] The approved disturbance area of the Mount Pleasant Operation was described in SSD 10418 documentation as approximately 2,800 ha. Following a subsequent review of various historical documents, a revised approach has been adopted, resulting in an estimated approved total disturbance area of approximately 2,650 - 2,700 ha.

[9] Inclusive of additional personnel associated with the Mount Pleasant Optimisation Project (Section 1.3).



Source: MACH (2025); NSW Spatial Services (2025)

LEGEND

- Railway
- Highway
- Principal Road
- State Forest/Reserve
- National Parks and Wildlife Estate
- Local Government Area
- Mining Lease Boundary (Mount Pleasant Operation)
- Existing Offset Area (EPBC 2011/5795)
- Biodiversity Stewardship Area

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MOUNT PLEASANT OPERATION

Existing Offset Areas

Figure 5

1.3 MOUNT PLEASANT OPTIMISATION PROJECT

In 2020, MACH lodged a Development Application and accompanying EIS for the Mount Pleasant Optimisation Project for assessment under the EP&A Act.

The Optimisation Project involves extraction of additional coal reserves within the Mount Pleasant Operation Mining Leases and an increase in the rate of coal extraction to 21 Mtpa ROM.

The Mount Pleasant Optimisation Project would allow the Mount Pleasant Operation to continue mining operations until 2048, and support the ongoing employment of the existing workforce and significant additional contributions to the local, NSW and Australian economy.

1.3.1 NSW Approval Status

On 6 September 2022, the NSW Independent Planning Commission (IPC) approved the Development Application for the Mount Pleasant Optimisation Project (SSD 10418) under Part 4 of the EP&A Act.

The Denman, Aberdeen, Muswellbrook and Scone Healthy Environment Group Inc applied for a judicial review of the IPC's decision in the NSW Land and Environment Court (LEC), with the hearing occurring in November 2023. The LEC dismissed the judicial review application on all grounds in August 2024.

The Denman, Aberdeen, Muswellbrook and Scone Healthy Environment Group Inc appealed the LEC's decision to the NSW Court of Appeal in late 2024.

On 24 July 2025, the NSW Court of Appeal upheld a single ground of appeal relied on by Denman Aberdeen Muswellbrook Scone Healthy Environment Group Inc and remitted the matter to the LEC to determine whether to make orders pursuant to the NSW *Land and Environment Court Act 1979* which, if complied with, would validate Development Consent SSD 10418 (Validating Orders). A hearing in the LEC as to whether Validating Orders should be made has not yet occurred.

In August 2025, MACH applied to the High Court for special leave to appeal against the NSW Court of Appeal's judgment to the extent that the NSW Court of Appeal upheld the relevant ground of appeal relied on by Denman, Aberdeen, Muswellbrook and Scone Healthy Environment Group Inc.

In December 2025, the High Court granted special leave. If MACH's appeal is ultimately successful, MACH will be able to continue to rely on Development Consent SSD 10418. Otherwise, MACH's ability to continue to rely on Development Consent SSD 10418 will depend on whether the LEC determines to make Validating Orders.

As Development Consent DA 92/97 has not been surrendered and remains in force, MACH is entitled to continue to rely upon Development Consent DA 92/97 for the Mount Pleasant Operation even if Development Consent SSD 10418 cannot ultimately be relied on following resolution of, or further court orders in, the ongoing legal proceedings concerning Development Consent SSD 10418.

1.3.2 Commonwealth Approval Status

The action to increase open cut coal extraction to allow mining of additional coal reserves and increase processing operations at the Mount Pleasant Operation (being an action not already authorised by the EPBC 2011/5795 approval) and additional land disturbance associated with a revised Northern Link Road alignment, was referred to the Commonwealth Minister under the EPBC Act in July 2020 (EPBC 2020/8735).

A delegate of the Commonwealth Minister determined on 26 August 2020 that the proposed action is a "controlled action" and therefore the action required approval under the EPBC Act.

The EPBC 2020/8735 action, related to the Mount Pleasant Optimisation Project, was approved with conditions by a delegate of the Commonwealth Minister on 24 September 2024.

1.4 OVERVIEW OF THE MODIFICATION

The Modification would include the following key changes to the approved Mount Pleasant Operation (Section 3):

- a six year extension of permitted (ROM coal) mining operations to 31 December 2032; and
- an increase in the approved ROM coal extraction rate from 10.5 Mtpa to 12.5 Mtpa.

The Modification would involve no material changes to existing:

- mining tenements;
- mining methods;
- primary site access;
- electricity supply and distribution;
- MIA;

- CHPP, coal stockpile and rail loading facilities (Plate 6);
- rehabilitation objectives and methods; and
- hours of operation and key on-site activities.

The Mount Pleasant Operation incorporating the Modification would extract an approximate additional 68 million tonnes (Mt) of ROM coal, relative to cessation of mining under Development Consent DA 92/97 in December 2026 at a ROM coal extraction rate of 10.5 Mtpa. However, total ROM coal extraction would remain well under the total of 197 Mt of ROM coal as originally approved in 1999.

The Modification also includes some minor additions to the DA 92/97 Development Application area to be consistent with SSD 10418 (Attachment 2).

During the period of the Modification[10], operational employment would be up to a maximum of 575 personnel, which represents an increase above the operational employment required to sustain 10.5 Mtpa, and a reduction of around 125 employees compared to the Mount Pleasant Operation workforce relied on under SSD 10418 (Section 1.2.11).

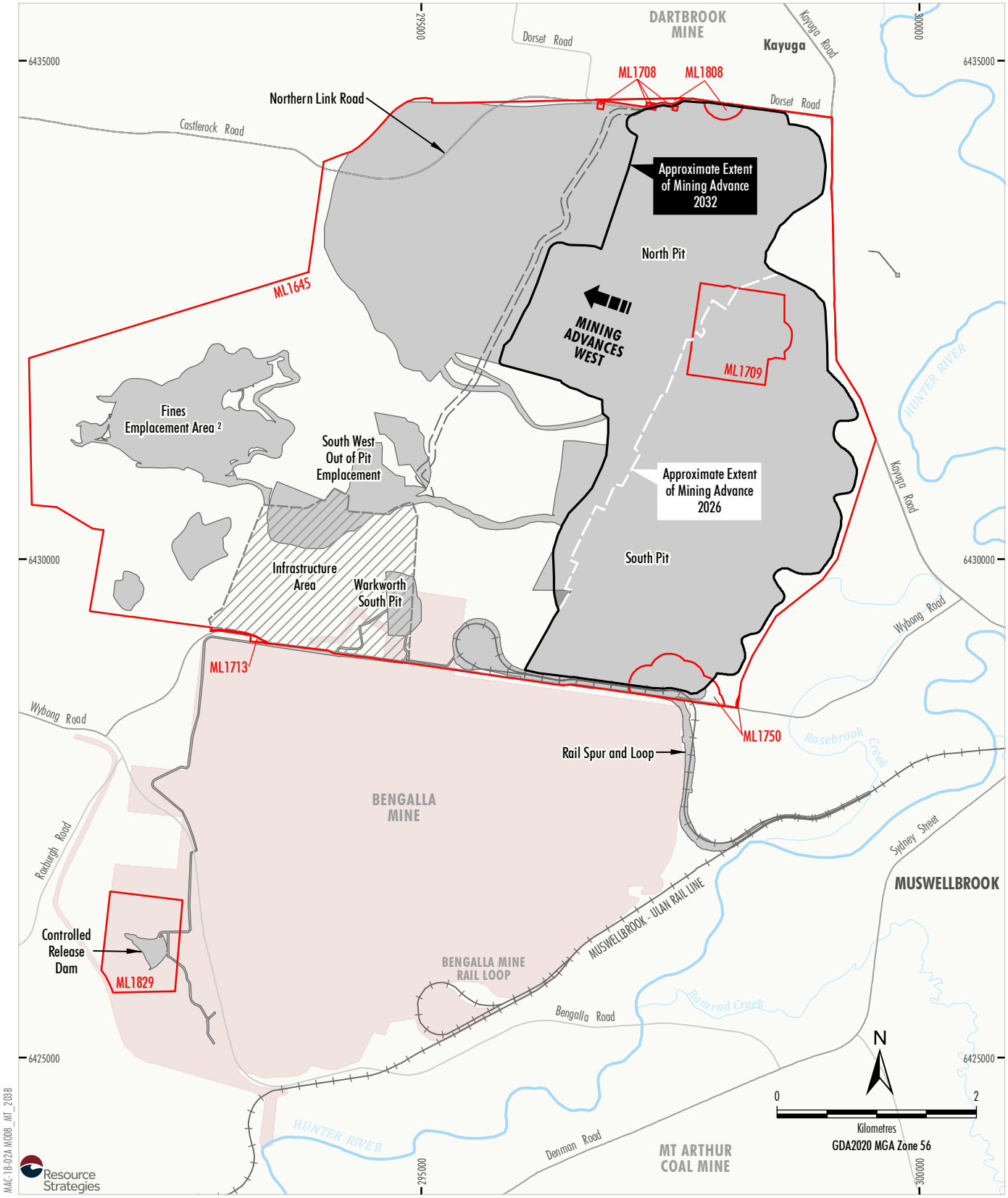
The construction workforce during the period of the Modification is expected to peak at approximately 80 personnel in 2026.

Further detail regarding why the Modification is required, including analysis of feasible alternatives and consequences of the Modification not proceeding, is provided in Section 2.3.

The extent of mining within the Development Consent DA 92/97 approved surface disturbance plan within the life of the Modification is shown on Figure 6 and discussed further in Section 3.

Plate 6 – Mount Pleasant Operation Coal Processing Infrastructure

[10] The period of the Modification is nominally 1 January 2026 to 31 December 2032.



Source: MACH (2025); NSW Spatial Services (2025); Department of Planning and Environment (2016)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Approved Surface Disturbance Plan - DA 92/97 [1]
- Services Corridor Being Developed Under SSD-10418 to be Used Under the Modification
- Extension of Open Cut Mining and Emplacement Area (Land Lawfully Disturbed under SSD-10418)
- Revised Infrastructure Area Envelope
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

[1] Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

[2] The general arrangement of the Fines Emplacement Area has been amended from the area shown in DA 92/97 to reflect as-built structures.

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MOUNT PLEASANT OPERATION

Overview of the Modification

Figure 6

1.5 STRUCTURE OF THIS MODIFICATION REPORT

This Modification Report has been prepared in consideration of the *State Significant Development Guidelines* (Department of Planning, Housing and Infrastructure [DPHI], 2024), in particular *Appendix E – preparing a modification report* (Department of Planning and Environment [DPE], 2022a), and is structured as follows:

Section 1	Provides a background description of the Mount Pleasant Operation, an overview of the Mount Pleasant Optimisation Project and the Modification.
Section 2	Outlines the strategic planning context relevant to the Modification.
Section 3	Provides a detailed description of the Modification.
Section 4	Outlines the statutory provisions relevant to the Modification.
Section 5	Describes the consultation and engagement undertaken in relation to the Modification and ongoing community involvement.
Section 6	Details the environmental assessment of the Modification and describes the existing environmental management systems and measures that would be available to manage and monitor any potential impacts.
Section 7	Provides a justification of the Modification.
Section 8	Lists the documents referenced in the main text of this Modification Report.
Attachment 1	Comparison of the Mount Pleasant Operation Incorporating the Modification with Originally Approved and Modification 4 Comparators
Attachment 2	Revised Development Application Area and Real Property Descriptions
Attachment 3	Detailed Statutory Compliance Reconciliation Table
Attachment 4	Consent Under Section 380AA of the Mining Act
Attachment 5	Land Ownership and Landholder Key
Attachment 6	Geotechnical Considerations
Attachment 7	Groundwater Peer Review
Attachment 8	Mount Pleasant Operation Baseline Flora Report.
Appendix A	Noise and Blasting Impact Assessment
Appendix B	Air Quality Impact Assessment
Appendix C	Groundwater Impact Assessment
Appendix D	Surface Water Assessment
Appendix E	Road Transport Assessment
Appendix F	Visual and Landscape Impact Assessment
Appendix G	Social Impact Assessment
Appendix H	Economic Assessment
Appendix I	Greenhouse Gas Assessment and Mitigation Plan
Appendix J	Groundwater Dependent Ecosystems Assessment
Appendix K	Environmental Risk Assessment
Appendix L	Relevant Mount Pleasant Optimisation Project Technical Reports

2 STRATEGIC CONTEXT

This section provides an overview of the strategic context and need for the Modification.

2.1 REGIONAL CONTEXT

Home to more than 860,000 people, the Hunter is the leading regional economy in Australia (DPE, 2022b). Greater Newcastle is the location of the Port of Newcastle and is the main population centre and the central hub of the region.

The Hunter economy is primarily driven by the mining, energy and manufacturing sectors, which will also remain important contributors to the regional economy into the future (DPE, 2022b).

The Mount Pleasant Operation is located within the Hunter Coalfield and is wholly located within the Muswellbrook LGA.

Coal from the Upper Hunter is transported via the Hunter Valley rail network (Figure 1), which provides access to domestic coal customers (i.e. primarily electricity production) and international markets via the Port of Newcastle.

The Mount Pleasant Operation is located within a recognised mining precinct, with the Bengalla Mine located immediately to the south and Dartbrook Mine located immediately to the north (Figure 2). Other nearby operating coal mines include Mt Arthur Coal Mine and Mangoola Coal (Figure 2).

Land use other than mining in the vicinity of the approved Mount Pleasant Operation comprises a combination of agricultural land uses and the commercial, industrial and residential areas of the town of Muswellbrook (Plate 7), and the village of Aberdeen (located approximately 5 km to the north).

Plate 7 – View from the Eastern Out-of-Pit Emplacement to Agricultural and Residential Use Areas

2.2 KEY STRATEGIC PLANNING DOCUMENTS

2.2.1 Strategic Statement on Coal Exploration and Mining in NSW

The *Strategic Statement on Coal Exploration and Mining in NSW* (the Statement) outlines how the NSW Government will continue to support responsible resource development for the benefit of the State (NSW Government, 2020).

The Statement recognises the value of coal production to the NSW economy, including:

- the long history of coal mining in NSW and the importance of the industry to regional communities;
- the potential for ongoing coal production to provide significant benefits to regional communities, including jobs and investment; and
- coal production's significant economic contribution as the State's biggest export commodity and the value of associated royalty payments to fund essential services and infrastructure.

The Modification would allow continued access to the State's coal resources and the ongoing generation of royalties from the Mount Pleasant Operation[11] and aligns with the objectives of the Statement.

2.2.2 Hunter Regional Plan

The Modification is located within the area subject of the *Hunter Regional Plan 2041* (the Regional Plan) (DPE, 2022b). The Regional Plan provides a blueprint for greater prosperity in the region.

The Regional Plan acknowledges that coal mining has driven investment in transport and energy infrastructure and will continue to underpin the growth and diversification of the Hunter's economy and employment base (DPE, 2022b).

The Regional Plan also describes the need for clear parameters and transparent processes to provide greater certainty for investment (DPE, 2022b).

[11] **As of Quarter 2 2025, the Mount Pleasant Operation has contributed more than $650 million in royalty payments to the NSW Government for State infrastructure and services.**

2.2.3 Muswellbrook Community Strategic Plan

The *Community Strategic Plan 2025-2035* (the Community Strategic Plan) identifies the Muswellbrook community's main priorities and visions for the future (Muswellbrook Shire Council [MSC], 2025). The Community Strategic Plan has been developed to align with the Regional Plan and includes areas of focus to meet specific objectives, comprising:

- a strong, connected and resilient community;
- a vibrant and diversified economy;
- a sustainable natural and built environment;
- a rich and inclusive culture;
- accessible and resilient infrastructure and services; and
- collaborative and accountable leadership.

The Modification is consistent with the Community Strategic Plan as it would provide for the continuation of economic benefits arising from the Mount Pleasant Operation, particularly in the period while there is uncertainty regarding the future legal status of Development Consent SSD 10418 for the Mount Pleasant Optimisation Project (Section 2.3).

2.3 JUSTIFICATION OF THE MODIFICATION

2.3.1 Feasible Alternatives to the Modification

MACH currently has approval under Development Consent DA 92/97 to carry out mining operations until 22 December 2026.

MACH is authorised under the separate NSW development consent for the Mount Pleasant Optimisation Project (SSD 10418) to operate until 2048. However, the NSW Court of Appeal's judgment regarding the IPC's decision to approve the Mount Pleasant Optimisation Project (SSD 10418) (Section 1.3) has created a risk that Development Consent SSD 10418 for the Optimisation Project will not ultimately be able to be relied on and, therefore, uncertainty about the approvals status of the Mount Pleasant Operation beyond the currently approved mining period under Development Consent DA 92/97.

The Modification therefore seeks an extension to the period of approved mining under Development Consent DA 92/97, to provide greater certainty of continued operations at the Mount Pleasant Operation.

In the event that Development Consent SSD 10418 for the Mount Pleasant Optimisation Project remains in force and is not subject to any ongoing legal challenge, it would be MACH's preference to proceed with the Mount Pleasant Optimisation Project (and hence surrender Development Consent DA 92/97).

However, until MACH is in a position where it is able to surrender Development Consent DA 92/97 with confidence that it can rely on SSD 10418 for the Mount Pleasant Optimisation Project, MACH will continue to rely upon Development Consent DA 92/97.

In the absence of this legal certainty, MACH is seeking a Modification to Development Consent DA 92/97 to ensure that mining operations can continue to 2032 for the ongoing benefit of MACH, employees, contractors and the regional community.

2.3.2 Benefits of the Modification

Socio-Economic Benefits

The Modification would facilitate the following key socio-economic benefits:

- retention of approximately 575 full-time equivalent positions during the Modification period, preventing the complete loss of employment that would otherwise occur upon cessation of mining in 2026;
- continuation of local employment during the Modification period;
- direct and indirect flow-on economic effects of continued and increased ROM coal production in the six year extension period (2027-2032);
- continuation of existing Voluntary Planning Agreement payments to MSC; and
- the continuation and incremental increases in royalty payments to the NSW government from MACH coal product sales[12].

The Modification would also allow for MACH's continued support for local and regional businesses, and investment in social enterprises, sporting groups and community groups within the region for an additional six years.

[12] **As of Quarter 2 2025, the Mount Pleasant Operation has already contributed more than $650 million in royalty payments to the NSW Government for State infrastructure and services.**

The Modification would result in some $776 million in net present value (NPV) terms in net benefits to NSW, inclusive of an additional $645 million in NPV terms in royalties to NSW, or $801 million in total (undiscounted terms) (Appendix H).

2.3.3 Consequences of the Modification not Proceeding

In a scenario where the Modification is not approved and MACH is also no longer in a position to carry out the Mount Pleasant Optimisation Project pursuant to Development Consent SSD 10418:

- the Mount Pleasant Operation would cease to be permitted to carry out coal extraction under Development Consent DA 92/97 by 22 December 2026;
- the significant operational employment and direct flow-on economic effects of the Mount Pleasant Operation would cease 22 December 2026;
- the mine would largely remain in South Pit and mining operations would not extend into North Pit in the period 2027 to the end of 2032; and
- final landform changes associated with the Modification and proposed continuation of mining to the end of 2032 under Development Consent DA 92/97 would not occur.

While there would be continued environmental impacts associated with ongoing mining operations beyond 2026, this Modification Report outlines the reasons why this continuation of environmental impacts is considered acceptable under NSW Government Policy.

In the absence of both the Modification and Development Consent SSD 10418, the following would be at risk:

- **Over 575 full-time equivalent employees**, that would have direct employment over the Modification period.
- **Business continuity for numerous contractors, suppliers, and local businesses**, including key service providers and regional logistics operators.
- **Significant local employment in the Hunter**, with over 70% of employees living locally.
- **Contributions to the local Indigenous community** through direct employment (5% of employees), contribution to the Aboriginal Cultural Development Fund ($8.4 million to date) and a partnership with Blackrock Industries, a local 100% Indigenous owned service company.
- **Royalty contributions to the NSW Government** (noting that the Mount Pleasant Operation has paid over $650 million in royalties since operations commenced).
- **Community investment and sponsorship programs,** associated with MACH's Community Sponsorship Fund, which has provided over $2 million in support to local schools, sporting clubs, and community organisations to date.
- **Supply of a significant portion of NSW' expected domestic coal demand beyond 2026 (in the order of 20%)** (with access to supply Eraring, Vales Point and Bayswater Power Stations).
- **Local and regional economic activity**, with the contribution from the Mount Pleasant Operation no longer being realised (estimated at $404 million in NPV terms in incremental additional disposable income and associated flow-of effects, local expenditure and local government rates associated with the Modification) (Appendix H).

In this context, the potential consequence of the Modification not proceeding would have significant adverse social and economic impacts on the local and regional community, which are directly relevant to the objects of the EP&A Act.

2.4 INTERACTION WITH OTHER REGIONAL DEVELOPMENTS

With the exception of the extension of Mount Pleasant Operation permitted mining activities under Development Consent DA 92/97 to 2032, there would be no material change to the interactions between surrounding mining and energy developments arising from the proposed Modification (i.e. interactions would be primarily limited to the extension of employee and delivery traffic and transport requirements on the public road network and coal transport on the rail network).

Where relevant, other local and regional developments have been considered for the purposes of cumulative impact assessment (e.g. Road Transport Assessment, Social Impact Assessment [SIA]).

2.4.1 Mining Projects

Bengalla Mine

Bengalla Mining Company owns the existing Bengalla Mine, which is an open cut coal mine located immediately south of the Mount Pleasant Operation (Figure 2).

Bengalla Mine is approved to produce up to 15 Mtpa of ROM coal until 28 February 2039, under SSD-5170, as modified.

Mt Arthur Coal Mine

Hunter Valley Energy Coal (a wholly owned subsidiary of BHP Billiton) owns the existing Mt Arthur Coal Mine, which is an open cut coal mine located approximately 8 km south of the Mount Pleasant Operation (Figure 2). The Mt Arthur Coal Mine is approved to mine up to 32 Mtpa of ROM coal until 30 June 2030 under Project Approval 09_0062, as modified.

Mangoola Coal

Mangoola Coal Operations (a subsidiary of Glencore Limited) owns and operates Mangoola Coal, which is an open cut coal mine located approximately 8 km west of the Mount Pleasant Operation (Figure 2).

Mangoola Coal is approved to mine up to 13.5 Mtpa of ROM coal until 31 December 2030 under SSD 8642, as modified.

Maxwell Underground Mine

The Maxwell Underground Mine and associated Maxwell Infrastructure is owned and operated by Maxwell Ventures (Management) Pty Ltd, a subsidiary of Malabar Resources Limited.

Development Consent SSD 9526 for the Maxwell Underground Mine Project was granted by the NSW IPC in December 2020.

The Maxwell Underground Mine is approximately 10 km from the Mount Pleasant Operation (Figure 2) and is approved to extract up to 8 Mtpa of ROM coal for a period of 26 years (until 2047).

Dartbrook Mine

The Dartbrook Mine is an approved underground coal mine located immediately north of the Mount Pleasant Operation (Figure 2), which was placed in care and maintenance in 2007. Mining operations at Dartbrook Mine recommenced in 2024. Dartbrook Mine went into external administration in July 2025, however, it does continue to operate in some capacity at the time of writing.

Approval to extend the life of the Dartbrook Mine for an additional five years (i.e. 5 December 2027) was granted in March 2022. There is a pending application to extend the life of Dartbrook Mine for a further six years (i.e. to 5 December 2033).

Muswellbrook Coal Mine

Muswellbrook Coal Company Ltd (a wholly owned subsidiary of Idemitsu Australia Pty Ltd) owns the Muswellbrook Coal Mine.

Coal mining operations ceased at Muswellbrook Coal Mine in 2022 (Muswellbrook Coal Company Ltd, 2023) and therefore is no longer considered in Mount Pleasant Operation cumulative assessments.

The proposed Muswellbrook Pumped Hydro Energy Storage Project (SSI 76014961) is partially located at the Muswellbrook Coal Mine (Section 2.4.2).

Mount Pleasant Optimisation Project

Under the Mount Pleasant Optimisation Project Development Consent granted by the NSW IPC in 2022 (SSD 10418), MACH has approved operational capacity of up to 21 Mtpa of ROM coal until 22 December 2048.

In the event that the Mount Pleasant Optimisation Project Development Consent SSD 10418 remains in force and is not subject to any ongoing legal challenge, it would be MACH's preference to proceed with development of the Mount Pleasant Optimisation Project as approved (i.e. production of up to 21 Mtpa ROM coal and approved operations until 2048), rather than the Modification (Section 2.3.1).

However, if MACH is unable to rely on the existing Mount Pleasant Optimisation Project Development Consent SSD 10418 for any reason, the Modification would provide MACH with the alternative option of carrying out mining operations until the end of 2032 pursuant to Development Consent DA 92/97.

That is, MACH would preferentially operate under Development Consent SSD 10418, and would only operate under Development Consent DA 92/97 if Development Consent SSD 10418 can no longer be relied upon to maintain employment and production.

For the purposes of cumulative impact assessment in this Modification Report, in the absence of the Modification, the base-case assumption is that Mount Pleasant Operation mining operations will cease in 2026, consistent with the current Condition 5, Schedule 2 of Development Consent DA 92/97 (which currently permits mining operations until 22 December 2026).

Further discussion on the approach to cumulative impact assessment with respect to the Mount Pleasant Optimisation Project and the Modification is provided in Section 2.4.3.

Other Regional Operations

A range of other mines are located in the broader Hunter region. Potential interactions with these mines are typically limited to shared use of the Main Northern Railway, shared use of supporting contractors, contributions to regional background air quality and traffic movements and socio-economic effects on the area (e.g. support industries based in Muswellbrook and other centres located in the Hunter Valley).

2.4.2 Renewable Energy Projects

The Mount Pleasant Operation is located within the Hunter-Central Coast Renewable Energy Zone, which extends from Newcastle to the outskirts of Scone (Figures 1 and 2).

Renewable energy development in the Hunter-Central Coast Renewable Energy Zone is rapidly expanding, and significant further development is expected to occur in the Modification period to 2032.

A selection of known nearby projects is provided below, however, this list is not intended to be exhaustive. In order to account for continued renewable energy project growth within the Mount Pleasant Operation area, relevant environmental assessments for the Modification (e.g. road traffic assessment) have considered cumulative impacts with the renewable energy industry over the life of the Modification. The potential for renewable project oversize and overmass vehicle movements to occur on roads maintained by MACH has also been considered (Appendix E).

Maxwell Solar Project

The Maxwell Solar Project (SSD 9820) was approved in August 2020. The Maxwell Solar Project will comprise the installation of a solar plant with a capacity of 25 megawatts (MW) at the Maxwell Infrastructure (Figure 2) which will supply electricity to the Maxwell Underground Project and/or the National Energy Market.

Upper Hunter South Solar Farm

The proposed Upper Hunter South Solar Farm (SSD 65996959) would comprise a solar photovoltaic (PV) facility with an estimated capacity of 90 MW and a battery energy storage system (BESS) of up to 30 MW/60 megawatt hour (MWh) supplying the National Energy Market. The Upper Hunter South Solar Farm (Figure 2) is currently in the submissions phase.

Denman Battery Energy Storage System

The proposed Denman BESS (SSD 76189216) includes a facility with an estimated capacity of 2.6 gigawatts and covers approximately 38 ha. At the time of writing, the Denman BESS is currently in the submissions phase.

Muswellbrook Solar Farm

The proposed Muswellbrook Solar Farm (SSD 46543209) would comprise a 135 MW solar PV facility and associated 270 MWh BESS, supplying the National Energy Market. Development Consent SSD 46543209 was granted in May 2025.

Muswellbrook Battery Energy Storage System

The Muswellbrook BESS (SSD 29704663) includes a 150 MW/300 MWh standalone energy storage facility adjacent to Ausgrid's Muswellbrook Substation (Figure 2), supplying the National Energy Market.

Development Consent SSD 29704663 was granted in July 2023. Construction is anticipated to commence following finalisation of secondary approvals and contracts.

Muswellbrook Pumped Hydro Energy Storage Project

The proposed Muswellbrook Pumped Hydro Energy Storage Project (SSI 76014961) involves the development of a 500 MW pumped hydro power station including upper and lower reservoirs, grid connection and ancillary infrastructure supplying the National Energy Market.

The scoping report for the Muswellbrook Pumped Hydro Energy Storage Project (Figure 2) was submitted in December 2023, and Secretary's Environmental Assessment Requirements have been issued.

On 19 June 2024, the Minister for Planning and Public Spaces declared the Muswellbrook Pumped Hydro Project as SSI and Critical State Significant Infrastructure (CSSI).

Upper Hunter Battery Energy Storage System

The proposed Upper Hunter BESS (SSD 6107209) includes a 400 MW/800 MWh standalone energy storage facility on a 12 ha site adjacent to an existing 330 kilovolt (kV) Transgrid Substation on the southern outskirts of Aberdeen, within the Upper Hunter Shire (Figure 2).

The Upper Hunter BESS would supply the National Energy Market and is currently preparing an EIS.

Kayuga Solar Farm

The Kayuga Solar Farm (SSD 69489708) is a planned solar PV facility with a capacity of 80-100 MW with the possibility for inclusion of a BESS.

The Kayuga Solar Farm is currently preparing an EIS (Figure 2).

Bowmans Creek Wind Farm

Bowmans Creek Wind Farm (SSD 10315) is located approximately 10 km east of Muswellbrook and was approved by the IPC in February 2024, and under the EPBC Act in July 2024.

Bowmans Creek Wind Farm involves an indicative generation capacity of 336 MW and electrical infrastructure, temporary and permanent ancillary infrastructure, local road network upgrades and an additional transmission line to connect to the existing TransGrid network via the Liddell substation.

Bowmans Creek Wind Farm Stage 2

The Bowmans Creek Wind Farm Stage 2 (SSD-73123714) is a proposed increase of 120 MW (up to 21 wind turbines) and associated infrastructure to the approved Bowmans Creek Wind Farm. Bowmans Creek Wind Farm Stage 2 is currently preparing an EIS.

Edderton Solar Project

Edderton Solar Project (SSD 69965958) is a proposed solar farm and BESS, comprising three "power islands" (areas of PV solar panels), known as Mayfield, Bowfield and Plashett. Edderton Solar Project is currently preparing an EIS.

2.4.3 Cumulative Assessment Approach

The approach taken for cumulative impact assessment in this Modification Report has been informed by the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE, 2022c) which provides some relevant commentary regarding the assessment approach:

> *The cumulative impact assessment … is to be proportionate to the scale and potential significance of the cumulative impacts of the project combined with the impacts of other relevant future projects.*
>
> …
>
> *It is critical to strike the right balance between pragmatism (or what is practical and reasonable) and precaution, and to remember that the cumulative impact assessment is not an end in itself: its primary purpose is to inform decision-making on the project and to ensure that the implications of approving the project are properly understood.*

Given the renewable energy development currently occurring, and projected to occur, in the Central West Orana, Hunter Central Coast and New England Renewable Energy Zones (Figure 1), MACH's specialists have considered potential cumulative traffic (Plate 8), and social impacts should renewable project construction peaks coincide with the Modification peak traffic and workforce demand periods.

Plate 8 – Maintenance Contractor Vehicles – Mount Pleasant Operation

In relation to cumulative impact assessment for the Mount Pleasant Operation, it is acknowledged that Development Consent SSD 10418 and Development Consent DA 92/97 are both currently in force and separately authorise mining operations and other activities at the mine.

However, for the purposes of assessing the impacts of the Modification, it is noted that:

- it has been assumed that development would be carried out at the Mount Pleasant Operation pursuant to both Development Consent SSD 10418 and Development Consent DA 92/97 for an initial period;
- while Development Consent SSD 10418 and Development Consent DA 92/97 technically authorise different developments, these consents both authorise mining operations with common associated components for a period of time;

- where there is a common component or element of the Mount Pleasant Operation that is authorised by both Development Consent SSD 10418 and Development Consent DA 92/97, the environmental impacts associated with the carrying out of that common component or element would be the same (i.e. there would not be two separate impacts, one under each consent, which together form cumulative impacts);
- where there is a component or element of the Mount Pleasant Operation that is being carried out under Development Consent SSD 10418 only, those environmental impacts would be associated with the Mount Pleasant Optimisation Project only and have already been assessed in the "EIS" as defined in Development Consent SSD 10418; and
- the approval of the Modification would mean that after the initial period of carrying out the same mining operation pursuant to both Development Consent SSD 10418 and Development Consent DA 92/97, MACH could continue carrying out mining operations pursuant to Development Consent DA 92/97 until the end of 2032 if MACH is unable to rely on Development Consent SSD 10418 for any reason. In other words, the Modification would provide an alternative development pathway for carrying out the same mining operation up until the end of 2032.

3 DESCRIPTION OF THE MODIFICATION

3.1 OVERVIEW

The Modification would include the following key changes to the approved Mount Pleasant Operation:

- a six year extension of permitted (ROM coal) mining operations to 31 December 2032; and
- an increase in the approved ROM coal extraction rate from 10.5 Mtpa to 12.5 Mtpa.

The Modification would involve no material changes to existing:

- mining tenements;
- mining methods;
- primary site access;
- electricity supply and distribution;
- MIA;
- CHPP, coal stockpile and rail loading facilities;
- rehabilitation objectives and methods; and
- the existing hours of operation and key on-site activities.

The Mount Pleasant Operation incorporating the Modification would extract an approximate additional 68 Mt of ROM coal, relative to cessation of mining under Development Consent DA 92/97 in December 2026 at a ROM coal extraction rate of 10.5 Mtpa. However, total ROM coal extraction would remain well under the total resource of 197 Mt of ROM coal as originally approved to be extracted in 1999.

The Modification also includes some minor additions to the DA 92/97 Development Application area to be consistent with SSD 10418 (Attachment 2).

During the period of the Modification, operational employment would be up to a maximum of personnel, which represents an increase above the operational employment required to sustain 10.5 Mtpa, and a reduction of around 125 employees compared to the current workforce (Section 1.2.11).

For the purpose of assessing this Modification, Attachment 1 provides a comparative summary of the originally approved Mount Pleasant development under Development Consent DA 92/97 (i.e. the original 1999 approval), the Mount Pleasant Operation as last modified under section 75W of the EP&A Act (i.e. the 2018 [Modification 4] approval), and the proposed Modification.

3.2 MODIFICATION AREA

3.2.1 DA 92/97 Surface Disturbance Plan

The Modification does not seek to authorise any additional surface disturbance under Development Consent DA 92/97 beyond the already approved surface disturbance area depicted and described in Figure 3 in Appendix 2 to Development Consent DA 92/97.

While MACH has undertaken some development of approved additional disturbance areas pursuant to Development Consent SSD 10418 (i.e. development outside of the approved surface disturbance area depicted and described in Figure 3 in Appendix 2 to Development Consent DA 92/97), the Modification does not seek to modify Development Consent DA 92/97 to authorise any additional surface disturbance under Development Consent DA 92/97 which has been separately authorised by Development Consent SSD 10418.

The notes to Condition 2, Schedule 2 of Development Consent DA 92/97 confirm the following with respect to the approved surface disturbance plan:

- *The Applicant may carry out development in the surface disturbance area depicted and described in Figure 3 in Appendix 2 to the extent authorised by the terms of this consent.*
- *The Applicant may lodge an application under section 4.55 of the Environmental Planning and Assessment Act 1979 to modify this consent, including to modify condition 5 in Schedule 2 to extend the period of mining operations beyond 22 December 2026 in respect of all or any part of the surface disturbance area depicted and described in Figure 3 in Appendix 2.*

Consistent with the above extract, the proposed Modification is an application under section 4.55 of the EP&A Act to modify Development Consent DA 92/97 (Section 4), including a proposed amendment to Condition 5 in Schedule 2 to extend the permitted period of mining operations to 2032 (Section 3.13).

It is anticipated that the Mount Pleasant Operation would continue to operate for at least the originally approved 21 year period of mining. MACH has, however, limited the proposed extension of the currently permitted period of mining operations to be from 2026 to the end of 2032.

3.3 CONSTRUCTION

The Modification would largely utilise the existing infrastructure and facilities of the approved Mount Pleasant Operation.

Notwithstanding, over the period of the Modification[13] construction activities are expected to include:

- completion of construction of the approved Northern Link Road (construction commenced);
- progressive raises of the Fines Emplacement Area;
- progressive development of additional water management structures, including Mine Water Dam 2 (MWD2), diversion drains, general operational dams, pipelines, pumping systems; and
- development of access tracks, hardstands and minor supplementary works that may be required to facilitate the proposed construction activities and open cut advance during the Modification period.

The following discussion on the Modification construction activities is provisional, subject to the completion of detailed engineering design.

3.3.1 Construction Timing and Hours

The provisional timing for key construction activities over the life of the Modification is provided on Figure 7. The actual timing and sequence of these development activities may vary to take into account detailed design, capital expenditure decisions, contractor availability and market conditions.

Within the Mount Pleasant Operation Mining Leases, construction activities would be undertaken up to 24 hours per day and seven days per week, providing activities can be undertaken in compliance with Development Consent DA 92/97 noise criteria.

Major earthmoving construction activity for MWD2 and Fines Emplacement Area embankment raises would be limited to standard construction hours. Any construction for these elements that are undertaken outside of the standard construction hours would prioritise lesser noise generating activities.

Major construction activity for MWD2 and the Fines Emplacement Area would also be scheduled to minimise total mobile equipment demand on-site.

3.3.2 Construction Workforce

The workforce for construction activities over the period of the Modification would typically remain below a peak of approximately 80 personnel; well below historical construction workforce peaks for the Mount Pleasant Operation.

Consistent with previous major on-site construction activities, MACH would employ buses, where practical, to reduce local light vehicle movements. However, as the peak of construction employees would be modest (relative to past on-site construction), the practicality of the use of buses would be determined on an activity/area basis.

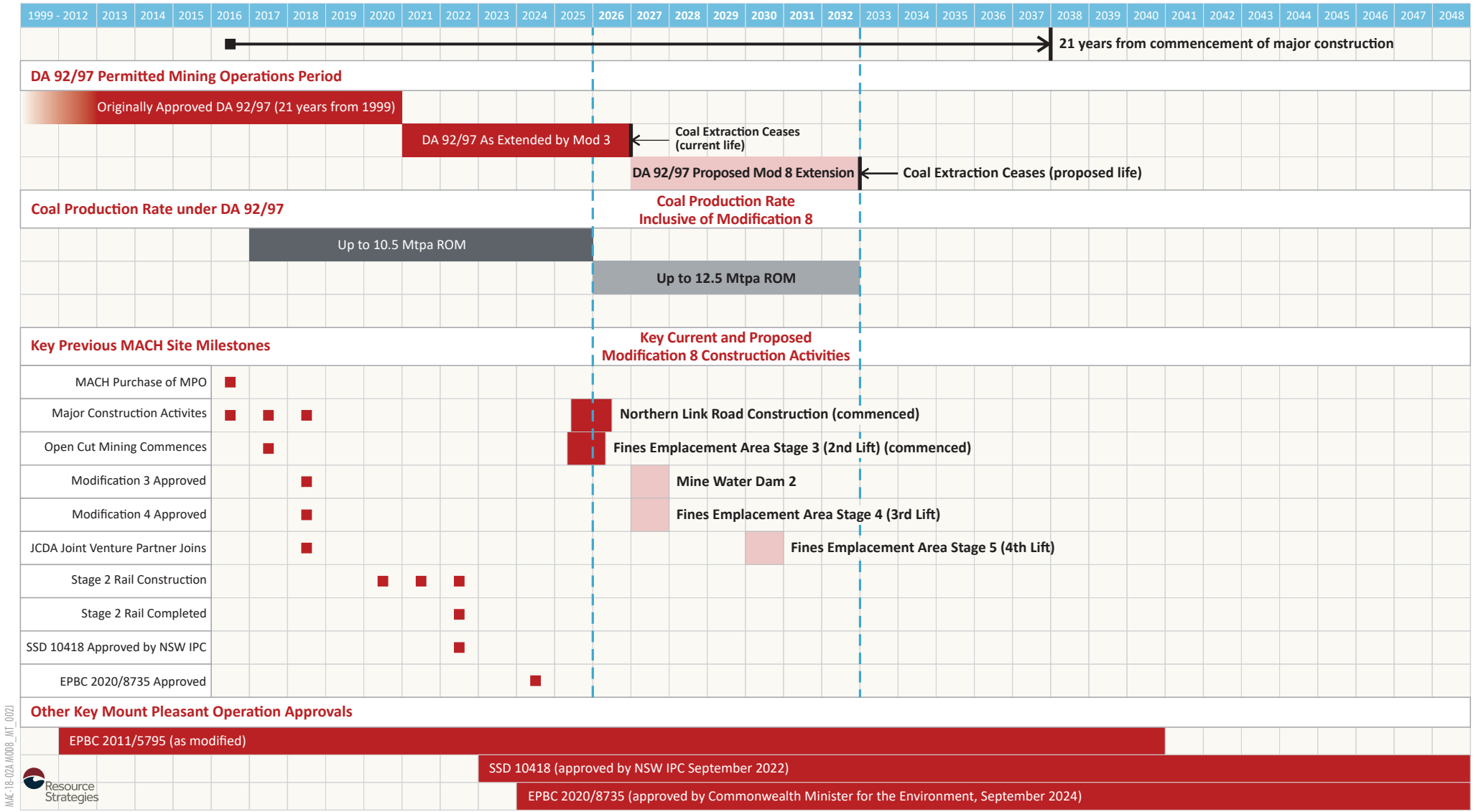
3.3.3 Construction Equipment

The equipment used for construction during the life of the Modification would be very similar to the range of mobile equipment that has operated on-site to construct the existing Mount Pleasant Operation infrastructure. MACH's anticipated construction fleets for the key elements to be constructed over the life of the Modification are presented in the Noise and Blasting Impact Assessment (Appendix A).

3.3.4 Northern Link Road

The approved Mount Pleasant Operation includes the closure of a section of Castlerock Road and development of the Northern Link Road to connect Dorset Road and Castlerock Road, to the west of the Mount Pleasant Operation Mining Leases (Figure 3b). The Northern Link Road would facilitate continued public access around the Mount Pleasant Operation once the approved closure of the eastern portion of Castlerock Road occurs.

[13] The period of the Modification is nominally 1 January 2026 to 31 December 2032.



Source: MACH (2025)

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MOUNT PLEASANT OPERATION

Provisional Modification Schedule

Figure 7

Construction of the approved Northern Link Road commenced in June 2025. Construction activities to date have included initial earthworks and site preparation (Plate 9), with ongoing works involving cut and fill to achieve suitable road geometry and slopes, construction of water management structures, preparation of the road base, bitumen surfacing and installation of roadside furniture.

Limited short-term truck haulage of some fill material along the road corridor, or between the road corridor and the Mount Pleasant Operation mining areas may be required to manage the cut and fill materials balance or geotechnical requirements.

Plate 9 – Construction of Northern Link Road (September 2025)

The adopted alignment of the Northern Link Road has been designed and is being constructed in consultation with the MSC. Completion of the Northern Link Road will occur prior to the closure of the eastern portion of Castlerock Road (Plate 10).

Plate 10 – Castlerock Road, Eastern Portion

3.3.5 Fines Emplacement Area

The existing Fines Emplacement Area would continue to be progressively raised, using the conventional downstream construction methodology, to increase fine reject storage capacity in advance of production.

The construction of the second lift of the Fines Emplacement Area embankment has commenced (Stage 3). Two further embankment raises (Stages 4 and 5) would be required over the life of the Modification (Figure 7), which would result in an embankment crest height of the Fines Emplacement Area of up to 287 m AHD.

3.3.6 Mine Water Dam 2

An additional operational water storage (MWD2) would be located where a second (southern) fines emplacement area was assessed as part of the 1997 EIS (Figures 3a and 6).

The design of MWD2 has been developed to allow for on-site water storage capacity of approximately 1,000 megalitres (ML) to address regional climatic variability when MACH is managing a larger operational area (i.e. when operating in both South Pit and North Pit).

3.3.7 Local Infrastructure

The Modification would at times involve the relocation of some local infrastructure (such as local electricity transmission lines, cables and water supply pipelines) where required to maintain services to relevant local landholdings and/or the Mount Pleasant Operation, or adjoining mines, to the satisfaction of the relevant service provider/owner.

3.3.8 Construction Water Management

An Erosion and Sediment Control Plan (ESCP) has been developed at the Mount Pleasant Operation to manage potential erosion impacts and to monitor the effectiveness of erosion and sediment controls and is included in the Water Management Plan.

The ESCP would be updated if required for the Modification, and the following measures would be adhered to in areas where disturbance from construction occurs:

- relevant internal approvals and permits would be obtained before commencement of surface disturbance (e.g. Ground Disturbance Permits);
- the extent of disturbance (including trafficable areas) would be minimised and identified using appropriate pegging, barriers or signage;
- appropriate erosion and sediment controls would be approved and established prior to land disturbance and would remain in place until exposed areas are stabilised;

- clean water runoff from undisturbed catchments would be diverted around the disturbance areas via diversion drains and banks to discharge into natural watercourses, where practical;
- runoff from larger disturbed areas would be diverted into sediment dams;
- drains, diversion banks and channels would be stabilised and scour protection would be provided as necessary;
- temporary erosion and sediment control measures would be used, and may include silt fences, stacked timber with geotextile, hay bales, jute mesh, check dams, cross banks, contour banks, armouring and straw mulching; and
- topsoil in disturbance areas would be stockpiled for reuse, or for permanent public road construction activities it may be trucked to the mine area for use in rehabilitation.

Construction water supply (e.g. for use in dust suppression) would be obtained from the Mine Water Dam (MWD) or from existing licensed bores located on MACH-owned land in the vicinity of construction activities.

3.4 MINING OPERATIONS

The following discussion on the Modification mining operations is provisional, subject to variations in site geological modelling, coal market demands and detailed mine planning over the life of the operation.

3.4.1 Hours of Operation

Consistent with the approved Mount Pleasant Operation, open cut mining activities and associated mobile equipment movements would continue to be undertaken 24 hours per day, seven days per week, subject to compliance with relevant environmental management criteria (e.g. real-time air quality and noise operational trigger levels).

3.4.2 Geology

The Mount Pleasant Operation is located within the Hunter Coalfield, in the northern section of the Sydney Basin (Figure 1). The Mount Pleasant Operation coal resource is located in the Permian Wittingham Coal Measures within the Jerrys Plains Subgroup, the Archerfield Sandstone and the Vane Subgroup.

Lithologies comprise mostly sandstones, siltstones and coal measures with minor conglomerates and tuffs. Coal seams amenable to open cut mining occur in eight correlated seams and include the Upper Piercefield (Warkworth) Seam to the lowermost Edderton Seam.

Under Development Consent DA 92/97, mining in North Pit is depth-limited to the Vaux Seam[14]. Mount Pleasant Operation target seams within the Wittingham Coal Measures would continue to be mined under the proposed Modification, with North Pit continuing to be depth-limited to the Vaux Seam.

Geological exploration activities would continue to be undertaken over the life of the Modification to provide input to mine planning and engineering studies to refine the understanding of coal quality and local geological structures.

3.4.3 Geotechnical Controls

Various geotechnical assessments have been carried out over the life of the Mount Pleasant Operation. These past assessments have determined that adequate open cut factors of safety would be achieved in weathered strata excavated at 45 degrees (°) and in fresh strata with pre-split batters excavated at 75° (GeoTek Solutions, 2020).

These slope angles have been successfully applied to the existing Mount Pleasant Operation and would continue to be applied to the design of the open cut under the Modification.

MACH would continue to implement existing geotechnical monitoring and management measures over the life of the Modification, including:

- groundwater pressure monitoring in the Wybong Road corridor;
- structural geological information would be gathered in exploration activities and used to carry out stability analyses and predict structural features; and
- a geotechnical principal hazards management plan would be prepared and implemented, including regular visual geotechnical inspections.

[14] Under SSD 10418, the Mount Pleasant Operation is authorised to mine North Pit to the basal economic seam (i.e. Edderton Seam floor).

3.4.4 Mining Schedule and Fleet

The approved Mount Pleasant Operation can utilise truck and excavator and/or dragline operations. However, the Modification would only include truck and excavator open cut strip and terrace mining methods (Plate 11) until the end of 2032.

Plate 11 – Terrace Mining, Mount Pleasant Operation

The Modification would involve the continuation of coal extraction for a further six years. An indicative production schedule for the modified Mount Pleasant Operation is provided in Table 1. Open cut operations would occur at a rate of up to 12.5 Mtpa[15] of ROM coal from 2026 (Table 1).

Table 1
Indicative Modification Mine Schedule

Modification Year	Calendar Year	Waste Rock (Mbcm)	ROM Coal (Mt)
1[1]	2026	35.6	12.5
2	2027	44.0	12.5
3	2028	46.8	12.5
4	2029	46.7	12.5
5	2030	46.7	12.5
6	2031	45.7	11.5
7	2032	15.3	4.7
	Total[2]	**281.0**	**78.7**

1 Assumed Modification Year 1 is 2026, the DA 92/97 life extension is for the six-year period 2027-32 (blue fill).

2 Totals may not equal the sum of each row due to rounding.

Mbcm = million bank cubic metres.

Figures 8 to 10 show the conceptual general arrangements and indicative progress of open cut mining in 2027, 2029 and 2031.

These conceptual general arrangements are based on currently planned production and mine progression. The mining sequence and rate of mining shown may, however, vary to accommodate localised geological features, coal market quality and volume requirements, mining economics and detailed engineering design. The detailed mining sequence for any given period would be documented in the relevant Annual Rehabilitation Report and Forward Program.

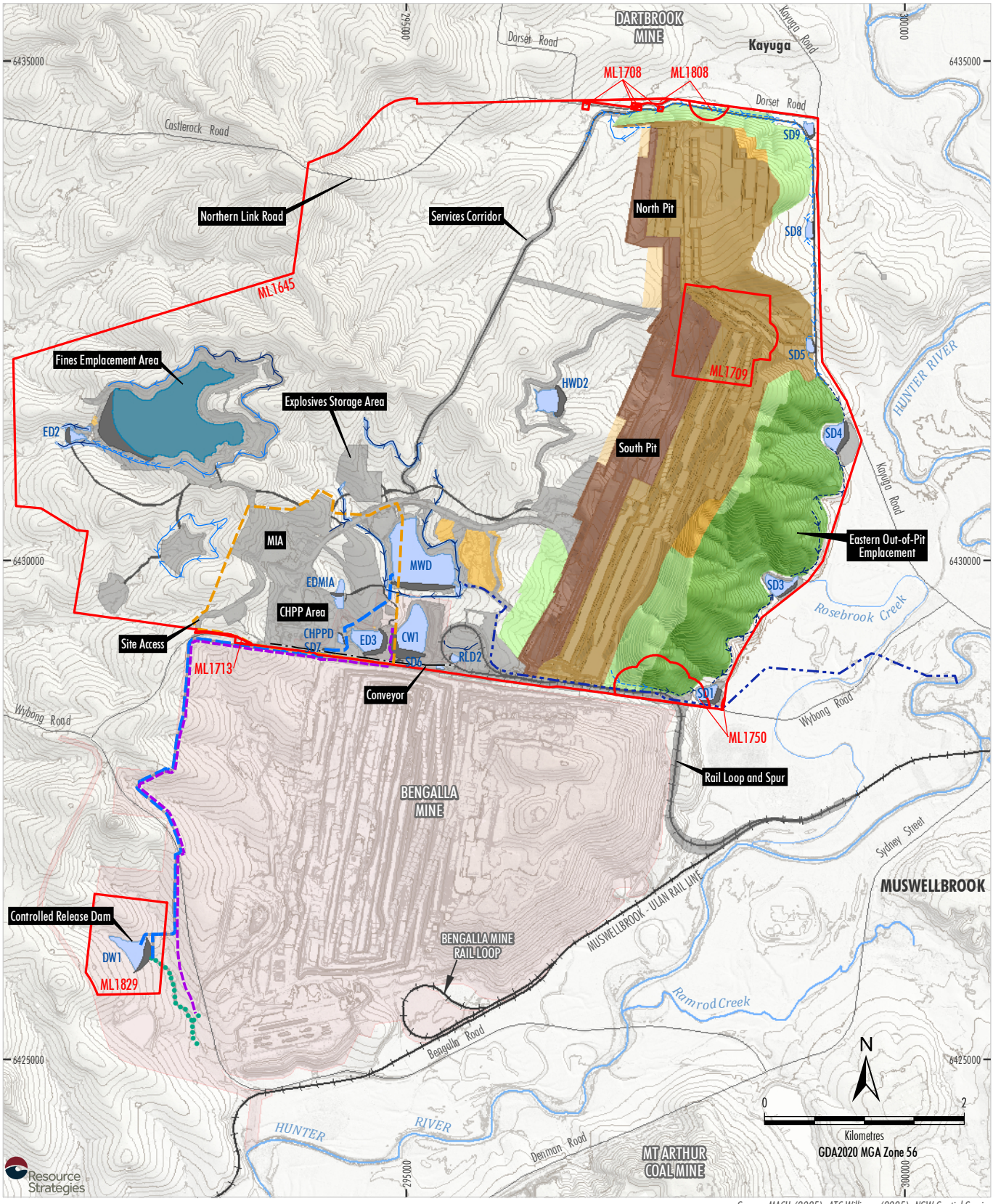
The Modification would include some increase in the number of haul trucks (Plate 12) and other mobile fleet items associated with the revised ROM coal mining rate (i.e. increased to 12.5 Mtpa). Anticipated mobile fleet lists for the Mount Pleasant Operation incorporating the Modification are detailed in Appendix A.

Plate 12 – Noise Attenuated Excavator and Haul Trucks Operating, Mount Pleasant Operation

The sequence of mining, mobile fleet and/or the general arrangements may also be modified throughout the life of the operation to maintain compliance with the applicable noise and air quality criteria specified in Development Consent DA 92/97 for sensitive receivers, or to comply with the site Environment Protection Licence (EPL) 20850.

Throughout the Modification period, MACH would evaluate available feasible and reasonable mining technologies, with a particular focus on improving mining efficiency and environmental performance at the Mount Pleasant Operation. There are currently no large-scale automation technologies (e.g. unmanned haul truck fleets) planned for the site.

15 It is noted that under SSD 10418, ROM coal production would peak at approximately 21 Mtpa.



Source: MACH (2025); ATC Williams (2025); NSW Spatial Services (2025); Department of Planning and Environment (2016)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile
- Access Road
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Existing Collection Drain
- Proposed Collection Drain
- Existing Diversion Drain
- Proposed Diversion Drain
- Water Dam
- Fines Emplacement Area

Indicative Water Transfer Alignments

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Approximate Extent of Scour Protection
- Bengalla Mine CW1 Pipeline

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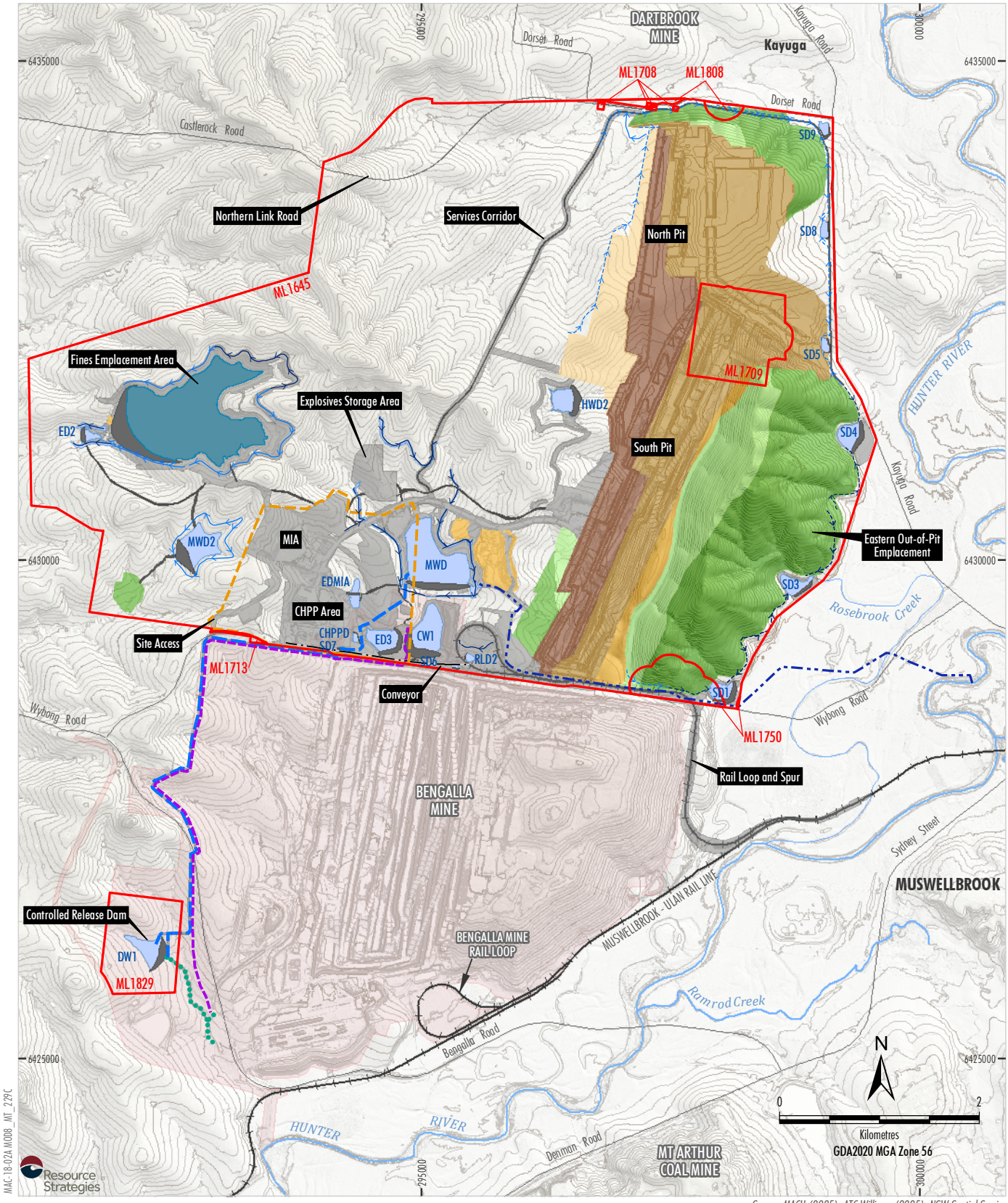
MOUNT PLEASANT OPERATION

Indicative Modified General Arrangement 2027

Figure 8



Source: MACH (2025); ATC Williams (2025); NSW Spatial Services (2025); Department of Planning and Environment (2016)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
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- Water Dam
- Fines Emplacement Area

Indicative Water Transfer Alignments

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Approximate Extent of Scour Protection
- Bengalla Mine CW1 Pipeline

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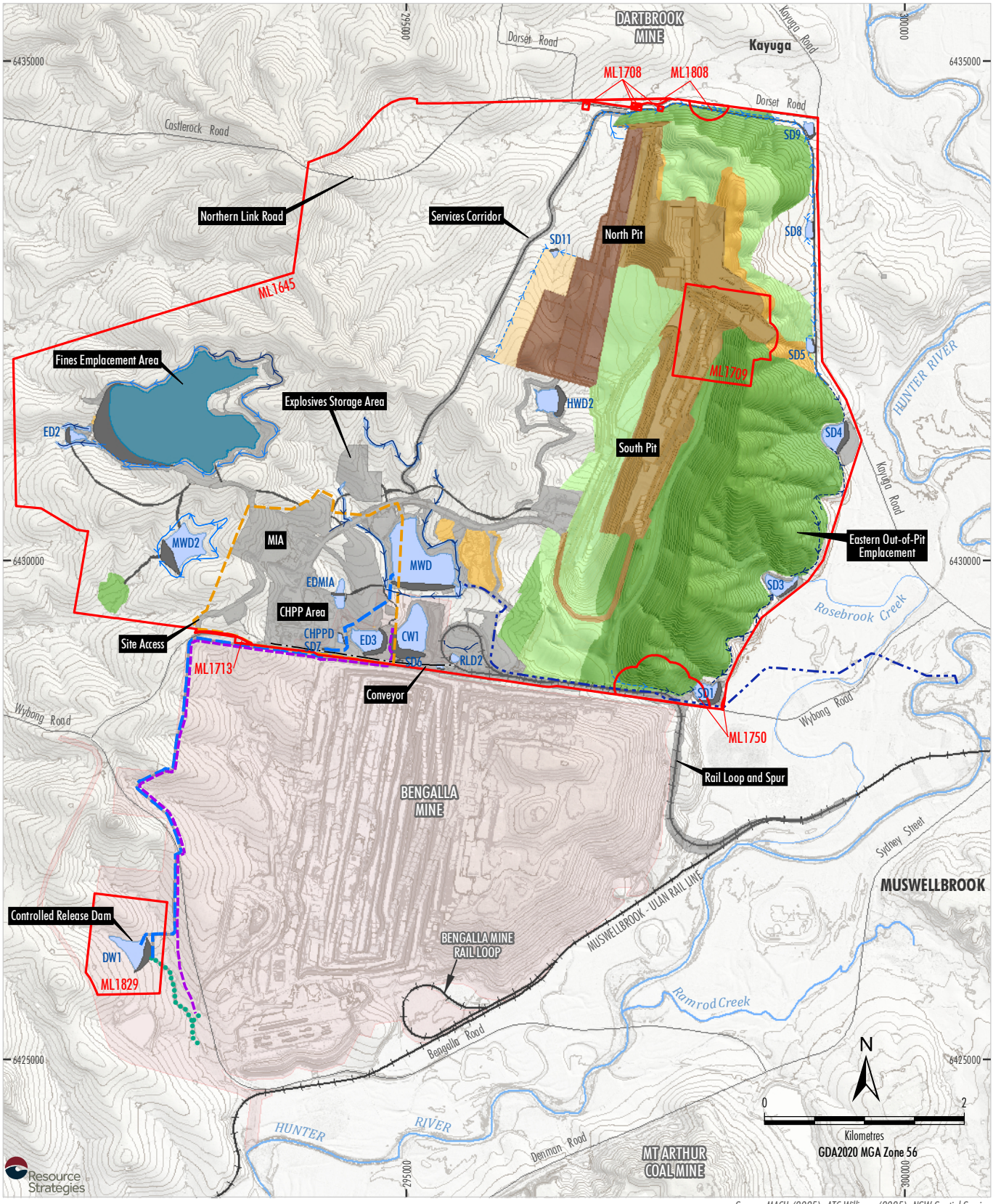
MOUNT PLEASANT OPERATION

Indicative Modified General Arrangement 2029

Figure 9



Source: MACH (2025); ATC Williams (2025); NSW Spatial Services (2025); Department of Planning and Environment (2016)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile
- Access Road
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Existing Collection Drain
- Proposed Collection Drain
- Existing Diversion Drain
- Proposed Diversion Drain
- Water Dam
- Fines Emplacement Area

Indicative Water Transfer Alignments

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Approximate Extent of Scour Protection
- Bengalla Mine CW1 Pipeline

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MOUNT PLEASANT OPERATION

Indicative Modified General Arrangement 2031

Figure 10

3.4.5 Overburden Management

The Eastern Out-of-Pit Emplacement forms a significant noise and visual barrier between the operations and Muswellbrook, facilitating the mining fleet operating in less exposed areas during the night-time (Plate 13).

Overburden material would continue to be removed using a combination of blasting and excavators, with haul trucks utilised to haul the waste rock material to in-pit emplacement areas and the Eastern Out-of-Pit Emplacement. During the Modification period, MACH would not progress development of any other out-of-pit emplacements as originally approved in 1999 (Figure 3a).

As mining progresses into North Pit during the Modification period, the Eastern Out-of-Pit Emplacement would advance to the north-east corner of the site before developing westwards (Figures 8 to 10). A temporary noise bund (e.g. 20 m above the natural land surface) would be constructed to provide noise shielding for MACH's initial waste emplacement activities. This initial bund would subsequently be integrated within the final emplacement landform as it develops.

The provisional final landform and rehabilitation strategy for the Modification is presented in Section 3.12.

Waste rock production for the Mount Pleasant Operation incorporating the Modification would increase relative to the predicted Modification 3 annual waste rock production (maximum 31.3 million bank cubic metres [Mbcm]). However, the production of waste rock would remain well within the annual maximum as originally approved in 1999 (53.0 Mbcm)[16].

3.4.6 Coal Mining

Mining of exposed coal seams at the Mount Pleasant Operation typically involves excavators or front-end loaders ripping and pushing coal and parting material and loading ROM coal into haul trucks for haulage directly to the ROM dump hopper or ROM pad.

Haulage of ROM coal over the life of the Modification would continue to use internal haul roads and these roads would be extended or relocated as required (Figures 8 to 10).

Plate 13 – Existing Eastern Out-of-Pit Emplacement, Viewed from Muswellbrook

[16] It is noted that under SSD 10418, waste rock production would peak at approximately 89.2 Mbcm.

3.5 COAL PROCESSING AND PRODUCTION

The existing Mount Pleasant Operation CHPP has sufficient existing capacity to process up to 12.5 Mtpa of ROM coal in the Modification period without any further augmentation.

For the purposes of this Modification, it has been assumed that all ROM coal produced would be washed, as that aligns with current primary market demand and would produce higher volumes of coal reject material and demand more water.

Processing and production rates would be determined by the requirements of the coal market, product specifications and associated blending requirements over the Modification period. A combination of washed and unwashed coal may be produced, depending on coal quality market demands.

Provisional coal processing and production rates for the Modification are provided in Table 2 based on recent operational experience and current market economics[17]. Over the life of the Modification coal qualities and associated rates of product coal recovery in the CHPP would vary and are generally expected to improve as mining advances west (Table 2).

Table 2
Indicative Modification Processing Schedule

Modification Year	ROM Coal (Mt)	Product Coal (Mt)	Coarse Reject (Mt)	Fine Reject (Mt)
1[1]	12.5	7.6	3.2	1.4
2	12.5	7.6	3.3	1.4
3	12.5	7.8	3.1	1.3
4	12.5	7.9	3.0	1.3
5	12.5	8.3	2.8	1.2
6	11.5	8.2	2.2	0.9
7	4.7	3.5	1.3	0.4
Total[2]	**78.7**	**50.9**	**18.9**	**7.9**

[1] Assumed Modification Year 1 is 2026, the DA 92/97 life extension is for the six-year period 2027-32 (blue fill).

[2] Totals may not equal the sum of each row due to rounding.

3.6 PRODUCT COAL RAIL MOVEMENTS

The approved Mount Pleasant Operation is currently approved to have a maximum of 18 rail movements (or nine laden train departures) per day. The Modification would not increase the maximum daily train movements. However, the daily average would increase to between three and four laden train departures per day from 2026 onwards.

MACH would continue to utilise the existing Stage 2 rail infrastructure, including the existing dedicated rail spur (Plate 14), over the life of the Modification.

Plate 14 – Existing Stage 2 Rail Overpass of Wybong and Overton Roads

3.7 MANAGEMENT OF MATERIALS GEOCHEMISTRY

Mining operations at the Mount Pleasant Operation are confined to the Wittingham Coal Measures. The prerequisite for potentially acid forming (PAF) material occurring in these measures is a high concentration of pyritic sulphur (MACH, 2022).

The deposition of the Archerfield Sandstone during a marine transgression resulted in a significant increase in the occurrence of pyrite in this geological interval and the underlying Wynn seam (MACH, 2022). Subsequent deposits occurred in lacustrine or back-swamp environments that did not involve seawater.

Therefore, the spatial distribution of PAF materials is well known in advance of mining, as detailed mapping of PAF material is completed as part of MACH's exploration activities.

[17] ROM values are reported at 9% moisture and product coal values are reported at 11% moisture. Nominal residual reject values are presented on a 'dry basis'.

Further, key operational controls to manage PAF material at the site include (MACH, 2022):

- all waste coal (e.g. oxidised coal) is treated as PAF, irrespective of seam source;
- all coarse reject is treated as PAF and deposited in-pit, irrespective of seam source;
- fine coal reject is placed in the Fines Emplacement Area only; and
- Wynn Seam overburden and interburden (i.e. inclusive of the Archerfield Sandstone) is treated as PAF.

Physical controls for PAF overburden and interburden material include:

- the PAF line is pegged by surveyors prior to PAF material deposition on each bench;
- the PAF load and dump locations are recorded, and haul trucks are GPS-tracked; and
- a minimum cover of 10 m is maintained between PAF materials and the final landform surface.

Consistent with existing operations, PAF physical controls would continue to be implemented and coarse rejects produced by the CHPP would continue to be disposed in-pit, while fine rejects would continue to report to the Fines Emplacement Area over the life of the Modification.

3.8 SUPPORTING INFRASTRUCTURE

The Modification would largely utilise the existing infrastructure of the Mount Pleasant Operation, with some augmentation (Section 3.3). Over the Modification period, MACH would also relocate, augment or replace supporting infrastructure as may be required.

3.9 WATER SUPPLY AND WATER MANAGEMENT

The existing water management system at the Mount Pleasant Operation would continue to support ongoing mining activities.

The existing surface water runoff controls to prevent clean water runoff from entering water storages and open cut mining operation areas would be retained and where necessary upgraded for the Modification.

A description of the water management system for the Mount Pleasant Operation incorporating the Modification and predictive assessment of the performance for a range of different climatic scenarios are provided in the Surface Water Assessment prepared by ATC Williams Pty Ltd (ATC Williams) (2025) (Appendix D).

The water management system is predicted to have some periods of lower water supply reliability when available water determinations are reduced for licensed extraction from the Hunter River (Appendix D). Consistent with the approved Mount Pleasant Operation, MACH may implement additional adaptive water-use efficiency measures or source excess mine water from adjoining mines for use on-site (i.e. Dartbrook and Bengalla Mines subject to obtaining any necessary secondary approvals), in order to reduce the make-up water demand from the Hunter River over the life of the Modification.

Water-use efficiency measures could include the additional use of chemical dust ameliorants, and/or selective increase in ROM coal bypass to reduce the CHPP water demand.

3.10 WORKFORCE

The approved Mount Pleasant Operation was anticipated to have a peak workforce of approximately 380 personnel. However, as at Quarter 4, 2025, the full-time equivalent workforce of the Mount Pleasant Operation is approximately 700 personnel[18].

With the proposed increase in ROM coal production to 12.5 Mtpa, additional mobile fleet items would be required compared to production at 10.5 Mtpa, and this would necessitate operational (Plate 15) and maintenance personnel over the life of the Modification of up to approximately 575 personnel.

Plate 15 – Operational Personnel, Open Cut Blasting

[18] Inclusive of additional personnel associated with the Mount Pleasant Optimisation Project.

Nominal shift start and finish times would typically continue to be as follows:

- Administration Personnel
  7.00 am to 4.00 or 5.00 pm weekdays.
- Mining Operations Personnel (Day/Night)
  7.00 am to 7.00 pm/7.00 pm to 7.00 am.
- Maintenance and CHPP personnel (Day/Night)
  6.00 am to 6.00 pm/6.00 pm to 6.00 am.

These nominal shift times would be subject to periodic review throughout the life of the Modification.

3.11 WASTE MANAGEMENT

The Modification would generate waste streams that would be similar in nature to the existing operations at the Mount Pleasant Operation. The key waste streams would continue to comprise:

- waste rock;
- CHPP reject material;
- sewage and wastewater;
- recyclable and non-recyclable wastes; and
- other wastes from mining and workshop activities (e.g. used tyres, scrap metal, oil filters and waste hydrocarbons).

In addition, MACH would continue to dispose of some inert waste material (e.g. concrete) in the Eastern Out-of-Pit Emplacement, and heavy mobile equipment tyres in the open cuts, in accordance with existing approvals and the Waste Management Plan.

All waste would continue to be classified in accordance with *Waste Classification Guidelines Part 1: Classifying Waste* (NSW Environment Protection Authority [EPA], 2014), collected by an appropriately licensed contractor and disposed of at appropriately licensed disposal facilities. MACH would continue to maintain a register of waste collected by waste contractors.

3.12 FINAL LANDFORM AND LAND USE

Rehabilitation at the Mount Pleasant Operation is undertaken in accordance with the Rehabilitation Management Plan and the Rehabilitation Strategy.

The final land use goals for the Mount Pleasant Operation are based on the following:

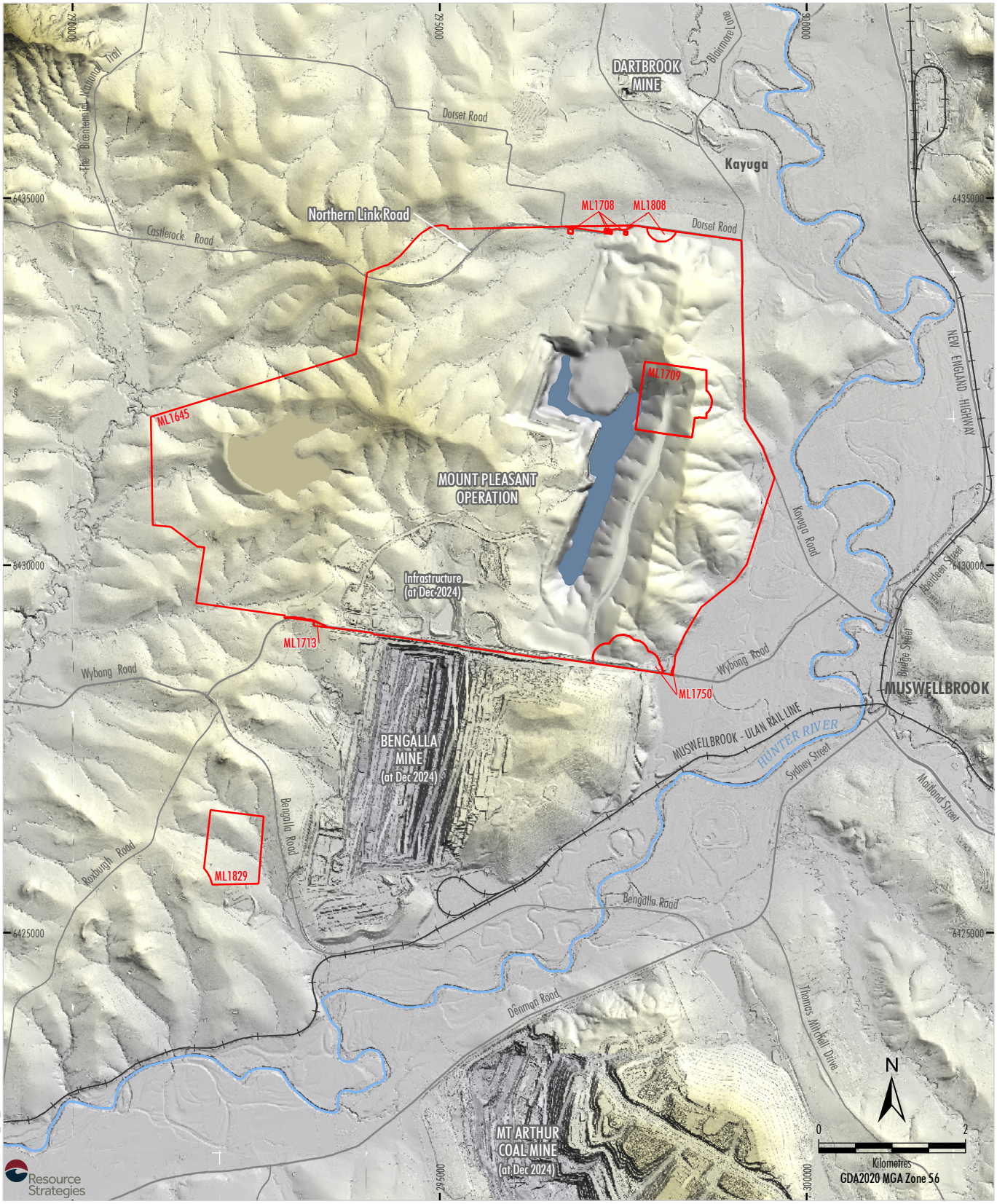
- successful design and rehabilitation of landforms to ensure structural stability, revegetation success and containment of wastes; and
- post-mining land use compatible with surrounding land uses.

Accordingly, MACH has undertaken a comprehensive approach to landform design based on the following key design principles:

- The emplacement landform has been designed to look less “engineered” when viewed from Muswellbrook (i.e. incorporation of macro-relief to avoid simple blocky forms).
- Surface water drainage from the waste emplacement landform incorporates micro-relief to increase drainage stability, avoid major engineered drop structures and limit erosion.
- The final void (and associated drainage network) would be shaped to reflect a less engineered profile that is more consistent with the surrounding natural environment.
- The final void has been designed as a long-term groundwater sink to maximise groundwater flows from the Eastern Out-of-Pit Emplacement to the final void.
- MACH would continue to progressively develop and revegetate the final landform to reduce visual impacts in Muswellbrook, and continue to monitor the performance of rehabilitation and implement remediation as required.

While it is anticipated that the Mount Pleasant Operation would continue to operate for at least the originally approved 21 year period of mining, a conceptual final landform for the Mount Pleasant Operation incorporating the Modification has been developed using geomorphic design principles to address these key design principles (Figure 11).

The landform has been designed using characteristics of relevant stable natural landforms in the local environment (referred to as analogues) and applies these characteristics to the design of new landforms of similar materials. More detailed erosional assessment and design methods are then used to refine the landform drainage features that are steeper than alluvial analogues.



LEGEND

Mining Lease Boundary (Mount Pleasant Operation)

Final Void Waterbody (approximately 120 m AHD)

Source: MACH (2025); NSW Spatial Services (2025)
Topography: LiDAR Dec 2023 (MACH)

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MOUNT PLEASANT OPERATION

Conceptual Modified Final Landform 2032

Figure 11

MACH has also undertaken a preliminary assessment of potential post-mining land uses (e.g. nature conservation, agriculture) taking into account relevant strategic land use objectives of the surrounding area in the vicinity of the Mount Pleasant Operation and approved final land uses under Development Consent SSD 10418.

Proposed final land uses for the Mount Pleasant Operation area include agricultural land, native woodland, grassland areas and the final void (Figure 12).

Closure of the site, including works to decommission redundant buildings, hardstands and mine infrastructure (Plate 16), would be undertaken in accordance with the Rehabilitation Strategy, Rehabilitation Management Plan and a Mine Closure Plan developed in consultation with the MSC and the NSW Resources Regulator.

Plate 16 – MIA Workshop and Hardstand in Use

MACH recognises that government and community stakeholders may identify final land uses that provide greater net benefits to the locality. MACH would encourage and be supportive of other community and government proposals or initiatives for the use of MACH-owned land or infrastructure that can co-exist with the Mount Pleasant Operation. These alternative final land uses would be subject to separate assessments and approval, and do not form part of this Modification.

3.13 PROPOSED AMENDMENTS TO DEVELOPMENT CONSENT

The existing version of Development Consent DA 92/97 would need to be amended to provide for the Modification.

MACH requests the following amendments to the wording of Condition 5, Schedule 2 of the Development Consent DA 92/97 to provide for the proposed Modification:

> ***Mining Operations***
>
> *5. The Applicant may carry out mining operations on the site until 3122 ~~2022~~ December 2032 ~~2026~~.*
>
> *Note: Under this consent, the Applicant is required to rehabilitate the site and carry out additional undertakings to the satisfaction of both the Secretary and the Resources Regulator. Consequently this consent will continue to apply in all other respects - other than the right to conduct coal mining operations - until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.*

MACH requests the following amendments to the wording of Condition 6, Schedule 2 of the Development Consent DA 92/97 to provide for the proposed Modification:

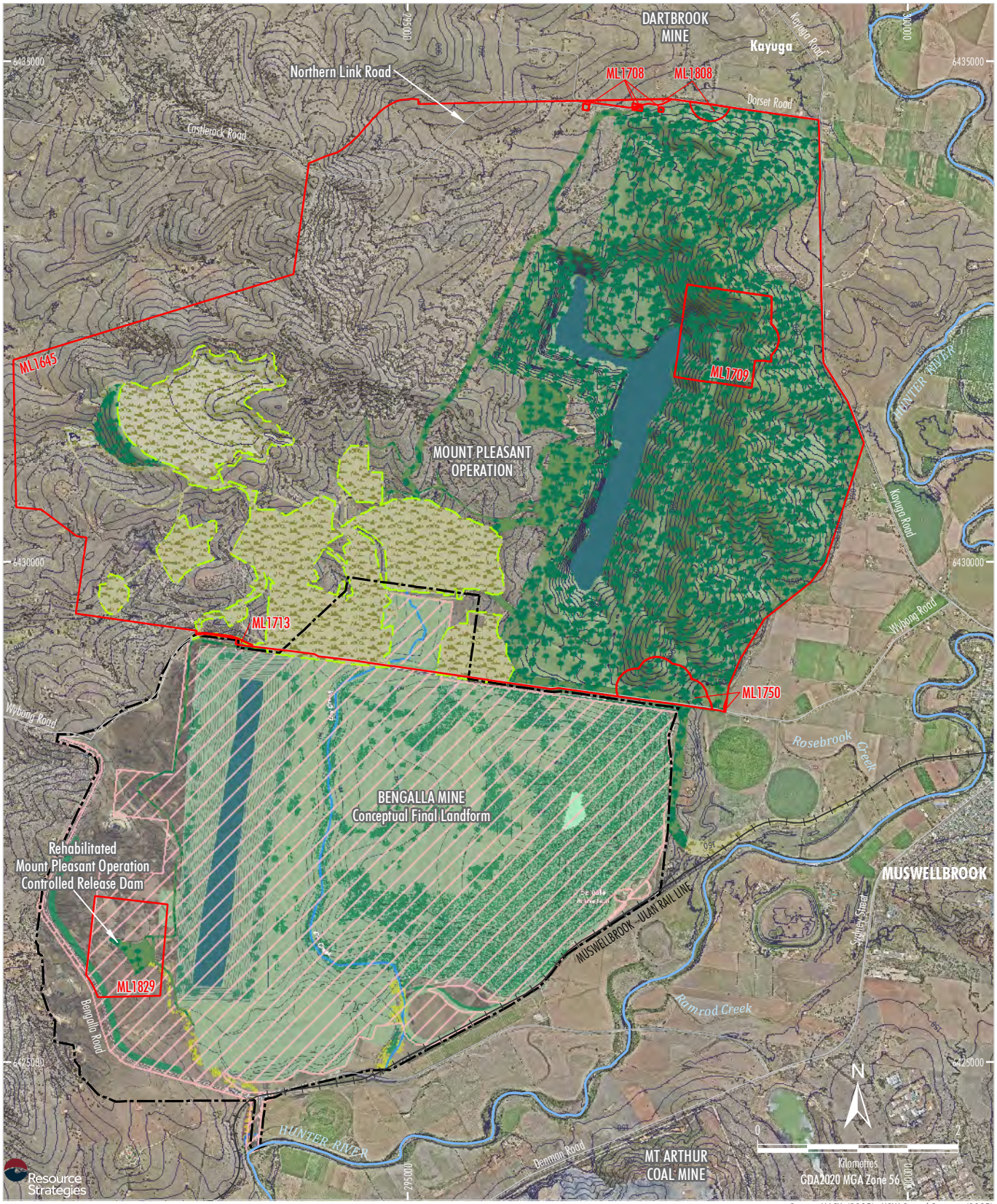
> *6. The Applicant must not extract more than ~~10.5~~ 12.5 million tonnes of ROM coal from the site in a calendar year.*

Further, MACH requests the following amendments to the wording of Condition 8, Schedule 2 of the Development Consent DA 92/97 to provide for the proposed Modification:

> *8. The Applicant must ensure that train movements at the site (ie arrival or dispatch) do not exceed:*
>
> *(a) a maximum of 18 per day; or*
>
> *(b) 8 ~~6~~ per day, averaged over each calendar year.*
>
> *Note: In this condition, "day" means any 24-hour period.*

It is noted that the changes to the wording of Conditions 5, 6 and 8 of Schedule 2 to Development Consent DA 92/97 necessarily involve changes to the development subject to that consent, in that they involve an extension of time for the carrying out of mining operations, an increased limit for production of ROM coal in a calendar year and an increase in the number of train movements at the site (i.e. arrival or dispatch) per day (Plate 17), averaged over each calendar year.

The Modification includes some minor additions to the Development Consent DA 92/97 Development Application area to be consistent with SSD 10418 (Attachment 2).



LEGEND

Mining Lease Boundary (Mount Pleasant Operation)

Final Landform Contour (10 m Interval)

Secondary/Post-mining Land Use Domains

Domain A - Final Void

Domain C - Agricultural Land

Domain D - Native Woodland/Grassland

Potential High Intensity Agriculture Area

Bengalla Mine Conceptual Final Landform *

Project Boundary (Appendix 9 of Development Consent SSD-5170) (Dated February 2023)

Bengalla Mine Approved Disturbance Boundary (SSD-5170)

* Digitised from Appendix 9 of Development Consent (SSD-5170) and amended in the Mount Pleasant Operation CHPP area.

Source: MACH (2025); NSW Spatial Services (2025); Department of planning and Environment (2016)
Final Void Waterbody (approximately 120 m AHD)
Topography: LiDAR Dec 2023 (MACH)

MACHEnergy

MOUNT PLEASANT OPERATION

Conceptual Final Land Use
2032 Landform

Figure 12

MACH also anticipates that appropriate amendments may be made in relation to other conditions in, or figures appended to, Development Consent DA 92/97.

Following determination of the Modification, a range of Mount Pleasant Operation environmental management plans may require revision, including:

- Noise Management Plan;
- Blast Management Plan;
- Air Quality and Greenhouse Gas Management Plan;
- Water Management Plan;
- Visual Impact Management Plan; and
- Rehabilitation Strategy.

Notwithstanding, all current Mount Pleasant Operation environmental management plans would be reviewed within 3 months of any modification to Development Consent DA 92/97, in accordance with Condition 4, Schedule 5 of the Development Consent DA 92/97.

Plate 17 – Coal Train on the Rail Spur – Mount Pleasant Operation

4 STATUTORY CONTEXT

This section outlines key statutory requirements relevant to the assessment of the Modification.

4.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The EP&A Act and *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) set the framework for planning and environmental assessment in NSW.

4.1.1 Applicability of Section 4.55(2) of the EP&A Act

Section 4.55(2) of the EP&A Act relevantly provides:

> ***4.55 Modification of consents—generally***
>
> *…*
>
> *(2) Other modifications*
>
> *A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if –*
>
> *(a) it is satisfied that the development to which the consent as modified relates is the same or substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all), and*
>
> *(b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 4.8) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent, and*
>
> *(c) it has notified the application in accordance with –*
>
> *(i) the regulations, if the regulations so require, or*
>
> *(ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and*
>
> *(d) it has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be.*
>
> *…*

Under section 4.55(2)(a) of the EP&A Act, the relevant baseline comparator for the 'substantially the same development' test for the Modification is the Mount Pleasant Operation as originally approved in 1999 (the Originally Approved Development Comparator).

However, it is noted that clause 3BA(6) of Schedule 2 of the NSW *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017* also relevantly provides:

> ***3BA Winding-up of transitional Part 3A modification provisions on cut-off date of 1 March 2018 and other provisions relating to modifications***
>
> *…*
>
> *(6) In the application of section 4.55(1A) or (2) or 4.56(1) of the Act to the following development, the consent authority need only be satisfied that the development to which the consent as modified relates is substantially the same development as the development authorised by the consent (as last modified under section 75W) –*
>
> *(a) development that was previously a transitional Part 3A project and whose approval was modified under section 75W,*
>
> *(b) development that was taken to be an approved project pursuant to clause 8J of the Environmental Planning and Assessment Regulation 2000 and whose consent was modified under section 75W.*
>
> *…*

As a consequence of the application of clause 3BA(6)(b), an alternative baseline comparator for the Modification is the Mount Pleasant Operation as approved by the last modification under section 75W of the EP&A Act (i.e. Modification 4) (the Modification 4 Development Comparator). This is because the Mount Pleasant Operation was taken to be an approved project pursuant to clause 8J of the *Environmental Planning and Assessment Regulation 2000* and Development Consent DA 92/97 was modified under section 75W of the EP&A Act (most recently, by the approval of Modification 4).

Both the Originally Approved Development Comparator, and the Modification 4 Development Comparator, are available to the consent authority in order to reach the required state of satisfaction that the 'substantially the same development' test under section 4.55(2) of the EP&A Act would be met by the Mount Pleasant Operation incorporating the proposed Modification.

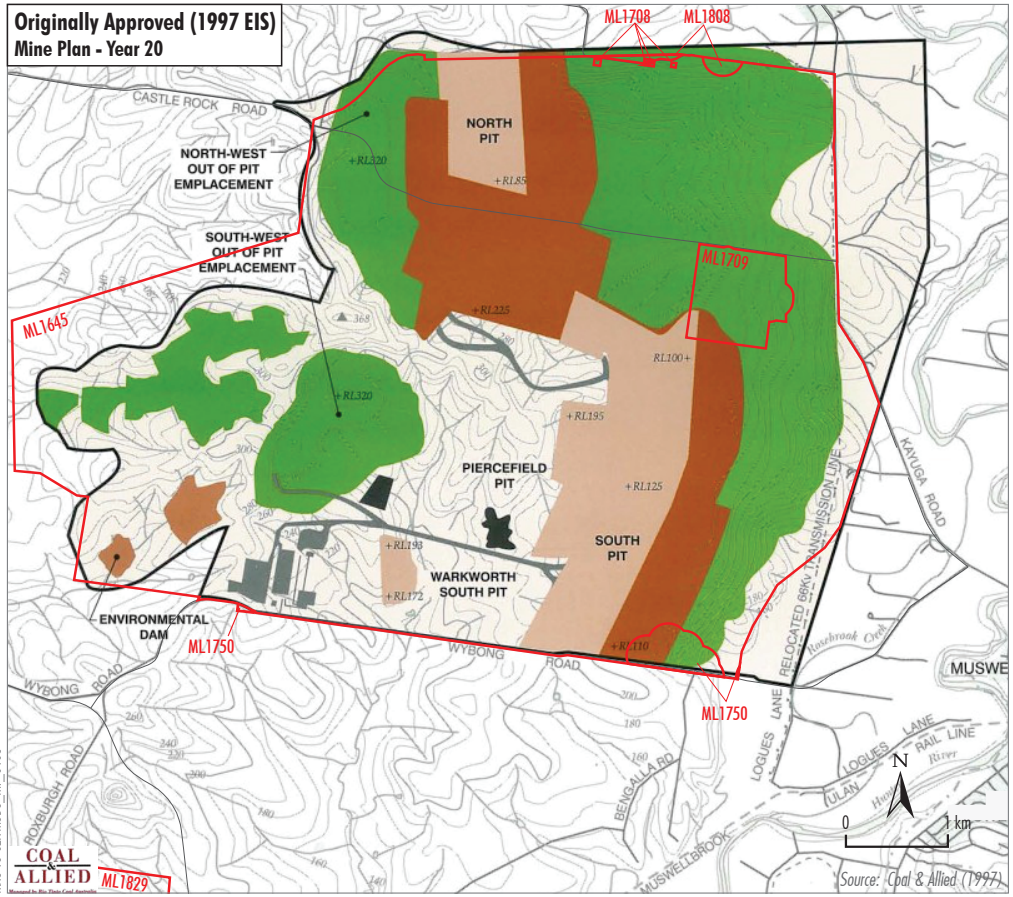
The consent authority can be satisfied that the Mount Pleasant Operation incorporating the proposed modification is 'substantially the same development' as the currently approved Mount Pleasant Operation when applying either the Originally Approved Development Comparator or the Modification 4 Development Comparator.

In comparison to the Originally Approved Development Comparator, the Mount Pleasant Operation incorporating the Modification would:

- not alter the purpose for which the development is carried out, nor the general scale and nature of the mining operations;
- remain similar in both extent and total area compared to the originally approved mining and infrastructure areas (Figure 13), noting that it differs in some respects due to Modifications 1-6 and as-built structures;
- result in minor additions to the Development Application Area;
- allow for a total of 15 years of mining operations, compared to the originally approved 21 years (although it is anticipated that the Mount Pleasant Operation would continue to operate for at least the originally approved 21 year period of mining);
- include approximately 6 years of mining development within North Pit, as opposed to approximately 18 years;
- increase the maximum annual ROM coal production rate to 12.5 Mtpa (an increase of 2 Mtpa) (Figure 14-A);
- extract a total of 148.1 Mt of ROM coal in the period to the end of 2032, as opposed to 197 Mt (Figure 14-B);
- remain below the originally assessed maximum annual waste rock production rate of approximately 53 Mbcm (i.e. a maximum of 46.8 Mbcm – Figure 14-C);
- continue to make use of existing coal processing, handling, train loading and rail transport infrastructure without further material augmentation (noting the existing infrastructure differs in some respects from the Originally Approved Development Comparator due to Modifications 1-6);
- incorporate a refined Fines Emplacement Area and design (i.e. reflective of contemporary emplacement methodology and detailed engineering design);
- not include any waste rock emplacement in the originally approved North-West Out-of-Pit Emplacement (approximately 320 m AHD);
- not include any waste rock emplacement in the originally approved South-West Out-of-Pit Emplacement (approximately 320 m AHD); and
- result in an improved residual final landform that is generally similar in its broad form, but has smaller and more integrated void waterbodies, and a higher integrated Eastern Out-of-Pit Emplacement that is more natural in form and features more native revegetation.

In comparison to the Modification 4 Development Comparator, the Mount Pleasant Operation incorporating the Modification would:

- not alter the purpose for which the development is carried out, nor the general scale and nature of the mining operations;
- remain very similar in both extent and total area compared to the Modification 4 approved surface disturbance plan (Figure 15), noting that it differs in minor respects due to Modifications 5 and 6 and as-built structures;
- result in relatively minor additions to the Development Application Area (noting that some land has been added to the Development Application Area for controlled release infrastructure via Modification 5);
- allow for a total of 15 years of mining operations, compared to the 9 years permitted by the Development Consent DA 92/97 as modified by Modification 4 (although it is anticipated that the Mount Pleasant Operation would continue to operate for at least the originally approved 21 year period of mining);
- include approximately 6 years of mining development within North Pit, as opposed to all mining activities being concentrated in South Pit in the period to 2026 (based on current mine planning);



Source: Figure 12 of 1997 Environmental Impact Statement

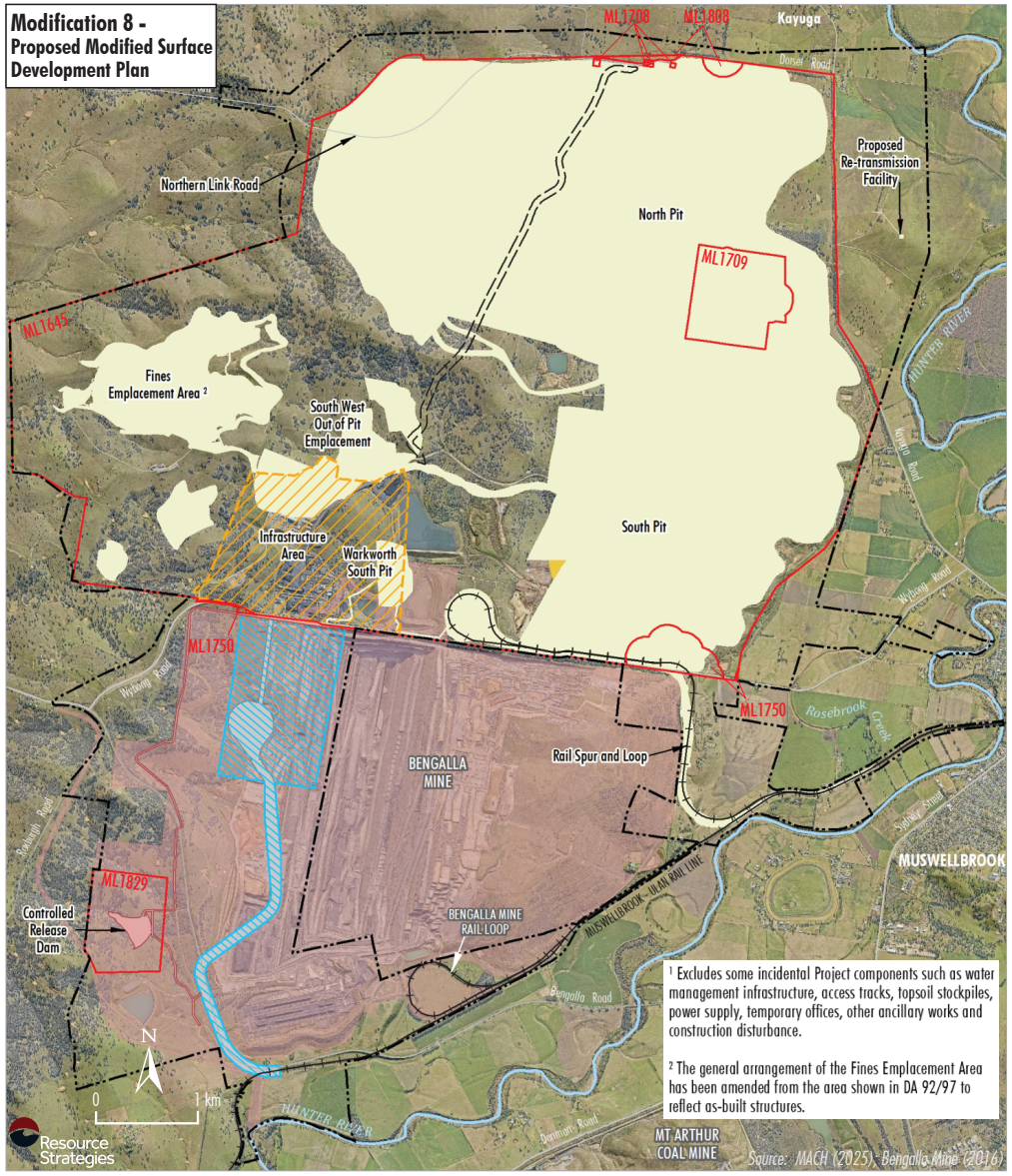
LEGEND

- Mining Lease Boundary
- Project Boundary
- Active Mining Area
- Active Fines Emplacement
- Rock Emplacement
- Potential Topsoil Stockpile
- Rehabilitation Area

NOTE

To determine the approximate extent of surface disturbance, reference should also be made to the following figures in the 1997 Environmental Impact Statement:

- Figure 2 (Site and Surrounds)
- Figure 65 (Proposed Road Network)
- Relevant Figures in the Water Management Study



[1] Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

[2] The general arrangement of the Fines Emplacement Area has been amended from the area shown in DA 92/97 to reflect as-built structures.

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Amended Development Consent Boundary (DA 92/97)
- Approved Surface Disturbance Plan - DA 92/97 [1]
- Extension of Open Cut Mining and Emplacement Area (Land Lawfully Disturbed under SSD-10418)
- Services Corridor being developed under SSD-10418 to be used under the Modification
- Revised Infrastructure Area Envelope
- Infrastructure Removed under the Terms of Condition 37, Schedule 3
- Stage 1 Coal Transport Infrastructure (Removed)
- Existing/Approved Infrastructure within Bengalla Mine Approved Disturbance Boundary
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

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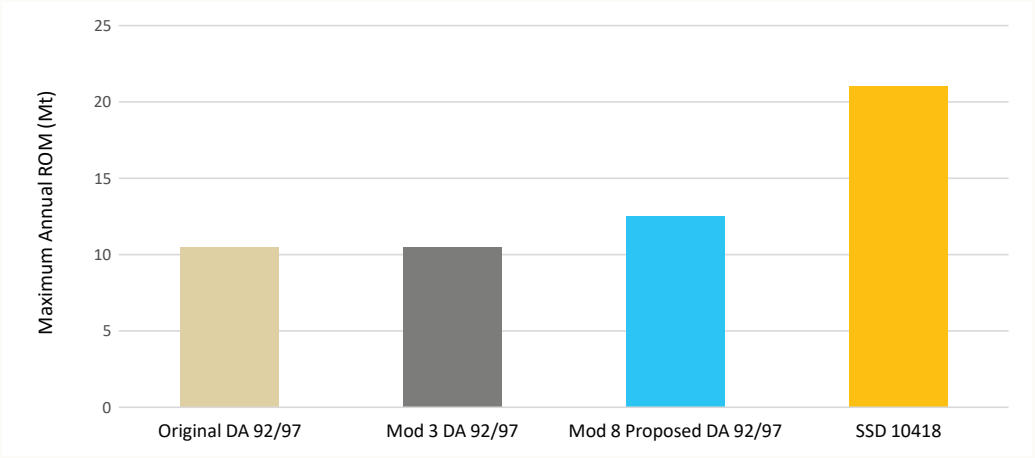
MOUNT PLEASANT OPERATION

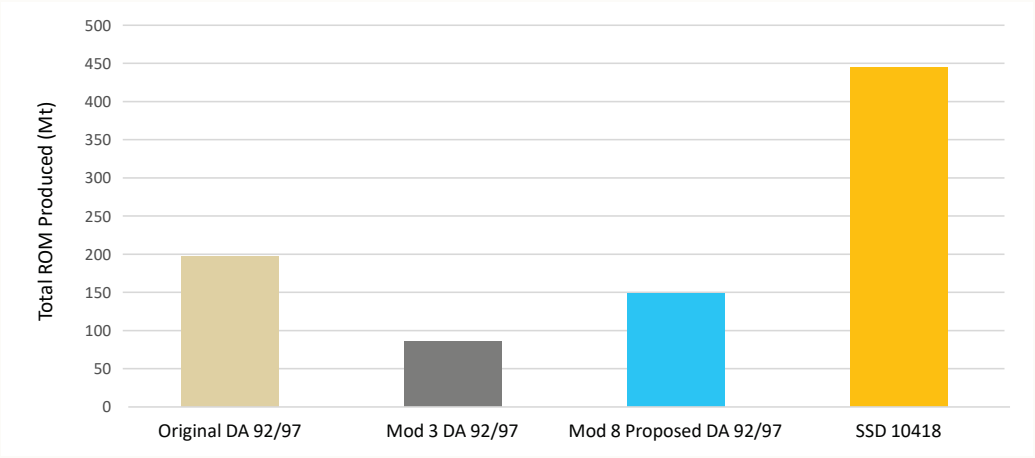
Comparison of Originally Approved and Proposed Modified Surface Development Plan

Figure 13

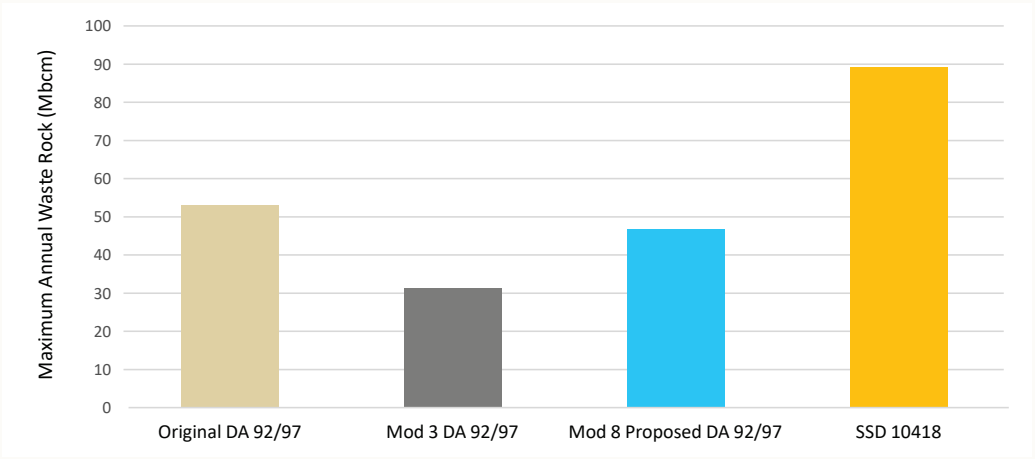
MAC-18-02A MOD8_MT_010C



A – Comparison of Maximum Annual ROM Coal Production



B – Comparison of Total ROM Coal Extracted



C – Comparison of Maximum Annual Waste Rock Produced

MAC-18-02A MODB_MT_004B

Resource Strategies

Source: MACH (2025)

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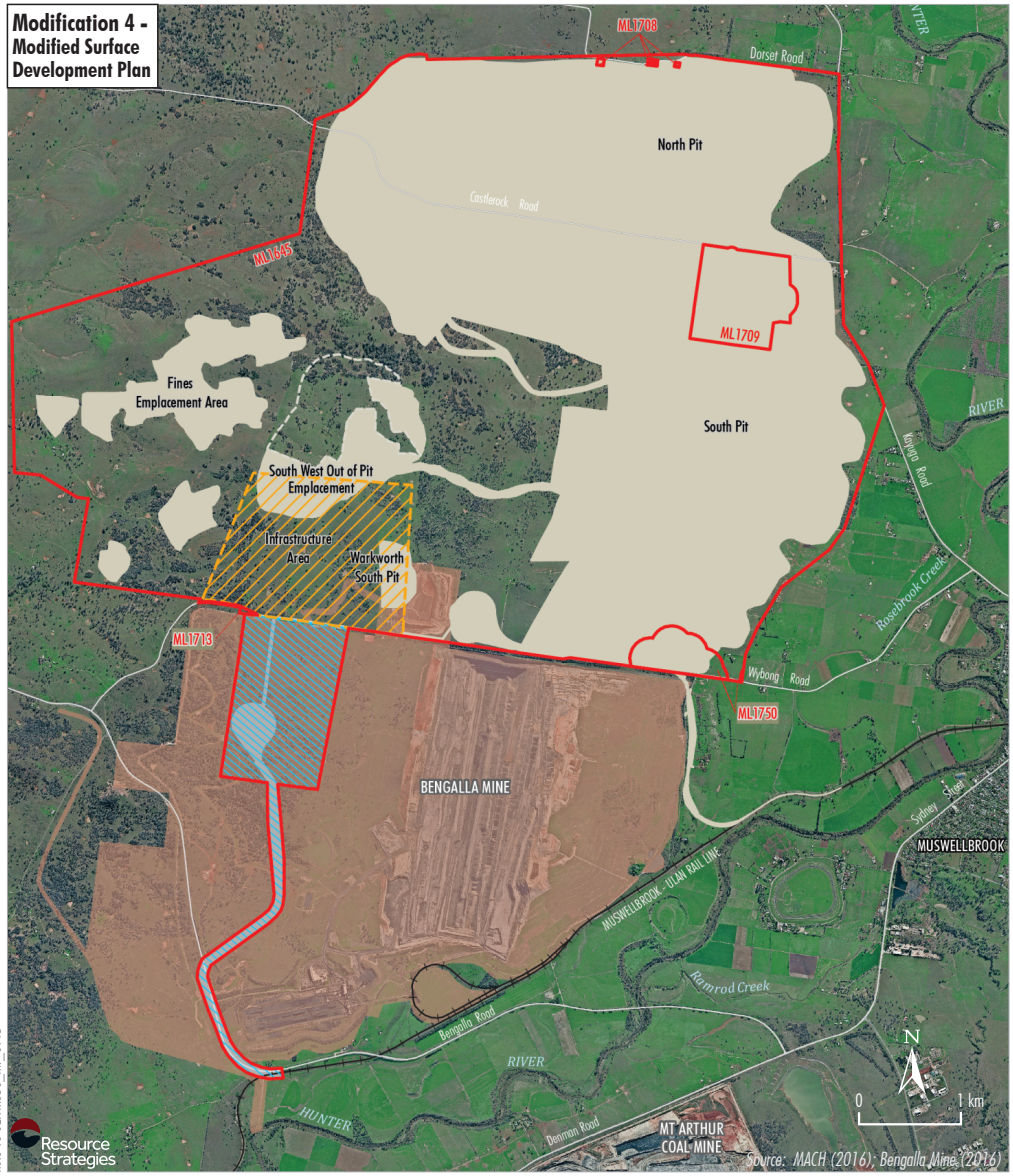
MOUNT PLEASANT OPERATION

Comparison Graphs -
Coal and Waste Rock Production

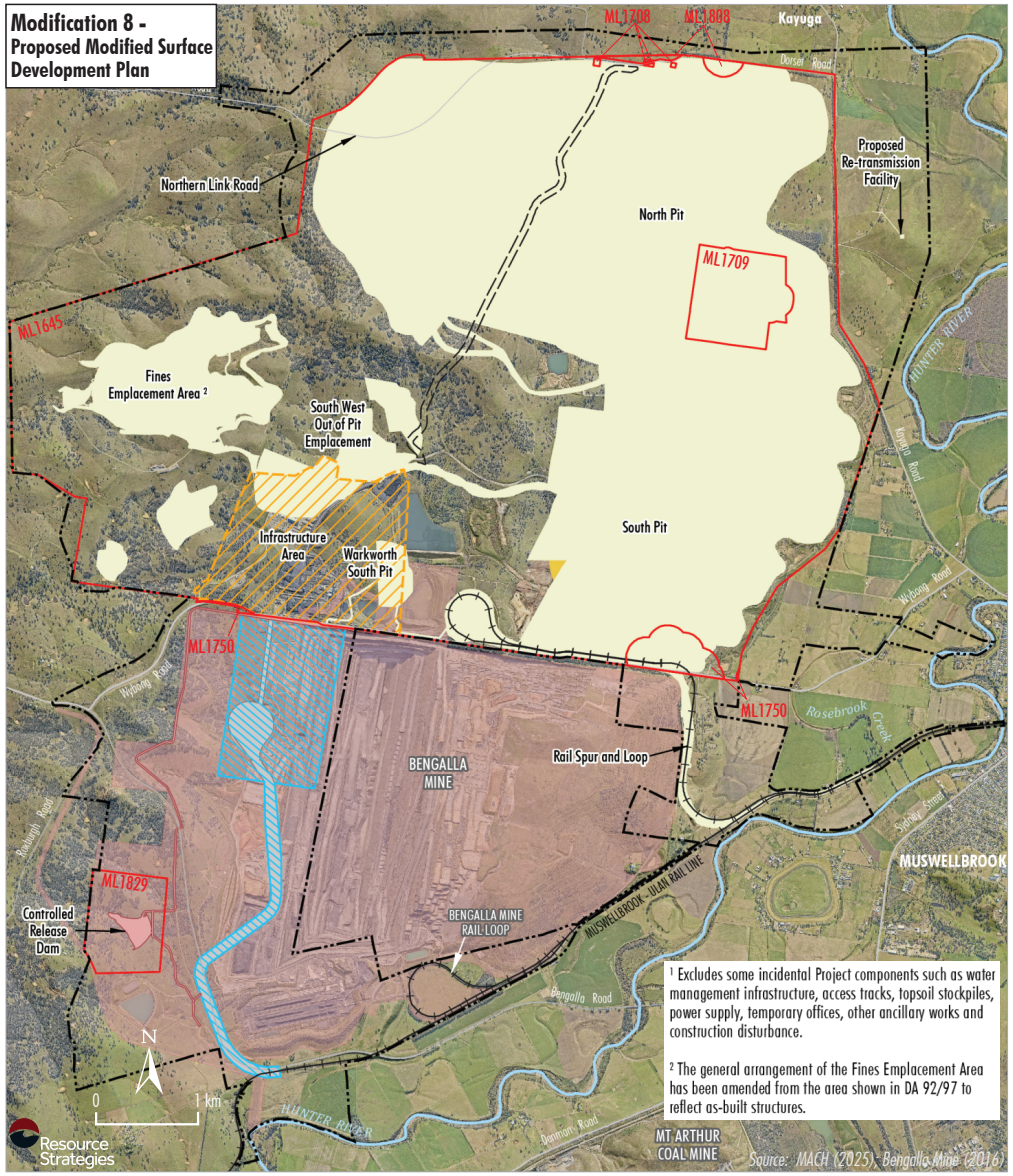
Figure 14



Source: Figure 3 of Appendix 2 of Notice of Modification for Modification 4

LEGEND
- Mining Lease Boundary
- Approximate Extent of Approved Surface Development [1]
- Area Relinquished for Overburden Emplacement and Major Infrastructure
- Infrastructure Area Envelope
- Infrastructure to be removed under the Terms of Condition 37, Schedule 3
- Indicative Existing Coal Transport Infrastructure
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

[1] Excludes some project components such as water management infrastructure, infrastructure within the Infrastructure Area Envelope, offsite coal transport infrastructure, road diversions, access tracks, topsoil stockpiles, power supply, temporary offices, signalling, other ancillary works and construction disturbance.



[1] Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

[2] The general arrangement of the Fines Emplacement Area has been amended from the area shown in DA 92/97 to reflect as-built structures.

LEGEND
- Mining Lease Boundary (Mount Pleasant Operation)
- Amended Development Consent Boundary (DA 92/97)
- Approved Surface Disturbance Plan - DA 92/97 [1]
- Extension of Open Cut Mining and Emplacement Area (Land Lawfully Disturbed under SSD-10418)
- Services Corridor being developed under SSD-10418 to be used under the Modification
- Revised Infrastructure Area Envelope
- Infrastructure Removed under the Terms of Condition 37, Schedule 3
- Stage 1 Coal Transport Infrastructure (Removed)
- Existing/Approved Infrastructure within Bengalla Mine Approved Disturbance Boundary
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

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MOUNT PLEASANT OPERATION

Comparison of Modification 4 and Proposed Modified Surface Development Plan

Figure 15

MAC-18-02A MOD8_MT_011B

- increase the maximum annual ROM coal production rate by 2 Mtpa to 12.5 Mtpa (Figure 14-A);
- extract a total of 148.1 Mt of ROM coal in the period to 2032, as opposed to 85.4 Mt to 2026 (Figure 14-B);
- increase the maximum annual waste rock production rate from approximately 31.3 Mbcm to 46.8 Mbcm (Figure 14-C);
- continue to make use of existing coal processing, handling, train loading and rail transport infrastructure without further material augmentation (noting the existing coal processing, train loading infrastructure, rail spur and loop were authorised via Modifications 1-4);
- remain consistent with the existing Fines Emplacement Area and design, but increase the final elevation and footprint of the Emplacement to accommodate six years of additional coal production; and
- result in a residual final landform that follows the same design principles and revegetation techniques, but has two rather than one integrated void waterbodies, and an integrated Eastern Out-of-Pit Emplacement that builds on the 2026 conceptual final landform and extends to the northern boundary of the site.

It should also be noted that the Mount Pleasant Operation incorporating the Modification would require no material changes to various aspects of the existing Mount Pleasant Operation, including the:

- mining tenements;
- mining methods;
- primary site access;
- electricity supply and distribution;
- MIA;
- CHPP, coal stockpile and rail loading facilities;
- rehabilitation objectives and methods; and
- the existing hours of operation and key activities.

Based on the above and other commonalities, MACH considers that the material and essential features of the Mount Pleasant Operation would remain substantially the same, as compared to the currently approved Mount Pleasant Operation when applying either the Originally Approved Development Comparator or the Modification 4 Comparator.

MACH considers that the consent authority can be satisfied that the proposed Modification satisfies the 'substantially the same development' test (regardless of whether the Originally Approved Development Comparator or the Modification 4 Development Comparator is applied).

This topic is explored further, where relevant, in this Modification Report (i.e. in Sections 6 and 7) and is also addressed in the summary comparison presented in Attachment 1.

4.1.2 NSW Environmental Planning and Assessment Act 1979 Objects

Section 1.3 of the EP&A Act relevantly describes the objects of the EP&A Act as follows:

> *(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,*
>
> …
>
> *(c) to promote productivity through the development and management of the State and its resources,*
>
> *(d) to protect the environment, including the conservation of threatened species of native animals and plants and ecological communities and their habitats,*
>
> *(e) to promote resilience to climate change and natural disasters through adaptation, mitigation, preparedness and prevention,*
>
> *(f) to promote the sustainable management of built and cultural heritage, including Aboriginal cultural heritage,*
>
> …
>
> *(h) to provide opportunities for participation in environmental planning and assessment,*
>
> *(i) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,*
>
> *(j) to provide opportunities for participation in environmental planning and assessment.*
>
> *(k) to promote the orderly and economic use and development of land,*

The Modification is considered to be generally consistent with the objects of the EP&A Act, including because:

- The Modification would facilitate continued local and regional employment, economic development opportunities and community contributions (Sections 6.13, 6.16 and 7.6, and Appendices G and H).
- The Modification would develop the State's valuable coal resources within MACH's Mining Leases, with the value of coal production recognised in the NSW Government's 2020 *Strategic Statement on Coal Exploration and Mining in NSW* (NSW Government, 2020).
- The Modification has been designed having regard to relevant principles of ecologically sustainable development (ESD) (Section 7).
- The Modification is compatible with its near neighbours, including agricultural businesses (Section 6.3).
- The Modification would incorporate a range of measures for the protection of the environment, including the protection of native plants and animals, threatened species, and their habitats (Sections 6.8 and 6.9).
- Multiple Aboriginal and historical heritage assessments have been undertaken at the Mount Pleasant Operation and the Modification would incorporate the approved mitigation measures for potential direct and indirect impacts on heritage (Sections 6.10 and 6.11).
- The Modification would make maximum use of the existing Mount Pleasant Operation infrastructure, coal handling, rail transport and the existing Fines Emplacement Area. The proposed development incorporates leading mine landform design principles and progressive rehabilitation that would act to minimise the visual contrast of the integrated waste rock emplacement with the surrounding environment (Section 6.14 and Appendix F).
- The Modification would be determined by the Minister, or the Minister's Delegate, however, a wide range of stakeholders have been consulted throughout the assessment process.
- The Mount Pleasant Operation incorporating the Modification would continue to be developed in a manner that incorporates community input (Section 5), including via the public exhibition of the Modification documents and the major project assessment process.

As outlined in the *State Significant Development Guidelines* (DPHI, 2024), Attachment 3 provides a detailed statutory compliance table for the Modification that identifies relevant statutory requirements and the relevant sections in this Modification Report that address these requirements.

4.1.3 Evaluation under Section 4.55(3) of the Environmental Planning and Assessment Act 1979

Section 4.55(3) of the EP&A Act states:

> *(3) In determining an application for modification of a consent under this section, the consent authority must take into consideration such of the matters referred to in section 4.15(1) as are of relevance to the development the subject of the application. The consent authority must also take into consideration the reasons given by the consent authority for the grant of the consent that is sought to be modified.*

In accordance with section 4.55(3) of the EP&A Act, Section 4.1.4 provides an evaluation of the Modification under section 4.15(1) of the EP&A Act.

In relation to the obligation to take into consideration reasons given by the consent authority for the grant of the consent that is sought to be modified, this obligation is to take into consideration such reasons as have been given by the consent authority for the grant of the consent that is sought to be modified.

For the original Mount Pleasant Development Application, the consent authority (the then Minister for Urban Affairs and Planning) did not give a (detailed) statement of reasons for the grant of Development Consent DA 92/97.

However, it is noted that the then Minister's signed statement on page 1 of the original development consent instrument states as follows:

> *…The reasons for the imposition of the conditions are to:*
>
> *(i) minimise the adverse impact the development may cause through water and air pollution, noise and visual disturbance;*
>
> *(ii) provide for environmental monitoring and reporting; and*
>
> *(iii) set requirements for infrastructure provision.*

The consent authority should take these reasons for the imposition of conditions into consideration in determining the Modification.

It is also noted that the then Minister was advised by Commissioners of Inquiry for Environment and Planning (COI) in assessing the original proposed development.

The COI (1999) noted that the application would result in some adverse environmental impacts, including cumulative air quality and noise impacts, traffic and visual amenity effects in particular. However, the Commission noted that a range of ameliorative measures would be applied, and therefore was ultimately satisfied that the consent could be granted with appropriate environmental conditions, and that the Mount Pleasant Operation would have positive economic and social benefits to the Muswellbrook Shire and NSW (COI, 1999).

It is also noted that reasons for approving Modifications 1-6 have been set out in the relevant Department Assessment Reports provided to the consent authority, and that a detailed statement of reasons was given by the IPC on 28 August 2018 in respect of its decision to approve Modification 3 (DPE, 2018).

For Modification 3, the IPC found that the extension of the Mount Pleasant Operation mine life by six years (i.e. to 2026) would not change its core components (comprising ROM coal production, coal processing and waste rock production) and would result in the continuation of employment and wider state benefits including provision of royalties in a changed regional context since the original approval, in exchange for a smaller area of native vegetation disturbance, and an improved final landform (IPC, 2018).

For Modification 4, the Minister's delegate accepted that the proposed Modification would facilitate the relocation of the mine's approved infrastructure (i.e. Stage 1 rail infrastructure and Hunter River water supply pipeline) which was essential to the continuation of mining operations at both Mount Pleasant Operation and Bengalla Mine (DPE, 2019).

This Modification represents a continuation of socio-economic benefits associated with the Mount Pleasant Operation, which were cited by the COI (1999) in favour of the original proposed development and in subsequent IPC and Departmental documentation related to the approval of Modifications 1-6.

While the Modification would result in a continuation of environmental impacts for an additional six years, amenity impacts would generally be consistent with currently approved operations that are being effectively managed in accordance with existing environmental management conditions under Development Consent DA 92/97 (Section 6).

4.1.4 Evaluation under Section 4.15(1) of the Environmental Planning and Assessment Act 1979

In evaluating the Modification, the consent authority is required, pursuant to section 4.55(3), to take into consideration the matters referred to in section 4.15(1) of the EP&A Act as are of relevance to the development, which is the subject of the Modification. Section 4.15(1) states:

> ***(1) Matters for consideration—general***
>
> *In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application—*
>
> *(a) the provisions of—*
>
> *(i) any environmental planning instrument, and*
>
> *(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and*
>
> *(iii) any development control plan, and*
>
> *(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and*
>
> *(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),*
>
> *(v) (Repealed)*
>
> *that apply to the land to which the development application relates,*
>
> *(b) the significant likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,*

(c) the suitability of the site for the development,

(d) any submissions made in accordance with this Act or the regulations,

(e) the public interest.

This Modification Report has been prepared to address the matters in section 4.15(1) of the EP&A Act as are of relevance to the Modification, as follows:

- Consideration of the provisions of relevant environmental planning instruments is provided in Section 4.3 and Attachment 3.
- This Modification Report has been prepared in consideration of the relevant provisions of the EP&A Regulation.
- The existing Voluntary Planning Agreement with MSC under Development Consent DA 92/97 would continue to apply to the modified Mount Pleasant Operation.
- A description of the existing environment, an assessment of the potential environmental impacts associated with the Modification, and a description of the potential measures to avoid, mitigate, rehabilitate, remediate, monitor and/or offset the potential impacts of the Modification are described in Section 6 and Appendices A to K.
- The suitability of the site for the development has been assessed and determined previously in the context of Development Consent DA 92/97 and also separately in 2022 by the IPC in the context of SSD 10418 (Section 1.3). The suitability and assessment of the final landform as proposed for the Modification has been considered in Sections 3 and 7.
- This Modification Report will be placed on public exhibition and MACH will respond to any submissions made on the Modification through a Submissions Report.
- Consideration of whether, on evaluation, the Modification is considered to be in the public interest is provided in Section 7.

4.2 OTHER RELEVANT NSW LEGISLATION

In addition to the EP&A Act, the following NSW legislation is or may be relevant to the Mount Pleasant Operation, incorporating the Modification:

- *Biodiversity Conservation Act 2016* (BC Act);
- *Climate Change (Net Zero Future) Act 2023* (Net Zero Act);
- *Coal Mine Subsidence Compensation Act 2017*;
- *Conveyancing Act 1919*;
- *Crown Land Management Act 2016*;
- *Fisheries Management Act 1994* (FM Act);
- *Heritage Act 1977*;
- *Local Land Services Act 2013*;
- *Mining Act 1992*;
- *National Parks and Wildlife Act 1974* (NPW Act);
- *Protection of the Environment Operations Act 1997* (PoEO Act);
- *Roads Act 1993*;
- *Rural Fires Act 1997*;
- *Water Management Act 2000*;
- *Work Health and Safety Act 2011*; and
- *Work Health and Safety (Mines and Petroleum Sites) Act 2013.*

Relevant licences or approvals required under these Acts would continue to be obtained for the Mount Pleasant Operation over the life of the Modification.

Key NSW legislation of potential relevance to the Modification are discussed in further detail below.

Biodiversity Conservation Act 2016

In accordance with section 1.3 of the BC Act, the purpose of the BC Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ESD.

The BC Act generally provides the approach to be followed for assessing a development's impacts on threatened species and ecological communities.

More specifically, Part 7 of the BC Act provides for biodiversity assessment and approvals under the EP&A Act.

In this regard, clause 30 in the *Biodiversity Conservation (Savings and Transitional) Regulation 2017* (BC S&T Regulation) states:

> ***New Act applies to modification of planning approvals granted before commencement of new Act***
>
> *The new Act* [i.e. the BC Act] *applies to the modification of a planning approval even if the planning approval was granted before the commencement of the new Act (unless the application for the modification of the planning approval is a pending or interim planning application).*

In accordance with this clause, the BC Act applies to this Modification (noting that Development Consent DA 92/97 was granted before the commencement of the BC Act and that this Modification is not a "pending or interim planning application").

Clause 30A in the BC S&T Regulation relevantly provides for how the BC Act applies to the Modification. This clause states:

> *(1) The provisions of Division 4 of Part 7 of the new Act* [i.e. the BC Act] *apply to applications for the modification of a planning approval—*
>
> *(a) where the planning approval was granted before the commencement of the new Act, and*
>
> *(b) where the planning approval was granted on or after the commencement of the new Act, as a result of the determination of a pending or interim planning application.*
>
> *(2) For that purpose—*
>
> *(a) the provisions apply in relation to the original development as proposed to be modified, and*
>
> *(b) a biodiversity development assessment report is required to be submitted and taken into consideration if Division 4 of Part 7 of the new Act would have applied to the original development (as proposed to be modified) if planning approval had been granted after the commencement of the new Act, and*
>
> *(c) however a biodiversity development assessment report is not required to be submitted if the authority or person determining the application for modification (or determining the environmental assessment requirements for the application) is satisfied that the modification will not increase the impact on biodiversity values, and*
>
> *(d) the biodiversity development assessment report submitted with the application for modification—*
>
> *(i) is to take into account any measures already taken to avoid, minimise or offset the impact on biodiversity values in connection with the planning approval before the proposed modification, and*
>
> *(ii) is to take into account only the additional impact on biodiversity values resulting from the modification of the development and not those associated with the development as approved, and*
>
> *(e) if an application for the original development as proposed to be modified would have been required to be refused because of serious and irreversible impacts on biodiversity values, the application for modification is required to be refused.*

The Modification does not involve any additional surface disturbance beyond the already approved surface disturbance area depicted and described in Figure 3 in Appendix 2 to Development Consent DA 92/97.

Accordingly, MACH considers that the person responsible for determining the environmental assessment requirements for the Modification (and the consent authority responsible for determining the Modification) can be satisfied that the Modification "will not increase the impact on biodiversity values", as compared to the already approved development.

In this regard, the below Table 3 relevantly identifies why the Modification "will not increase the impact on biodiversity values" by reference to the specific biodiversity values set out in section 1.5 of the BC Act and clause 1.4 of the *Biodiversity Conservation Regulation 2017*.

Table 3
Biodiversity Values Consideration

Biodiversity Value	Modification Consideration
Section 1.5 of the Biodiversity Conversation Act 2016	
(a) vegetation integrity—being the degree to which the composition, structure and function of vegetation at a particular site and the surrounding landscape has been altered from a near natural state,	The Modification would not involve any disturbance of vegetation beyond the approved surface disturbance area depicted and described by Development Consent DA 92/97. Therefore, the Modification would not increase the impact on vegetation integrity.
(b) habitat suitability—being the degree to which the habitat needs of threatened species are present at a particular site,	The Modification would not involve any disturbance of vegetation that contributes to threatened species habitat beyond the approved surface disturbance area depicted and described by Development Consent DA 92/97. Therefore, the Modification would not increase the impact on habitat suitability.
(c) biodiversity values, or biodiversity-related values, prescribed by the regulations.	Refer below.
Clause 1.4 of the Biodiversity Conservation Regulation 2017	
(a) threatened species abundance—being the occurrence and abundance of threatened species or threatened ecological communities, or their habitat, at a particular site,	The Modification would not involve any impact to threatened species or threatened ecological communities, or their habitat, beyond the impact associated with the approved surface disturbance area depicted and described by Development Consent DA 92/97. Therefore, the Modification would not increase the impact on threatened species abundance.
(b) vegetation abundance—being the occurrence and abundance of vegetation at a particular site,	The Modification would not involve the disturbance of vegetation beyond the approved surface disturbance area depicted and described by Development Consent DA 92/97. Therefore, the Modification would not increase the impact on vegetation abundance.
(c) habitat connectivity—being the degree to which a particular site connects different areas of habitat of threatened species to facilitate the movement of those species across their range,	The Modification would not involve any impact to habitat connectivity beyond the impact associated with the approved surface disturbance area depicted and described by Development Consent DA 92/97. Therefore, the Modification would not increase the impact on habitat connectivity.
(d) threatened species movement—being the degree to which a particular site contributes to the movement of threatened species to maintain their lifecycle,	The Modification would not involve any impact to threatened species movement beyond the impact associated with the approved surface disturbance area depicted and described by Development Consent DA 92/97. Therefore, the Modification would not increase the impact on threatened species movement.
(e) flight path integrity—being the degree to which the flight paths of protected animals over a particular site are free from interference,	The Modification does not propose the construction of any new infrastructure at the Mount Pleasant Operation beyond that already approved. Therefore, the Modification would not increase the impact on flight path integrity.
(f) water sustainability—being the degree to which water quality, water bodies and hydrological processes sustain threatened species and threatened ecological communities at a particular site.	The water resources studies conducted for this Modification demonstrate that the Modification would not result in any new or additional impacts to surface water or groundwater resources that sustain threatened species and threatened ecological communities at the site compared to the approved Mount Pleasant Operation (Appendices C, D and J). Therefore, the Modification would not increase the impact on water sustainability.

For the reasons outlined in Table 3, and with reference to clause 30A(2)(c) of the BC S&T Regulation, no Biodiversity Development Assessment Report (BDAR) is required for the Modification Application as the Modification "will not increase the impact on biodiversity values".

The BC Act regime is further addressed in Attachment 3 (to the extent that it is relevant to the Modification).

Climate Change (Net Zero Future) Act 2023

The Net Zero Act sets out NSW' approach to climate change and legislates whole-of-government climate action.

The objects of the Net Zero Act are identified in section 4 of the Act as follows:

> *(a) to establish guiding principles for action to address climate change,*
>
> *(b) to set targets for the reduction in net greenhouse gas emissions in New South Wales until 2050,*
>
> *(c) to set an objective for New South Wales to be more resilient to a changing climate,*
>
> *(d) to establish the Net Zero Commission to independently monitor, review and report on progress in New South Wales towards the targets, the adaptation objective and other matters.*

Part 2 of the Net Zero Act sets out guiding principles (section 8), targets for reducing net greenhouse gas emissions in NSW (section 9), an adaptation objective (section 10) and a provision relating to achieving the 2050 net zero target (section 11).

The Net Zero Act sets progressive reduction targets for NSW' net greenhouse gas emissions as follows:

- 50% reduction on 2005 levels by 30 June 2030;
- 70% reduction on 2005 levels by 30 June 2035; and
- 'net zero' by 30 June 2050.

Consideration of the Net Zero Act NSW emission reduction targets and a comparison of these targets to the estimated greenhouse gas emissions of the Mount Pleasant Operation incorporating the Modification is presented in Section 6.15 and Appendix I.

MACH considers that the consent authority can be satisfied that the Modification and associated continuation of mining operations until 2032 is not inconsistent with NSW achieving its overall targets for reducing net greenhouse gas emissions in NSW.

Crown Land Management Act 2016

MACH has an existing compensation agreement under the *Mining Act 1992* for mining activities on relevant Crown Land within Mining Lease 1645. Two Crown Land parcels are located adjacent to Dorset Road.

Under sections 5.21 and 5.3 of the *Crown Land Management Act 2016*, a Crown Licence can authorise the use or occupation of Crown Land for various purposes. If required to support the Modification, MACH may obtain such licences.

Dams Safety Act 2015

The following Mount Pleasant Operation dams are declared dams under section 5 of the *Dams Safety Act 2015*:

- Mount Pleasant Environmental Dam 3 (ED3).
- Mount Pleasant MWD.
- Mount Pleasant Fines Emplacement Area (or tailings dam [TD]).

These storages would continue to be used for the Modification and operated in accordance with the relevant dam safety requirements imposed under the *Dams Safety Act 2015* regime.

It is also anticipated that some new water storage dams on-site would be declared dams under section 5 of the *Dams Safety Act 2015* (e.g. MWD2).

Bengalla Clean Water (CW) 1 and Bengalla Dirty Water (DW) 1 are Bengalla Mine dams located within the Mount Pleasant Operation Development Application Area. They are also declared dams under section 5 of the *Dams Safety Act 2015*.

Under section 48 of the *Dams Safety Act 2015*, the area of land surrounding, or in the vicinity of, a declared dam can be declared a notification area. Before a consent authority modifies a development consent for the carrying out of mining operations under the *Mining Act 1992* in a notification area, a consent authority must refer the modification application to Dams Safety NSW and take into consideration any matters that are raised by Dams Safety NSW in relation to the application within the prescribed period.

Provisional general arrangements (Section 3) show that mining activities are proposed in the vicinity of the Mount Pleasant MWD over the life of the Modification.

In addition, the approved Mount Pleasant Operation Controlled Release Dam (DW1) which is approved but not yet commissioned (Figure 3b) is located within the notification area of Bengalla Mine's existing controlled release dam.

Continued rehabilitation activities and the development of new infrastructure would also occur within the notification areas of declared dams over the life of the Modification.

The consent authority will therefore need to refer the application for this Modification to Dams Safety NSW and take into consideration any matters raised by Dams Safety NSW within the prescribed period.

Mining Act 1992

The objects of the *Mining Act 1992* are set out in section 3A of the Mining Act. Section 3A states:

> *The objects of this Act are to encourage and facilitate the discovery and development of mineral resources in New South Wales, having regard to the need to encourage ecologically sustainable development, and in particular—*
>
> *(a) to recognise and foster the significant social and economic benefits to New South Wales that result from the efficient development of mineral resources, and*
>
> *(b) to provide an integrated framework for the effective regulation of authorisations for prospecting and mining operations, and*
>
> *(c) to provide a framework for compensation to landholders for loss or damage resulting from such operations, and*
>
> *(d) to ensure an appropriate return to the State from mineral resources, and*
>
> *(e) to require the payment of security to provide for the rehabilitation of mine sites, and*
>
> *(f) to ensure effective rehabilitation of disturbed land and water, and*
>
> *(g) to ensure mineral resources are identified and developed in ways that minimise impacts on the environment.*

MACH considers that the Modification is consistent with these objects of the *Mining Act 1992*, including in particular because the Modification would facilitate the continued efficient development of a valuable coal resource until 31 December 2032.

Under the Modification, mining operations at the Mount Pleasant Operation would continue to occur wholly within existing Mining Leases (Figures 8 to 11) and in accordance with the conditions of those Mining Leases.

In this regard, the Mount Pleasant Operation would be carried out in accordance with a Rehabilitation Management Plan prepared pursuant to the standard conditions imposed on the Mining Leases.

There would be no need for the amendment or variation of the existing authorities or the issue of new authorities under the *Mining Act 1992.*

Section 380AA of the Mining Act specifies restrictions on planning applications for coal mining, relevantly including:

> *(1) An application for development consent, or for the modification of a development consent, to mine for coal cannot be made or determined unless (at the time it is made or determined) the applicant is the holder for an authority that is in force in respect of coal and the land where mining for coal is proposed to be carried out, or the applicant has the written consent of the holder of such an authority to make an application.*
>
> *…*

MACH Energy Australia Pty Ltd is the applicant for the Modification (Section 1.1). Consent of J.C.D. Australia Pty Ltd (the other tenement holder) as required under section 380AA is provided in Attachment 4.

In relation to the existing Mining Leases for the Mount Pleasant Operation, it is noted that these Mining Leases are subject to the standard conditions in Part 2 of Schedule 8A to the *Mining Regulation 2016*, and that clause 20 (within Part 2) states:

> ***20 Additional requirements—application for or to modify development consent***
>
> *(1) The holder of a mining lease must give written notice to the Secretary within 10 days after—*
>
> *(a) making an application for development consent that relates to the mining area, or*

> *(b) making an application for modification of a development consent—*
>
> *(i) under the Environmental Planning and Assessment Act 1979, section 4.55(2), and*
>
> *(ii) that proposes to modify a condition of the consent that relates to rehabilitation of the mining area in a way that may affect an obligation under the mining lease relating to rehabilitation of the mining area.*
>
> *…*

As the Modification would have implications for the rehabilitation of the relevant mining area and to ensure that the NSW Resources Regulator is promptly notified of this Modification application, to the extent it is required, the holders of the existing Mining Leases will give written notice of this application within 10 days of it being made.

National Parks and Wildlife Act 1974

The NPW Act contains provisions for the protection and management of national parks, historic sites, nature reserves and Aboriginal heritage in NSW.

Part 6 of the NPW Act provides specific protection for Aboriginal objects and declared Aboriginal places. Division 2 in Part 6 of the NPW Act provides for Aboriginal Heritage Impact Permits (AHIPs), which relevantly authorise harm to Aboriginal objects subject to the conditions of the permit.

Three separate AHIPs are currently held for the purpose of carrying out the Mount Pleasant Operation, being AHIP #C0004783, #C0002053 and #C0002092. If required, MACH would seek any variations to these existing AHIPs which are necessary for the Modification and apply for any new AHIPs required to allow for the proposed continuation of mining activities to 31 December 2032 (Section 6.10).

Further, cultural heritage impacts would continue to be appropriately managed in accordance with the Aboriginal Heritage Management Plan for the Mount Pleasant Operation.

MACH considers that the consent authority can be satisfied that the cultural heritage impacts associated with the Modification would be appropriately managed in accordance with the AHIP requirements and relevant Development Consent DA 92/97 requirements.

Protection of the Environment Operations Act 1997

The PoEO Act and the *Protection of the Environment Operations (General) Regulation 2022* set out the general obligations for environmental regulation in NSW.

The approved Mount Pleasant Operation currently operates under EPL 20850, granted under the PoEO Act.

EPL 20850 contains various environmental management conditions, including conditions that relate to emission and discharge limits, operational shutdown requirements under specific combinations of environmental conditions, environmental monitoring, and reporting.

If approved, the Modification may require some minor variations to EPL 20850. Otherwise, the Mount Pleasant Operation would continue to be carried out in accordance with EPL 20850 and other relevant requirements of the PoEO Act regime.

Roads Act 1993

If the Modification is approved, MACH would apply for any necessary consents under section 138 of the *Roads Act 1993*.

The approved Mount Pleasant Operation includes the establishment of new sections of public road and the closure of the eastern portion of Castlerock Road (and other associated local minor roads within the mining footprint).

MACH and MSC would also address relevant requirements of the *Roads Act 1993* and *Conveyancing Act 1919* with respect to dedication of new sections of public road and public road closures during the life of the Modification.

Water Management Act 2000

The *Water Management Act 2000* contains provisions for the licensing, allocation, capture and use of water resources.

Under the *Water Management Act 2000*, water sharing plans establish rules for sharing water between different users and between the various environmental sources (namely rivers or aquifers).

Appendices C and D and Sections 6.6 and 6.7 include consideration of water licensing requirements under the *Water Management Act 2000*. These assessments describe the water access licences required for the Modification in each relevant water source that are already in place at the Mount Pleasant Operation.

In addition to relying on licences to account for the licensable take of water associated with the Mount Pleasant Operation, MACH would apply for any approvals under the *Water Management Act 2000* which may be required for the Modification.

MACH considers that the consent authority can be satisfied that the overall water resources impacts of carrying out the existing operations to date and the proposed operations of the Mount Pleasant Operation incorporating the Modification are acceptable and can continue to be effectively managed.

4.3 ENVIRONMENTAL PLANNING INSTRUMENTS

The detailed statutory compliance reconciliation table in Attachment 3 addresses various provisions in environmental planning instruments which are relevant or potentially relevant to the Modification.

This section addresses relevant provisions in the applicable Local Environmental Plan which relate to the permissibility of development, the aims of the applicable Local Environmental Plan and the objectives of land use zones.

4.3.1 Permissibility

At the time Development Consent DA 92/97 was originally granted, the proposed mining development was permissible with development consent under the EP&A Act.

The modified Mount Pleasant Operation Development Application area is within the *Muswellbrook Local Environmental Plan 2009* (Muswellbrook LEP) area.

The land on which the Modification is located is primarily zoned under the Muswellbrook LEP as a combination of Zones RU1 (Primary Production), and C3 (Environmental Management).

However, existing components of the Mount Pleasant Operation that would continue to operate over the life of the Modification also include the Hunter River water pipeline and Stage 2 rail spur, which are also located on small areas of the W1 (Natural Waterways) and SP2 (Infrastructure - Rail Infrastructure) zonings, respectively.

Consistent with the approved Mount Pleasant Operation, the Modification development within the SP2 zoned land would comprise rail infrastructure. In this regard, development for the purpose of rail infrastructure on this land is permitted with consent under zone SP2 in the Muswellbrook LEP.

The Muswellbrook LEP defines “mining” as follows:

> *…mining means mining carried out under the Mining Act 1992 or the recovery of minerals under the Offshore Minerals Act 1999, and includes:*
>
> - *the construction, operation and decommissioning of associated works, and*
> - *the rehabilitation of land affected by mining.*

The Muswellbrook LEP also defines "open cut mining" as follows:

> ***open cut mining** means mining carried out on, and by excavating, the earth’s surface, but does not include underground mining.*

Within Zone RU1, the Muswellbrook LEP relevantly provides that development for the purpose of "open cut mining" is permissible with development consent.

Within Zones C3, W1 and SP2, the Muswellbrook LEP provides that development for the purpose of mining or open cut mining is prohibited.

However, clause 2.5 of the *State Environmental Planning Policy (Resources and Energy) 2021* (Resources and Energy SEPP) provides that the policy applies to the State of NSW, and clause 2.6(1) of the SEPP relevantly gives it primacy where there is any inconsistency between the provisions in the SEPP and the provisions in the Muswellbrook LEP.

Clause 2.9(1) of the Resources and Energy SEPP provides that certain mining development is permissible with development consent. Clause 2.9(1)(b) states:

> *(1) **Mining** Development for any of the following purposes may be carried out only with development consent—*
>
> *…*
>
> *(b) mining carried out—*
>
> *(i) on land where development for the purposes of agriculture or industry may be carried out (with or without development consent), or*
>
> *(ii) on land that is, immediately before the commencement of this section, the subject of a mining lease under the Mining Act 1992 or a mining licence under the Offshore Minerals Act 1999,*

In this regard, as "Extensive agriculture" (which is a type of "agriculture") is permissible under the Muswellbrook LEP without consent in Zone RU1 (Primary Production) and Zone C3 (Environmental Management), clause 2.9(1)(b) of the Resource and Energy SEPP has the effect that development for the purpose of mining carried out on this land can be carried out with development consent.

Further, as the development to be carried out on land subject to the W1 and SP2 zones is:

1. development for the purpose of mining; and
2. that purpose (i.e. the mining) is to be carried out on land where development for the purposes of agriculture or industry may be carried out (with or without development consent),

   clause 2.9(1)(b) of the Resources and Energy SEPP also has the effect that the development on this W1 and SP2 land can be carried out with development consent.

The practical effect of clause 2.6(1) of the Resources and Energy SEPP is that where there is any inconsistency between the provisions of the Resources and Energy SEPP and those contained in the Muswellbrook LEP, the provisions of the Resources and Energy SEPP will prevail.

To the extent that the provisions in the Muswellbrook LEP and Resources and Energy SEPP relating to the permissibility of proposed development are relevant to determining this proposed modification of development which is already authorised by Development Consent DA 92/97, MACH considers that the consent authority can be satisfied that the Modification is consistent with these provisions.

4.3.2 Local Environmental Plan Aims

Clause 1.2 of Part 1 of the Muswellbrook LEP outlines the aims of the LEP. The aims which are of potential relevance to the Modification include the following:

> *(a) to encourage the proper management of the natural and human-made resources of Muswellbrook by protecting, enhancing or conserving –*
>
> *(i) productive agricultural land, and*
>
> *(ii) timber, minerals, soils, water and other natural resources, and*
>
> *(iii) areas of significance for nature conservation, and*
>
> *…*
>
> *(v) places and buildings of archaeological or heritage significance,*
>
> *…*
>
> *(c) to promote ecologically sustainable urban and rural development,*
>
> *…*
>
> *(f) to protect and conserve –*
>
> *(i) soil stability by controlling development in accordance with land capability, and*
>
> *(ii) remnant native vegetation, and*
>
> *(iii) water resources, water quality and wetland areas, natural flow patterns and their catchment and buffer areas,*
>
> *(g) to provide a secure future for agriculture by expanding Muswellbrook's economic base and minimising the loss or fragmentation of productive agricultural land,*
>
> *(h) to allow flexibility in the planning framework so as to encourage orderly, economic and equitable development while safeguarding the community's interests and residential amenity, and to achieve the objectives of each zone mentioned in Part 2 of this Plan.*

To the extent that the aims of the Muswellbrook LEP are relevant to determining the Modification, the Modification is considered to be consistent with these aims. In this regard, it is noted that:

- the Modification would not directly impact any NSW Government mapped biophysical strategic agricultural land (BSAL) that is not already approved to be impacted by the existing Mount Pleasant Operation;
- the Modification would provide additional economic certainty to the local community, employees, contractors and MACH that the Mount Pleasant Operation would continue to operate for an additional six years (i.e. to 2032);
- the Modification would involve the development of a valuable mineral resource (coal) in a manner that would minimise potential impacts on the environment (including soils, groundwater, remnant vegetation and other biodiversity values) (Sections 6.8 and 6.9);

- the Modification would involve management measures to address direct impacts on known places, items and structures of archaeological or heritage significance (Sections 6.10 and 6.11); and
- the conceptual final landform of the Mount Pleasant Operation incorporating the Modification would include areas for potential agricultural use (including the potential for high-intensity agriculture) in combination with large areas of native vegetation to maximise soil stability on steeper slopes (Section 3.12).

4.3.3 Zone Objectives

To the extent that land use zone objectives set out in the Muswellbrook LEP are relevant to determining the Modification, the Modification is considered to be consistent with the objectives for the two main land use zones (Zones RU1 or C3). In this regard, it is noted that:

- The Modification would involve the development of a valuable natural resource (coal).
- The Modification is located off the Hunter River floodplain and would not adversely affect continued agricultural production on the floodplain.
- The Mount Pleasant Operation site is considered suitable for ongoing mining use, and incorporates measures to achieve compatibility with existing, approved and likely preferred land uses (Section 6).
- The Modification would not result in the fragmentation or alienation of resource lands and would maintain recovery of coal within the existing Mining Leases held for the approved Mount Pleasant Operation.
- The Modification incorporates measures to avoid and mitigate potential impacts on rural landscape character, including the development and design of the integrated waste rock emplacement, progressive rehabilitation and revegetation of outer slopes to woodland vegetation (Section 3.12).
- The Modification would incorporate measures to avoid and mitigate potential impacts on groundwater and surface water systems, including water quality (Sections 6.6 and 6.7 and Appendices C and D).
- The Modification would not introduce any new types of potential impacts on biodiversity values (Table 3). Existing mitigation, management and monitoring measures established under the approved Biodiversity Management Plan would continue under the Modification and includes a range of measures for the protection, management and restoration of trees and vegetation and other ecological values.
- The Modification incorporates restoration of native vegetation and re-establishment of wooded hilltops (Sections 6.8, 6.14 and Appendix F).

4.4 COMMONWEALTH LEGISLATION

4.4.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act defines proposals that are likely to have a significant impact on a matter of national environmental significance as a “controlled action”

Matters of national environmental significance under Part 3 of the EPBC Act include:

- world heritage properties;
- national heritage places;
- wetlands listed under the Ramsar Convention;
- listed threatened species and communities;
- listed migratory species;
- nuclear actions;
- the Commonwealth marine environment;
- the Great Barrier Reef Marine Park; and
- water resources, in relation to coal seam gas development and large coal mining developments.

Proposals that are, or may be, a controlled action are required to be referred to the Commonwealth Minister to determine whether the proposal requires assessment and approval under the EPBC Act.

With respect to the proposed Modification, MACH already has an EPBC Act approval (EPBC 2011/5795) that extends to 2040 and addresses the mining and supporting infrastructure footprints associated with the approved Mount Pleasant Operation and Mount Pleasant Optimisation Project.

In addition, an additional action associated with the Mount Pleasant Optimisation Project (and inclusive of the increase in production to 21 Mtpa ROM and extension to 2048) was referred to the Commonwealth Minister in July 2020 (EPBC 2020/8735).

A delegate of the Commonwealth Minister determined on 26 August 2020 that the proposed action is a "controlled action" that therefore required approval under the EPBC Act.

The EPBC 2020/8735 action related to the Optimisation Project was approved with conditions by a delegate of the Commonwealth Minister on 24 September 2024.

As the key components of the Modification (i.e. an extension of the Mount Pleasant Operation mine life to 2032 and a minor increase in ROM coal production) are already addressed by two separate EPBC Act approvals (i.e. EPBC 2011/5795 and EPBC 2020/8735), no additional referral of the Modification is required under the EPBC Act.

4.4.2 National Greenhouse and Energy Reporting Act 2007

The Commonwealth *National Greenhouse and Energy Reporting Act 2007* (NGER Act) introduced a single national reporting framework for the reporting and dissemination of corporations' greenhouse gas emissions and energy use information.

Section 3 of the NGER Act defines the objects of the Act:

> *(1) The first object of this Act is to introduce a single national reporting framework for the reporting and dissemination of information related to greenhouse gas emissions, greenhouse gas projects, energy consumption and energy production of corporations to:*
>
> *(a) inform government policy formulation and the Australian public; and*
>
> *(b) meet Australia's international reporting obligations; and*
>
> *(c) assist Commonwealth, State and Territory government programs and activities; and*
>
> *(d) avoid the duplication of similar reporting requirements in the States and Territories.*
>
> *(2) The second object of this Act is to contribute to the achievement of Australia's greenhouse gas emissions reduction targets by ensuring that each of the following outcomes (the safeguard outcomes) are achieved:*
>
> *(a) net covered emissions of greenhouse gases from the operation of a designated large facility do not exceed the baseline applicable to the facility;*
>
> *(b) total net safeguard emissions for all of the financial years between 1 July 2020 and 30 June 2030 do not exceed a total of 1,233 million tonnes of carbon dioxide equivalence;*
>
> *(c) net safeguard emissions decline to:*
>
> *(i) no more than 100 million tonnes of carbon dioxide equivalence for the financial year beginning on 1 July 2029; and*
>
> *(ii) zero for any financial year to begin after 30 June 2049;*
>
> *(d) the 5-year rolling average safeguard emissions for each financial year that begins after 30 June 2024 are lower than the past 5-year rolling average safeguard emissions for that financial year;*
>
> *(e) the responsible emitter for each designated large facility has a material incentive to invest in reducing covered emissions from the operation of the facility;*
>
> *(f) the competitiveness of trade-exposed industries is appropriately supported as Australia and its regions seize the opportunities of the move to a global net zero economy.*

The NGER Act makes registration and reporting mandatory for corporations whose energy production, energy use or greenhouse gas emissions meet specified thresholds. MACH Australia Holdings Pty Ltd reports both Group and Facility greenhouse gas emissions under the NGER Act, noting that the existing Mount Pleasant Operation (MACH Energy) triggers the NGER Act reporting threshold for facilities. This would continue to be the case for the Modification (Section 6.15).

Additionally, the Safeguard Mechanism (underpinned by the Commonwealth *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015*) was established through the NGER Act.

The Mount Pleasant Operation is a facility that is subject to the Safeguard Mechanism, as it emits more than 100,000 tonnes of carbon dioxide equivalent (t CO_2-e) covered emissions per year. The facility is subject to a baseline for emissions. Where the baseline is exceeded in a given year, it is necessary for the responsible emitter to manage the excess emissions through a prescribed means (for example, purchase and surrender of Australian Carbon Credit Units [ACCUs] or Safeguard Mechanism Credit Units).

Further discussion of greenhouse gas emission policy and guidance materials, and consideration of application of the Safeguard Mechanism to the Modification is provided in Section 6.15 and Appendix I.

MACH would continue to report relevant energy use and greenhouse gas emissions associated with its activities, and manage any exceedances of the baseline for the Mount Pleasant Operation facility in a given year, over the life of the Modification in accordance with the NGER Act.

4.4.3 Climate Change Act 2022

The Commonwealth *Climate Change Act 2022* (Climate Act) outlines Australia's greenhouse gas emissions reduction targets. Section 10(1) of the Climate Act states:

> *(1) Australia's greenhouse gas emissions reduction targets are as follows:*
>
> *(a) reducing Australia's net greenhouse gas emissions to 43% below 2005 levels by 2030:*
>
> *…*
>
> *(b) reducing Australia's net greenhouse gas emissions to zero by 2050.*

Section 3 of the Climate Act defines the objects of the Act:

> *(aa) to advance an effective and progressive response to the urgent threat of climate change drawing on the best available scientific knowledge; and*
>
> *(a) to set out Australia's greenhouse gas emissions reduction targets which contribute to the global goals of:*
>
> *(i) holding the increase in the global average temperature to well below 2°C above pre-industrial levels; and*
>
> *(ii) pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels; and*
>
> *(b) to promote accountability and ambition by requiring the Minister to:*
>
> *(i) prepare annual climate change statements; and*
>
> *(ii) cause copies of those statements to be tabled in each House of the Parliament; and*
>
> *(c) to ensure that independent advice from the Climate Change Authority informs:*
>
> *(i) the preparation of annual climate change statements; and*
>
> *(ii) the greenhouse gas emissions reduction targets to be included in a new or adjusted nationally determined contribution.*

The objects of the Climate Act are considered where relevant in Section 6.15 and Appendix I.

4.4.4 Safeguard Mechanism Reforms

The *Safeguard Mechanism (Crediting) Amendment Act 2023* received royal assent in April 2023, and amended relevant Acts (including the NGER Act) to alter the Safeguard Mechanism to facilitate progressive declines in greenhouse gas emissions, consistent with the objects of the Climate Act.

The reforms of the Safeguard Mechanism apply a declined rate to facilities' baselines so that they are reduced gradually on a trajectory consistent with achieving Australia's net emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050 (Department of Climate Change, Energy, the Environment and Water [DCCEEW], 2023). The reformed Safeguard Mechanism came into effect on 1 July 2023.

Greenhouse gas emissions over the life of the Modification are further addressed in Section 6.15 and Appendix I, inclusive of potential trials of alternative low emission technologies as they become feasibly available.

4.4.5 Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSIHP Act) was introduced to ensure the preservation and protection from injury or desecration of areas or objects in Australia and in Australian waters, being areas and objects that are of particular significance to Aboriginal people in accordance with Aboriginal tradition.

The Minister for the Environment and Water, responsible for the ATSIHP Act, has received an application pursuant to section 10 of the ATSIHP Act of relevance to the Mount Pleasant Operation ('the section 10 application'). The section 10 application seeks long-term preservation and protection of a claimed significant Aboriginal area being the areas known as the Mount Pleasant Operation and The Pocket, near Muswellbrook.

Section 10 of the ATSIHP Act provides the following:

> *(1) Where the Minister:*
>
> *(a) receives an application made orally or in writing by or on behalf of an Aboriginal or a group of Aboriginals seeking the preservation or protection of a specified area from injury or desecration;*
>
> *(b) is satisfied:*
>
> *(i) that the area is a significant Aboriginal area; and*
>
> *(ii) that it is under threat of injury or desecration;*
>
> *(c) has received a report under subsection (4) in relation to the area from a person nominated by him or her and has considered the report and any representations attached to the report; and*
>
> *(d) has considered such other matters as he or she thinks relevant;*
>
> *he or she may, by legislative instrument, make a declaration in relation to the area.*

The specified area outlined in the section 10 application overlies the Mount Pleasant Operation Development Application area, as well as areas of the Mt Arthur Coal Mine and Bengalla Mine (Plate 18).

MACH opposes the making of any declaration in relation to the section 10 application and the Minister for the Environment and Water is currently in the process of reviewing relevant documentation to inform a decision in response to the section 10 application.

As stated above, MACH considers that the consent authority can be satisfied that the cultural heritage impacts associated with the Modification would be appropriately managed in accordance with the AHIP requirements and relevant Development Consent DA 92/97 requirements.

Plate 18 – View from Mount Pleasant Operation Across the Hunter River Floodplain to Mt Arthur

5 ENGAGEMENT

MACH is committed to continuing open and constructive dialogue with the local community and stakeholders.

Contemporary and targeted consultation has been conducted with relevant government agencies, neighbouring landholders and the community during the preparation of this Modification Report. A summary of this consultation is provided below.

It is anticipated that consultation will continue during the assessment of the Modification by the NSW Government.

5.1 STATE GOVERNMENT AGENCIES

MACH consults with relevant State Government agencies on a regular basis in relation to the approved Mount Pleasant Operation and activities on-site. This has included consultation on the environmental management system and ongoing environmental performance.

5.1.1 Department of Planning, Housing and Infrastructure

Resource Assessments

A meeting was held with representatives of the DPHI on 8 October 2025 to provide an overview of the proposed Modification, discuss environmental assessment requirements and provisional timing for the lodgement of the Modification application. A separate meeting was also held on 16 October 2025 to discuss the scope of the environmental assessments.

MACH will continue to consult with the DPHI throughout the Modification assessment process to respond to any issues raised during the Modification public exhibition process.

5.1.2 Environment Protection Authority

MACH has regularly been in contact with representatives of the EPA since 2016 in regard to the grant (and subsequent variations) of the EPL 20850 for the Mount Pleasant Operation and associated environmental monitoring.

On 1 December 2025, MACH provided an overview of the Modification and discussed environmental assessment requirements, the status of key studies and provisional timing for the lodgement of the Modification application.

EPA had no comments regarding the Modification.

5.1.3 NSW Resources

Industry Advisory and Mining Concierge

On 27 November 2025, MACH provided an overview of the Modification and discussed environmental assessment requirements, the status of key studies and provisional timing for the lodgement of the Modification application.

MACH also met with the Mine Development Panel under the Department of Primary Industries and Regional Development – NSW Resources on 4 December 2025.

At the time of writing, NSW Resources has not requested any further information regarding the Modification.

NSW Resources Regulator

MACH has developed a Rehabilitation Management Plan for the Mount Pleasant Operation, including approved Rehabilitation Objectives and Final Landform and Rehabilitation Plan, in consultation with the NSW Resources Regulator. MACH also regularly participates in Targeted Assessment Programs with the NSW Resources Regulator.

MACH consulted with the NSW Resources Regulator on the Modification through the rehabilitation and securities panel. As part of the consultation, MACH provided information on the landform design, proposed final voids and land uses and rehabilitation methodology. No material concerns regarding the Modification were raised by the NSW Resources Regulator as part of this consultation.

5.1.4 Department of Climate Change, Energy, the Environment and Water

Water Group

On 7 November 2025, MACH provided an overview of the Modification and discussed environmental assessment requirements, the status of key studies and provisional timing for the lodgement of the Modification application.

DCCEEW – Water Group did not request any further information regarding the Modification.

Other State Government Agencies

MACH consulted with the following regulatory authorities, providing an overview description of the Modification and proposed scope of environmental assessment:

- NSW Crown Lands; and
- Transport for NSW.

MACH offered further briefings to the above agencies to provide further information on the Modification if required.

At the time of writing, none of these NSW Government agencies had requested any further information regarding the Modification.

5.2 LOCAL GOVERNMENT AGENCIES

The Mount Pleasant Operation is wholly located within the Muswellbrook LGA. The Mount Pleasant Operation is adjacent to the Upper Hunter LGA.

5.2.1 Muswellbrook Shire Council

MACH regularly consults with the MSC in relation to mine development, workforce, infrastructure and services to the community.

The proposed Modification was discussed with key staff of MSC during the SIA consultation process in October 2025.

A meeting with representatives of MSC was conducted in November 2025 to provide an update on the Modification, draft findings of specialist assessments and provisional timing for the lodgement of the Modification application.

MACH will continue to consult with MSC throughout the Modification assessment process to respond to any issues or concerns raised during the Modification public exhibition process.

5.2.2 Upper Hunter Shire Council

MACH regularly consults with the Upper Hunter Shire Council (UHSC) regarding the status of the Mount Pleasant Operation.

5.3 COMMUNITY ENGAGEMENT

MACH maintains open lines of communication with the community through a number of community initiatives and local involvement, including, but not limited to:

- engagement with the Mount Pleasant Operation Community Consultative Committee (CCC), operated in accordance with the *Community consultative committee guideline* (DPE, 2023a);
- maintenance of a website (https://machenergyaustralia.com.au/) for the general public to keep up to date with MACH's activities and the status of the Mount Pleasant Operation;
- maintenance of points of contact for the community to ask specific questions or provide feedback, including a 24/7 Community Hotline, a Community Blasting Hotline, a dedicated community call line for general enquiries, an email address and a media contact point;
- regular contact with local community groups through MACH's active support of groups through sponsorships and donations; and
- involvement and partnerships with local and regional contractors and suppliers.

In addition, MACH undertook the following specific consultation activities for this Modification:

- distribution of regular Mount Pleasant Operation community newsletters to local residents and other stakeholders providing the background to the Modification and updates on its status (Plate 19);
- face-to-face meetings with directly affected landholders and lessees, where offers to meet were accepted;
- briefing of the Mount Pleasant Operation CCC in September 2025 and December 2025;
- direct consultation with representatives of the Aboriginal community; and
- consultation with local community groups.

Consultation completed with the Aboriginal community and as part of the SIA process are described in Sections 5.4 and 5.5, respectively.

5.4 ABORIGINAL COMMUNITY

MACH engages with the local Aboriginal community through a number of mechanisms, including:

- consultation with Aboriginal parties with a registered interest at the Mount Pleasant Operation in accordance with the Aboriginal Heritage Management Plan, including an annual meeting with Registered Aboriginal Parties (RAPs) and involvement in surveys and salvage activities on-site;
- involvement in the Aboriginal Cultural Development Fund (ACDF) (discussed further below); and
- engagement with local suppliers with strong connections to the Aboriginal community.

Specific consultation for the Modification was undertaken with the RAPs at the annual meeting held in December 2025.

Aboriginal Community Development Fund

MACH oversees commitments relating to the ACDF. Representatives of MACH have formed part of the ACDF committee since the acquisition of the Mount Pleasant Operation. The ACDF was a community benefit specified in the Native Title Agreement made with the Wonnarua[19] People in 2005.

Established in 2006, the ACDF had a starting fund of $500,000, which is indexed against Consumer Price Index each year. The ACDF has invested more than $4 million into projects that benefit the Upper Hunter Valley Aboriginal communities since its commencement in 2006.

The ACDF seeks to support partnerships that target issues, needs and opportunities which are priorities for local Aboriginal communities in areas such as health, economic development, cultural and community development and education.

Plate 19 – Mount Pleasant Operation Recent Community Newsletters

[19] It is understood that both "Wonnarua" and "Wanaruah" have been used to describe population groups in different contexts. The spelling variations can be attributed to oral histories and limited written documentation that identifies traditional population groups and sub-communities. The Wanaruah language group was reportedly the largest in the region pre-European settlement.

5.5 SOCIAL IMPACT ASSESSMENT

MACH and Just Add Lime (JAL) undertook consultation activities in support of the SIA for the Modification (Appendix G) in addition to the broader consultation activities conducted by MACH.

Consultation in support of the SIA included:

- meetings with MSC and Wanaruah Local Aboriginal Land Council (LALC);
- meetings with neighbouring residents, Aboriginal stakeholders, native title holders, community and environmental groups, service providers, industry groups and local businesses and suppliers;
- meetings with representatives of DPHI; and
- meetings with Mount Pleasant Operation CCC representatives.

Further detail on the SIA consultation activities is provided in Section 6.13 and Appendix G.

5.6 FEEDBACK RECEIVED DURING COMMUNITY ENGAGEMENT

Many local stakeholders consulted as part of the Modification expressed significant concern about the implications of the Mount Pleasant Operation closing in December 2026 in the absence of the Modification and/or the Mount Pleasant Optimisation Project (Section 1.3).

With the upcoming planned closure of the Mt Arthur Coal Mine and Mangoola Coal, many stakeholders anticipated that continued and expanded operations at the Mount Pleasant Operation as a result of the Mount Pleasant Optimisation Project would provide some buffer to the impacts of Mt Arthur Coal Mine and Mangoola Coal closure, especially for employees and local businesses (Appendix G).

Without certainty over the future of the Mount Pleasant Operation, stakeholders expressed fear and insecurity about future individual, family, and community ways of life (Appendix G).

Key concerns associated with the Modification were associated with a continuation of cumulative impacts with other mining operations on local amenity, primarily air quality and noise (Sections 6.4 and 6.5). Cumulative interactions with renewable energy developments, particularly in relation to road transport and housing availability was also raised (Sections 6.12 and 6.13).

5.7 FURTHER ENGAGEMENT

Key MACH personnel will remain approachable and available for consultation to allow for direct consideration of stakeholder feedback throughout the Modification assessment process.

MACH will continue to provide updates through existing mechanisms, such as the CCC and regular community newsletters.

MACH will also consult with State government agencies, as required, to discuss and resolve any concerns regarding assessment methodology or the application of management measures.

6 ASSESSMENT OF IMPACTS

6.1 IDENTIFICATION OF KEY ISSUES

6.1.1 Environmental Risk Assessment

An Environmental Risk Assessment (ERA) has been undertaken to identify key environmental issues for further assessment in this Modification Report. The ERA workshop was conducted in March 2024 and reviewed in November 2025, and was facilitated by a risk assessment specialist (Risk Management Intercontinental Pty Ltd, 2025) (Appendix K).

Participants in the ERA workshop included MACH representatives and a range of environmental technical specialists.

Key potential environmental issues identified during the ERA workshop (Appendix K) were categorised into the following aspects:

- air quality, noise and blasting;
- groundwater;
- surface water;
- biodiversity;
- heritage (including Aboriginal cultural heritage);
- health;
- land use;
- social and economic;
- rehabilitation and closure; and
- other.

The risks associated with the potential environmental issues were ranked in accordance with the framework detailed in Australian/New Zealand Standard (AS/NZS) International Organization for Standardization (ISO) 31000:2018 *Risk Management - Guidelines*.

In the ERA, the most significant off-site environmental risks identified for the Modification were the following (Appendix K):

- air quality, noise and blasting; and
- surface water.

With the implementation of the proposed risk treatment measures, all of the potential issues identified were ranked within the 'Medium – As Low As Reasonably Practicable' or 'Low-Tolerable' range by the risk assessment team (Appendix K).

No extreme residual risks were identified. One high residual risk was identified relating to potential dam failure, and such a risk will always be classified as a high consequence, low likelihood risk due to the inherent nature of the risk (Appendix K).

Environmental mitigation (i.e. risk treatment) measures to be implemented for the Modification are described where relevant in the subsections below and in the supporting technical assessments (i.e. Appendices A to K).

6.1.2 Assessment Context for Modification Land Disturbance Activities

It is anticipated that the Mount Pleasant Operation would continue to operate for at least the originally approved 21 year period of mining. MACH has, however, limited the currently proposed extension of the permitted period of mining operations from 2026 to 2032 in this Modification (Section 3.2).

The Modification does not involve any additional surface disturbance beyond the already approved surface disturbance area depicted and described in Figure 3 in Appendix 2 to Development Consent DA 92/97. The notes to Condition 2, Schedule 2 of Development Consent DA 92/97 confirm that MACH may extend the period of permitted mining operations via a modification to facilitate ongoing approved surface development in this area (Section 3.2).

Notwithstanding, in this Modification Report, MACH has conservatively considered the potential impacts of the Mount Pleasant Operation continuing to 2032, including a description of potential impacts that would arise as a result of land disturbance within the approved surface disturbance plan/area[20].

Where relevant, reference in the following sub-sections is therefore made to potential impacts that would arise from Mount Pleasant Operation land disturbance activities continuing up until the end of 2032 within the approved surface disturbance plan/area.

[20] Refer to, amongst other things, Figure 3 in Appendix 2 of DA 92/97.

6.2 CLIMATE

Long-term meteorological data for the region are available from nearby Commonwealth Bureau of Meteorology (BoM) meteorological stations, including various stations located in Muswellbrook, Scone, Aberdeen and Jerrys Plains.

Short-term local meteorological data (from December 2016 onwards) are also available from Mount Pleasant Operation weather station (M-WS4), which is operated in accordance with Development Consent DA 92/97 and EPL 20850. This station monitors a number of meteorological parameters, including temperature, humidity, rainfall, wind speed and wind direction.

A brief summary of key meteorological data in the vicinity of the Mount Pleasant Operation is provided below. Further discussion of relevant climatic data for assessment purposes is provided in Appendices A, B, C and D.

Rainfall and Evaporation

As described in the Surface Water Assessment (ATC Williams, 2025) (Appendix D), the long-term average annual rainfall at the Mount Pleasant Operation is approximately 612 millimetres, with the driest months being May, August and September and the wettest month typically being January.

When compared to long-term average rainfall, the rate of evaporation exceeds rainfall on an annual average basis, as well as for all months (ATC Williams, 2025).

Wind Direction and Speed

As part of the Air Quality Impact Assessment (Todoroski Air Sciences Pty Ltd [TAS], 2025a) (Appendix B), windroses were developed using wind direction and wind speed data from several weather stations in the region.

On an annual basis, prevailing winds at M-WS4 are typically along a north-northwest and north-west to a south-southeast axis, with little wind from the north-east or south-west (Appendix B). Such winds are typical of Hunter Valley conditions.

Temperature Inversions

Temperature inversions occur in the Mount Pleasant Operation area, particularly during the night-time in winter. The frequency of temperature inversions is described in the Noise and Blasting Impact Assessment (RWDI Australia Pty Ltd [RWDI], 2025) (Appendix A).

6.3 AGRICULTURE AND LAND RESOURCES

6.3.1 Background

Agricultural Land Use in the Vicinity of the Modification

Non-mining MACH-owned agricultural is subject to ongoing productive use, including through leases to original landowners or other local farmers, and this practice would continue at the Mount Pleasant Operation under the Modification. This agricultural land is subject to a number of uses including cattle grazing, dairying, turf farming, stock horse breeding, and fodder cropping.

A range of agricultural enterprises are also located on private land in the vicinity of the Mount Pleasant Operation. Proximal private agricultural land is largely subject to cattle grazing in the north and west, and a variety of more intensive land uses on the Hunter River floodplain to the east (including dairy farming and irrigated cropping).

Critical Industry Clusters

Two agricultural Critical Industry Clusters (CICs) are recognised in the Upper Hunter:

- the Equine CIC, which is focused on producing thoroughbred horses for the racing industry (although it also includes horse agistment and breeding horses for other purposes); and
- the Viticulture CIC, which is focused primarily on wine production, along with associated tourism.

The thoroughbred horse breeding industry is focused around Scone in the Upper Hunter Shire and includes a highly integrated concentration of horse breeding facilities and related infrastructure covering thoroughbred and stock horse breeding centres and numerous other equine developments and support services, such as a specialised veterinary centre. Scone and the associated concentration of horse studs and support facilities (including the Scone Equine Hospital) are located over 15 km north of the Mount Pleasant Operation.

The Coolmore and Godolphin Woodlands Studs are recognised as “central players” and the “epicentre” of the thoroughbred breeding industry in the Hunter Valley (Hunter Thoroughbred Breeders Association, 2019). These two studs are located in the Muswellbrook LGA, approximately 20 km south of the Mount Pleasant Operation. The existing Bengalla Mine and Mt Arthur Coal Mine are located between the two studs and the Mount Pleasant Operation.

The most proximal horse stud is located on MACH-owned land to the east of the Mount Pleasant Operation and produces stock horses. The Muswellbrook Race Course is located approximately 2.5 km to the south-southeast of the Mount Pleasant Operation.

There are three recognised established and distinctive clusters of vineyards around Cessnock, Denman, and Broke–Fordwich (DPE, 2022a). There are no viticulture enterprises within the immediate vicinity of the Mount Pleasant Operation.

Soil Resources

A comprehensive Soil Resource Assessment was prepared for the Mount Pleasant Optimisation Project by GT Environmental Pty Ltd [GT Environmental] (2020) and is presented in Appendix L for context to the following discussion.

The land within the Mining Leases has primarily been mapped as land and soil capability Class 3 and 4 (i.e. moderate to high capability land with limitations for high-impact land uses such as cropping, high-intensity grazing and horticulture). The primary limiting factor in these areas is slope (GT Environmental, 2020).

The land within the Mining Leases was largely mapped as Agricultural Suitability Class 3 (grazing land or land well suited to pasture improvement), with some areas of Class 4 land in the vicinity of the Northern Link Road. This is consistent with the existing and historical land use in these areas GT Environmental, 2020).

6.3.2 Environmental Review

The Modification proposes the continued extraction of coal reserves within Mount Pleasant Operation Mining Leases and would be supported by the use of existing and approved infrastructure at the Mount Pleasant Operation.

The Modification would result in the disturbance of approximately 592 ha of land within the approved surface disturbance plan as mining operations progress from 22 December 2026 to 31 December 2032, dependent on pit progression and the location of minor ancillary infrastructure.

No equine or viticulture enterprises have been identified that would experience material adverse direct impacts as a result of the Modification that are not already occurring with the approved Mount Pleasant Operation.

There would not be any material additional incompatibility between the Mount Pleasant Operation and the Muswellbrook Race Club with the Modification. Existing impacts would continue to be ameliorated with progressive rehabilitation and as the Mount Pleasant Operation progressively moves north and west, away from the Race Club.

The Modification would not materially alter potential land contamination risks associated with the Mount Pleasant Operation, such as leaks/spills, fires and explosions associated with the transport, storage and use of hydrocarbon and chemicals, other than an extension in the period of time during which these activities would occur.

6.3.3 Mitigation Measures

MACH approaches its relationship with nearby agricultural enterprises with the following aims:

- being open to the feedback of nearby agricultural enterprises on the existing impacts of the Mount Pleasant Operation;
- facilitating ongoing agricultural production on available MACH-owned lands (Plate 20) and the productive use of MACH water resources that are not presently required for mining; and
- incorporating adaptive management of air quality, noise and blasting emissions to reduce potential incremental Mount Pleasant Operation impacts on nearby residences (Sections 6.4 and 6.5), including proximal agricultural enterprises.

Soil resources would be managed in accordance with the Rehabilitation Strategy and Rehabilitation Management Plan.

Plate 20 – Agricultural Land Use on the Hunter River Floodplain

General measures to reduce the potential for contamination of land would continue to include the following:

- The transportation, handling and storage of all dangerous goods for the Mount Pleasant Operation would be conducted in accordance with the requirements of the NSW *Work Health and Safety Regulation 2017* (or its latest equivalent).
- Dangerous goods required for the Mount Pleasant Operation would be transported in accordance with State legislation.
- On-site consumable storage areas would be designed with appropriate bunding.
- Fuel and explosive storage areas would be regularly inspected and maintained.
- The response to any accidental spills or ground contamination would be assessed on a case-by-case basis and remediated in accordance with a Spill Response Procedure.
- Emergency response procedures would be enacted as required under a Pollution Incident Response Management Plan.

In addition, if areas potentially containing contaminated media are disturbed and/or developed by the Mount Pleasant Operation, an assessment and management (inclusive of a hazardous materials survey for former structures) of the identified contamination items would be undertaken.

As part of the decommissioning phase of rehabilitation, a Land Contamination Assessment would be undertaken. Any contaminated soils would be removed and the area remediated as required.

6.4 NOISE AND BLASTING

A Noise and Blasting Impact Assessment for the Modification was undertaken by RWDI (2025) and is presented in Appendix A.

The Noise and Blasting Impact Assessment includes assessment of Modification operational noise, rail noise, road traffic noise, cumulative noise and blasting impacts, and was conducted in consideration of the following guidelines (Appendix A):

- *NSW Industrial Noise Policy* (INP) (EPA, 2000).
- *Noise Policy for Industry* (NPfI) (EPA, 2017).
- *Rail Infrastructure Noise Guideline* (RING) (EPA, 2013).
- *NSW Road Noise Policy* (RNP) (NSW Department of Environment, Climate Change and Water [DECCW], 2011).
- *Voluntary Land Acquisition and Mitigation Policy* (VLAMP) (NSW Government, 2018).
- *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (Australian and New Zealand Environment Council, 1990).
- *Assessing Vibration: a technical guideline* (Department of Environment and Conservation, 2006).

Potential road noise and rail noise impacts of the Mount Pleasant Operation incorporating the Modification are discussed in Section 6.17.1.

6.4.1 Background

Noise Measurement and Description

The assessed noise levels presented in Appendix A and summarised in this section are expressed in A-weighted decibels (dBA). The logarithmic dBA scale simulates the response of the human ear, which is more sensitive to mid to high frequency sounds and relatively less sensitive to lower frequency sounds.

Hearing ‘nuisance’, for most people, begins at noise levels of about 70 dBA, while sustained (i.e. eight hours), noise levels of 85 dBA can cause hearing damage.

Measured or predicted noise levels are expressed as statistical noise exceedance levels (L_{AN}) which are the levels exceeded for a specific percentage (N) of the interval period. For example, L_{A10} is the noise level that is exceeded for 10% of the sampling period and is also considered to be the average maximum noise level.

The equivalent continuous noise level (L_{Aeq}) refers to the steady sound level, which is equal in energy to the fluctuating levels recorded over a relevant sampling period (e.g. 15 minutes).

Applicable Noise and Blasting Criteria

Operational Noise Criteria

Given the local setting (i.e. proximity to the township of Muswellbrook, rural landholdings and neighbouring mines) the background noise environment in the vicinity of the Mount Pleasant Operation is complex.

To reflect this complexity, a number of Noise Assessment Groups (NAGs) were adopted by DPHI in Development Consent DA 92/97 to account for the variance in background noise levels surrounding the Mount Pleasant Operation (Figure 16).

Mount Pleasant Operation default noise criteria for each NAG, and specific higher operational noise criteria for the most proximal private residences are described in Table 3 of Development Consent DA 92/97.

The criteria in Table 3 of Development Consent DA 92/97 have been adopted for the Modification operational noise assessment as compliance with the existing noise criteria would indicate that the Modification would not increase noise impacts relative to current approved levels (Table 4).

A contemporary private and mine-owned receiver update was conducted in 2024 to identify any recent changes to land ownership within approximately 3 km of the site. It identified some receivers that have been demolished, and a number of land ownership changes (primarily privately-owned receivers being acquired by local mines). Where relevant, these property status updates are noted in subsequent sections relative to current Development Consent DA 92/97 noise conditions.

Cumulative Noise Criteria

MACH is required to consider cumulative operational noise generated by the Modification and other nearby industrial sources (including the operation of the Bengalla Mine and the Mt Arthur Coal Mine) to preserve amenity.

The cumulative noise criteria from Table 5 of Development Consent DA 92/97 have been considered in the Noise and Blasting Impact Assessment (Appendix A).

Blasting Criteria

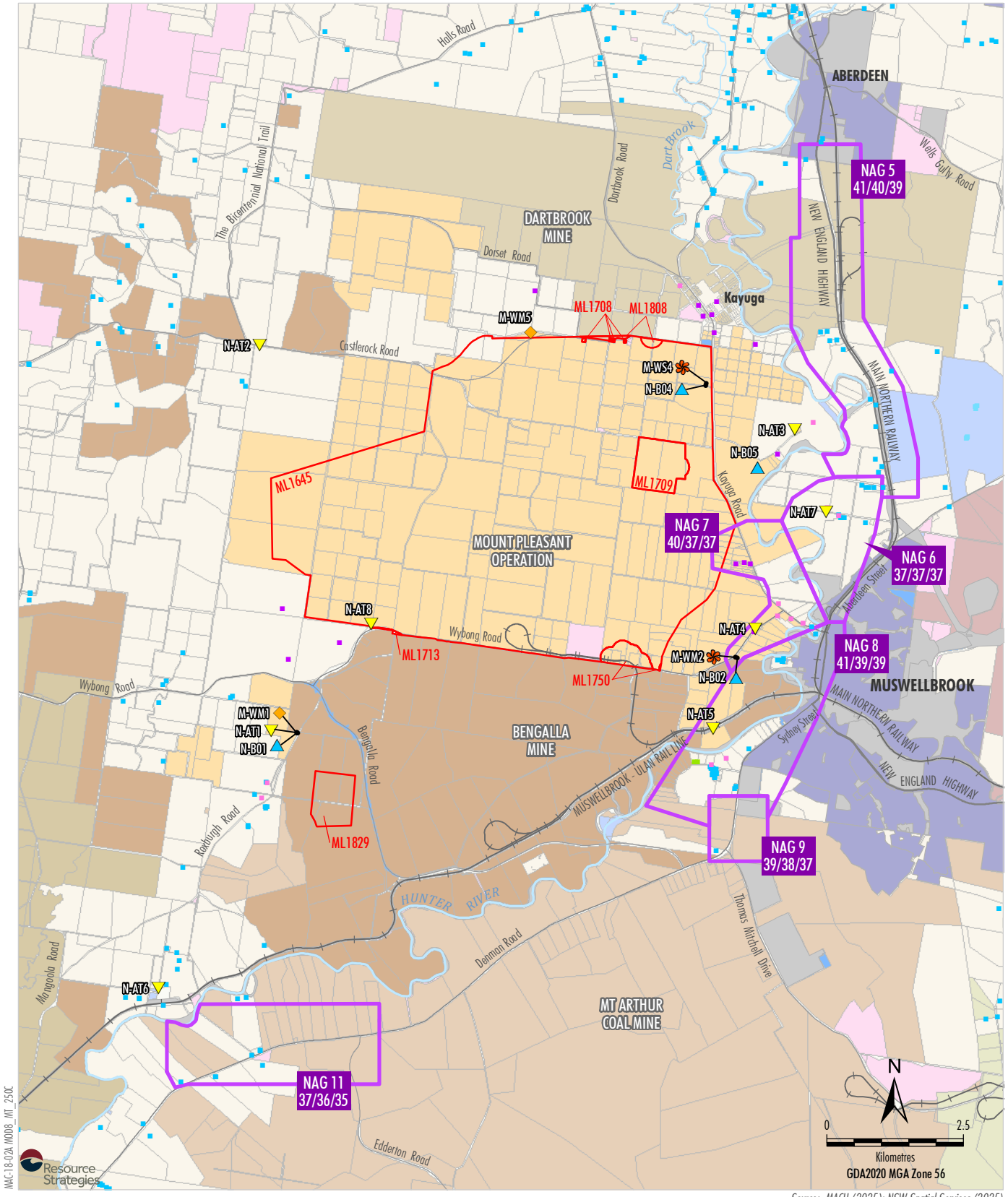
Ground vibration and airblast levels which cause human discomfort are generally lower than the recommended structural damage limits. Therefore, compliance with the lowest applicable human comfort criteria generally means that the potential to cause structural damage to buildings is minimal.

Blasting criteria for the Mount Pleasant Operation are provided in Development Consent DA 92/97 and are provided in Table 5.

Noise Monitoring Programme and Noise Management Strategy

MACH has prepared a Noise Management Plan[21] for the Mount Pleasant Operation, which describes the noise monitoring programme and noise management strategies for the approved mine.

[21] The current Mount Pleasant Operation DA 92/97 Noise Management Plan (MACH, 2024a) was approved by DPHI in 2024 which addresses both DA 92/97 and SSD 10418 requirements.



Source: MACH (2025); NSW Spatial Services (2025)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Mount Pleasant-controlled
- Bengalla-controlled
- Dartbrook-controlled
- Mangoola-controlled
- Muswellbrook Coal-controlled
- Mt Arthur-controlled
- Other Mining/Resource-controlled
- Crown
- The State of NSW
- Muswellbrook Shire Council
- Upper Hunter Shire Council
- Privately-owned Land
- LEP Zones E1, E2, E3, R1, R5
- LEP Zones E4, MU1, RE1, RE2, SP1, SP2, W1

- Privately-owned - Acquisition on Request
- Privately-owned - Mitigation on Request
- Privately-owned - Mitigation/Acquisition on Request*
- Other Privately-owned
- Noise Assessment Group (NAG)
- 37/36/35 Default NAG Noise Criteria for Day/Evening/Night

Monitoring Sites [1]

- Attended Noise
- Real-time Noise Monitoring Site
- Weather Mast
- Weather Station

[1] Monitoring Site locations are from the revised draft Noise Management Plan (MACH, 2025) which may be approved by DPHI during the Modification assessment phase. Monitoring site locations have moved since the current Noise Management Plan (MACH, 2021).

* Mitigation on Request - rail noise/Aquisition on Request - air quality. MACH is only required to acquire and/or install air quality mitigation measures at this property if not reasonably achievable under a separate approval for the Bengalla Mine.

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Noise and Meteorological Monitoring Sites

Figure 16

Table 4
Development Consent DA 92/97 Noise Criteria (dBA)

Location[1]	Day[2]	Evening[2]	Night[2]	
	$L_{Aeq(15min)}$	$L_{Aeq(15min)}$	$L_{Aeq(15min)}$	$L_{Aeq.(1min)}$
68[3], 74[3]	43	42	42	45
86a	42	42	42	45
35[4], 35b[4], 77	42	41	41	45
79, 80a[3], 140c, 526[3]	41	41	41	45
289	41	40	40	45
84a, 139[3], 154, 203, 257[5], 258a	40	40	40	45
83	40	39	39	45
86b, 140a, 202, 259	39	39	39	45
198, 202b	38	38	38	45
260, 261	37	37	37	45
169, 272	36	36	36	45
NAG 5 – All privately-owned land	41	40	39	45
NAG 6 – All privately-owned land	37	37	37	45
NAG 7 – All privately-owned land	40	37	37	45
NAG 8 – All privately-owned land	41	39	39	45
NAG 9 – All privately-owned land	39	38	37	45
NAG 11 – All privately-owned land	37	36	35	45
All other privately-owned land	35	35	35	45

After: Development Consent DA 92/97.

Notes:

1. To identify the locations referred to in Table 3, see Attachment 5.
2. Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the INP, with the exception of the application of modifying factors under Fact Sheet C of the NPfI.
3. Receivers 68, 74, 80a, 139 and 526 have recently been acquired by MACH.
4. Receiver 35 and 35b have recently been acquired by Bengalla Mining Company.
5. Receiver 257 has recently been acquired by Hunter Valley Coal Pty Ltd (Mt Arthur Coal Mine).

Table 5
Development Consent DA 92/97 Blasting Criteria

Location	Airblast Overpressure (dB[Lin Peak])	Ground Vibration (mm/s)	Allowable Exceedance
Residence on privately-owned land	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months
Historic heritage sites	-	10	0%
All public infrastructure	-	50	0%

After: Development Consent DA 92/97.

dB[Lin Peak] = Peak linear decibels, mm/s = millimetres per second.

The monitoring programme consists of a combination of off-site operator-attended monitoring sites and continuous real-time monitors. Current attended and real-time noise monitoring locations are shown on Figure 16.

In accordance with the Noise Management Plan, operator-attended noise monitoring is used for demonstrating compliance with noise impact assessment criteria. Continuous real-time monitoring (which measures both mine and other noise sources) is used as a noise management tool to assist MACH with implementing proactive and reactive noise management actions to minimise potential noise impacts from the Mount Pleasant Operation at private residences.

The noise management strategy for the Mount Pleasant Operation includes planning controls and construction and operational controls such as the following:

- sound power testing of new operational mobile fleet;
- procurement of new and/or best available technology plant;
- operating mobile equipment in less exposed areas during the more sensitive evening/night period;
- noise suppression on all major operational mobile plant; and
- implementation of additional proactive and reactive mitigation measures based on the predictive modelling system and real-time monitoring.

The real-time monitoring triggers are set at levels designed to maintain compliance with Development Consent DA 92/97 noise criteria. The protocol for responding to real-time noise monitoring triggers is described in the Noise Management Plan.

Blast Management and Monitoring Regime

Blasting at the Mount Pleasant Operation is carried out at a maximum of one blast per day and five blasts per week averaged over a calendar year. Blasting is carried out between 9.00 am and 5.00 pm Monday to Saturday, inclusive.

Blast management at the Mount Pleasant Operation is undertaken in accordance with the Blast Management Plan[22] prepared by MACH. The Blast Management Plan describes the blast monitoring regime and general blast management measures. It also describes the process for notifying landowners of upcoming blast events and reporting and complaint management procedures.

Blast management measures used at the Mount Pleasant Operation include:

- conducting a pre-blast assessment;
- designing all blasts to comply with airblast overpressure and ground vibration limits;
- implementation of procedures to mitigate fumes for all blast events;
- periodic review of blasting procedures to evaluate performance; and
- evaluation of new technology and alternative blasting methodologies.

In addition, Wybong Road, Kayuga Road and Castlerock Road are temporarily closed when blasting is carried out within 500 m of the road, in accordance with the Blast Management Plan. Temporary road closures are typically for a period of less than 20 minutes and no more than one closure per day. MSC is notified of the intention to blast, and the date and time of the planned road closure, in the week prior to blasting.

The Blast Management Plan also includes a Blast Fume Management Strategy to minimise the occurrence of blast fumes associated with blasting.

Compliance and Complaints

From a review of noise, blast and vibration monitoring data between February 2020 to November 2025 (i.e. the most recent Independent Audit Report) there were four exceedances of applicable noise criteria and one exceedance of the applicable airblast overpressure limit (RPS Consulting Pty Ltd [RPS], 2025). As described by the Mount Pleasant Operation monthly environmental monitoring reports, strong compliance with the relevant noise and blast criterion from April 2024 to March 2025 has also been achieved, with no exceedances of noise criterion recorded in this period.

[22] The current Mount Pleasant Operation DA 92/97 Blast Management Plan (MACH, 2025a) was approved by DPHI in 2025 which addresses both DA 92/97 and SSD 10418 requirements.

As shown in Graph 1, noise and blasting related community complaints have reduced significantly since 2019, with a total of 29 complaints related to noise and 10 complaints related to blasting received in 2024.

In response to complaints, appropriate management actions are implemented as outlined in the Noise Management Plan and Blast Management Plan.

6.4.2 Environmental Review

Operational Noise Assessment

The Environmental Noise Model was used by RWDI (2025) to simulate the Mount Pleasant Operation incorporating the Modification using noise source information (i.e. indicative sound power levels and locations) to predict resultant noise levels at relevant receiver locations.

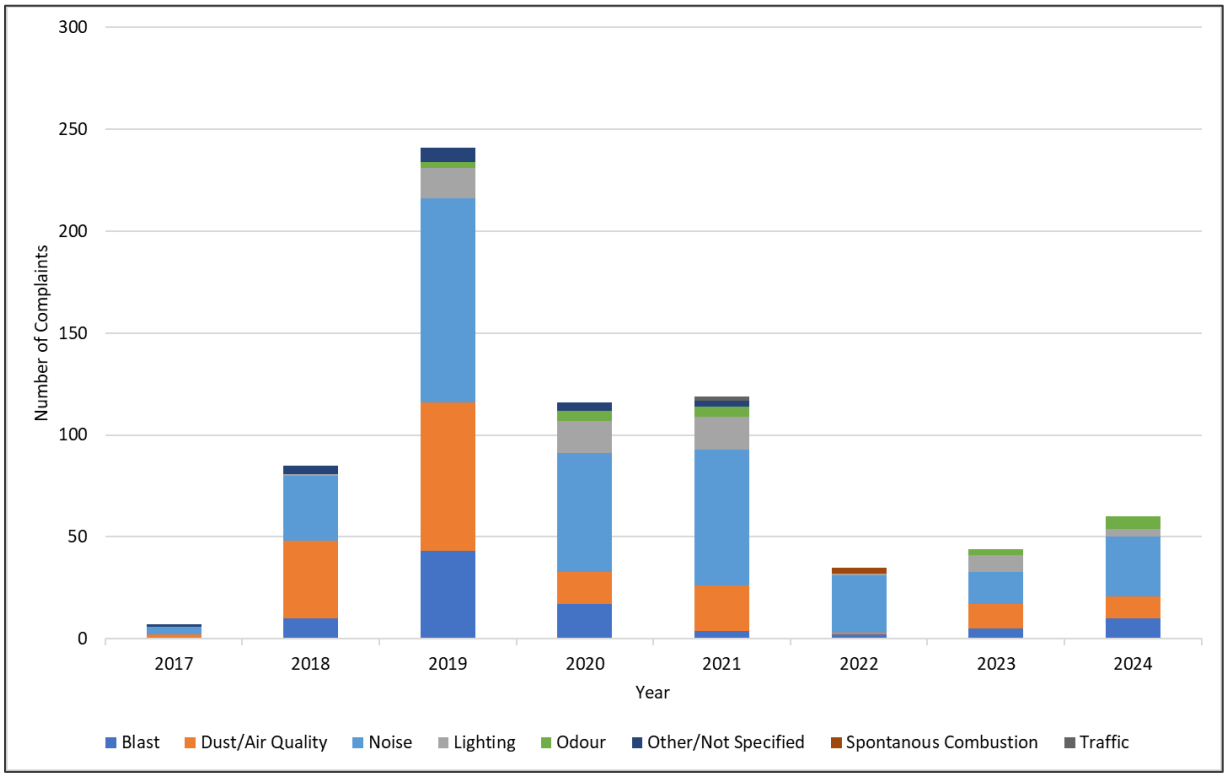
The Environmental Noise model is compatible with the INP (EPA, 2000) and NPfI (EPA, 2017) and has been previously accepted by the EPA for use in environmental noise assessments (Appendix A).

The model considers meteorological effects, surrounding terrain, the distance from source to receiver and noise attenuation. The locations of modelled receivers (i.e. dwellings) are shown in summary on Figure 16 and in detail in Attachment 5.

Meteorological Conditions

The noise modelling completed for the Modification is based on meteorological data obtained from an on-site meteorological station (M-WM2 – refer Figure 16) for the period 1 December 2016 to 31 August 2019, consistent with the weather data used for the Mount Pleasant Optimisation Project (Wilkinson Murray Pty Ltd, 2020). The meteorological data used includes wind speed, wind direction and stability class.

RWDI (2025) assessed the meteorological data in accordance with Fact Sheet D of the NPfI to determine the significance of noise-enhancing meteorological conditions.



Graph 1 Mount Pleasant Operation Community Complaints Summary 2017-2024

Based on the site-specific meteorological data, moderate-to-strong temperature inversions were not determined to be significant for the Modification in accordance with the assessment methodology in the NPfI. Notwithstanding, temperature inversions were conservatively modelled as a component of night-time noise-enhancing meteorological conditions. A moderate-to-strong temperature inversion plus a wind of 0.5 metres per second (source-to-receiver) was conservatively adopted for all receivers (Appendix A).

Details on the analysis and meteorological conditions modelled are provided in Appendix A.

Noise Modelling Scenarios

Three operational scenarios of the Modification were assessed for potential operational noise impacts (Appendix A):

- 2027 – representative of when Modification mining activity is near peak level and operations are mostly within South Pit but also occurring in North Pit;
- 2029 – representative of peak mining activity for the Mount Pleasant Operation in the Modification period and operations are evenly distributed between South Pit and North Pit; and
- 2031 – representative of when Modification mining activity is near peak level and operations are concentrated in North Pit.

The operational scenarios were selected in consideration of maximum potential noise emissions (e.g. to account for the maximum mobile equipment fleet and proximity to sensitive receivers) to evaluate the potential impacts at the nearest privately-owned receivers in the Modification period.

The construction of MWD2 and a Fines Emplacement Area embankment raise were also included in the 2027 and 2029 operational scenarios, respectively (Appendix A).

Low-frequency Noise Assessment

A low-frequency noise assessment was conducted for the Modification to ascertain whether any private receivers should be subject to a modifying factor correction due to dominant low-frequency content prior to comparing to the relevant Mount Pleasant Operation noise criteria.

The low-frequency noise assessment examined likely noise levels at a selection of key representative receivers in different residential zones based on overall ‘C’ weighted and ‘A’ weighted predicted noise levels (Appendix A).

Consistent with the results from other desktop low-frequency noise assessments of comparable operations, RWDI (2025) concluded it is unlikely that any of the receivers surrounding the Mount Pleasant Operation would be subject to dominant low-frequency noise and no modifying factor correction was warranted (Appendix A).

Predicted Operational Noise Levels

Predicted $L_{Aeq,15min}$ operational noise levels at all identified receivers are presented in Appendix A. Results reflect the 2027, 2029 and 2031 operational scenarios under the applicable modelled meteorological conditions.

Noise modelling results indicate that the Mount Pleasant Operation incorporating the Modification would comply with applicable day, evening and night Development Consent DA 92/97 noise criteria at all privately-owned receivers, with the exception of receiver 154 at night in the 2027 and 2031 operational scenarios. However, with the incorporation of pro-active noise mitigation measures at night, compliance could also be achieved at receiver 154 under all assessed scenarios (Appendix A).

Accordingly, the modelled operational noise levels associated with the Modification can comply with existing Mount Pleasant Operation consent conditions under Development Consent DA 92/97 and are not expected to alter the currently approved impact on the acoustic amenity of the surrounding community (with the exception of an extension of time) (Appendix A).

Indicative noise contours of maximum Modification operational noise predictions during the 2027, 2029 and 2031 modelling scenarios, are presented in Appendix A.

Cumulative Noise Levels

Cumulative noise impacts resulting from the interaction between the Mount Pleasant Operation (incorporating the Modification) and neighbouring operations were assessed against applicable criteria (Appendix A).

The cumulative noise level assessment found that all predictions are found to comply with the relevant cumulative noise criteria during all assessment periods without any pro-active noise management measures being applied (Appendix A).

Vacant Land Assessment

RWDI (2025) has conducted a vacant land assessment in accordance with the VLAMP and concluded that one privately-owned property (property 153a) is predicted to experience exceedances of the relevant VLAMP noise criteria on greater than 25% of the property (Appendix A).

It is noted that this vacant land parcel already has acquisition upon request rights for potential noise impacts in Development Consent DA 92/97.

Blasting Assessment

Blast sizes at the Mount Pleasant Operation would range up to a maximum instantaneous charge (MIC) of approximately 2,400 kilograms. An example blast pattern in the Mount Pleasant Operation open cut is shown in Plate 21.

Plate 21 – Blast Pattern – Mount Pleasant Operation

No exceedances of vibration and airblast criteria are predicted to occur at any privately-owned receiver, with the implementation of reduced blast MIC (where required due to proximity) to maintain compliance at the nearest receivers (Appendix A). Relevant MIC adjustments are provided in Appendix A.

In addition, no exceedances of the airblast and vibration criteria are predicted at assessed historic heritage sites or public infrastructure (such as public roads and the Ausgrid 66 kV electric transmission line) with the implementation of blast MIC management measures (Appendix A).

6.4.3 Mitigation Measures

Noise Management

MACH would continue to implement the noise mitigation and management measures, and predictive and real-time noise management system and associated response protocols, detailed in the Noise Management Plan for the Mount Pleasant Operation.

Proactive and reactive construction and operational noise management measures would continue to occur at the Mount Pleasant Operation to achieve compliance with the relevant noise criteria in Development Consent DA 92/97.

MACH would continue to co-ordinate noise management at the Mount Pleasant Operation with that at nearby mining operations to minimise potential cumulative noise impacts.

The Noise Management Plan would be reviewed and, if required, revised to reflect any changes to Development Consent DA 92/97 that arise from the Modification.

Blast Management

MACH would continue to implement the blast management measures detailed in the Blast Management Plan for the Mount Pleasant Operation incorporating the Modification.

Consistent with existing management measures, MACH would continue to vary the MIC (or other relevant blasting parameters) of blasts over the life of the Modification, to minimise blasting effects at nearby privately-owned receivers. In addition, the blast design would be adjusted as required for blasts located in close proximity to other sensitive features (e.g. infrastructure) to maintain compliance with relevant vibration or airblast criteria.

The Blast Management Plan would be reviewed and, if required, revised for the Modification to reflect any changes to Development Consent DA 92/97.

6.5 AIR QUALITY

An Air Quality Impact Assessment for the Modification was undertaken by TAS (2025a) and is provided in Appendix B. The assessment was conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2022) (the Approved Methods).

6.5.1 Background

Air Quality Criteria

Development Consent DA 92/97 Criteria

A summary of the applicable air quality impact criteria for the Mount Pleasant Operation under Development Consent DA 92/97 is presented in Table 6.

Approved Methods Criteria

Mining activity at the Mount Pleasant Operation has the potential to generate particulate matter (e.g. dust) emissions in the form of:

- total suspended particulate matter (TSP);
- particulate matter with an equivalent aerodynamic diameter of 10 micrometres (µm) or less (PM_{10}) (a subset of TSP); and
- particulate matter with an equivalent aerodynamic diameter of 2.5 µm or less ($PM_{2.5}$) (a subset of TSP and PM_{10}).

Particulate matter also has the potential to cause nuisance (amenity) effects when it is deposited on surfaces (i.e. dust deposition).

Table 7 describes the Approved Methods air quality impact assessment criteria that was adopted by TAS (2025a) for the assessment of impacts at any residence on privately owned land.

NSW Voluntary Land Acquisition and Mitigation Policy

Voluntary mitigation rights may apply as per the VLAMP where, even with best practice management, a development contributes to exceedances of the criteria at any residence on privately-owned land or workplace on privately-owned land.

Table 7 describes the VLAMP mitigation and acquisition criteria for the assessment of impacts at residences on privately-owned land.

Environment Protection Licence 20850

Air quality criteria and air quality related conditions stipulated in EPL 20850 are generally consistent with those described in Development Consent DA 92/97.

Table 6
Development Consent DA 92/97 Air Quality Criteria

Pollutant	Averaging Period	Development Consent DA 92/97 Assessment Criterion [d]
Total suspended particulate matter (TSP)	Annual	90 µg/m³ [a]
Particulate matter ≤ 10 µm (PM_{10})	Annual	25 µg/m³ [a]
	24-hour	50 µg/m³ [b]
Particulate matter ≤ 2.5 µm ($PM_{2.5}$)	Annual	8 µg/m³ [a]
	24-hour	25 µg/m³ [b]
Deposited dust [c]	Annual	2 g/m²/month [b]
		4 g/m²/month [a]

Source: Appendix B.

a. Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to all other sources).

b. Incremental impact (i.e. incremental increase in concentrations due to the Mount Pleasant Operation and the Modification on its own).

c. Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003 *Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method*.

d. Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.

µg/m³ = micrograms per cubic metre, µm = micrometres and g/m²/month = grams per square metre per month.

Table 7
Approved Methods and VLAMP Air Quality Impact Assessment Criteria

Pollutant	Averaging Period	Impact Assessment Criterion [a]	Mitigation Criterion [b]	Acquisition Criterion [c]
Total Suspended Particulates (TSP)	Annual	90 µg/m^3 [d]	90 µg/m^3 [d]	90 µg/m^3 [d]
Particulate matter <10µm (PM_{10})	Annual	25 µg/m^3 [d]	25 µg/m^3 [d]	25 µg/m^3 [d]
	24-hour	50 µg/m^3 [d]	50 µg/m^3 [f]	50 µg/m^3 [g]
Particulate matter <2.5µm ($PM_{2.5}$)	Annual	8 µg/m^3 [d]	8 µg/m^3 [d]	8 µg/m^3 [d]
	24-hour	25 µg/m^3 [d]	25 µg/m^3 [f]	25 µg/m^3 [g]
Deposited dust	Annual	2 g/m^2/month [e]	2 g/m^2/month [f]	2 g/m^2/month [g]
		4 g/m^2/month [d]	4 g/m^2/month [d]	4 g/m^2/month [d]

Source: Appendix B.

a. Approved Methods impact assessment criteria (EPA, 2022).
b. VLAMP mitigation criteria (NSW Government, 2018).
c. VLAMP acquisition criteria (NSW Government, 2018).
d. Criterion is cumulative (i.e. includes background concentrations and all other sources).
e. Maximum incremental increase in deposited dust level.
f. Criterion is Mount Pleasant Operation and the Modification-only (with up to zero allowable exceedances over the life of the development).
g. Criterion is Mount Pleasant Operation and the Modification-only (with up to five allowable exceedances over the life of the development).

µg/m³ = micrograms per cubic metre and g/m²/month = grams per square metre per month.

However, EPL 20850 also includes additional conditions requiring the majority of dust generating activity at the Mount Pleasant Operation to be ceased under a specific combination of adverse weather conditions and measured PM_{10} levels at the Muswellbrook North-West Upper Hunter Air Quality Monitoring Network (UHAQMN) monitor (Plate 22).

Plate 22 – Muswellbrook North-West PM_{10} Monitor

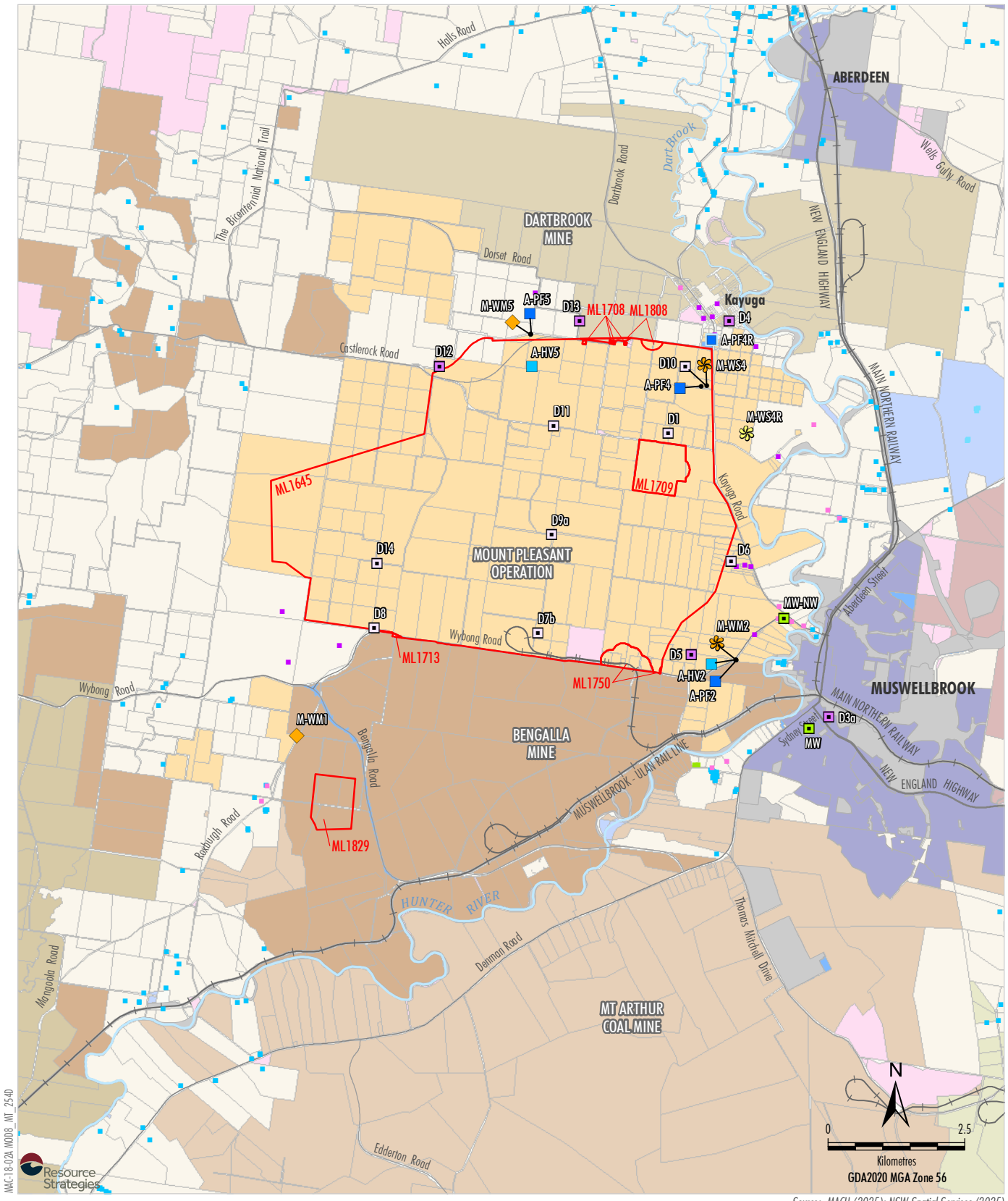
EPL 20850 will therefore further constrain the dust generating potential of the Mount Pleasant Operation in addition to the protection provided by the criteria within Development Consent DA 92/97. The EPL conditions have therefore been considered when developing the air quality monitoring programme and air quality management strategy for the Mount Pleasant Operation.

Air Quality Monitoring Programme and Air Quality Management

MACH has prepared an Air Quality and Greenhouse Gas Management Plan[23] for the Mount Pleasant Operation. The Plan describes the air quality monitoring programme and air quality management strategies for the approved mine.

The monitoring programme consists of a combination of dust deposition gauges, High Volume Air Samplers and continuous real-time monitors. Locations of air quality monitoring locations are shown on Figure 17.

[23] The current Mount Pleasant Operation DA 92/97 Air Quality and Greenhouse Gas Management Plan (MACH, 2024b) was approved by DPHI in 2024 which addresses both DA 92/97 and SSD 10418 requirements.



Source: MACH (2025); NSW Spatial Services (2025)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Mount Pleasant-controlled
- Bengalla-controlled
- Dartbrook-controlled
- Mangoola-controlled
- Muswellbrook Coal-controlled
- Mt Arthur-controlled
- Other Mining/Resource-controlled
- Crown
- The State of NSW
- Muswellbrook Shire Council
- Upper Hunter Shire Council
- Privately-owned Land
- LEP Zones E1, E2, E3, R1, R5
- LEP Zones E4, MU1, RE1, RE2, SP1, SP2, W1
- Privately-owned - Acquisition on Request
- Privately-owned - Mitigation on Request
- Privately-owned - Mitigation/Acquisition on Request*
- Other Privately-owned

Monitoring Sites

- Air Quality - High Volume Sampler
- Air Quality - Palas Fidas
- Relocated Air Quality - Palas Fidas
- Dust Deposition Gauge
- Dust Deposition Gauge (Decommissioned)
- Upper Hunter Air Quality Monitoring Network
- Weather Mast
- Weather Station
- Relocated Weather Station

* Mitigation on Request - rail noise/Aquisition on Request - air quality. MACH is only required to acquire and/or install air quality mitigation measures at this property if not reasonably achievable under a separate approval for the Bengalla Mine.

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Air Quality and Meteorological Monitoring Sites

Figure 17

Air quality monitoring is conducted at various locations that are considered representative of residential receivers in noise-sensitive areas to demonstrate compliance with air quality impact assessment criteria. Continuous real-time monitoring is also used as an air quality management tool to assist MACH with implementing proactive and reactive dust management actions to minimise potential air quality impacts from the Mount Pleasant Operation.

The air quality management strategy for the Mount Pleasant Operation, as described in the Air Quality and Greenhouse Gas Management Plan, includes the following:

- implementation of general dust mitigation measures (e.g. haul road watering) as part of operations to minimise potential dust emissions;
- predictive meteorological and air quality forecasting to guide daily operations;
- real-time air quality management (Plate 23) including the implementation of additional proactive and reactive dust mitigation measures to avoid potential non-compliances;
- implementation of preventative measures to reduce the potential for spontaneous combustion events (e.g. effective stockpile management); and
- implementation of preventative measures to reduce the potential for blast fumes.

Plate 23 – Mount Pleasant Operation – Control Room

Existing Air Quality

TSP, PM_{10}, $PM_{2.5}$ and dust deposition data are collected by a number of air quality monitors in the vicinity of the Mount Pleasant Operation and the wider area, including monitors operated by MACH, neighbouring mines, and by the NSW DCCEEW as part of the UHAQMN.

TAS (2025a) reviewed data from over 50 air quality monitors, and a detailed discussion of the background levels of each pollutant is provided in Appendix B. In summary:

- with the exception of some Bengalla-owned monitors between 2017 to 2020, all TSP monitors recorded annual average TSP concentrations below the criterion of 90 µg/m³ for the period 2012 to 2023;
- with the exception of some Bengalla-owned and Mt Arthur-owned monitors, all PM_{10} monitors recorded annual average PM_{10} concentrations below the criterion of 25 µg/m³ for the period 2012 to 2023;
- the recorded maximum 24-hour average concentrations of PM_{10} exceed the relevant criterion of 50 µg/m³ at times during the period 2012 to 2023 (primarily due to adverse climatic conditions in 2018 and 2019);
- the recorded annual average $PM_{2.5}$ concentrations exceeded the relevant criterion of 8 µg/m³ and the recorded maximum 24-hour average exceeded the relevant criterion of 25 µg/m³ in Muswellbrook at times during the period of 2012 to 2024 (largely due to use of wood heaters in residential areas); and
- dust deposition levels are generally below the relevant criterion of 4 g/m²/month, and are typically highest near mining activity.

Most of the exceedances described above for TSP, PM_{10} and $PM_{2.5}$ are a result of the occurrence of dust associated with drought conditions in 2018 and the severe bushfire season in 2019 affecting NSW. The years following 2018 and 2019 show a reduction in background air quality pollutant levels as weather conditions improved (Appendix B).

Compliance and Complaints

From a review of air quality monitoring data between February 2020 to November 2024 (i.e. the most recent Independent Audit Report) there were no exceedances of applicable criteria for PM_{10}, $PM_{2.5}$, TSP or dust deposition (RPS, 2025). As described by the Mount Pleasant Operation monthly environmental monitoring reports, strong compliance with the relevant air quality criterion from April 2024 to March 2025 has also been achieved.

As shown in Graph 1, air quality related community complaints follow a similar trend to the measured pollutant background levels with complaints reducing significantly since 2018 and 2019. A total of 12 complaints were received in 2023 and 11 complaints were received in 2024 that were related to air quality.

In response to complaints, appropriate management actions are implemented as outlined in the Air Quality and Greenhouse Gas Management Plan.

6.5.2 Environmental Review

Dispersion Modelling

The EPA approved CALPUFF/CALMET modelling system was used by TAS (2025a) to simulate the Mount Pleasant Operation incorporating the Modification (Appendix B).

Assessment of Meteorological Conditions

The dispersion modelling completed for the Modification is based on meteorological data sourced from on-site monitoring, other local meteorological monitoring (DCCEEW monitors) and regional BoM monitoring.

Prognostic meteorological model data from TAPM and the surface observations were input into the CALMET meteorological model (Appendix B).

Meteorology for the period 2012 to 2024 was reviewed to identify a representative year for modelling. Following review of the meteorological data, the 2015 calendar year was selected as the representative year, and was used consistent with the Mount Pleasant Optimisation Project assessment (TAS, 2020). Details of the analysis of meteorological conditions is provided in Appendix B.

Air Quality Modelling Scenarios

Three operational scenarios of the Modification were assessed for potential air quality impacts (Appendix B):

- 2027 – representative of when Modification mining activity would be occurring closest to Muswellbrook with a notable increase in overburden handling;
- 2029 – representative of peak mining activity for the Mount Pleasant Operation in the Modification period; and
- 2031 – representative of when mining activity is near peak level and occurs in the northern extent of the Modification with the southern extent largely rehabilitated.

The operational scenarios were selected in consideration of maximum potential dust emissions (e.g. to account for the maximum material movements and proximity to sensitive receivers) to evaluate the potential impacts at the nearest privately-owned receivers throughout the life of the Mount Pleasant Operation incorporating the Modification.

The construction of MWD2 and the Fines Emplacement Area embankment raise were also included in the 2027 and 2029 operational scenarios, respectively, due to the potential generation of dust associated with bulk earthworks.

Compliance with Development Consent DA 92/97 Air Quality Criteria

No exceedances of Development Consent DA 92/97 criteria were predicted at any privately-owned receivers in 2027, 2029 or 2031 for annual average dust deposition levels (both incremental and total impact), cumulative annual average and incremental 24-hour $PM_{2.5}$ concentrations or incremental 24-hour PM_{10} concentrations (Appendix B).

Two privately-owned receivers (receivers 43 and 249) are predicted to experience cumulative annual average PM_{10} concentrations above the Development Consent DA 92/97 criterion (25 µg/m³) due to cumulative contributions from the Mount Pleasant Operation incorporating the Modification, other nearby mining operations (including the Bengalla Mine and the Mt Arthur Coal Mine) and background levels (Appendix B).

Receiver 43 is predicted to exceed 25 µg/m³ in all three operational scenarios while receiver 249 is predicted to exceed 25 µg/m³ in 2031 only. In each case, the estimated background levels (including other mines) exceed the criterion, irrespective of whether the Mount Pleasant Operation is active (Appendix B).

One privately-owned receiver (receiver 43) is predicted to also experience cumulative annual average TSP concentrations above the Development Consent DA 92/97 criterion (90 µg/m³) in all three operational scenarios due to cumulative contributions (Appendix B).

TAS (2025a) notes that receiver 43 is above or within one microgram of the cumulative annual average TSP criteria without the Modification, with the Modification contributing 1% to 4% of the cumulative TSP level at this receptor depending on the operational scenario (Appendix B).

It should be noted that receiver 43 is already subject to acquisition upon request under Development Consent DA 92/97 and Development Consent SSD 5170 for the Bengalla Mine.

Receiver 249 is subject to acquisition upon request under MP 09_0062 for the Mt Arthur Coal Mine and Development Consent SSD 5170 for the Bengalla Mine (for noise).

Air quality contours for 24-hour average PM_{10} concentrations and other pollutant criteria for 2027, 2029 and 2031 for the Mount Pleasant Operation including the Modification only are provided in Appendix B.

Short-term PM_{10} and $PM_{2.5}$ Cumulative Assessment

The EPA contemporaneous assessment method was applied by TAS (2025a) to analyse the potential maximum cumulative 24-hour average PM_{10} and $PM_{2.5}$ concentrations arising from the Modification (Appendix B).

Some cumulative 24-hour average $PM_{2.5}$ and PM_{10} levels exceeding the NSW EPA impact assessment criteria in Table 7 were predicted to occur in the nearby surrounding environment in the absence of the implementation of reactive measures (Appendix B).

However, with the implementation of proactive and reactive air quality management measures, no privately-owned receivers were predicted to experience additional days in a year above the EPA cumulative 24-hour average PM_{10} or $PM_{2.5}$ impact assessment criterion as a result of the Modification (Appendix B).

Vacant Land Assessment

TAS (2025a) has conducted a vacant land assessment in accordance with the VLAMP and concluded that one privately-owned property (property 143e) is predicted to experience exceedances of the relevant VLAMP air quality criteria on greater than 25% of the property over the life of the Modification (Appendix B).

It is noted that this vacant land parcel currently has acquisition upon request rights for noise impacts under Development Consent DA 92/97.

6.5.3 Mitigation Measures

MACH would continue to implement the air quality mitigation and management measures, and pro-active and reactive air quality management and associated response protocols, detailed in the Air Quality and Greenhouse Gas Management Plan for the Mount Pleasant Operation.

The Air Quality and Greenhouse Gas Management Plan would be reviewed and, if required, revised to reflect any changes to Development Consent DA 92/97 that arise from the Modification.

6.6 SURFACE WATER

A Surface Water Assessment for the Mount Pleasant Operation incorporating the Modification has been prepared by ATC Williams (2025) and is presented in Appendix D.

6.6.1 Background

Surface water resources in the vicinity of the Mount Pleasant Operation are regulated by the following water sharing plans under the *Water Management Act 2000* (Figure 18):

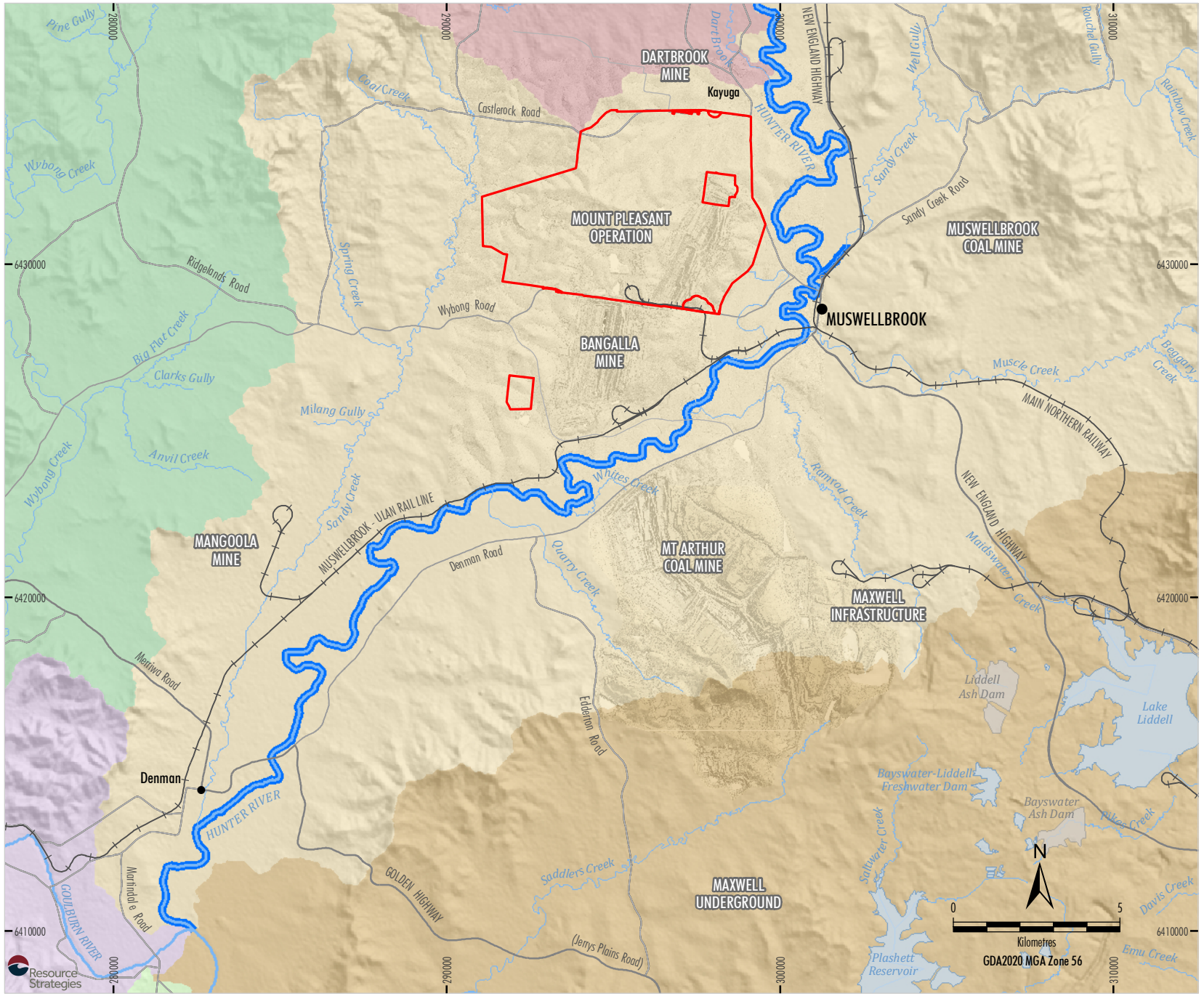
- *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022.*
- *Water Sharing Plan for the Hunter Regulated River Water Source 2016.*

Regional Hydrology

The Mount Pleasant Operation is located within the catchment of the Hunter River. The Hunter River catchment has an overall size of 21,500 square kilometres (km^2), and includes the city of Newcastle and the major towns of Singleton and Muswellbrook.

The Hunter River (Plate 24) is the main drainage feature within the catchment, rising on the northern side of the Barrington Tops (Mount Royal Range) and flowing south and then east through Muswellbrook and Singleton, before draining to the Pacific Ocean at Newcastle.

The Hunter River is defined as a 'Major Regulated River', with a number of water storages constructed along its length, which are operated to supplement river flow (Department of Primary Industries – Water, 2016). These water storages include the Glenbawn Dam and the Glennies Creek Dam.



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)

Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022

- Muswellbrook Water Source
- Dart Brook Water Source
- Lower Goulburn River Water Source
- Jerrys Water Source
- Wybong Creek Water Source
- Martindale Creek Water Source

Water Sharing Plan for the Hunter Regulated River Water Source 2016

- Hunter Regulated River Water Source

Source: NSW Spatial Services (2025); WaterNSW (2025)

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MOUNT PLEASANT OPERATION

Relevant Surface Water Sources

Figure 18

MAC-18-02A MOD8_MT_242B

Plate 24 – Hunter River

Source: Bio-Analysis Pty Ltd (Bio-Analysis) (2020a).

Local Hydrology

The local drainage network in the vicinity of the Mount Pleasant Operation is shown on Figure 19.

The local drainage network is generally characterised by steep gullies which drain from the surrounding hills into the flat alluvial plains adjacent to the Hunter River.

The main drainage feature in the vicinity of the Mount Pleasant Operation is the Hunter River which flows in a southerly direction approximately 1 km to the east of the Mount Pleasant Operation.

There are a number of ephemeral drainage lines which traverse the Mount Pleasant Operation area and drain into the Hunter River. Areas in the east of the Mount Pleasant Operation drain via Rosebrook Creek (Plate 25), as well as other unnamed drainages.

Plate 25 – Rosebrook Creek

Source: Bio-Analysis (2020a).

Areas in the south and west of the Mount Pleasant Operation drain via an unnamed drainage line and Sandy Creek respectively, both of which are tributaries of the Hunter River.

The streams in the Mount Pleasant Operation area have ephemeral flow regimes (i.e. a very short flow duration during rainfall events only). With the exception of Sandy Creek, the local surface water drainage systems were dry between 64% (site W13) and 95% (site W14) of the time that monitoring was undertaken.

WaterNSW monitors flow in the Hunter River at three gauging stations in the vicinity of the Mount Pleasant Operation Figure 19. Under current catchment conditions, the Hunter River is perennial, with a minimum flow rate at Aberdeen of approximately 13 megalitres per day (ML/day) (Appendix D).

Surface Water Quality

Water quality data for the Hunter River is available from WaterNSW gauging stations at Aberdeen (GS 210056), Muswellbrook (GS 210002) and Denman (GS 210055) (Figure 19).

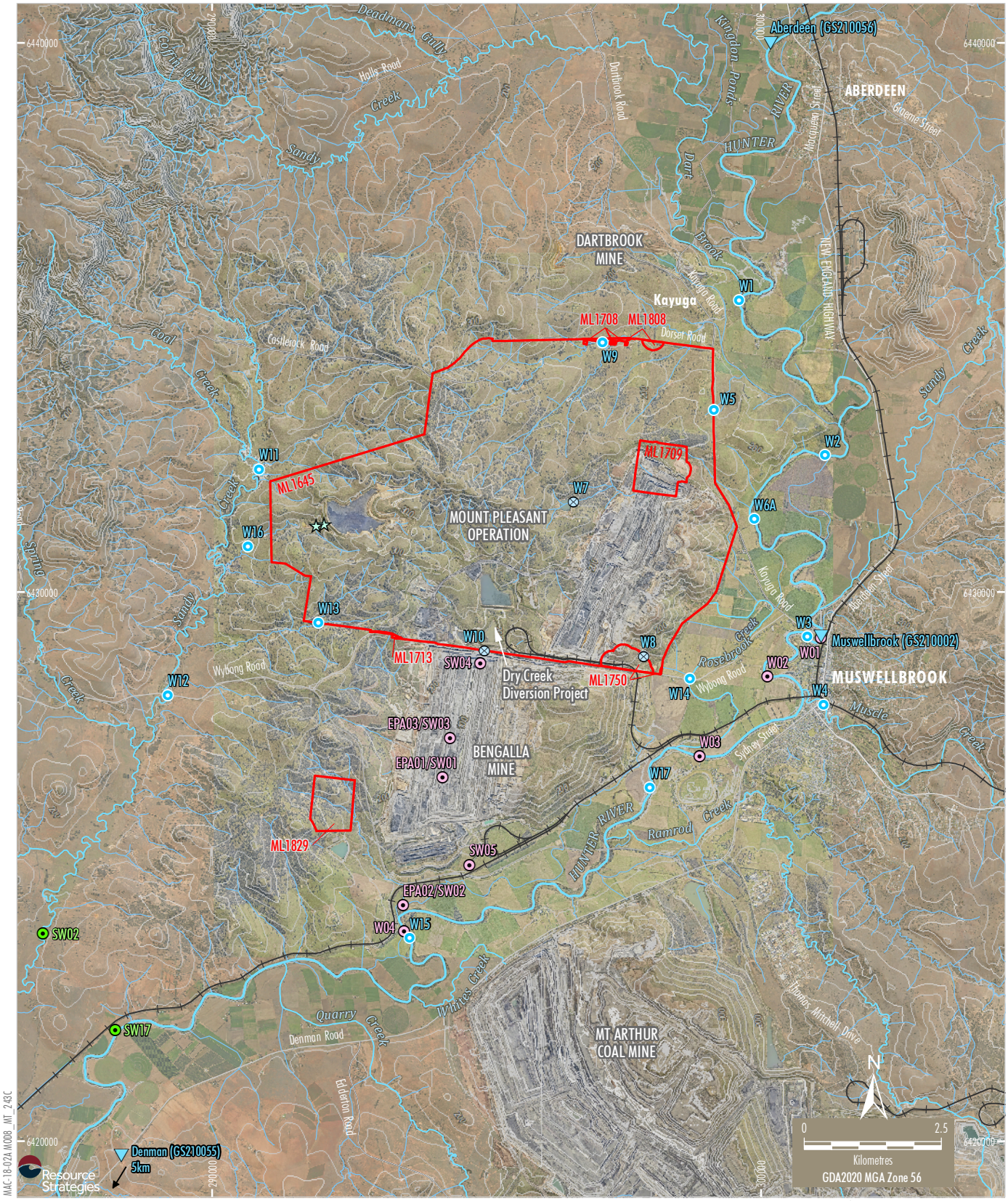
Baseline daily average electrical conductivity (EC) values recorded on the Hunter River upstream of the Mount Pleasant Operation (GS 210056) had a median of 389 microSiemens per centimetre (µS/cm), exceeding the default guideline value of 350 µS/cm for upland rivers in NSW (Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000). The EC levels increase with distance downstream on the Hunter River, with a median of 450 µS/cm at Denman (GS 210055) (Appendix D).

Detailed results of the water quality monitoring undertaken by MACH for sites on the Hunter River are discussed in Appendix D.

Based on the monitored water quality data reviewed for the period of record, ATC Williams (2025) concluded the Mount Pleasant Operation has had no discernible impact on water quality in the Hunter River (Appendix D).

Flooding

The rail spur for the Mount Pleasant Operation crosses the 1% Annual Exceedance Probability (AEP) flood extent for the Hunter River. The rail infrastructure has been designed to meet a range of flood risk management performance criteria, as defined in the Water Management Plan (Appendix D).



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- DPI Water Gauging Station

Mount Pleasant Monitoring

- Surface Water Monitoring Site
- Historical Surface Water Monitoring Site
- V-notch Weir

Mangoola Monitoring

- Surface Water Monitoring Site

Bengalla Monitoring

- Surface Water Monitoring Site

Source: MACH (2025); NSW Spatial Services (2025); WaterNSW (2025); Bengalla Mine (2015); Mangool Coal Operations Pty Ltd (2014)
Orthophoto: MACH (Jun 2025, 2020)

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MOUNT PLEASANT OPERATION

Surface Water Monitoring Sites

Figure 19

Water Management System

Surface water management and monitoring at the Mount Pleasant Operation is currently undertaken in accordance with the Site Water Balance, ESCP and the Surface Water Management and Monitoring Plan, which are components of the Water Management Plan.[24]

MACH monitors water quality in on-site water management storages in accordance with the Water Management Plan. Results of the water quality monitoring undertaken by MACH for the on-site water storages are discussed in Appendix D and summarised below.

The sampling results from the on-site water storages and historical overflow events indicate (Appendix D):

- pH of the on-site water storages is predominantly alkaline.
- The median EC for sediment dams ranged between 614 µS/cm to 730 µS/cm during routine monitoring (i.e. not based on historical overflow events).
- The average EC recorded during historical overflow events from sediment dams (e.g. when rainfall exceeds design criteria) was 327 µS/cm, with a maximum recorded EC value of 420 µS/cm.
- The median EC for site storages managed as part of the mine water management system ranged between 1,641 µS/cm to 4,790 µS/cm.
- Total suspended solids ranged between less than 1 milligrams per litre (mg/L) to 1,340 mg/L, while oil and grease concentrations were typically low in all storages (5 mg/L or less).

While MACH has developed the necessary infrastructure for controlled discharges to the Hunter River, there have not been any controlled discharges to the Hunter River from the Mount Pleasant Operation to date.

6.6.2 Environmental Review

Water Management System

The existing water management system at the Mount Pleasant Operation would continue to support ongoing mining activities. Key elements of the water management system comprise:

- mine water storages;
- up-catchment runoff controls (e.g. temporary diversions);
- sediment and environmental dams;
- the Hunter River pump station; and
- other supporting infrastructure, including various pipelines and pumps.

The existing surface water runoff controls to prevent clean water runoff from entering water storages and open cut mining operation areas would be retained and where necessary augmented and upgraded for the Modification.

Flow Regime

Catchment Excision

During active mining operations, the mine water management system would continue to prevent the contamination of downstream surface water sources by capturing runoff from areas that would have previously flowed to receiving waters (e.g. Hunter River, Rosebrook Creek and Sandy Creek).

A summary of the maximum catchment excision by the original approved Mount Pleasant Operation (1997 EIS), as well as development to 2026 and 2032 for the Mount Pleasant Operation from the Hunter River and Sandy Creek catchments is presented in Table 8.

[24] The previous Mount Pleasant Operation DA 92/97 Water Management Plan was approved by DPE in 2022. MACH has a Water Management Plan (MACH, 2025b) that addresses both DA 92/97 and SSD 10418 requirements, which was approved by DPHI on 7 February 2025.

Table 8
Maximum Area Excisions Comparisons from Hunter River and Sandy Creek Catchments for Approved and Modified Mount Pleasant Operation

Watercourse	Total Catchment Area (km^2)	Maximum Catchment Excised (km^2)		
		Original Approved Mount Pleasant Operation (1997 EIS)	Mount Pleasant Operation Ceases Mining in 2026	Mount Pleasant Operation Incorporating the Modification
Hunter River (at Dry Creek)	4,384	20.1	16.3	19.1
Sandy Creek (at Wybong Road)	47	4.3	1.6	1.9

Source: Appendix D.

The maximum incremental catchment excision from the Hunter River catchment (at Dry Creek) as a result of the Modification is 2.8 km^2 (Table 8) and is considered negligible and unlikely to result in impacts to streamflow in the Hunter River (Appendix D).

The Modification would result in a maximum incremental catchment excision from the Sandy Creek catchment (at Wybong Road) of 0.3 km^2 relative to the Mount Pleasant Operation ceasing in 2026 including catchment excision within the extent of the approved surface disturbance plan/area[25] (Appendix D).

The Modification would also result in a small incremental change to the catchment of Rosebrook Creek. The Modification would result in no incremental change to the catchment of Dry Creek relative to the Mount Pleasant Operation ceasing in 2026.

The maximum catchment excision for the Mount Pleasant Operation would reduce post-mining, as rehabilitated areas are allowed to flow off-site.

Post closure, 0.03% of the Hunter River catchment (at Muswellbrook Bridge) would be excised (Appendix D).

Baseflow

Changes in groundwater-derived baseflow have been predicted by Australasian Groundwater and Environment Consultants Pty Ltd (AGE Consultants) (2025) for the Hunter Regulated River Water Source and the Hunter Unregulated and Alluvial Water Sources and are presented in Appendix C.

The predicted baseflow reductions represent a very small and indiscernible impact to flow in the Hunter River at Muswellbrook during operations and post-closure (Appendix D).

Surface Water Quality

Storage Overflows

The conceptual design of the proposed sediment dams has been undertaken in accordance with the Landcom (2004) and Department of Environment and Climate Change (2008) guidelines. These guidelines provide for sediment dams to overflow (or discharge) when rainfall exceeds the design criteria of the dams (Appendix D).

Overflow from the sediment dams is predicted to occur during high rainfall events only. During these periods, the concentration of environmentally significant constituents in the sediment dams is likely to be low as inflow from catchment surface runoff would predominate over baseflow (seepage).

A detailed review of water quality constituents predicted to be present in sediment dams SD1, SD3, SD4, SD5 and SD10 and potential sediment dam overflows (i.e. to Rosebrook Creek and Hunter River) is provided in Appendix D.

Negligible overflows are predicted to Sandy Creek based on the surface water modelling (Appendix D).

A low risk of overflow from Environment Dam (ED3) to Dry Creek is predicted based on all model results (Appendix D).

[25] Refer to, amongst other things, Figure 3 in Appendix 2 of DA 92/97.

An assessment of the potential water quality impacts of overflows is provided in Appendix D.

Under both the median and 95th percentile conditions, the predicted increase in median and maximum constituent values in the Hunter River at monitoring site W15 as result of overflows from the Mount Pleasant Operation via sediment dams SD6 and SD7, Train Load Out Dam and ED3 is less than 1% (Appendix D).

Controlled Releases to the Hunter River

Controlled releases predicted for the Mount Pleasant Operation incorporating the Modification under the Hunter River Salinity Trading Scheme (HRSTS) would comprise a very small component of the flow in the Hunter River (as governed by the discharge rules of the HRSTS) and dilution would be substantial (Appendix D).

The average annual Hunter River release volume is predicted to be 38 ML based on the median model results and 214 ML based on the 95th percentile model result (i.e. wet conditions). This compares with the median annual total flow in the Hunter River at Muswellbrook (GS 210002) of approximately 167,037 ML (Appendix D).

A detailed assessment of the concentration of key constituents in the Hunter River downstream of the discharge, based on the simulated release volumes and the water quality data available for the Mount Pleasant Operation incorporating the Modification is provided in Appendix D.

The assessment focused on constituents with a water quality objective and constituents which were recorded above the limit of detection in the MWD (i.e. turbidity, total manganese, total nickel and total aluminium) (Appendix D).

In summary, the assessment indicated controlled discharges from the MWD would not result in exceedances of the water quality objectives, for the assessed constituents in consideration of the baseline conditions in the Hunter River (e.g. water quality objectives would be exceeded without controlled discharges).

Flooding

The easternmost extent of the Mount Pleasant Operation mine landform is located outside of the 1% AEP flood extent for the Hunter River. The potential for the mine landform to result in changes to flood depth, extent or velocity in the vicinity of the Mount Pleasant Operation is considered to be negligible (Appendix D).

Final Voids

The accumulation of surface runoff combined with groundwater inflows would result in the formation of a pond of water in the two residual inter-connected pit voids (the final void) which would rise until the average rate of inflow is balanced by evaporation from its surface.

ATC Williams (2025) has simulated the long-term behaviour of the final void. Groundwater inflows were modelled using a storage level versus flow relationship developed from the groundwater model by AGE Consultants (2025).

The simulated water level in the final void reaches a maximum of approximately 110 m AHD to 120 m AHD, which is more than 67 m to 77 m below the spill level, inclusive of conservative climate change projections (Appendix D).

Cumulative Impacts

The Mount Pleasant Operation is situated immediately to the south of Dartbrook Mine and immediately to the north of Bengalla Mine and in the vicinity of the Muswellbrook Coal Mine, Mt Arthur Coal Mine and Mangoola Coal.

These mines operate in a highly regulated water system with licensing of Hunter River (and other water sources) water take undertaken in accordance with the *Water Management Act 2000* and release of water undertaken in accordance with the HRSTS, the relevant Development Consent and the EPL for each site.

Due to the highly regulated system in which the Mount Pleasant Operation and adjacent mines operate, the cumulative impacts on the Hunter River due to the Modification are expected to be negligible (Appendix D).

Based on the assessment set out in Appendix D, the overall cumulative surface water impacts of carrying out the existing approved operations to date and the proposed operations associated with the Modification can be effectively managed consistent with the requirements of the *Water Management Act 2000*.

6.6.3 Mitigation Measures and Adaptive Management

Surface Water Licensing

MACH would comply with water licensing requirements under the *Water Management Act 2000* over the Modification period.

Water Management Plan

The existing Water Management Plan, including the relevant sub-plans, would be reviewed and revised to reflect the Modification subject to the conditions of any modified Development Consent.

The existing surface water monitoring program for the Mount Pleasant Operation would continue to be undertaken in accordance with the Water Management Plan.

This monitoring would be augmented over the Modification period as additional water management infrastructure is commissioned as outlined in Appendix D.

Water Balance

Review and progressive refinement of the site water balance would continue to be undertaken periodically over the life of the Mount Pleasant Operation to record the status of inflows (water capture), storage and consumption (e.g. CHPP usage, dust suppression and discharges) and to optimise water management performance.

MACH would adaptively apply supplementary water management measures during low rainfall periods to maintain the reliability of water supply. This may include:

- Selective increase in ROM coal bypass to reduce the CHPP water demand.
- Use of chemical dust suppressants to reduce haul road dust suppression water requirements.
- Obtaining additional high security water access licences.
- Sourcing water from other external sources, such as excess mine water from the adjoining mines (i.e. Dartbrook and Bengalla Mines). Should this water sharing be undertaken, it would be subject to MACH and other relevant parties obtaining all necessary secondary approvals.

6.7 GROUNDWATER

A Groundwater Impact Assessment has been prepared by AGE Consultants (2025) and is presented in Appendix C. The Groundwater Impact Assessment has been peer reviewed by Dr Noel Merrick and the review report is presented in Attachment 7.

6.7.1 Background

Groundwater and surface water resources in the vicinity of the Mount Pleasant Operation (Appendix C) are regulated by the following water sharing plans under the *Water Management Act 2000*:

- *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016.*
- *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022.*
- *Water Sharing Plan for the Hunter Regulated River Water Source 2016.*

Existing Groundwater Regime

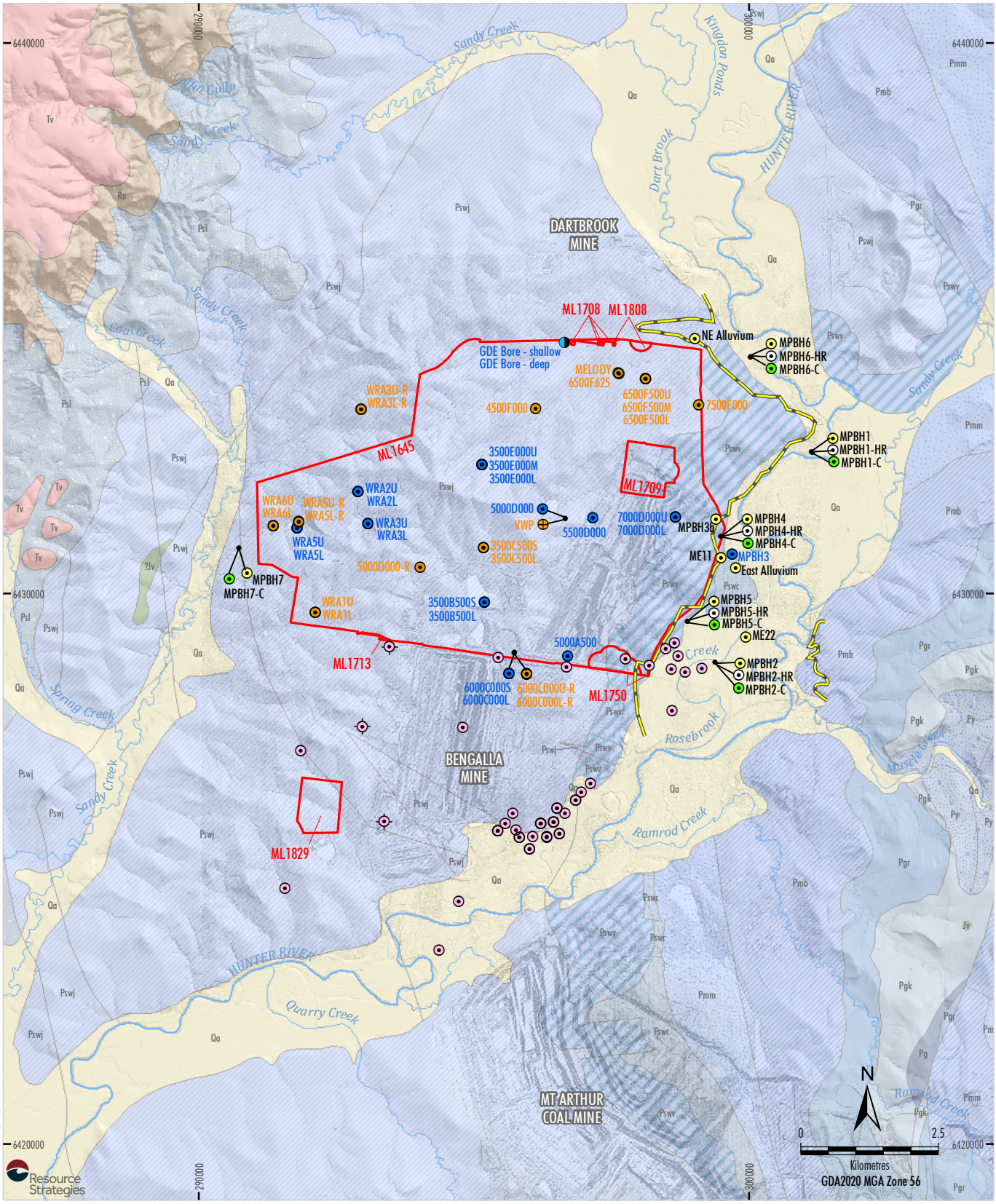
A conceptual hydrogeological model of the existing groundwater regime has been developed by AGE Consultants (2025), based on review of the available baseline groundwater data (Figure 20) and relevant water sharing plans (Figure 21).

The two main groundwater systems identified by AGE Consultants (2025) are:

- alluvium associated with the Hunter River and Sandy Creek (Figure 21); and
- Permian strata that host the coal measures.

The coal resource for the Mount Pleasant Operation is located in the Permian Wittingham Coal measures of the Singleton Supergroup and is wholly located within the Sydney Basin-North Coast Groundwater Source, regulated under the *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016* (Figure 20).

Alluvial sediments associated with the Hunter River and Sandy Creek are located to the east and west of the Mount Pleasant Operation, respectively (Figures 19 and 20).



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Interpreted Extent of Alluvium

Mount Pleasant Monitoring

- GDE Bore
- Vibrating Wire Piezometer
- Standpipe
- Standpipe - Alluvium
- Standpipe - Coal Seam
- Standpipe - Interburden
- Standpipe - Historical

Bengalla Monitoring

- Bengalla Standpipe
- Bengalla Vibrating Wire Piezometer

Quaternary

- Qa: Alluvium

Tertiary

- Tv: Basalt

Jurassic

- Jv: Volcanics

Triassic

- Rn: Hawkesbury Sandstone and Narrabeen Group

Permian

- Pswj: Denman Formation and Jerry Plains Subgroup
- Pswv: Archerfield Sandstone and Vane Subgroup
- Pswc: Saltwater Creek Formation
- Pmm: Mulbring Siltstone
- Pmb: Branxton Formation
- Pg: Greta Coal
- Pgr: Greta Coal Measures (coal seams, siltstone and sandstone)
- Pgk: Greta Coal measures (pellet claystone, siltstone and chert)
- Psl: Wollombi Coal Measures
- Py: Gyarran Volcanics

Source: MACH (2025); Bengalla Mine (2015); WaterNSW (2020, 2025); NSW Spatial Services (2025)

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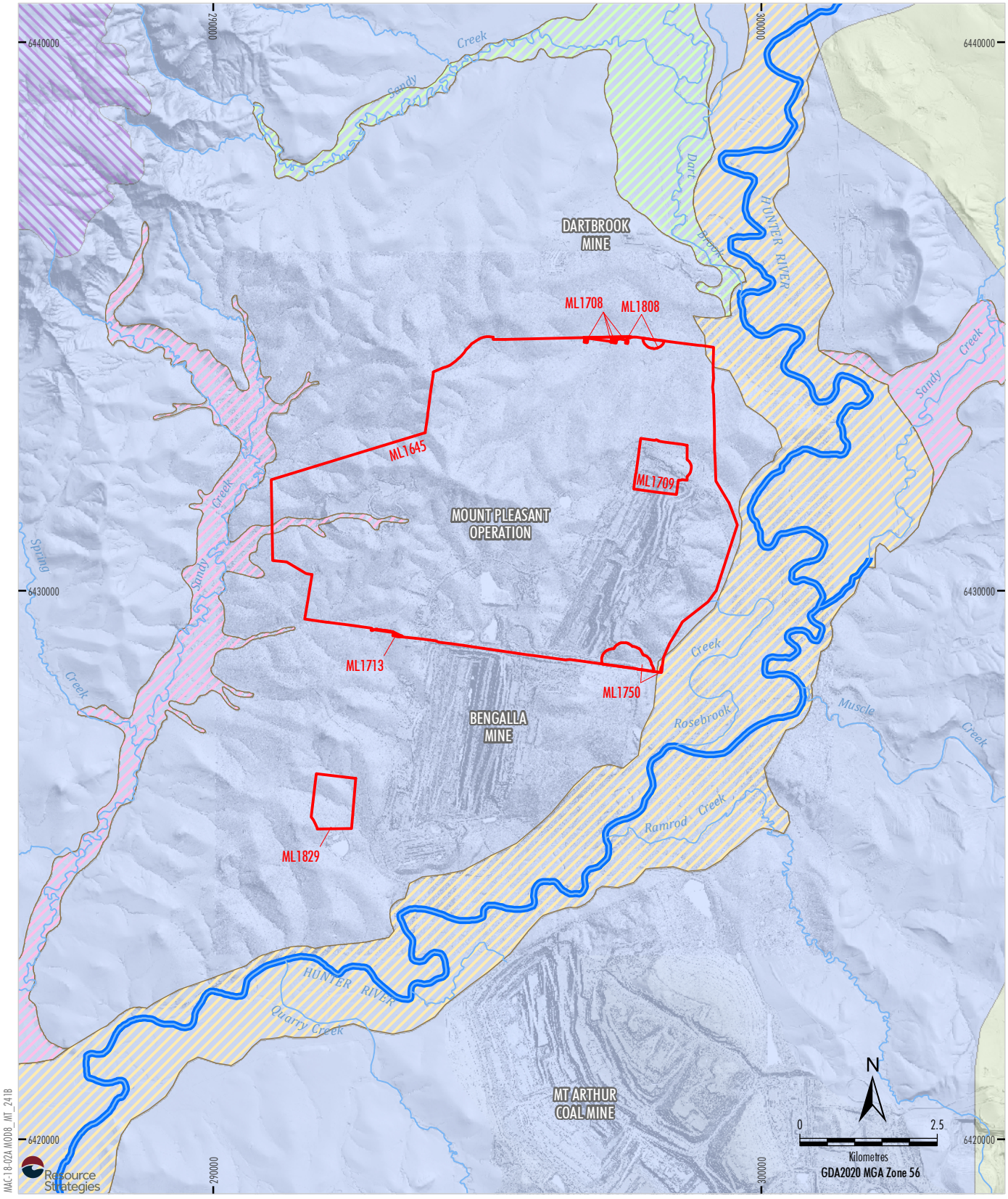
MOUNT PLEASANT OPERATION

Groundwater Monitoring Locations

Figure 20



Source: NSW Spatial Services (2025); WaterNSW (2025)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)

Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016

- Liverpool Ranges Basalt Coast
- New England Fold Belt Coast
- Sydney Basin - North Coast

Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022

- Unnamed Alluvium within Dart Brook Water Source
- Hunter Regulated River Alluvial Water Source
- Unnamed Alluvium within Muswellbrook Water Source

Water Sharing Plan for the Hunter Regulated River Water Source 2016

- Hunter Regulated River Water Source

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MOUNT PLEASANT OPERATION

Relevant Groundwater Sources

Figure 21

Alluvial sediments associated with the Hunter River are divided into two groundwater sources (Figure 21):

- alluvial sediments located beneath water front land (that is land within 40 m of the top of the high bank of the Hunter River) fall within Management Zone 1A (Hunter River from Glenbawn Dam to Goulburn River Junction) of the Hunter Regulated River Water Source, which is regulated under the *Water Sharing Plan for the Hunter Regulated River Water Source 2016;* and
- other alluvial sediments associated with the Hunter River in the vicinity of the Mount Pleasant Operation fall within the Upstream Glennies Creek Management Zone of the Hunter Regulated River Alluvial Water Source, which is regulated under the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022*.

Alluvial sediments associated with Sandy Creek fall within the Muswellbrook Water Source, which is regulated under the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022* (Figure 21).

Recharge and discharge associated with the groundwater systems relevant to the Mount Pleasant Operation are described in Appendix C.

Groundwater monitoring and management at the Mount Pleasant Operation is currently undertaken in accordance with the Groundwater Management Plan, which is a sub-plan of the Water Management Plan.[26]

The existing monitoring network (Figure 20) collects data on groundwater level/pressure and groundwater quality as part of the Water Management Plan. Results of the groundwater monitoring undertaken by MACH are discussed in Appendix C.

Groundwater Use

Groundwater use in the vicinity of the Mount Pleasant Operation is regulated by the NSW Government, with the two following water sharing plans regulating the volumetric allocation of groundwater to each user:

- *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022; and*
- *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016.*

The extent of each regional groundwater source is shown on Figure 21.

The Permian hard rock groundwater associated with the Sydney Basin-North Coast Groundwater Source is mapped as ‘less productive’ in accordance with the *NSW Aquifer Interference Policy* (the AIP) (NSW Government, 2012).

Groundwater bores, wells and springs identified on privately-owned land are provided in Appendix C.

Groundwater Quality

An analysis of water quality attributes of groundwater at the Mount Pleasant Operation and surrounds is provided in Appendix C, including analysis of the following attributes:

- physico-chemical indicators – pH, EC, total dissolved solids;
- total alkalinity as calcium carbonate ($CaCO_3$), bicarbonate (HCO_3) and carbonate ion (CO_3);
- major ions – calcium, magnesium, potassium, sodium, chloride, sulphate; and
- metal and metalloid concentrations.

[26] MACH has a Water Management Plan (MACH, 2025b) that addresses both DA 92/97 and SSD 10418 requirements, which was approved by DPHI on 7 February 2025.

Salinity (e.g. EC) is a key constraint to water management and groundwater use and baseline groundwater salinity are analysed in Appendix C. In summary:

- Groundwater quality within and surrounding the Mount Pleasant Operation is highly variable but generally poor.
- Groundwater in Permian-aged aquifers is typically only suitable for livestock and irrigation of some salt-tolerant crops.
- Groundwater in the Hunter River alluvium has a lower average salinity than the underlying coal measures and could therefore be applied to a broader range of beneficial uses.

6.7.2 Environmental Review

Groundwater Model

The Groundwater Impact Assessment prepared by AGE Consultants (2025) has evaluated the potential impacts of the Mount Pleasant Operation incorporating the Modification on groundwater resources using a numerical regional groundwater model. A detailed description of the numerical groundwater model is provided in Appendix C.

The numerical groundwater model was considered suitable to simulate the potential impacts of the Mount Pleasant Operation incorporating the Modification, as well as the cumulative impacts with Dartbrook Mine and Bengalla Mine.

In the groundwater peer review report (HydroAlgorithmics Pty Ltd, 2025), Dr Noel Merrick reiterated the numerical groundwater model has undergone development since 2016 and has been peer reviewed on several occasions by Dr Frans Kalf, Brian Barnett and Hugh Middlemis.

Dr Noel Merrick concluded the numerical groundwater model is a mature and robust model due to the long period of evolution, and is fit for purpose, as defined by the modelling objectives for the Groundwater Impact Assessment prepared by AGE Consultants (2025).

Groundwater Inflows

The total groundwater inflows to the open cut (as modified) are predicted to peak in the order of 148 megalitres per year (ML/year) in the 2029-2030 water year (Appendix C).

The maximum predicted inflow for the Mount Pleasant Operation incorporating the Modification is less than the maximum predicted inflow originally predicted for the originally approved Mount Pleasant Operation (1997 EIS) of 1.9 ML/day or 690 ML/year (PPK Environment and Infrastructure Pty Ltd, 1997) (Appendix C).

The maximum predicted annual inflow for the Mount Pleasant Operation incorporating the Modification (approximately 148 ML) is higher than the maximum predicted inflow that would occur for the Mount Pleasant Operation up to 2026 (approximately 97 ML in the 2025-2026 water year).

The climate change model scenario for the Mount Pleasant Operation incorporating the Modification indicates that the sensitivity of modelled mine water inflows to climate change is significantly lower than the model's sensitivity to other factors (Appendix C).

Porous Rock Groundwater System

As mining operations progress, the open cut acts as a localised groundwater sink. This would cause a change in groundwater flow direction and, in some places, a localised reversal of flow direction.

There would also be a change in hydraulic properties where the waste rock is subsequently used to backfill the mine voids. As waste rock would have a higher permeability than natural rock material (associated with the porous rock groundwater system), there would be associated reductions in localised hydraulic gradients.

Numerical modelling conducted as part of the Groundwater Impact Assessment predicts a substantial reduction in potentiometric head in the deeper porous rock groundwater system in the immediate vicinity of the open cut (Appendix C).

Recovery of the groundwater water table and pressures within the porous rock groundwater system is predicted to occur over many decades following the cessation of mining (Appendix C).

Alluvial Groundwater System

Limited drawdown is predicted in the Hunter River alluvium as the majority of the target coal seams to be mined subcrop west of the alluvium extent (Appendix C).

The Mount Pleasant Operation (incorporating the Modification) is predicted to result in only limited drawdown in the alluvium to the north of the Mount Pleasant Operation, near the existing Dartbrook Mine. The Modification would result in negligible drawdown in the Sandy Creek alluvium (Appendix C).

Final Voids

If mining operations at the site were to cease in December 2032, the modified final landform would include two inter-connected pit voids (the final void).

Once mining operations cease, groundwater inflows to the final void would no longer be collected and pumped out, and as a result, the final void would gradually begin to fill with water.

Inflows into the final void would comprise direct rainfall within the final void catchment area and groundwater. The catchment area of the final void would be defined by the final landform design.

Final void water recovery analyses have been conducted as part of the Surface Water Assessment (ATC Williams, 2025) (Appendix D). The assessment is based on predicted groundwater inflows developed as part of the Groundwater Impact Assessment (Appendix C).

At the predicted equilibrium water level (110 m AHD to 120 m AHD), the final void would act as a groundwater sink (Appendix C).

Groundwater Quality

Key components of the Mount Pleasant Operation incorporating the Modification that could affect groundwater quality are as follows (Appendix C):

- continuation of open cut mining;
- co-disposal of coarse rejects with waste rock as part of ROM waste rock operations;
- continued development of the Eastern Out-of-Pit Emplacement; and
- continued development of the Fines Emplacement Area, including the construction of additional downstream embankment raises (lifts).

As mining progresses, the void would act as a groundwater sink, preventing interaction between the open cut and the surrounding natural groundwater systems. Therefore, there would be no adverse groundwater quality impacts associated with the Mount Pleasant Operation incorporating the Modification (Appendix C).

The predicted final void equilibrium level (approximately 110 m AHD to 120 m AHD) is also below the elevation of the Hunter River (approximately 135 m AHD).

Based on the above, the Modification is considered to have a negligible impact on groundwater quality in the natural groundwater system (Appendix C).

Surface Water Resources

The existing surface water resources and their characteristics (i.e. streamflow and water quality) are described in Section 6.6.1.

The Groundwater Impact Assessment (Appendix C) included examination of the stream-aquifer (surface water-groundwater) interaction status of the Hunter River and Sandy Creek.

The groundwater model simulation demonstrates that the total reduction in baseflow to these watercourses due to the Mount Pleasant Operation incorporating the Modification would be minimal (Appendix C).

Groundwater Users

The Groundwater Impact Assessment presents drawdown predictions for all bores identified during a previous bore census conducted for the Mount Pleasant Operation.

For the purposes of drawdown predictions, bores were assigned to groundwater model layers (water bearing strata) based on recorded licensing information, bore location, mapped geological outcrop (e.g. the extent of the alluvial aquifer) and recorded bore depths (Appendix C).

A total of six bores on private property are predicted to experience drawdown exceeding 2 m due to cumulative impacts from the Mount Pleasant Operation incorporating the Modification and neighbouring mines, with detailed assessment provided in Appendix C.

Cumulative Impacts

Cumulative groundwater drawdown contours arising from coincident mining operations (Bengalla Mine, Dartbrook Mine and Mt Arthur Coal Mine) and the Mount Pleasant Operation incorporating the Modification and presented in Appendix C.

Cumulative effects are generally limited to the Permian coal measures and are largely restricted to the area in the immediate vicinity of nearby mining operations and the Mount Pleasant Operation.

These mining operations are required to licence groundwater take in accordance with the *Water Management Act 2000* and are managed in accordance with the relevant Development Consent and the EPL for each site.

Based on the assessment set out in Appendix C, the overall cumulative impact of carrying out the existing and approved operations to date and the proposed Modification can be effectively managed consistent with the requirements of the *Water Management Act 2000.*

6.7.3 Mitigation Measures and Adaptive Management

Groundwater Licensing

The predicted annual groundwater volumes required to be licensed over the life of the Mount Pleasant Operation incorporating the Modification and post-mining are summarised in Table 9 (Appendix C). MACH would comply with water licensing requirements under the *Water Management Act 2000* over the life of the Mount Pleasant Operation incorporating the Modification.

Table 9
Summary of Water Sources and Total Licencing Requirements for Modified Mount Pleasant Operation

Water Sharing Plan	Water Source	Existing MACH Licences (units)	Total Licensing Requirement (ML/year)	
			During Mining	Post-Mining
Water Sharing Plan of the Hunter Regulated River Water Source 2016	Management Zone 1A (Hunter River from Glenbawn Dam to Goulburn River Junction) of the Hunter Regulated River Water Source	961 (High Security) 2,947 (General Security)	28	42
Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022	Upstream Glennies Creek Management Zone of the Hunter Regulated River Alluvial Water Source	295	2	2
	Muswellbrook Water Source	41	1	2
	Dart Brook Water Source	20	1	6
Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016	Sydney Basin-North Coast Groundwater Source	730	148	61*

Source: After Appendix C.

* The post-mining take from the Sydney Basin-North Coast Groundwater Source is 61 ML/year when considering incidental flows from external groundwater systems only (e.g. intact Permian hard rock adjacent to the mined-out pit shell). Seepage from the Eastern Out-of-Pit Emplacement and backfilled waste rock increases the total groundwater inflows to the void to 175 ML/year (i.e. due to increased recharge to the relatively permeable waste rock material).

Water Management Plan

The existing Water Management Plan, including the relevant sub-plans, would be reviewed and, revised to reflect the Modification (subject to any modified Development Consent conditions).

The existing groundwater monitoring network, as described in the Water Management Plan, is considered adequate for providing information on the dynamics of the groundwater hydraulics and offers an adequate basis for groundwater model calibration and verification (Appendix C).

Numerical Model and Water Balance Review

The numerical model developed and used for the Groundwater Impact Assessment (Appendix C) would be used as a management tool for the periodic review and calibration of predicted groundwater impacts through the life of the Modification, including incorporation of any additional hydrogeological data collected.

6.7.4 Adaptive Management

Consistent with the requirements of the AIP, MACH would continue to implement appropriate adaptive management (e.g. contingency measures) for Mount Pleasant Operation incorporating the Modification related drawdown greater than 2 m at any relevant private or public groundwater bores. Water level and water quality triggers (EC and pH) have been developed as part of the Water Management Plan for the Mount Pleasant Operation.

In the event groundwater monitoring identifies an exceedance of an established trigger, MACH would implement the trigger action response plan in accordance with the Water Management Plan.

6.8 TERRESTRIAL ECOLOGY

6.8.1 Background

Landscape Setting

The Mount Pleasant Operation area has been used for agricultural practices, including grazing of cattle and sheep, for over 100 years. It consists of a grassy landscape including areas of grassy woodland and derived native grassland (DNG) with few paddock trees.

There are no State or Commonwealth mapped wetlands on, or adjacent to, the Mount Pleasant Operation.

There are no Areas of Outstanding Biodiversity Values listed under the NSW *Biodiversity Conservation Regulation 2017* associated with the Mount Pleasant Operation.

Native Vegetation and Threatened Ecological Communities

Extensive fauna and flora surveys have been completed at the Mount Pleasant Operation to date, which have informed a robust understanding of the biodiversity values at the site.

The Mount Pleasant Optimisation Project BDAR (Hunter Eco, 2021) presented vegetation mapping based on flora surveys totalling 41 field days in July and August 2018, October and November 2019 and March, April, May, October, November and December 2020.

The Eastern New South Wales (ENSW) classification (DPE, 2022d) has come into effect since the vegetation classification and mapping by Hunter Eco (2021).

Additional vegetation integrity plot data was collected on 6 and 7 November 2023 by Hunter Eco (2024) and vegetation mapping has been revised to reflect the ENSW classification (Attachment 8).

Eight Plant Community Types (PCTs) have been mapped and further split into 14 vegetation zones. Several of these PCTs are present in both Woodland and DNG forms (Plates 26 and 27).

Plate 26 – PCT 3431 (Woodland) – Central Hunter Ironbark Grassy Woodland

Plate 27 – PCT 3431 (DNG) – Central Hunter Ironbark Grassy Woodland

The PCTs of relevance to the Modification include (Figure 22):

- PCT 3395 (Woodland and DNG) – *Northwest Elevated White Box Woodland* (White Box Grassy Woodland);
- PCT 3395 Spotted Gum (Woodland and DNG) – *Northwest Elevated White Box Woodland* (White Box Grassy Woodland);
- PCT 3446 (Woodland) – *Lower North Foothills Ironbark-Box-Gum Grassy Forest* (Forest Red Gum Grassy Woodland);
- PCT 3314 (Woodland and DNG) - *Central Hunter Slopes Grey Box Forest* (Narrow-leaved Ironbark – Grey Box Grassy Woodland);
- PCT 3315 (Woodland) – *Central Hunter Ironbark-Spotted Gum Forest* (Spotted Gum – Narrow-leaved Ironbark Woodland);
- PCT 3431 (Woodland, DNG and Plantation) – *Central Hunter Ironbark Grassy Woodland* (Narrow-leaved Ironbark Shrubby Forest);
- PCT 3396 (Woodland and DNG) – *Northwest Slopes Box-Blakelys Red Gum Woodland* (White Box – Narrow-leaved Ironbark – Blakely's Red Gum); and
- PCT 3485 (DNG) - *Central Hunter Slaty Gum Grassy Forest* (DNG only).

Table 10 identifies PCTs of relevance to the Mount Pleasant Operation that are assigned Threatened Ecological Communities (TECs) under the NSW *Biodiversity Conservation Act 2016*.

Approved Surface Disturbance Area and Existing Biodiversity Management and Offsets

Development Consent DA 92/97 provides for surface disturbance across the entirety of the approved surface disturbance area depicted and described in Figure 3 ("Approved Surface Disturbance Plan") in Appendix 2 to Development Consent DA 92/97.

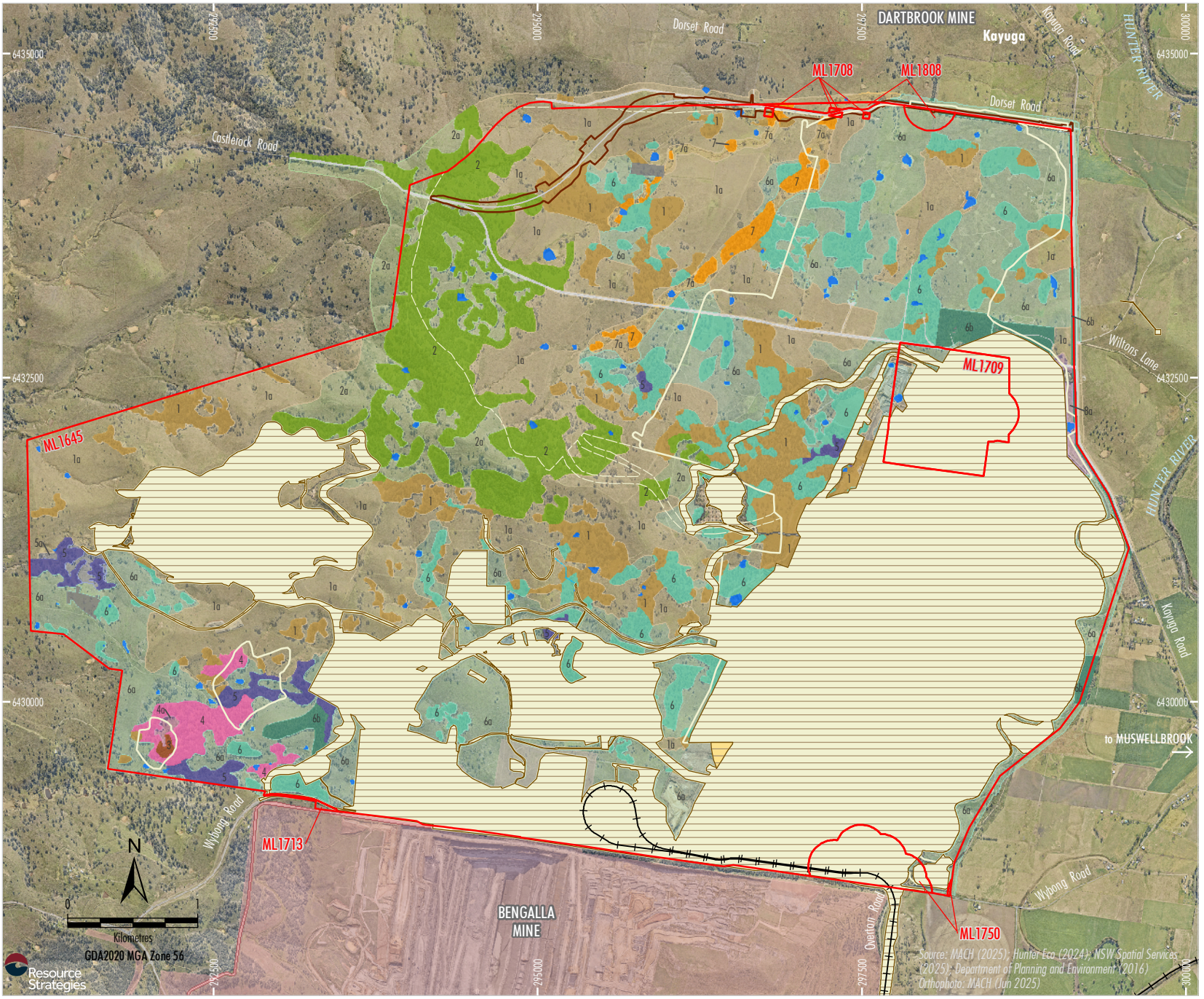
In addition, the EPBC 2011/5795 approval authorises the disturbance of 2,591 ha of the EPBC listed Box-Gum Woodland (572 ha of woodland and 2,019 ha of derived native grassland) within a defined 'project area' covering the Mount Pleasant Operation.

The impacts on biodiversity values from the Mount Pleasant Operation to date has been clearance of derived native grassland, White Box Grassy Woodland and Narrow-leaved Ironbark Shrubby Forest. However, these impacts are being counter-balanced by progressive rehabilitation of the post-mining landform, establishment and enhancement of existing biodiversity offsets and MACH's contributions to other biodiversity measures.

Table 10
Threatened Ecological Communities Identified at the Mount Pleasant Operation

Threatened Ecological Community	Conservation Status under the NSW *Biodiversity Conservation Act 2016*	Associated PCTs
Box-Gum Woodland	Critically Endangered	3395, 3396
Central Hunter Grey Box – Ironbark Woodland	Endangered	3314, 3431 (Woodland forms only)
Central Hunter Ironbark – Spotted Gum – Grey Box Forest	Endangered	3315
Hunter Lowland Red Gum Forest	Endangered	3446

Source: Hunter Eco (2024).



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Development within Approved Surface Disturbance Plan within Modified Mine Life [1, 2]
- Existing/Approved Development Area within Approved Mine Life (DA 92/97)
- Extension of Open Cut Mining and Emplacement Area (Land Lawfully Disturbed under SSD-14018)
- Approved Future Development Area
- Northern Link Road Footprint
- Existing/Approved Mount Pleasant Operation Infrastructure within Bengalla Mine Approved Disturbance Boundary [1]
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

Plant Community Types

- 1. White Box Grassy Woodland (PCT 3395)
- 1a. Derived Native Grassland (PCT 3395)
- 2. White Box - Spotted Gum Grassy Woodland (PCT 3395)
- 2a. Derived Native Grassland (PCT 3395)
- 3. Forest Red Gum Grassy Forest (PCT 3446)
- 4. Narrow-leaved Ironbark - Grey Box Grassy Woodland (PCT 3314)
- 4a. Derived Native Grassland (PCT 3314)
- 5. Spotted Gum - Narrow-leaved Ironbark Woodland (PCT 3315)
- 5a. Derived Native Grassland (PCT 3315)
- 6. Narrow-leaved Ironbark Shrubby Forest (PCT 3431)
- 6a. Derived Native Grassland (PCT 3431)
- 6b. Plantation (PCT 3431)
- 7. White Box - Narrow-leaved Ironbark - Blakely's Red Gum (PCT 3396)
- 7a. Derived Native Grassland (PCT 3396)
- 8a. Derived Native Grassland (PCT 3485)
- Stormwater Diversion
- Waterbody
- Dwellings and Infrastructure
- Road
- Unvegetated

[1] Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

[2] The general arrangement of the Fines Emplacement Area has been amended from the area shown in DA 92/97 to reflect as-built structures.

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Vegetation Mapping

Figure 22

MACH has established approximately 12,875 ha of biodiversity offset areas for the purpose of meeting the offset requirements under the Commonwealth EPBC Act approval (EPBC 2011/5795), and to offset the biodiversity impacts of the approved development under Development Consent DA 92/97 (Section 1.2.10 and Figure 5).

It is MACH's position that it has already established adequate offset areas for the purpose of offsetting impacts associated with the approved surface disturbance area. This position is considered to be consistent with previous advices given by predecessors to the NSW DPHI/DCCEEW to the consent authority, in the context of determining whether to require offsets for the impacts of proposed development at the Mount Pleasant Operation site under Development Consent DA 92/97.

6.8.2 Environmental Review

Measures to Avoid and Minimise Impacts

The Modification is primarily a life extension to an existing open cut coal mining operation and concerns development within the existing approved surface disturbance plan/area under Development Consent DA 92/97. Therefore, there are no alternative sites for the Modification.

Existing impact avoidance and mitigation measures for the Mount Pleasant Operation would continue to be implemented for the Modification (Section 6.8.3). The key management measures are the vegetation clearance protocol, rehabilitation and revegetation, tiger orchid relocation, weed management, animal pest management, speed limits, bushfire prevention and control measures.

Surface Disturbance

A total combined area of approximately 577 ha of native vegetation within the approved surface development area/plan would be cleared in the period between 22 December 2026 and 31 December 2032, dependent on pit progression and the location of minor ancillary infrastructure. Based on the mapping completed by Hunter Eco (2024) (Attachment 8), this would comprise:

- approximately 192 ha of Box-Gum Woodland;
- approximately 9 ha of Central Hunter Grey Box – Ironbark Woodland;
- approximately 127 ha of Central Hunter Ironbark—Spotted Gum—Grey Box Forest;
- approximately 2 ha of Hunter Lowland Red Gum Forest; and
- approximately 247 ha of derived native grassland and plantation areas that are not assigned to a TEC.

A further approximate 568 ha of native vegetation would remain within the approved surface development area/plan at 31 December 2032.

Surface disturbance areas at the Mount Pleasant Operation would continue to be rehabilitated and revegetated progressively once disturbed areas are no longer required for operational or construction activities (Plate 4).

Indirect Impacts

The Mount Pleasant Operation would continue to have potential indirect impacts on flora and fauna habitat and vegetation under the Modification.

Any incremental increase in noise, dust and light spill on the adjacent habitat as a result of the Modification is unlikely to significantly impact any local fauna populations, noting that the vegetation adjacent to the Modification area is mostly open derived native grassland. The Modification is unlikely to increase the risk of weeds and pests given control programs are implemented at the Mount Pleasant Operation.

The mine rehabilitation at the Mount Pleasant Operation includes placement of salvaged timber and surface rocks creating habitat for reptiles (e.g. Hunter Valley Delma [*Delma vescolineata*]) in rehabilitation areas (Plate 28).

Plate 28 – Establishment of Salvaged Timber and Rocks on Rehabilitation

Hunter Eco (2025) (Appendix J) has considered potential impacts of the Modification on ecosystems that require access to groundwater to meet all or some of their water requirements on a permanent or intermittent basis in consideration of the conclusions of AGE Consultants (Appendix C).

Site-specific investigations confirmed that while small patches of the White Box-Narrow-leaved Ironbark–Blakely's Red Gum woodland (PCT 3396) within drainage lines may function as facultative groundwater dependent ecosystems (GDEs), these areas are limited in extent and the vegetation communities are primarily reliant on soil moisture from rainfall and episodic surface flows rather than groundwater on a permanent basis (Appendix J). Groundwater modelling (Appendix C) indicates that groundwater levels in these areas are typically greater than 5 m below ground level, with negligible predicted drawdown attributable to the Modification. Accordingly, any potential change in soil moisture availability or groundwater access for facultative GDEs is expected to be minor and well within the range of natural variability (Appendix J).

Riparian vegetation along Sandy Creek (PCT 4015, Central Hunter Riparian Forest) is also recognised as groundwater dependent to varying degrees. However, given the substantial catchment area (approximately 9,100 ha), the dominance of surface water contributions, and the limited predicted influence of mining-induced drawdown on the alluvial aquifer, no material impacts to riparian or aquatic GDE function are anticipated (Appendix J).

In addition, the Modification is unlikely to have any prescribed impacts on the following:

- Habitat connectivity.
- Water quality, water bodies and hydrological processes that sustain threatened species and threatened ecological communities.
- Movement of threatened species that maintain a lifecycle.
- Risk of vehicle strikes on threatened species of animals or on animals that are part of a threatened ecological community.

6.8.3 Mitigation Measures

The following general biodiversity management measures, as per the Biodiversity Management Plan[27], are already implemented at the Mount Pleasant Operation and would continue under the Modification:

- revegetation of post-mining landforms;
- pre-clearance surveys;
- relocation program for Tiger Orchids (*Cymbidium canaliculatum*) that are identified within disturbance footprints;
- specific targeted investigations of Hunter Valley Delma populations including:
  - targeted pre-clearance inspections;
  - habitat investigation
  - measures to manage potential impacts to *Delma vescolineata;*
- collecting and propagating seed;
- salvaging and re-using material from the site for habitat enhancement;
- controlling weeds;
- controlling feral pests; and
- bushfire management.

The Mount Pleasant Operation Biodiversity Management Plan would be updated by MACH should the Modification be approved.

MACH would continue to implement other measures that are relevant to reducing potential indirect impacts on biodiversity, such as managing potential noise, air quality, groundwater and surface water impacts, as described in Sections 6.4, 6.5, 6.6 and 6.7.

The Modification disturbance areas would be progressively rehabilitated throughout the life of the mine.

[27] MACH has prepared a Biodiversity Management Plan (MACH, 2024c) that addresses both DA 92/97 and SSD 10418 requirements.

6.9 AQUATIC ECOLOGY

6.9.1 Background

The Mount Pleasant Operation is located within the catchment of the Hunter River. The local drainage network is generally characterised by steep gullies which drain from the surrounding hills into the flat alluvial plains adjacent to the Hunter River (Appendix D).

Previous Aquatic Ecology Assessment

An Aquatic Ecology Assessment including habitat assessment and field surveys was prepared by Bio-Analysis (2020a) for the Mount Pleasant Optimisation Project. This report assessed the potential impacts of the continuation of the Mount Pleasant Operation mining operations to 2048 on aquatic ecology and is presented in Appendix L for context to the following discussion.

With respect to the Mount Pleasant Optimisation Project, Bio-Analysis concluded the Optimisation Project was not likely to have a significant impact on aquatic ecology and that the potential indirect impacts on aquatic ecology would be minimised with the continuation of existing mitigation measures (Bio-Analysis, 2020a).

Stygofauna Investigation

A stygofauna investigation was completed in between 2017 and 2019 (Bio-Analysis, 2020a) and considered the presence of stygofauna in the vicinity of the Mount Pleasant Operation.

Aquatic Ecology Monitoring

MACH conducts stream health monitoring bi-annually (Figure 23) during spring and autumn using the Australian River Assessment System aquatic invertebrate monitoring protocol. In addition to aquatic macro invertebrate sampling, regular aquatic ecology monitoring includes fish observations, site water quality, stream condition and presence of aquatic and riparian edge plants.

No measurable changes to stream health have been observed in regular aquatic ecology monitoring that would be indicative of an adverse impact associated with the Mount Pleasant Operation (Bio-Analysis, 2019, 2020b, 2021, 2022 and 2024).

Species composition and richness have been comparable to previous surveys along with macroinvertebrate assemblages.

No threatened species listed under the FM Act have been observed in recent aquatic monitoring (Bio-Analysis, 2024).

6.9.2 Environmental Review

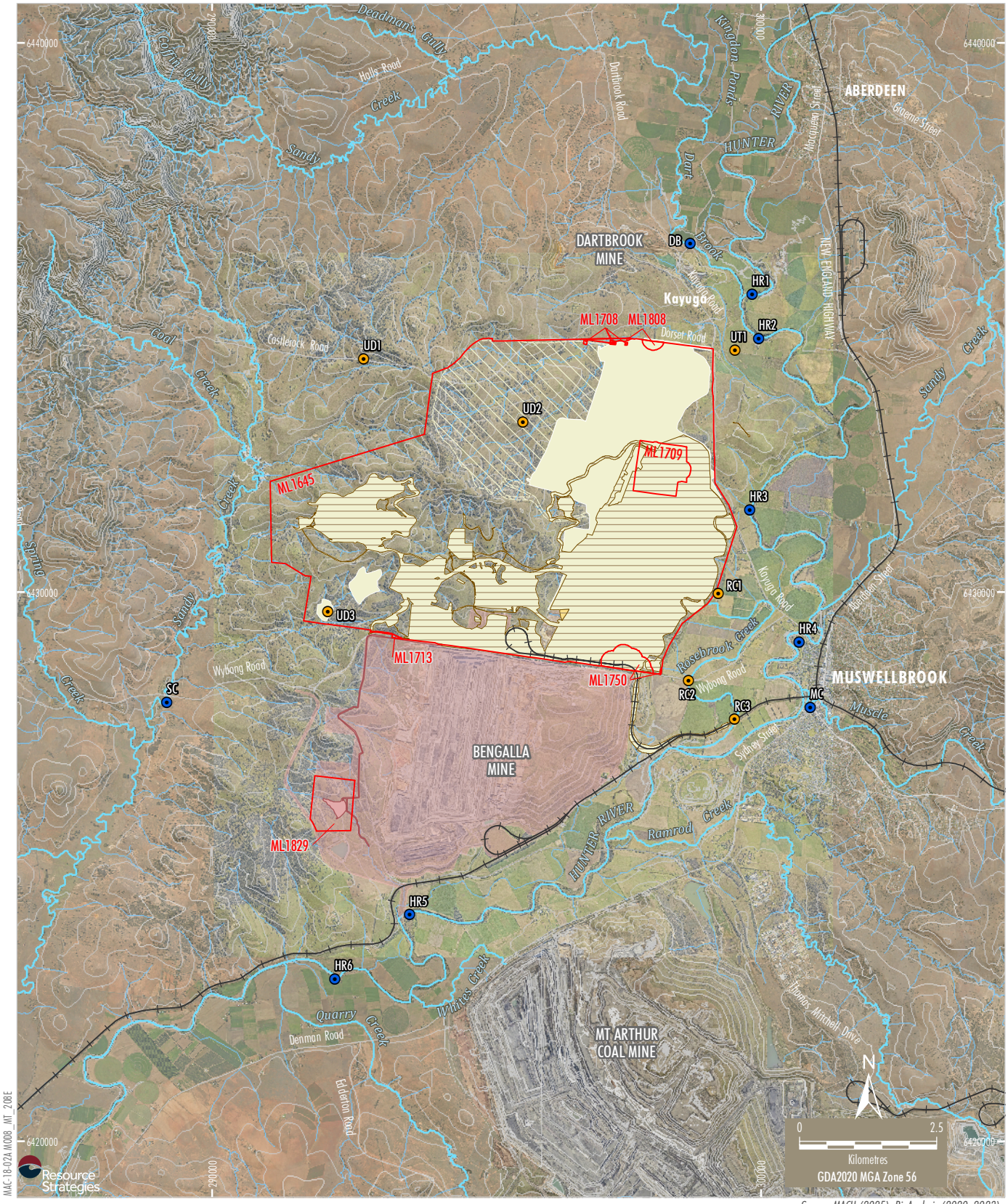
Aquatic Ecology Habitat

All streams and/or creeks present within the Modification surface development area (Figure 23) are ephemeral (Appendix C). These watercourses are dry for much of the year, with flow likely occurring only during heavy rainfall events (Plates 29 and 30) (Appendix C). There are no waterbodies that could provide sufficient habitat for any threatened aquatic species or communities listed under the FM Act or EPBC Act.

Several small ephemeral drainage lines would be cleared over the life of the Modification. No habitat along the Hunter River would be removed because of the Modification.

There would be a reduction in habitat available to aquatic flora and fauna because of the removal of ephemeral drainage lines. However, these habitats do not provide sufficient permanent habitat for aquatic biota as flow only occurs during heavy rainfall events.

Plate 29 – Site UD1 (Figure 23), Downstream of Castlerock Road
Source: Bio-Analysis (2020a).



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- Existing/Approved Mount Pleasant Operation Infrastructure within Bengalla Mine Approved Disturbance Boundary (SSD-5170) [1]
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

BioAnalysis Survey Sites

- Habitat Assessment Site
- Bi-annual Stream Health Monitoring Site

[1] Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

[2] The general arrangement of the Fines Emplacement Area has been amended from the area shown in DA 92/97 to reflect as-built structures.

Source: MACH (2025); BioAnalysis (2020, 2023); NSW Spatial Services (2025)
Orthophoto: MACH (Jun 2025, 2020)

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Aquatic Ecology and Stream Health Survey Sites

Figure 23

Plate 30 – Site UD3 (Figure 23), west from Castlerock Road
Source: Bio-Analysis (2020a).

Potential impacts on surface water resources, are described in Section 6.6 and Appendix D.

In summary, based on ATC Williams (2025) findings, there would be a negligible change to regional aquatic ecology as a result of predicted changes to surface water flow or quality as a result of the Modification (Appendix D).

Key Fish Habitat

The Modification would not result in the removal of any mapped Key Fish Habitat (Department of Primary Industries [DPI], 2025a).

Threatened Ecological Communities under the FM Act

The Modification would not result in the removal of any mapped TECs listed under the FM Act (DPI, 2025a).

Threatened Species under the FM Act

An endangered species (Southern Purple Spotted Gudgeon [*Mogurnda adspersa*]) and an endangered population (Darling River Hardyhead [*Craterocephalus amniculus*] in the Hunter River catchment) have a predicted distribution east of the Mount Pleasant Operation associated with the Hunter River (DPI, 2025b).

The drainage lines to be directly impacted by the Mount Pleasant Operation incorporating the Modification provide low aquatic ecosystem value to aquatic flora and fauna. These habitats are highly unlikely to provide habitat for the threatened Southern Purple Spotted Gudgeon and Darling River Hardyhead population.

As the Modification does not propose any disturbance of the Hunter River and would not result in any material alteration of Hunter River water quality (Section 6.7), it is unlikely that either species would have their predicted distribution altered as a result of the Modification.

Groundwater Dependent Ecosystems

Appendix C describes the current distribution of GDEs present in the vicinity of the Mount Pleasant Operation.

No Aquatic GDEs associated with the Hunter River alluvial aquifer are likely to be impacted by the Modification because no significant drawdown effects are predicted on the Hunter River alluvium (Appendix C) (AGE Consultants, 2025).

Stygofauna

Three likely stygofauna (Cyclopoida, Ostracoda and Isotomidae) were identified in the alluvial aquifer (east of the Mount Pleasant Operation, along the Hunter River), where the groundwater was relatively fresh in comparison to the hard-rock aquifers associated with the mine. Each of these taxa are known from previous surveys of stygofauna within the Hunter River alluvium. There is no significant drawdown predicted along the Hunter River alluvium (Appendix C) and therefore potential impacts to these stygofauna populations are predicted to be negligible.

It is considered unlikely that the Modification would have any measurable impact on subterranean groundwater dependent ecosystems.

Overall Impact on Aquatic Ecology

Consistent with Bio-Analysis' conclusions in respect of the Mount Pleasant Optimisation Project (Appendix L), it is considered that the carrying out of the Mount Pleasant Operation incorporating the Modification is not likely to have a significant impact on aquatic ecology, and that the potential indirect impacts on aquatic ecology would be minimised with the continuation of existing mitigation measures.

6.9.3 Mitigation

Water Resource Management

Mitigation measures relevant to groundwater and surface water are described in Sections 6.6.3 and 6.7.3, respectively. These measures are designed to manage water quality and flow in the vicinity of the Modification and, therefore, are relevant to mitigating potential impacts on aquatic ecology.

Stream Health Monitoring

Stream health, including assessment of habitat, water quality, aquatic macroinvertebrates, and fish, would continue to be monitored regularly as part of the existing Surface Water Management and Monitoring Plan over the life of the Modification. Any significant change in stream health as determined by stream health trigger levels at or immediately downstream of the Modification would be investigated to determine the source of the change in accordance with the existing trigger action response plans.

Surface Water and Groundwater Monitoring

Sections 6.6.3 and 6.7.3 describe the continuation of Mount Pleasant Operation groundwater and surface water monitoring that would occur for the Modification.

Mine Rehabilitation

Ephemeral streams/creek features would continue to be established during the rehabilitation of Modification landforms (Plate 4) consistent with the Rehabilitation Management Plan and the Rehabilitation Strategy.

6.10 ABORIGINAL CULTURAL HERITAGE

6.10.1 Background

Previous Archaeological Investigations

The Mount Pleasant Operation has been subject to numerous previous assessment and surveys. As a result of these assessments, the majority (over 95%) of the area has previously been subject to archaeological survey and assessment.

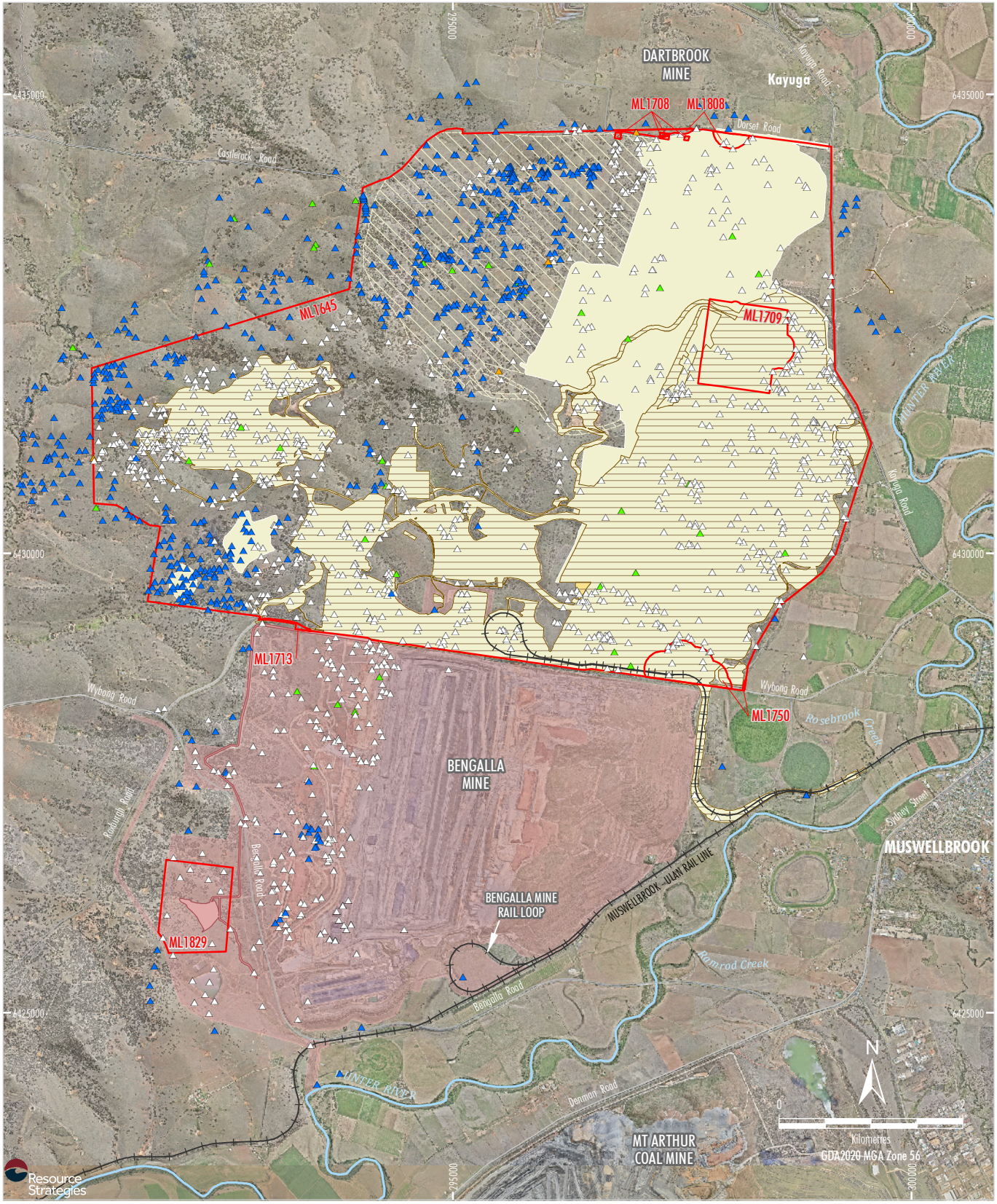
Previous investigations undertaken at the Mount Pleasant Operation and immediate surrounds include (but are not limited to):

- Aboriginal cultural heritage assessments and archaeological surveys (Rich, 1993; ERM Mitchell McCotter, 1996, 1997b; White, 1998; AECOM, 2013, 2017; South East Archaeology, 2020a, 2020b; Niche, 2021).
- Various technical advice reports (Scarp Archaeology, 2009, 2010a, 2010b, 2011; Nur-Run-Gee Pty Ltd, 2007; Roberts, 2007; McCardle Cultural Heritage Management, 2007; HLA-Envirosciences Pty Limited, 2007; Niche, 2020, 2024b).
- Various salvage reports (Environmental Resources Management Australia, 2007; ENSR Australia Pty Limited, 2008, RPS, 2018; Kuskie, 2020; Niche, 2023).
- Ongoing salvage, investigations and Aboriginal heritage management activities at the Mount Pleasant Operation.

Summary of Archaeological Findings

A total of 2,007 tangible Aboriginal heritage sites have been identified at the Mount Pleasant Operation (Figure 24), of which, some 1,341 sites are known to have been managed (i.e. salvaged/ impacted) under the currently approved Mount Pleasant Operation.

Table 11 summarises the site features in the Aboriginal Heritage Site Database for the Mount Pleasant Operation. More than 95% of the known sites are either isolated artefacts, or artefact scatters (Table 11).



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- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

Aboriginal Cultural Heritage Sites

- Extant
- Salvaged/Impacted
- Partially Salvaged
- Not an Aboriginal site

Source: MACH (2025); NICHE (2025); National Trust of Australia (1985); NSW Spatial Services (2025); Department of Planning and Environment (2016) Orthophoto: MACH (Jun 2025)

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Relevant Aboriginal Cultural Heritage Sites

[1] Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

[2] The general arrangement of the Fines Emplacement Area has been amended from the area shown in DA 92/97 to reflect as-built structures.

Figure 24

Table 11
Summary of Known Aboriginal Heritage Sites – Mount Pleasant Operation

Site Type	Number of Sites[1]	Total Percentage (%)
Artefact scatter	973	48.48
Isolated artefact	978	48.73
Non-site (reassessed to not be a site)	42	2.09
Scarred tree	13	0.65
Scarred tree and isolated artefact	1	0.05
Total	**2,007**	**100**

[1] Inclusive of sites already managed by the approved Mount Pleasant Operation.
Source: MACH Aboriginal Heritage Site Database, December 2025.

The responses of Aboriginal community members covered a range of topics of concern to local custodians, with four key themes highlighted as below (Donaldson, 2020):

- Contemporary Aboriginal people maintain important cultural connections to the ancestral past through the material evidence identified archaeologically.
- The ability to care for and make decisions about Country is important to the Wonnarua people as it is their customary right.
- The cultural use of natural resources from the local environment is ongoing and highly significant to the local community.
- The historical resistance shown by Wonnarua to Colonisation is an integral part of the contemporary Wonnarua cultural identity and their connection to Country.

Existing Aboriginal Cultural Heritage Management Measures

Aboriginal heritage sites within approved disturbance areas are managed in accordance with an approved Aboriginal Cultural Heritage Management Plan (MACH, 2024d) and the following AHIPs:

- AHIP #C0002053 (issued 24 November 2016);
- AHIP #C0002092 (issued 23 December 2011); and
- AHIP #C0004783 (issued 10 June 2019).

The extents of existing AHIPs are shown on Figure 25.

The mitigation, management and monitoring measures in the Aboriginal Heritage Management Plan and the AHIPs were developed through extensive consultation with RAPs during various cultural heritage assessments and AHIP applications and preparation of, and updates to, the Aboriginal Cultural Heritage Management Plan (MACH, 2024d).

An Aboriginal Heritage Site Database for the Mount Pleasant Operation is maintained by MACH. The Aboriginal Heritage Site Database is based on the numerous archaeological surveys and assessments undertaken at the Mount Pleasant Operation since the 1990s (described above).

MACH undertakes cultural heritage recording and salvage activities with the involvement of RAPs in accordance with the Aboriginal Heritage Management Plan and the AHIPs.

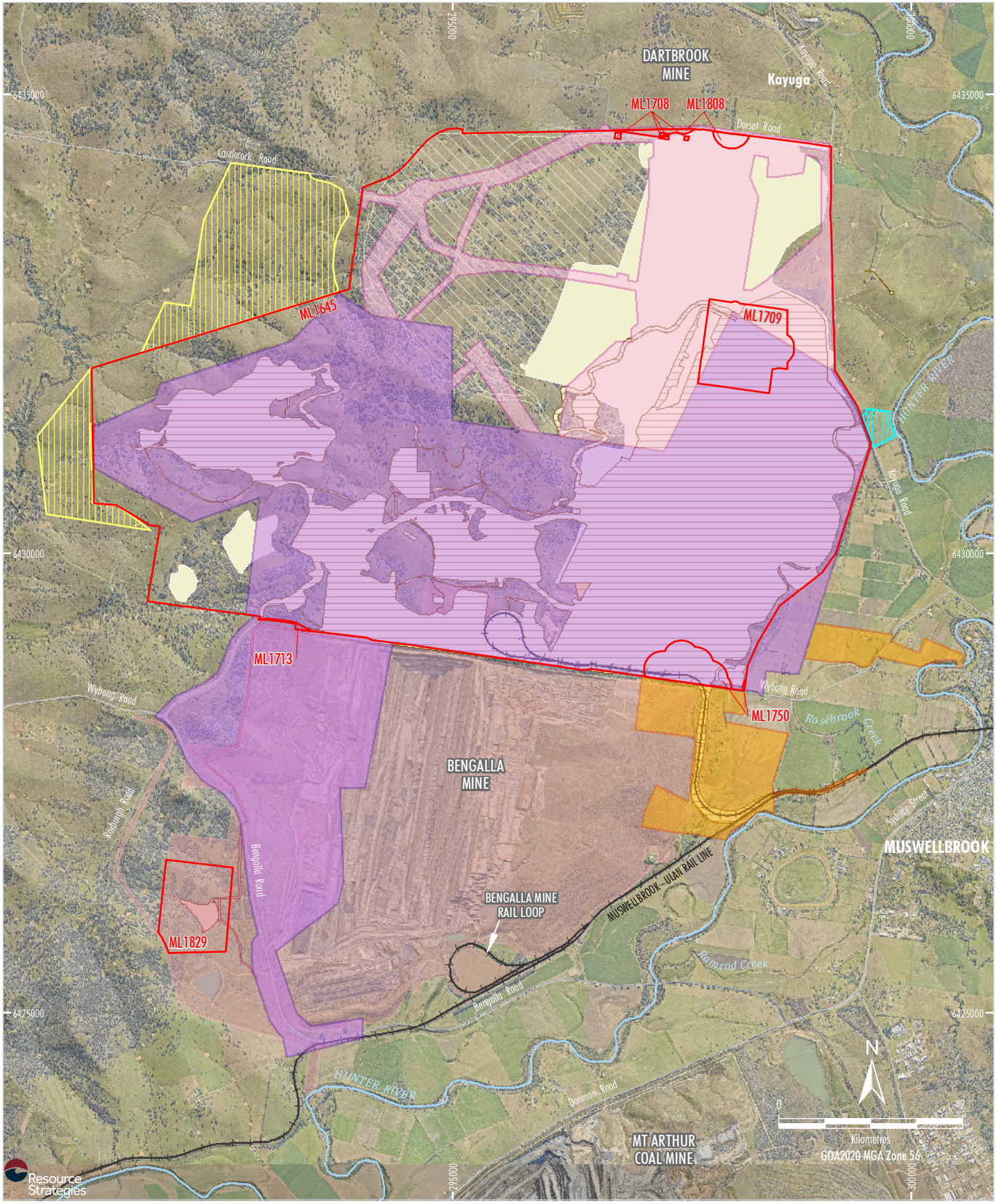
The Aboriginal Heritage Site Database for the Mount Pleasant Operation is updated by MACH to incorporate the outcomes of salvage and community collection activities.

Aboriginal Heritage Conservation Strategy

As part of the approved Mount Pleasant Operation, an Aboriginal Heritage Conservation Strategy was initially developed with the assistance of the RAPs and the Office of Environment and Heritage (OEH) (now Heritage NSW).

As part of the Aboriginal Heritage Conservation Strategy, three conservation areas have previously been proposed at the Mount Pleasant Operation (Conservation Areas A, B and C).

The security of Conservation Area A (Figure 25) is being finalised with DPHI. A draft *Aboriginal Heritage Conservation Area A Conservation Management Plan* was also developed in consultation with the RAPs and is with DPHI for review and approval.



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- Existing AHIP #C0002092
- Existing AHIP #C0002053
- Existing AHIP #C0004783
- Aboriginal Heritage Conservation Area A (Committed)
- Keeping Place (Lot 1 DP192121)

[1] Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

[2] The general arrangement of the Fines Emplacement Area has been amended from the area shown in DA 92/97 to reflect as-built structures.

Source: MACH (2025); National Trust of Australia (1985); NSW Spatial Services (2025); Department of Planning and Environment (2016)
Orthophoto: MACH (Jun 2025)

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Relevant Aboriginal Heritage Impact Permits

Figure 25

Alternative conservation measures for the provisional Conservation Areas B and C have been developed in consultation with RAPs and Heritage NSW. Following extensive consultation with RAPs and Heritage NSW, MACH is establishing a permanent Keeping Place and cultural centre adjacent to the Hunter River and east of the Mount Pleasant Operation (Figure 25). In addition to the Keeping Place and cultural centre, the Munmurra River Grinding Grooves site has recently been registered and will be protected in perpetuity as part of a Conservation Agreement under the EPBC Act. MACH will provide supervised access for RAPs to visit this site for teaching and research purposes.

Management of the Keeping Place and cultural centre and the Munmurra River Grinding Grooves site has been incorporated into the Aboriginal Heritage Conservation Strategy in the approved Aboriginal Cultural Heritage Management Plan, which was developed in consultation with RAPs and Heritage NSW (MACH, 2024d).

MACH will continue to consult with RAPs and Heritage NSW to provide updates on ongoing works at the Keeping Place and cultural centre.

Ongoing Consultation with Registered Aboriginal Parties

Consultation with the RAPs regarding the existing Mount Pleasant Operation has been extensive and involved various methods including on-site meetings, written and verbal correspondence and archaeological survey attendance. RAPs have been involved in the development of management and mitigation measures through various Aboriginal Cultural Heritage Assessments (most recently, South East Archaeology, 2020a, 2020b [Appendix L]).

Since the mine's inception, ongoing consultation with RAPs has provided for greater continuity in the decision-making process to determine how future impacts to known Aboriginal cultural heritage can be appropriately managed.

In addition to regular engagement through the year, MACH holds a formal annual meeting with RAPs, with all RAPs invited, and materials and minutes circulated. This Modification was discussed with the Mount Pleasant Operation RAPs at the December 2025 annual RAPs meeting.

6.10.2 Environmental Review

The Modification is primarily a life extension to an existing open cut coal mining operation and concerns development within the existing approved surface disturbance plan/area under Development Consent DA 92/97.

Approximately 29 Aboriginal cultural heritage sites within the approved surface development area/plan would be salvaged in the period between 1 January 2026 and 31 December 2032, dependent on pit progression and the location of minor ancillary infrastructure. A summary of these sites is as follows (Table 12):

- 25 sites were assessed as being of low scientific significance;
- three sites were assessed as being of low-moderate scientific significance; and
- one site was assessed as being of moderate scientific significance.

The Modification would not cause, within a regional context, a loss of heritage resources that could be viewed as being very rare or unique, or unlikely to exist elsewhere.

Table 12
Summary of Sites to be Salvaged in the Modification Period

Degree of Harm	Scientific Significance / Research Potential	Aboriginal Heritage Information Management System Site Numbers
Total – 29 sites	Low – 25 sites	37-2-3185, 37-2-3186, 37-2-3187, 37-2-3188, 37-2-3194, 37-2-3216, 37-2-3218, 37-2-3219, 37-2-3222, 37-2-3223, 37-2-3248, 37-2-3256, 37-2-3273, 37-2-3274, 37-2-3292, 37-2-6101, 37-2-6103, 37-2-6104, 37-2-6121, 37-2-6124, 37-2-6128, 37-2-6148, 37-2-6151, 37-2-6152, 37-2-6153
	Low-Moderate – 3 sites	37-2-6122, 37-2-6123, 37-2-6127
	Moderate – 1 site	37-2-6132

Source: MACH Aboriginal Heritage Site Database, December 2025.

The location of known Aboriginal heritage sites is presented on Figure 24.

Where practicable, ancillary development would be located to avoid or minimise potential direct impacts to known Aboriginal heritage sites.

Potential impacts from operations at the Mount Pleasant Operation are currently being managed within a known and consistent framework and through formalised policies and procedures.

For sites with potential direct harm, community collection is proposed to occur. This community collection is proposed in accordance with existing management protocols and guided by procedures specified in the Aboriginal Cultural Heritage Management Plan. These procedures have been determined in consultation with RAPs.

The long-term management of artefacts salvaged from the Mount Pleasant Operation has been established by the approval of an existing Care Agreement providing certainty to the Aboriginal community that artefacts will be able to be retained on Country.

The Aboriginal cultural heritage sites within the potential areas of impacts associated with the Modification represent a well-documented and researched segment of Aboriginal archaeological resources in the local area consisting almost entirely of either isolated finds or artefact scatters with limited research potential.

6.10.3 Mitigation Measures

For all sites that would be disturbed within the Modification period, mitigation, management and monitoring measures have been developed in consultation with the RAPs, in consideration of the cultural and archaeological significance of the Aboriginal heritage sites predicted to be impacted, and the cultural significance of the area. These measures are outlined in the approved Aboriginal Cultural Heritage Management Plan and the AHIPs.

Aboriginal Heritage Impact Permits

Under Development Consent DA 92/97, an AHIP is required for the direct disturbance of an Aboriginal cultural heritage site under the NSW *National Parks and Wildlife Act 1974.*

AHIP applications would be prepared to address any sites that would be disturbed by the Modification and are not subject to any existing AHIP, in the event that SSD 10418 cannot be relied upon. These AHIP applications would, necessarily, be prepared in consultation with the RAPs and in accordance with the requirements of the NSW *National Parks and Wildlife Regulation 2019.*

Where required, MACH may lodge a variation application to extend the life of existing AHIPs (#C0002092, #C0004783 and/or #C0002053) to align with the revised period of mining operations (31 December 2032), subject to, and in consideration of the outcomes of, consultation with the Mount Pleasant Operation RAPs.

Aboriginal Cultural Heritage Management Plan

The Aboriginal Cultural Heritage Management Plan would be reviewed and, if required, revised for the Modification to reflect any changes to Development Consent DA 92/97, along with any variation to existing AHIPs or grant of a new AHIP.

General Measures

The following management measures would be undertaken for the Modification consistent with the requirements of relevant AHIPs and the Aboriginal Cultural Heritage Management Plan:

- Consultation with the RAPs will continue for the life of the mining operations at the Mount Pleasant Operation. Consultation would be undertaken consistent with the consultation requirements in the approved Aboriginal Cultural Heritage Management Plan.
- For any previously unrecorded Aboriginal heritage sites that may be identified during the Modification period, they would be managed consistent with the requirements outlined in the Aboriginal Cultural Heritage Management Plan.
- Where impacts cannot either be avoided or avoidance is unwarranted, community surface collection, site survey or test/salvage excavation (where required) would be undertaken prior to undertaking the proposed works. A suitably qualified archaeologist and representatives of RAPs would be engaged to record and collect the Aboriginal objects. These objects would be properly curated and stored at the cultural centre and Keeping Place.

- MACH would implement response procedures for any discovery of unexpected skeletal remains during construction activities for the Modification, in accordance with the Aboriginal Cultural Heritage Management Plan.
- In accordance with the Aboriginal Cultural Heritage Management Plan, Aboriginal cultural heritage would continue to be a component of all employee and contractor inductions.

6.11 HISTORIC HERITAGE

6.11.1 Background

Historical Overview

The early European settlement of Muswellbrook fits within the broader historical pattern of the early regional settlement and industrial development of the Hunter Region, with an influx of free settlers and immigrants from the 1820s (Extent Heritage Pty Ltd [Extent], 2020).

Agriculture, pastoralism and coal mining were a feature of early life in the Muswellbrook district. For most of the nineteenth century, wool was initially the dominant industry, followed by cattle and sheep grazing, small-scale agriculture, and the breeding of horses.

Historic Heritage Assessments

A detailed Historic Heritage Study was undertaken by Veritas Archaeology and History Service (VAHS) in 2014 for the Mount Pleasant Operation. This study identified a number of historic heritage features within the Development Consent DA 92/97 boundary and immediate surrounds.

The identified features included a lime kiln, sandstone quarry, sheds, stockyards and fences, windmills, hut sites, school and church sites, a butter factory, a slaughter house, a surveyor's mark, farm and house sites, homesteads and a cemetery, ranging in antiquity from the 1830s to the 1970s.

In November 2016, MACH lodged reassessments of six historic heritage sites, along with appropriate and contemporary heritage recommendations with DPE (now DPHI).

A contemporary historic heritage assessment was undertaken by Extent (2020) for the Mount Pleasant Optimisation Project (SSD 10418), and is presented in Appendix L for context to the following discussion. Extent (2020) conducted assessment of all extant heritage sites and development of appropriate management measures in consultation with DPE (now DPHI), Heritage NSW and MSC.

The assessment was prepared in consideration of the relevant principles and articles contained in (but not limited to):

- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (Australia International Council on Monuments and Sites, 2013);
- NSW *Heritage Manual* (NSW Heritage Office and NSW Department of Urban Affairs and Planning, 1996);
- *Assessing Heritage Significance* (NSW Heritage Office, 2001); and
- *Statements of Heritage Impact* (NSW Heritage Office, 2002).

Historic Register Searches

The following heritage registers have been reviewed to identify historic heritage sites in the vicinity of the Mount Pleasant Operation:

- World Heritage List.
- NSW State Heritage Register.
- Former Register of the National Estate.
- National Trust Register.
- National Heritage List.
- Commonwealth Heritage List.
- Schedules of the Muswellbrook LEP.
- Relevant Section 170 Heritage and Conservation Registers.
- Australian Institute of Architects (AIA) Register of Significant 20th Century Buildings.
- Former Hunter Regional Environmental Plan 1989 (Heritage)[28].

Searches of the World Heritage List, National Heritage List, Commonwealth Heritage List, NSW State Heritage Register and the AIA Register of Significant 20th Century Buildings identified no registered sites located within, or adjacent to, the Mount Pleasant Operation.

[28] The *Hunter Regional Environmental Plan 1989* (Heritage) was repealed on 5 August 2016; however, items listed in this document have been considered for completeness.

External sites with identified heritage value in the vicinity of the Mount Pleasant Operation in the Muswellbrook LEP include six historic heritage sites located in the broader Muswellbrook area, including:

- Negoa Homestead;
- Kayuga Bridge (Plate 31);
- Kayuga Homestead;
- Rosedale (Rosevale) Cottage;
- Overdene (Overton) Homestead; and
- Kayuga Cemetery.

A search of the National Trust Register (a non-statutory register) also identified four registered external items in the vicinity of the Mount Pleasant Operation (one of which is also included in the Section 170 Heritage and Conservation Register), including:

- Negoa Homestead;
- Overdene (Overton) Homestead;
- Old Kayuga Cemetery; and
- Muswellbrook-Jerry Plains Landscape Conservation Area.

The Muswellbrook-Jerrys Plains Landscape Conservation Area (Figure 26) was registered by the National Trust of Australia (NSW) in 1985. This listing is not recognised in either the Muswellbrook LEP or the Singleton LEP (Extent, 2020). The Mount Pleasant Operation is predominantly located outside of this Area. To the extent that this Area is relevant to the Modification, it is noted that this listing has no legislative effect and gives rise to no statutory obligations.

The site known as Kayuga Homestead was not assessed for this Modification as it is not located within the immediate vicinity of the Mount Pleasant Operation (it is on land controlled by Dartbrook Mine) and would not directly be impacted by the Mount Pleasant Operation (Extent, 2020). This is also the case for the Rosedale (Rosevale) Cottage.

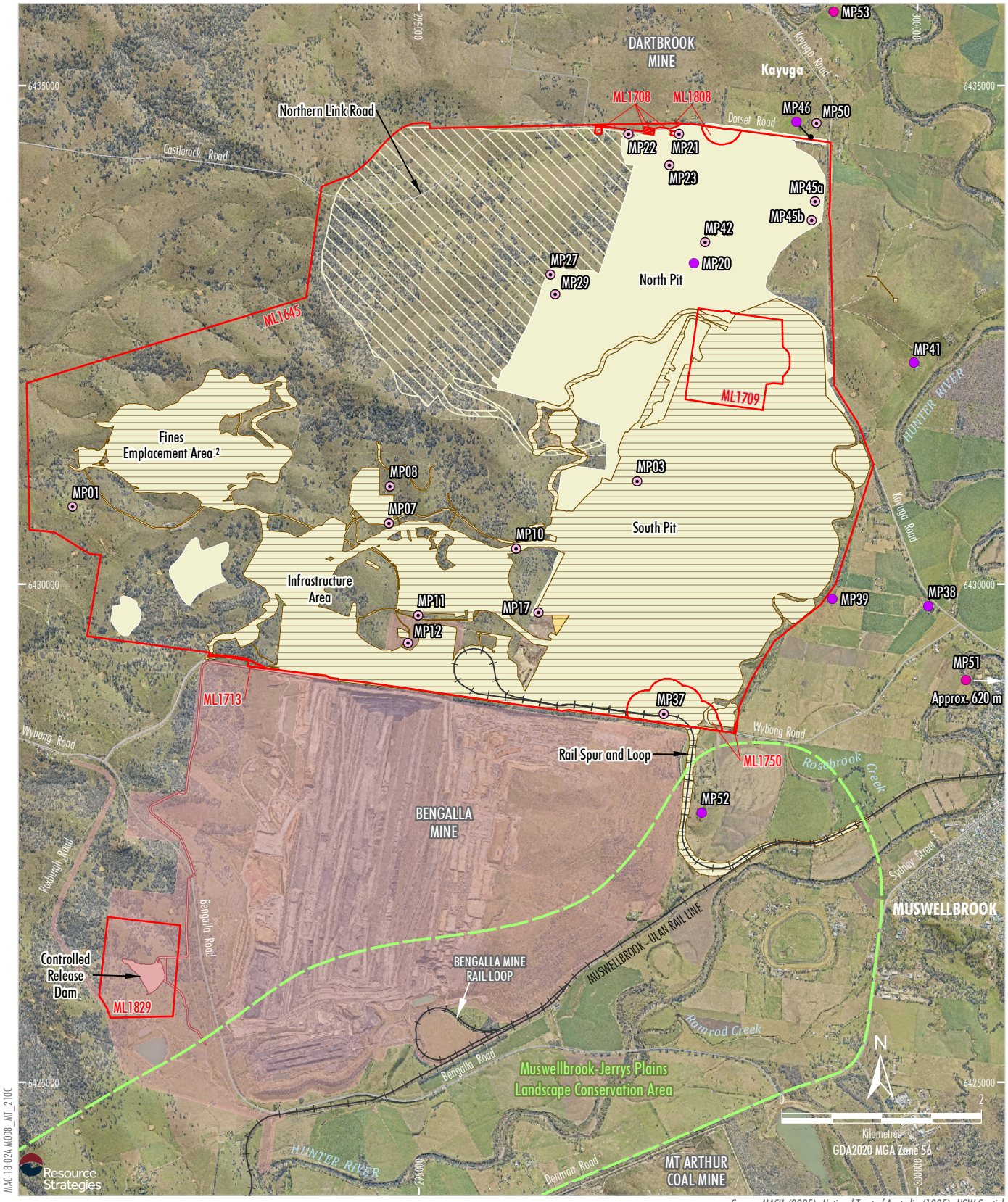
Management of Historic Heritage Sites

Historic heritage at the Mount Pleasant Operation was previously managed in accordance with the recommendations of VAHS (2014) as amended by the 2016 review.

MACH prepared a Historic Heritage Management Plan (MACH, 2025a) for the Mount Pleasant Optimisation Project in consultation with MSC, Heritage NSW and DPHI, which was approved on 6 June 2025.

Conservation Management Plans have also been prepared for the Negoa Homestead (MP41) (Extent, 2021) and the Rosebrook Homestead (MP38) (Extent, 2025). Bengalla Mine has a Conservation Management Plan in place for Overdene (Overton) (MP52) (AECOM and Hansen Bailey, 2017).

Plate 31 – View of the Kayuga Bridge (MP51)



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Development within Approved Surface Disturbance Plan within Modified Mine Life [1]
- Existing/Approved Development Area within Approved Mine Life (DA 92/97)
- Extension of Open Cut Mining and Emplacement Area (Land Lawfully Disturbed under SSD-14018)
- Approved Future Development Area [1]
- Existing/Approved Mount Pleasant Operation Infrastructure within Bengalla Mine Approved Disturbance Boundary [1]
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Muswellbrook-Jerrys Plains Landscape Conservation Area

Historic Heritage Sites

- State Significance Site
- Local Significance Site
- Site Managed (i.e. Excavated/Salvaged/Demolished)

Source: MACH (2025); National Trust of Australia (1985); NSW Spatial Services (2025); Department of Planning and Environment (2016) Orthophoto: MACH (Jun 2025)

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Relevant Historic Heritage Sites

[1] Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

[2] The general arrangement of the Fines Emplacement Area has been amended from the area shown in DA 92/97 to reflect as-built structures.

Figure 26

A number of historic heritage sites have been managed (i.e. salvaged, excavated or demolished) at the Mount Pleasant Operation to date, including (Figure 26):

- MP01 – Broomfield;
- MP03 – Dever's;
- MP07 – Bates 1;
- MP08 – Bates 2;
- MP10 – Scriven 1;
- MP11 – Seabrook's;
- MP12 – Bollibon – Nowland's;
- MP17 – Clayden's;
- MP21 – Kayuga School;
- MP22 – Smith's Clear Farm;
- MP23 – Devine's;
- MP27 – Thorndale;
- MP29 – Lynch's;
- MP37 – Berrywood;
- MP42 – Fibbins;
- MP45(a-b) – Casey: Clenmore and Edgeway; and
- MP50 – Waitomo House.

6.11.2 Environmental Review

A summary of extant heritage sites at the Mount Pleasant Operation and its surrounds is provided in Table 13. The locations of these sites are shown in Figure 26.

Potential Direct Impacts

There is one remaining site of local heritage significance within the approved surface disturbance plan/area that would be disturbed over the life of the Modification. This is MP20 – Kayuga Coal Mine.

Direct impacts to this site would be appropriately mitigated by implementing management measures consistent with the recommendations of Extent (2020).

Potential Indirect Impacts

The Modification would extend the period of potential indirect impacts on the following sites:

- MP38 – Rosebrook;
- MP41 – Negoa Homestead;
- MP46 – Kayuga Recreational Ground;
- MP51 – Kayuga Bridge;
- MP52 – Overdene; and
- MP53 – Kayuga Cemetery.

These sites have the potential for indirect impacts relating to blasting (building damage), air quality, acoustic, visual amenity and altered 'use' of the site.

The former Rosebrook Quarry (MP39) is located outside the Development Consent DA 92/97 boundary and would not be impacted by the Modification.

Any potential indirect impacts on the above listed sites would be avoided or mitigated by implementing management measures recommended by Extent (2020) (Section 6.11.3).

Proximal State Heritage Items

Kayuga Bridge (Site MP51) has been assessed to be of State historic heritage significance (Table 13) and comprises a bridge and a roadway carried on cross girders covered with a timber deck (Plate 31). The bridge is the second oldest lattice bridge in NSW and represents the significant structures of the colonial period between 1881 to 1893.

Site MP51 would not be directly impacted by the Modification. MACH has an existing commitment for mine-related traffic to avoid using the bridge.

Kayuga Cemetery (Site MP53) has also been assessed to be of a State historic heritage significance (Table 13). Site MP53 is the oldest cemetery in the Upper Hunter and had three periods of use, including the convict period (1831 to 1842), Scottish settlers and labourers, and conditional purchase settlers and labourers (post-1861). Site MP53 would not be directly impacted by the Modification.

Table 13
Relevant Extant Historic Heritage Sites

Site Number	Historic Heritage Site	Recognised in Historic Heritage Register?	Summary Description	Significance	Located within Approved Surface Disturbance Plan/Area (DA 92/97)
MP20	Kayuga Coal Mine	No	A disturbed collection of debris, with the visible extant features including the remains of timber posts, collapsed timber lined shaft entrances, exposed coal fines and broken bricks.	Local	Yes
MP38	Rosebrook	No	A farm site with the modified remains of an early homestead. It comprises a two-storey sandstone homestead with a narrow, steep-roofed lean-to, a cellar, a billiard room and other outbuildings.	Local	No
MP39	Rosebrook Quarry	No	The site presents as a quarry, located west of the Rosebrook homestead.	Local	No
MP41	Negoa Homestead	Yes	A single-storied brick homestead in good condition with a corrugated metal hipped roof, with a two roomed cellar underneath the building.	Local	No
MP46	Kayuga Recreational Ground	No	A timber hall structure with gabled ends, a lean-to section and boarded up windows on the eastern side.	Local	No
MP51	Kayuga Bridge	Yes	A two-span, single lane continuous steel and iron lattice truss bridge with an overall length of 162 m. The bridge is indicative of a significant structure of the colonial period.	State	No
MP52	'Overdene' (Overton)	Yes	A 19th century five-room sandstone homestead with a central hall, brick chimneys and verandah extending around the east and south sides. The homestead has undergone a program of conservation to stabilise the physical fabric.	Local	No
MP53	Kayuga Cemetery	Yes	The site is the oldest cemetery in the Upper Hunter, with the first known burial in 1831.	State	No

Source: MACH (2025a); Extent (2020).

Cumulative Impacts

The Modification disturbance area would be constrained to within the approved surface disturbance plan/area (Figure 6) in the Modification period to 2032.

As such, the continuation of mining operations to 2032 would result in the disturbance of the Kayuga Coal Mine of local heritage significance, removing it from the Mount Pleasant cultural landscape, as assessed by Extent (2020). This is consistent with the potential impacts of the Mount Pleasant Optimisation Project (SSD 10418).

Many of the features that contribute to the Mount Pleasant cultural landscape are of poor condition (Extent, 2020).

As indicated above, there would be negligible impact on the broader setting of the Muswellbrook-Jerrys Plains Landscape Conservation Area (Extent, 2020).

Overall Impact

Consistent with Extent's conclusions in respect of the Mount Pleasant Optimisation Project (Appendix L), it is considered that the carrying out of the Mount Pleasant Operation incorporating the Modification is not likely to have a significant impact on historic heritage, and that potential impacts would be effectively managed by implementing appropriate mitigation measures.

6.11.3 Mitigation Measures

Management measures for the identified historic heritage sites would be described in a Historic Heritage Management Plan to be developed should the Modification be approved.

Specific management measures for each historic heritage site, which would potentially experience direct or indirect impacts associated with the Modification are provided in Table 14.

MACH would continue to implement blasting management measures in accordance with the Blast Management Plan. The Blast Management Plan would be reviewed and, if required, revised for the Modification to reflect any changes to Development Consent DA 92/97.

No specific management measures are proposed for the sites that are not considered to be of historic heritage significance (Extent, 2020). However, some of these items may be of interest to local collectors, and prior to disturbance, may be offered to local historical groups.

6.12 ROAD TRANSPORT

A Road Transport Assessment for the Modification has been undertaken by The Transport Planning Partnership (TTPP) (2025) and is presented in Appendix E.

TTPP (2025) has undertaken an assessment of the potential impact of the proposed Modification on the local road transport network. The assessment considers the potential cumulative road transport impacts of the Mount Pleasant Operation in the context of other mining and renewable energy developments and background traffic growth in the modified operational period to 2032.

Section 1.2.11 provides a description of the current workforce numbers at the Mount Pleasant Operation. The operational workforce is forecast to be approximately 575 personnel in 2026, under the Modification. The construction workforce would vary throughout the life of the Modification, with a peak of approximately 80 construction personnel (Sections 3.3.2 and 3.10).

For the purpose of the traffic analysis, some management and support operational staff (i.e. sustaining capital and functional support) have been categorised with the construction workforce, due to the similar roles, shift time arrangements and travel habits as construction contractors.

6.12.1 Background

Road Network

The following key roads are of relevance to the Modification:

- New England Highway (Highway 9, Route A15) – the main north-south link through the Hunter Region, connecting Muswellbrook and Newcastle, and extending between Hexham and the Queensland border.
- Golden Highway (Highway 27, Route B84) – a road link between the New England Highway and the Newell Highway near Dubbo.
- Denman Road (Main Road 209) – forms the primary connection between Denman and Muswellbrook and provides an additional road link between the Golden Highway and New England Highway.
- Bengalla Road (currently a local road) – a road link between Denman Road south of Muswellbrook and Merriwa Road (Golden Highway) at Sandy Hollow and provides vehicular access to Bengalla Mine.

Table 14
Key Proposed Management Measures for Relevant Historic Heritage Sites

Site Number[1]	Historic Heritage Site	Key Proposed Management Measures[2]
MP20	Kayuga Coal Mine	• Conduct archaeological investigations prior to any disturbance, using a combination of mechanical and manual excavation, provided it is safe to do so. • For those areas identified as unsafe to undertake archaeological investigations, it is appropriate for works to proceed without the need for further inputs from an archaeologist. • Present the results of the archaeological investigations in a formal report within 12 months of completion of the investigations. • Once the archaeological investigations and reporting are complete, works would then proceed at the site without the need for further heritage inputs.
MP38	Rosebrook	• Maintain and conserve the homestead, any outbuildings and garden areas *in-situ* in accordance with the existing Rosebrook Conservation Management Plan (Extent, 2025), or any future updates. • Undertake archaeological investigation prior to any significant ground disturbance. Present the results of the archaeological investigations in a formal report within 12 months of completion of the investigations. • All blasting activities would be designed and managed in accordance with the Mount Pleasant Operation Blast Management Plan.
MP39	Rosebrook Quarry	• No specific management recommendations.
MP41	Negoa Homestead	• Maintain and conserve *in-situ* in accordance with the existing Negoa Conservation Management Plan (Extent, 2021), or any future updates. • All blasting activities would be designed and managed in accordance with the Mount Pleasant Operation Blast Management Plan. • Consult with a suitably qualified archaeologist prior to conducting any ground disturbance works within the grounds of MP41 or in its vicinity.
MP46	Kayuga Recreational Ground	• Given the management of the site remains the responsibility of MSC, no conservation measures are required. • All blasting activities would be designed and managed in accordance with the Mount Pleasant Operation Blast Management Plan. • In the event the site is to be directly disturbed or demolished, conduct archival recording consistent with NSW Heritage Office guidelines prior to demolition. • Once the archival record is complete, works would then proceed at the site without the need for further heritage inputs.
MP51	Kayuga Bridge	• Continue to observe MACH's existing commitment relating to the use of the Kayuga Bridge in accordance with the Mount Pleasant Operation Site Access Management Plan. • All blasting activities would be designed and managed in accordance with the Mount Pleasant Operation Blast Management Plan. • Given the management of the site remains the responsibility of Transport for NSW, no further measures are required.
MP52	'Overdene' (Overton)	• Maintain and conserve *in-situ* in accordance with the existing Overdene Conservation Management Plan (AECOM and Hansen Bailey, 2017), noting that the site is located on Bengalla Mine owned land.
MP53	Kayuga Cemetery	• All blasting activities would be designed and managed in accordance with the Mount Pleasant Operation Blast Management Plan. • Given the management of the site remains the responsibility of the MSC, no further measures are required.

Source: Extent (2020).

[1] The site number correlates with the numbers presented on Figure 26. Only extant sites are listed in this table.

[2] Extent (2020) and MACH's Historic Heritage Management Plan (MACH, 2025) provide additional detail on these measures.

- Wybong Road (currently a local road) – a road link between Kayuga Road north-west of Muswellbrook and Merriwa Road (Golden Highway) at Sandy Hollow, and provides access to Mangoola Coal and the Mount Pleasant Operation.
- Kayuga Road (currently a local road) – a road link between Aberdeen Street on the western side of the Main Northern Railway, Muswellbrook and Kayuga.
- Blairmore Lane and Dartbrook Road (local roads) – road links between Kayuga Road and the New England Highway north of Aberdeen.
- Thomas Mitchell Drive (a local road) – provides a link between Denman Road and the New England Highway to the south of the Muswellbrook township. This road provides a bypass of Muswellbrook for some traffic and access to the Muswellbrook Industrial Area, Mt Arthur Coal Mine and Maxwell Underground Mine.
- Mount Pleasant Operation Access Road (private road) – provides access to the Mount Pleasant Operation and intersects Wybong Road at a priority-controlled T-intersection.
- Northern Link Road (future local road, currently under construction) – will provide an east-west link between Dorset Road and Castlerock Road and will allow for the closure of the eastern section of Castlerock Road to access coal reserves in the North Pit.

MACH contributes to the maintenance of parts of Bengalla Road and Wybong Road with MSC in accordance with the Mount Pleasant Operation Maintenance Management Plan.

The primary access routes to the site are as follows:

- Denman Road, Bengalla Road and Wybong Road (west of the mine access) for employees and contractors travelling from Muswellbrook, as required by Condition 42, Schedule 3 of Development Consent DA 92/97.
- Thomas Mitchell Drive, Denman Road, Bengalla Road and Wybong Road (west of the mine access) for employees and contractors travelling from south of the site on the New England Highway.
- Kayuga Road and Wybong Road (east of the mine access) for employees and contractors travelling from north of the site (e.g. Kayuga, Aberdeen and Scone).
- Wybong Road (west of Bengalla Road and the mine access) for employees and contractors travelling from west of the site (e.g. contractors travelling from Mangoola Coal).

As use of the Kayuga Bridge is prohibited for all access to the Mount Pleasant Operation (with the exception of emergency vehicles), Bengalla Road is the route used for travel between Muswellbrook and the Mount Pleasant Operation for the workforce and deliveries to the MIA.

Baseline Traffic Conditions

Baseline traffic conditions have been informed by review of:

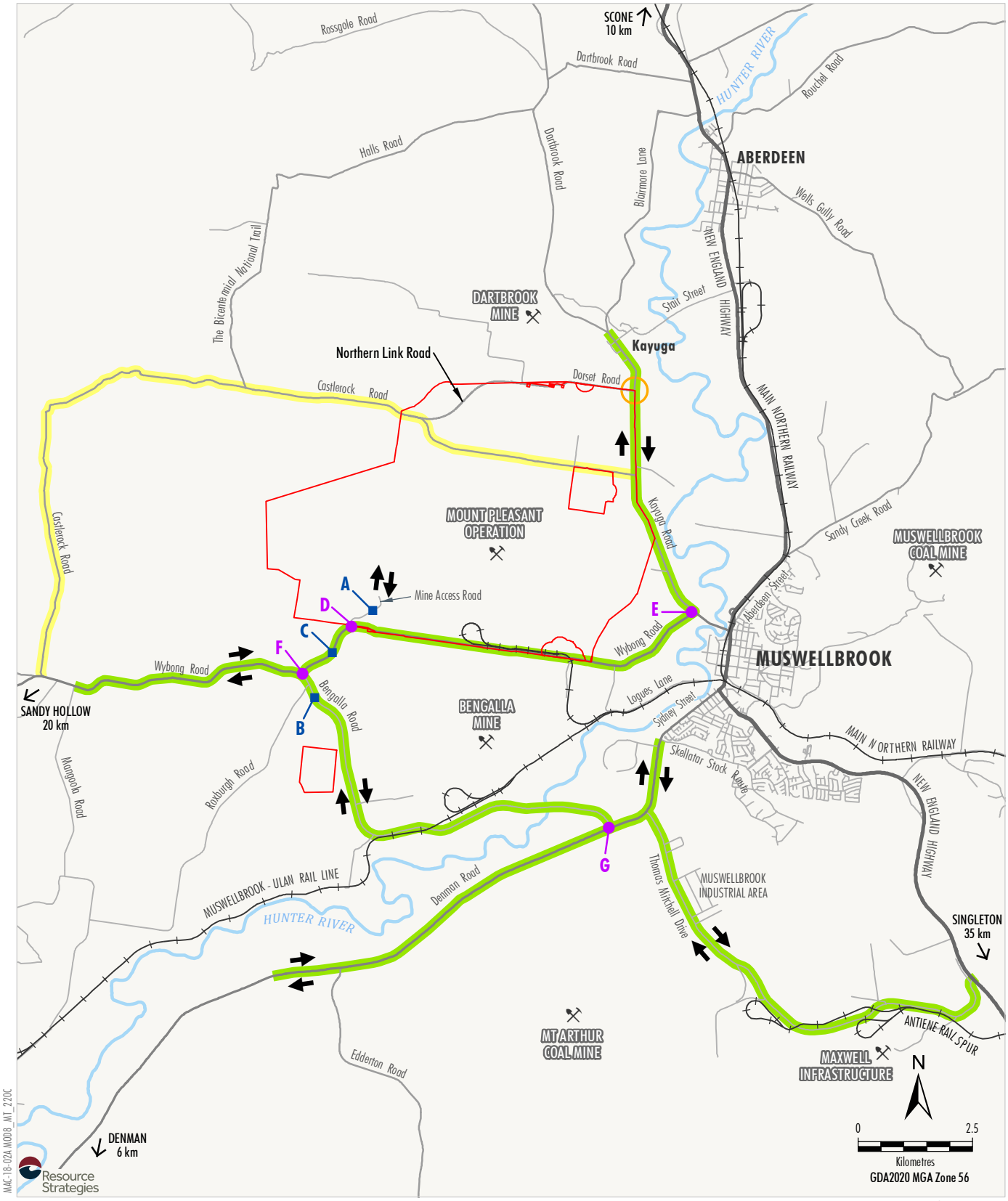
- available Annual Average Daily Traffic Volume data since 2015 from Transport for NSW (TfNSW);
- mid-block tube counts conducted in February 2020 (Figure 27);
- vehicle turning movement surveys at intersections conducted in November 2020 (Figure 27); and
- changes at the Mount Pleasant Operation and other developments in the region that have occurred, or will occur, following the traffic surveys.

Road Safety Review

The review of the road crash history of key roads surrounding the Mount Pleasant Operation did not identify any causation factors associated with the existing road network that may be exacerbated by the Modification's increased traffic demands (Appendix E).

A Road Safety Audit (TTPP, 2020) was also conducted as part of the Road Transport Assessment for the Mount Pleasant Optimisation Project (SSD 10418) and along the full length of Castlerock Road and the interestion of Dorset Road and Kayga Road (TTPP, 2024) in accordance with the *Guidelines for Road Safety Audit Practices* (NSW Roads and Traffic Authority, 2011), the *Guide to Road Safety Part 6 Road Safety Audit* (Austroads, 2022) and other relevant guidelines. (Figure 27).

There were no particular road safety concerns identified along the Mount Pleasant Operation access routes that might adversely impact road safety (Appendix E).



Source: TTPP (2024, 2020); NSW Spatial Services (2025)

LEGEND

- Mining Operation
- Railway
- Primary Road
- Arterial Road
- Sub Arterial Road
- LocalRoad
- Mining Lease Boundary (Mount Pleasant Operation)
- Key Midblock Assessment Location (2020)
- Road Intersection Survey Location (2020)
- Tube Count Survey Location (2020)
- Extent of Road Safety Audit (2020)
- Extent of Road Safety Audit (2023)
- Intersection Road Safety Audit (2023)

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Local Road Network and
Traffic Survey and Assessment Locations

Figure 27

6.12.2 Environmental Review

Potential Impacts

Potential impacts of the Modification on traffic generation, roadway capacity and safety are assessed in Appendix E and summarised below. These potential impacts have been assessed in the context of anticipated future background traffic growth.

Modification Traffic Generation

Two traffic scenarios, representative of the peak construction workforce (nominally 2026) and the final year of the life of the Modification (2032), were assessed.

The assessment was conservatively based on estimated traffic generated travel by private vehicles only. However, MACH may operate shuttle bus services between Muswellbrook and the Mount Pleasant Operation should the construction workforce require it. This would reduce the number of vehicle trips compared to the Road Transport Assessment assumptions.

Cumulative Traffic Changes

The Road Transport Assessment (TTPP, 2025) has considered a number of traffic sources in the vicinity of the Mount Pleasant Operation that may contribute to existing and/or future traffic volumes, including other mining developments, development of the Central West Orana and New England Renewable Energy Zone (REZs), and other proposed road network changes (e.g. the proposed Muswellbrook Bypass) (Appendix E).

The Northern Link Road would generally not be used by the Mount Pleasant Operation and would have negligible impact on general traffic conditions (i.e. would provide only local area access).

Cumulative Future Traffic Volumes

Appendix E presents the total predicted cumulative future traffic volumes on road links in the region, incorporating Modification traffic, traffic from other key developments and estimated background traffic growth.

The cumulative future traffic volume predictions and associated mid-block Level of Service assessment focused on key site access roads proximal to the Mount Pleasant Operation which were considered to be most likely to be impacted by the Modification (Appendix E). Predicted incremental Modification traffic contributions within the wider road network are provided in Appendix E.

The Austroads (2020) *Guide to Traffic Management Part 3: Traffic Studies and Analysis Methods* provides guidelines for the capacity and performance of two lane, two-way rural roads. Austroads (2020) defines Level of Service as a qualitative measure describing the operational conditions within a traffic stream (in terms of speed, travel time, freedom to manoeuvre, traffic interruptions, comfort, convenience and safety) as perceived by drivers and/or passengers.

Overall, peak hour midblock Levels of Service on key surveyed access roads would remain generally satisfactory with the Modification, when considered cumulatively with background growth and impacts from other developments in the region (Appendix E).

Peak Hour Intersection Performance

The peak hour performance of key intersections with total predicted future traffic volumes (including the surveyed intersections, Thomas Mitchell Drive and Denman Road and Thomas Mitchell Drive and the New England Highway) were forecast using SIDRA INTERSECTION 9.1 (SIDRA), which is an analysis program that determines the characteristics of intersection operating conditions, including the degree of saturation, average delays and Levels of Service.

From the SIDRA analyses, the results of the previous intersection surveys for the Mount Pleasant Optimisation Project peak hour 4.00 pm to 5.00 pm were adjusted to indicative conditions during the Modification peak hour 6.00 pm to 7.00 pm (Appendix E).

From the SIDRA analyses, the intersections can be expected to operate at satisfactory levels of service during the Modification peak hours, with spare capacity and acceptable delays to vehicles. The Modification would have negligible impact on the delays experienced by drivers and the level of service they experience at the key intersections. No additional intersection capacity would be required to accommodate the Modification traffic (Appendix E).

6.12.3 Mitigation Measures

The Road Transport Assessment (Appendix E) concluded that the existing road network can satisfactorily accommodate the forecast traffic demands resulting from the Modification without any specific additional road upgrade requirements.

MACH contributes to the maintenance of local roads under the control of the MSC under the Voluntary Planning Agreement and Maintenance Management Plan for the Mount Pleasant Operation and would continue to do so.

Consistent with the existing Traffic Management Plan and Drivers' Code of Conduct for the Mount Pleasant Operation, the movement of any oversize or overmass vehicles associated with the Modification would be conducted in accordance with relevant permits obtained under the *Additional Access Conditions Oversize and overmass heavy vehicles and loads* (TfNSW, 2020), and any other licences and escorts as required by regulatory authorities (Appendix E).

6.12.4 Adaptive Management

The existing Traffic Management Plan and Drivers' Code of Conduct for the Mount Pleasant Operation provides guidance for all vehicles accessing the site and would continue to apply at the Mount Pleasant Operation. The Traffic Management Plan would continue to be reviewed and updated as required over the life of the Modification.

It is noted that oversize and overmass movements associated with the Central West Orana and New England REZs and the planned construction of the Muswellbrook Bypass have the potential to change the road network in the vicinity of the Mount Pleasant Operation. MACH would continue to work with DPHI, MSC and Energy Co as more details are available to manage interactions between renewable energy developments and the Mount Pleasant Operation.

6.13 SOCIAL AND COMMUNITY INFRASTRUCTURE

An SIA was prepared for the Modification by JAL (2025) that considered the potential impacts of the Modification on social values, population and community infrastructure (Appendix G).

6.13.1 Background

The SIA was prepared in accordance with the *Social Impact Assessment Guideline* (SIA Guideline) (DPHI, 2025a) and *Technical Supplement – Social Impact Assessment for State Significant Projects* (DPHI, 2025b).

The SIA sought to achieve three objectives (consistent with the SIA Guidelines) (Appendix G):

1. Identify likely social impacts associated with the Modification, and stakeholders who may experience these impacts.
2. Assess and evaluate the identified social impacts to understand the nature and extent from the perspective of those affected.
3. Develop appropriate responses to social impacts, including management and monitoring measures.

The SIA has also been prepared in consideration of the key findings of the 2020 SIA prepared by JAL (2020) for the Mount Pleasant Optimisation Project (SSD 10418). A review of the SIA for the Mount Pleasant Optimisation Project indicated impact categories varied, but all impacts identified in the Optimisation Project SIA could readily be categorised into the impact categories in the current SIA Guideline (Appendix G).

JAL (2025) assessed the potential social impacts associated with the Modification proceeding, the Modification not proceeding and also considered the cumulative combined impacts with the approved Mount Pleasant Operation and surrounding projects and operations.

Community Consultation

The SIA (Appendix G) was informed by consultation undertaken by MACH since commencement of operation at the Mount Pleasant Operation in 2017, preparation of the SIA (JAL, 2025) and relevant Modification specialist assessments (Appendices A to K).

JAL engaged with a range of stakeholders to ascertain views on existing cumulative and potential incremental social impacts of the Modification, including (but not limited to) (Appendix G):

- the Mount Pleasant Operation CCC;
- Mount Pleasant Operation ACDF;
- MSC;
- Wanaruah LALC;
- Aboriginal stakeholders;
- Muswellbrook Chamber of Commerce and Industry; and
- a selection of nearby residents and landholders.

During the engagement for the Modification, some stakeholders requested anonymity. While detailed notes have been prepared and approved by stakeholders, information from interview notes and the themes from the engagement is presented in summary form in the SIA (Appendix G) and Table 15.

Existing Environment

In the late 1990s to the early 2010s, coal mining was the dominant industry in Muswellbrook which employed a significant number of people. Following the coal downturn in 2012 and 2013, some mine workers and their families left Muswellbrook, leaving a gap in the housing market which was filled by some people on lower incomes. Since then, the coal industry has continued to grow in the region (Appendix G).

The SIA defines the area of social influence for the Mount Pleasant Operation as primarily the geographical area within the Muswellbrook LGA, as most people likely to experience existing, and potential changed social impacts are expected to work or reside in this area (Appendix G).

A secondary broad area of social influence has been defined as the Hunter Valley to include localities such as Scone, Singleton, Maitland and Cessnock where a number of the Mount Pleasant Operation workforce reside and many suppliers to the mine operate businesses.

Social Baseline

A description of the existing population profile, employment, housing, health, education and other services in the region is provided in Appendix G. This includes key local and regional social baseline findings identified during consultation.

The potential social impacts of the Modification are most likely to be experienced within the Muswellbrook LGA, which has a significant population and established social services and infrastructure within the region (Appendix G).

Table 15
Summary of the Themes and Community Views from the Social Impact Assessment Consultation

Theme	Community Views
Certainty and Ability to Plan for the Future	• Most stakeholders noted that the Modification largely represented a continuation of current experiences with no specific changes associated with it. • Stakeholders who expressed support for the Modification related this to the additional time provided for the community to prepare for post-mining at the Mt Arthur Coal Mine and Mangoola Coal (i.e. an additional four years). • Stakeholders who expressed concern about negative impacts largely related these to the continuation of existing environmental impacts.
Impacts of Closure	• Stakeholders consistently reported that the loss of the Mount Pleasant Operation means significantly more than the loss of jobs for the Muswellbrook community. • Stakeholders noted the potential impacts of closure on community organisation, housing and businesses. • Stakeholders expressed concern regarding the eventual closure resulting in lack of support to fund community events and loss of volunteers and funding to the emergency service sector.
Role of Coal Mining in the Community	• Stakeholders had varying opinions about the cumulative impact of mining. Concern was raised regarding the physical impacts of multiple mines in close proximity to their homes and businesses. • Stakeholders acknowledged the improvement made by progressive rehabilitation from several mines in close proximity. • Most stakeholders who had a direct or personal negative experience of mining could also see positive aspects associated with the industry.

Source: Appendix G.

Table 15 (Continued)
Summary of the Themes and Community Views from the Social Impact Assessment Consultation

Theme	Community Views
External Influence of Decision-Making Processes	• Some stakeholders raised concerns about climate change impacts specifically increased risks of bushfires, flooding and drought on local communities. • It was noted that decisions about mining and about the future of Muswellbrook Shire and the Upper Hunter Valley are being unduly influenced by people outside of the area who are not directly impacted by any decision made about the Mount Pleasant Operation. • There is a perception that mining royalties are spent in urban areas for the benefit of urban people. • Stakeholders noted that there is a fear about the future and a lack of any tangible commitment or investment at a State level to transition or maintain their way of life results in the feeling of being marginalised and powerless.

Source: Appendix G.

The social baseline can be summarised as follows (assessed at the time of the 2021 Census) (Appendix G):

- The Muswellbrook LGA had a relatively stable population of 16,357 persons, with approximately 48.6% female and 51.4% male compared to 50.3% female and 49.7% male in the Hunter Valley (excluding Newcastle).
- Approximately 10% of the Muswellbrook LGA population were Aboriginal or Torres Strait Islander.
- Both school and non-school qualification levels in Muswellbrook were generally lower than across the Hunter Valley and NSW.
- Income levels were relatively high for a regionally based area, similar to the NSW average.
- Mining was the largest industry of employment accounting for more than one fifth of all jobs. The number of jobs in the mining industry has grown in the last five years.
- The level of mobility or transience within a community can be an indication of community cohesion. Indicators of mobility were slightly higher in Muswellbrook than across the Hunter Valley and NSW.
- Availability of housing was described by many stakeholders as the number one community need, and rental availability remains tight.
- Crime levels are mostly stable in Muswellbrook, and were slightly higher than for NSW.
- More people in the Hunter Valley and Muswellbrook reported suffering from a long-term health condition, compared to NSW.

6.13.2 Environmental Review

JAL (2025) assessed the potential impacts of the Modification as a continuation of the social impacts currently being experienced from the Mount Pleasant Operation. Negative social impacts would continue to be experienced by people in close geographical proximity to the current operation, while positive social impacts would continue to be experienced generally over the same and wider geographical area (Appendix G).

A number of the potential impacts identified for the Modification were also considered to already occur due to the existing Mount Pleasant Operation and nearby mining operations, and cumulative social impacts would continue to occur in combination with the Modification (Appendix G).

The potential impacts are described further below and cumulative impacts of the Modification with other operational, proposed or approved major projects in the region are described in Appendix G.

The potential social impacts and opportunities associated with the Modification not proceeding have also been considered in Appendix G.

Way of Life

The Modification would extend the life of the Mount Pleasant Operation and, therefore, any associated existing impacts on wellbeing and quality of life that are perceived in the local community (Appendix G).

Employment

As described in Section 3.10, the Modification operational workforce would be retained over the life of the Modification (i.e. approximately 575 operational personnel).

The Modification would increase the availability and longevity of direct employment at the Mount Pleasant Operation. The Modification would also provide continued indirect employment opportunities through MACH's continued support of local businesses. This increased employment would help maintain a stable economic base in the region (Appendix G).

Health and Wellbeing

Some nearby landowners who participated in the engagement activities raised a number of causes of stress and anxiety as a result of the existing Mount Pleasant Operation and the Modification. These predominantly related to stress and anxiety caused by permanent changes to the landscape, leading to loss of homeliness, change in connection to land or place, and distress caused by environmental change (i.e. solastalgia) (Appendix G).

Other stakeholders who participated in engagement activities also highlighted their personal experience regarding the amenity impacts associated with the existing Mount Pleasant Operation. The key amenity concerns raised during the engagement process were associated with continued air quality, noise, blasting and lighting-related impacts. These impacts are expected to continue with the Modification (Appendix G).

The Modification would also continue to support the wellbeing of employees and their families through continued provision of employment (Appendix G).

Community Services and Facilities

The Modification would maintain, and potentially increase, the current levels of demand upon community services and facilities (e.g. health care services, emergency services, housing availability etc.) associated with the Mount Pleasant Operation for an additional six year period.

JAL (2025) considered that the Modification could result in lowered accessibility to community services and facilities due to the ongoing demand, however, the Modification also represents a potential positive stimulus to demand for infrastructure and services.

The Modification may also maintain or increase participation and support for local community groups, including the Rural Fire Service, Ungooroo Aboriginal Corporation, and the Wanaruah LALC (Appendix G).

The Modification would continue to contribute to the local community services and facilities through ongoing payments under the Voluntary Planning Agreement with MSC, and other sponsorships and community contributions (Appendix G).

Community

The Modification would enable the continuation of the existing way of life for the people in Muswellbrook and surrounding towns and LGAs. In the short to medium term, the Modification provides an opportunity for the community to plan and prepare for the closure of the Mount Pleasant Operation if MACH is unable to rely on the Mount Pleasant Optimisation Project Development Consent SSD 10418.

The additional six years would also enable MACH, various government agencies and other interested stakeholders further time to develop opportunities for the future use of the Mount Pleasant Operation site to provide new employment opportunities for the community (Appendix G).

The opportunity to plan and prepare for any potential for closure of the Mount Pleasant Operation was assessed as a positive, widespread impact with a high significance that is important for the Muswellbrook community and broader community (Appendix G).

Culture

Potential Modification impacts and opportunities associated with Aboriginal and agricultural cultural values have been considered as part of the SIA (Appendix G).

Aboriginal Culture

The Modification would provide continued opportunity to practice Aboriginal culture and land management activities and participate in rehabilitation at the Mount Pleasant Operation.

Further discussion of potential impacts on cultural heritage sites is provided in Section 6.10.

Agricultural Culture

As the Modification is an extension of the existing Mount Pleasant Operation, it would likely continue to contribute to a changed sense of place from a predominately rural and agricultural area to include additional mining activity.

Continued change to the land as a result of ongoing mining operations and loss of rural properties through landowners taking up voluntary acquisition rights has a flow on effect in the continued loss of agriculture-based social networks (Appendix G).

Surroundings

Continuation of Existing Amenity Impacts

Some people who participated in the engagement activities expressed concerns regarding amenity impacts such as noise, blasting, air quality and visual impacts from the existing Mount Pleasant Operation (Appendix G).

The Modification is not considered to alter the intensity of the social impacts reportedly experienced as a result of the Mount Pleasant Operation's amenity impacts; rather, they would be experienced for an additional six years (Appendix G).

Potential impacts associated with noise and blasting are described in Section 6.4, while air quality and visual amenity are described in Sections 6.5 and 6.14, respectively.

Water Related Impacts for Local Water Users

A small number of stakeholders who contributed to the consultation for the SIA mentioned concerns about water-related impacts. This impact was considered an existing impact with a cumulative nature (Appendix G).

Comprehensive Groundwater Impact and Surface Water Assessments have been undertaken for the Modification and are presented in Appendix C and D. Potential impacts and recommended mitigation measures are discussed in Sections 6.6 and 6.7.

Cumulative

The potential cumulative social impacts of the Modification and other operational, proposed or approved major projects within the region have been considered in Appendix G. The key factors contributing to cumulative impacts include the following (Appendix G):

- The existing social impacts associated with the approved Mount Pleasant Operation would continue to be experienced cumulatively with the Modification.
- Mt Arthur Coal Mine, Mangoola Coal, Bayswater Power Station and Bengalla Mine are approved to operate until 2030, 2030, 2033 and 2039, respectively. Upon closure, employment of operational workforce at these mines would cease.
- Potential increased activity in the renewable energy sector as a number of projects in the area are currently within the approvals process.

Appendix G provides a detailed description of the interaction of surrounding operations and projects have with the Modification, and their potential cumulative impact in terms of livelihood, community and surrounding impacts.

Mine Closure

If the Modification is not approved and Development Consent SSD 10418 is not in force or capable of being relied upon, mining would cease in December 2026 under Development Consent DA 92/97.

As discussed above, many of the social impacts associated with the Modification are continuations of existing experiences associated with the approved Mount Pleasant Operation and, should the Modification not proceed, these experiences would consequently cease earlier (Appendix G).

If the Modification does not proceed and Development Consent SSD 10418 is not in force or capable of being relied on, the Mount Pleasant Operation closure (i.e. cessation of mining operations) would see the loss of direct and indirect employment and business opportunities, which would likely be experienced as a significant loss to the mining workforce in the Muswellbrook LGA and adjoining regions. JAL (2025) assessed this potential impact of mine closure in 2026 as transformational in magnitude, and has an overall significance rating of very high (Appendix G).

Intergenerational Equity Considerations

Based on stakeholder feedback during the engagement process, intergenerational impacts would be experienced should the Modification not proceed (Appendix G). The closure of Mount Pleasant Operation in 2026 would likely extend into future generations and, without appropriate planning, may compromise people's ability to meet their needs (Appendix G).

6.13.3 Mitigation Measures

MACH would continue to work with local government and the community to minimise potential social impacts of the Modification and maximise potential opportunities.

For the impacts that represent continuation of existing impacts, no new mitigation measures are proposed. MACH has existing management plans, procedures and personnel that address these impacts at the existing Mount Pleasant Operation.

JAL (2025) recommends MACH continues to implement and improve these throughout the life of the Modification.

JAL (2025) also provides recommendations of potential actions and strategies that MACH could undertake to assist in the management of closure of the Mount Pleasant Operation if the Modification does not proceed and Development Consent SSD 10418 is not in force or capable of being relied upon (Appendix G).

6.13.4 Adaptive Management

Social impacts associated with the Modification would be monitored throughout the Modification life to evaluate the effectiveness of the existing management and mitigation measures.

Through existing management plans and procedures, MACH has measures in place to monitor the impacts that represent continuations of current experiences or impacts. Outcomes of these are published in the Annual Reviews, monthly complaints reports and in other publications.

The existing monitoring framework would continue to be used, which may include (Appendix G):

- Continued positive community engagement in accordance with MACH's various community engagement mechanisms and strategies (CCC, complaints management, quarterly newsletter, website and MACH's internal Community Engagement Plan and Environmental Management Framework).
- Continued implementation of the approved Mount Pleasant Operation site-wide environmental management plans.
- Review of human resource and complaints data.
- Review and consideration of feedback received through an established dialogue with relevant stakeholders including local councils, local community groups (including Aboriginal groups), neighbouring residents, community service and facility providers, and local suppliers.

6.14 LANDSCAPE AND VISUAL CHARACTER

One of the primary visual mitigation measures implemented at the Mount Pleasant Operation is the geomorphic design, construction methodology and progressive rehabilitation of the Eastern Out-of-Pit Emplacement. MACH also manages visual impacts of the approved Mount Pleasant Operation in accordance with a Visual Impact Management Plan[29], which describes screen plantings, visual bunds, lighting controls and other visual treatments.

The continuation of mining to 2032 and the ongoing northern and western development of the Eastern Out-of-Pit Emplacement would alter the views of the Mount Pleasant Operation, particularly when viewed from Muswellbrook and other local public vantage points.

The vast majority of the mine landforms developed and rehabilitated within the Modification period would be located within the approved surface disturbance plan/area under Development Consent DA 92/97. However, the Visual and Landscape Impact Assessment (Appendix F) has considered the incremental visual and landscape impacts associated with development of the Mount Pleasant Operation post-2026 (i.e. in the extension of mine life to 2032, irrespective of the physical location of these extensions).

These incremental impacts are summarised in the following sub-sections.

6.14.1 Background

Throughout the life of the Mount Pleasant Operation, there have been several detailed and comprehensive visual impact assessments completed to inform the original approval in 1999, various modifications and the Mount Pleasant Optimisation Project (Section 1.3).

Methodology

There are no guidelines outlining a standardised methodology for the assessment of landscape and visual impacts for coal mining developments in NSW. Therefore, the Landscape and Visual Impact Assessment has been prepared in consideration of the methodology described in the *Technical Supplement – Landscape and Visual Impact Assessment: Large-Scale Solar Energy Guideline* (the Technical Supplement) (DPE, 2022d).

[29] The current Mount Pleasant Operation DA 92/97 Visual Impact Management Plan (MACH, 2024e) was approved by DPHI in 2024 which addresses both DA 92/97 and SSD 10418 requirements.

The Technical Supplement provides quantitative assessment techniques that can be applied to evaluate the potential visual impacts of the Modification.

Consistent with the Technical Supplement, assessment has been conducted in two discrete components:

- Landscape character impact assessment (the assessment of potential impact on an area's cumulative built, natural and cultural character or sense of place).
- Visual impact assessment (the assessment of potential impacts on views).

The landscape character impact assessment comprises three key steps (DPE, 2022d):

- Baseline Analysis – establish the existing landscape character of the area and its sensitivity.
- Identify Landscape Character Zones – divide the study area into unique landscape character zones (LCZs) that share distinct visual characteristics and landscape elements.
- Assess the Landscape Character Impact - determine the impact of the proposal on each LCZ by evaluating the sensitivity of the landscape and the magnitude of the project's effects in that area.

Matrices used to determine landscape character impacts as derived from the Technical Supplement are provided in Appendix F.

Similarly, the visual impact assessment detailed viewpoint assessment comprises the following key components (DPE, 2022d):

- Consideration of Visual Magnitude – visual magnitude as determined by the volume of the horizontal and vertical fields of view occupied (using a grid tool).
- Consideration of Visual Sensitivity – refers to the quality of the existing view and how sensitive the view is to the proposed change.
- Determination of Visual Impact – the visual impact rating of each viewpoint is determined by combining the visual magnitude and visual sensitivity ratings.

Matrices used to determine visual sensitivity and scenic quality are provided in Appendix F.

Matrices used to determine visual magnitude using the "grid tool" and the significance of visual impacts on the basis of visual sensitivity and visual magnitude are reproduced from the Technical Supplement in Tables 16 and 17.

In accordance with the Technical Supplement, the following study areas were used to inform the assessment (Figures 28 and 29):

- Landscape Character Study Area - elements and features within a 5 km radius from the Modification.
- Visual Impact Assessment (Regional) - private and public viewpoints within a 4 km radius of the Modification.
- Visual Impact Assessment (Transport) - visual impacts to public roads and rail lines within 2.5 km of the Modification.

Further discussion of the visual and landscape assessment methodology as guided by the Technical Supplement is provided in Appendix F.

6.14.2 Environmental Review

Landscape Character Impacts

Elements that comprise the regional landscape within a 5 km radius of the Mount Pleasant Operation include extensively cleared terrain used primarily for agricultural and pastoral production, remnant woodland, the Hunter River floodplain and surrounding foothills.

Residential landscape character areas are primarily associated with Muswellbrook and Aberdeen. It is noted that the existing landscape character is also influenced by the modified landscapes associated with existing mining operations (including Mount Pleasant Operation), in addition to the historical dominance of agricultural land uses in the region.

The following broad LCZs were identified in the Landscape Character Study Area (Figure 28):

- LCZ 1 – Towns.
- LCZ 2 – Hunter River Floodplain.
- LCZ 3 – Foothills.
- LCZ 4 – Surrounding ranges.
- LCZ 5 – Existing Mining and Industrial Operations.

In summary, landscape character impacts of the Modification have been determined to range from low to moderate, based on application of the Technical Supplement methodology (Table 18).

Table 16
Visual Magnitude Thresholds

Number of Occupied Cells	Visual Magnitude Rating
1-6	Very Low
7-12	Low
13-21	Moderate
22-30	High
31+	Very High

Source: DPE (2022d).

Table 17
Visual Impact Matrix

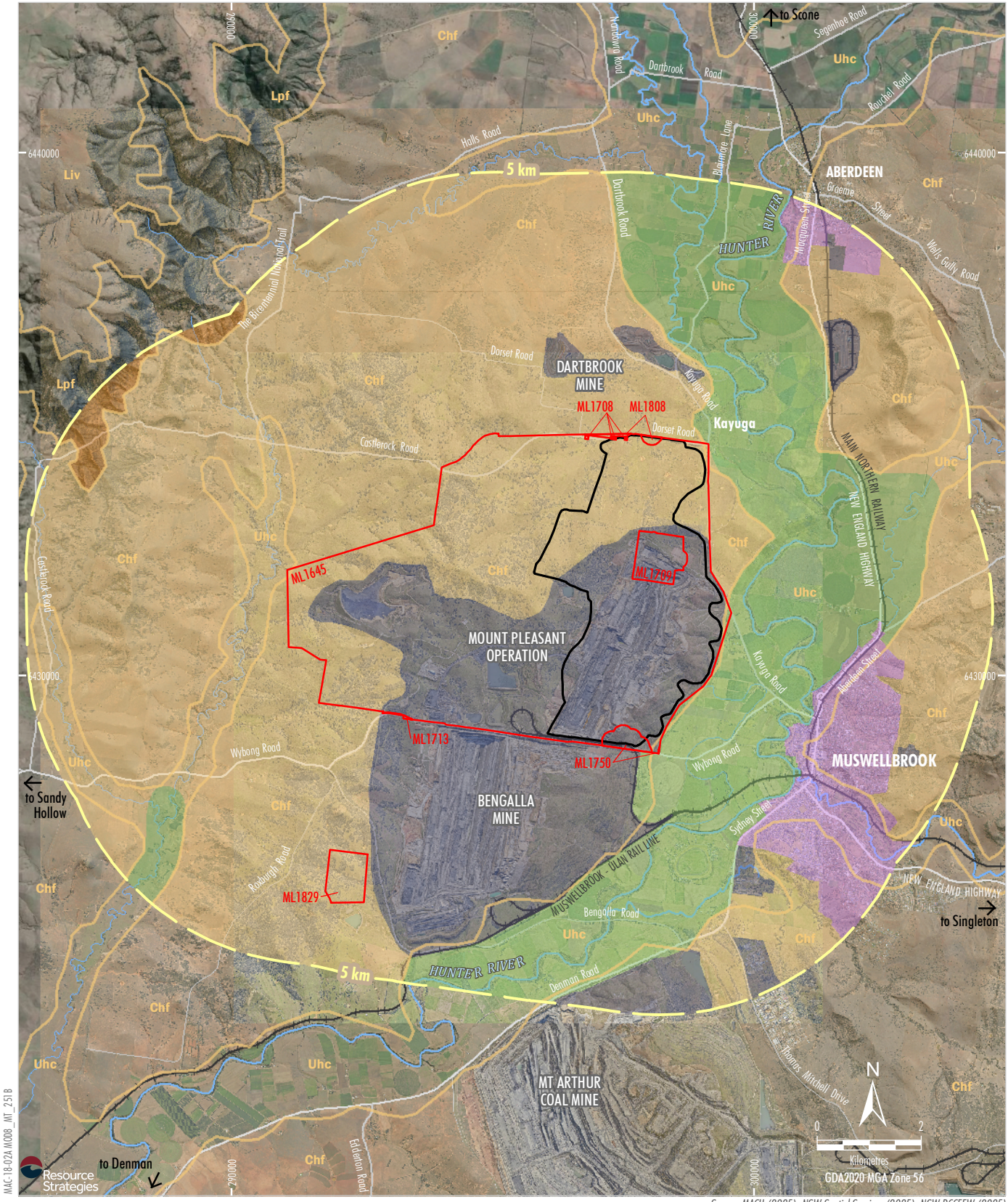
	High Visual Sensitivity	Moderate Visual Sensitivity	Low Visual Sensitivity	Very Low Visual Sensitivity
Very High Magnitude	High	High	Moderate	Moderate
High Magnitude	High	Moderate	Moderate	Low
Moderate Magnitude	Moderate	Moderate	Low	Low
Low Magnitude	Moderate	Low	Low	Very Low
Very Low Magnitude	Low	Low	Very Low	Very Low

Source: DPE (2022d).

Table 18
Landscape Character Impact Assessment Summary

Landscape Character Zone[1]	Sensitivity	Magnitude	Landscape Character Impact
LCZ 1 – Towns	High	Moderate	**Moderate**
LCZ 2 – Hunter River Floodplain	Low to Moderate	Moderate	**Low to Moderate**
LCZ 3 – Foothills	Low to Moderate	Moderate to High	**Low to Moderate**
LCZ 4 – Surrounding Ranges	Moderate	Very Low	**Low**
LCZ 5 – Existing Mining and Industrial Operations	Very Low	High	**Low**

[1] Refer to Figure 28. Assessment of landscape character impacts is provided in Appendix F.



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Source: MACH (2025); NSW Spatial Services (2025); NSW DCCEEW (2025)
Orthophoto Mosaic: MACH (Jun 2025, 2020)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Approximate Extent of Mining Advance 2032

Mitchell Landscapes

- Chf — Central Hunter Foothills
- Lpf — Lees Pinch Foothills
- Uhc — Upper Hunter Channels and Floodplain

Assessment Areas

- Landscape Character Assessment Area

Landscape Character Zones

- LCZ1 - Towns
- LCZ2 - Hunter River Floodplain
- LCZ3 - Foothills
- LCZ4 - Surrounding Ranges
- LCZ5 - Existing Mining and Industrial Operations

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Landscape Character Zones

Figure 28

Higher landscape character impact ratings are anticipated for LCZ 3 (Foothills) (i.e. the LCZ the Modification would extend into), the adjoining LCZ 2 (Hunter River Floodplains) and LCZ 1 (Towns) due to its higher sensitivity to landscape changes.

Dynamic Landscape Impacts

Individual characteristics of the viewer can affect the perception of contrast and the ability to discern objects in the landscape, and as such the assessment of landscape character impacts can be subjective.

A comprehensive assessment of potential dynamic landscape impacts was conducted for the Mount Pleasant Optimisation Project by VPA Visual Planning and Assessment (VPA) (2020).

VPA concluded that the dynamic landscape impact of the Mount Pleasant Optimisation Project on the landscape and the extended duration of those impacts over time in the context of existing land use patterns at the regional, subregional and local scales would be moderate (VPA, 2020).

Given the proposed final landform for the Modification has a lesser extent than the Mount Pleasant Optimisation Project, it is anticipated that the dynamic landscape impacts of the Modification would also (conservatively) be moderate (Appendix F).

Muswellbrook - Jerrys Plains Landscape Conservation Area

It is noted that the Modification is located in the vicinity of the Muswellbrook-Jerrys Plains Landscape Conservation Area, which is included in the Register of the National Trust of Australia. The Muswellbrook-Jerrys Plains Landscape Conservation Area is not recognised in the Muswellbrook LEP.

Visual Impact Assessment

Throughout the life of the Mount Pleasant Operation, there have been several detailed and comprehensive visual impact assessments completed to inform two EISs and various modifications.

The viewpoints used in the *Mount Pleasant Optimisation Project Visual and Landscape Impact Assessment* (VPA, 2020) have been adopted for this assessment for consistency and to allow for comparison to the SSD 10418 assessment findings.

Visual analysis was conducted from the following key local viewpoints (Figure 29):

- Viewpoint 1 – Graeme Street (Aberdeen).
- Viewpoint 2 – Nandowra Street.
- Viewpoint 3 – New England Highway (North).
- Viewpoint 4 – St Heliers Street and Sowerby Street (Muswellbrook).
- Viewpoint 5 – New England Highway (East).
- Viewpoint 6 – Hill Street (Muswellbrook).
- Viewpoint 7 – Denman Road.
- Viewpoint 8 – Roxburgh Road.

For comparative purposes and to provide contextual background, the simulated proposed final landform should mining cease in 2032 in Figures 30 to 32 is compared to:

- originally approved (1997 EIS) – 21 year Conceptual Final Landform, Development Consent DA 92/97 (Figure 4a); and
- Modification 3 – 2026 Conceptual Final Landform, Development Consent DA 92/97 (Figure 4b).

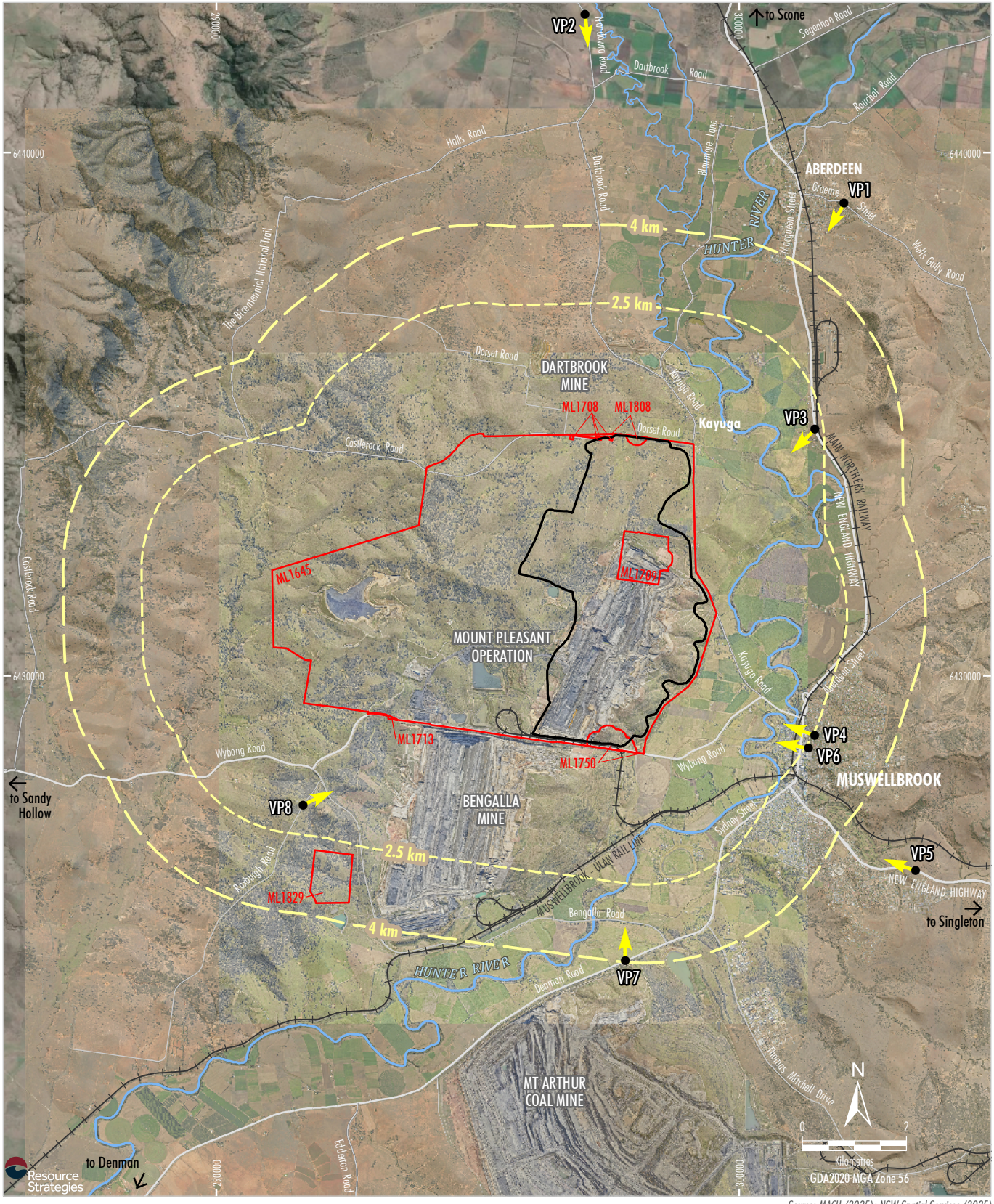
Visual magnitude ratings for the Modification are assigned based on the magnitude of the incremental changes associated with the incremental extensions to 2032 when compared to the Mount Pleasant Operation Final Landform that would remain should mining operations cease in 2026.

The overall visual impact rating of each viewpoint has been determined by combining the visual magnitude and visual sensitivity using the matrix provided in Table 17.

Further detail on the visual impact assessment, including analysis of overall sensitivity and visual magnitude for each viewpoint, is provided in Appendix F.

The application of the Technical Supplement methodology to the Modification has resulted in broadly similar visual impact ratings compared to findings of previous studies (i.e. VPA, 2017; VPA, 2018; VPA, 2020).

However, at some assessment locations, the Modification visual impact rating is lower than in previous assessments. This is attributed to the application of the Technical Supplement impact assessment methodology coupled with lower heights for the proposed final landforms for the Modification in comparison to SSD 10418 (Appendix F).



Source: MACH (2025); NSW Spatial Services (2025)
Orthophoto Mosaic: MACH (Jun 2025, 2020)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Approximate Extent of Mining Advance 2032
- Viewpoint

Assessment Areas

- Transport Visual Impact Assessment Area
- General Visual Impact Assessment Area

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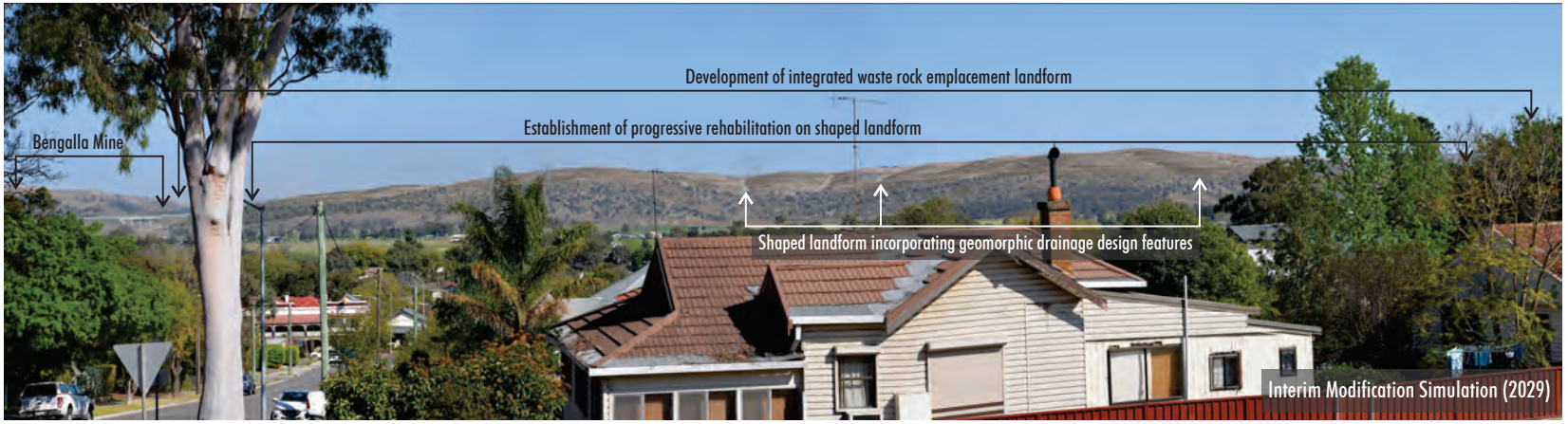
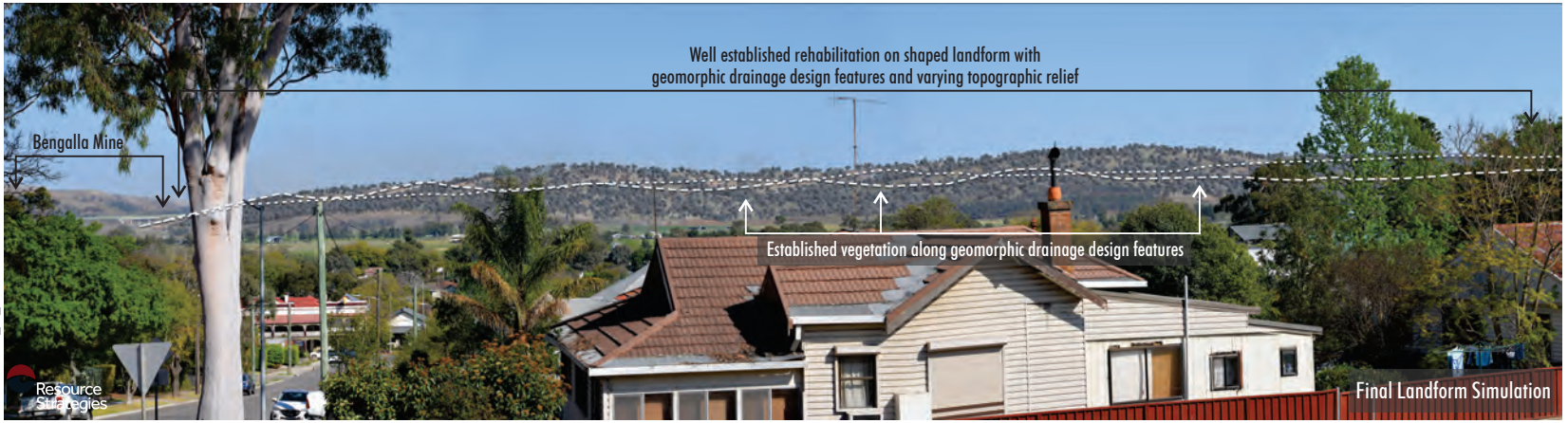
Viewpoints and Visual Simulation Locations

Figure 29





LEGEND

Conceptual Final Landform Simulation

Originally Approved (1997 EIS)

Modification 3

Source: Greenpond (2024); VPA (2023)

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Viewpoint 4

St Heliers Street and Sowerby Street (Muswellbrook)

Figure 30

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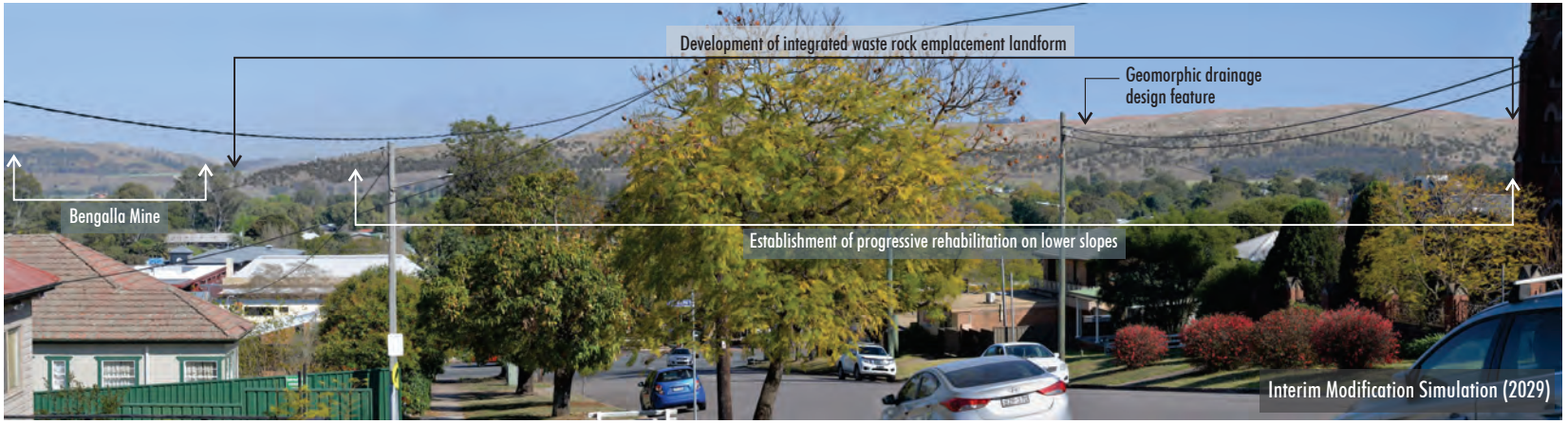
Resource Strategies



LEGEND

Conceptual Final Landform Simulation

Originally Approved (1997 EIS)

Modification 3

Source: Greenpond (2024); VPA (2023)

MACHEnergy

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Viewpoint 6

Hill Street (Muswellbrook)

Figure 31

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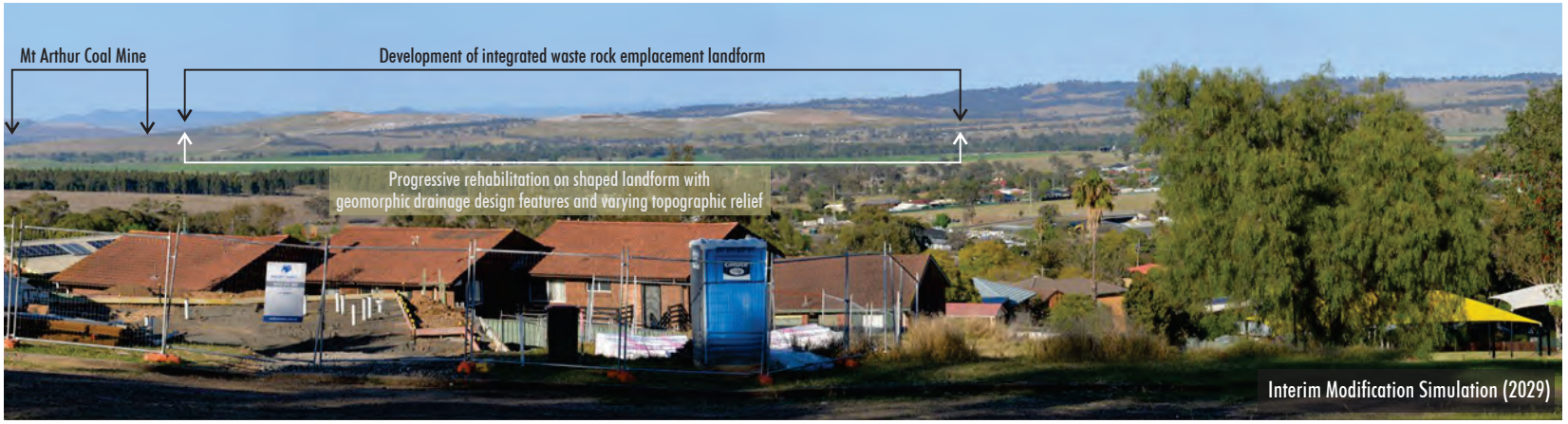
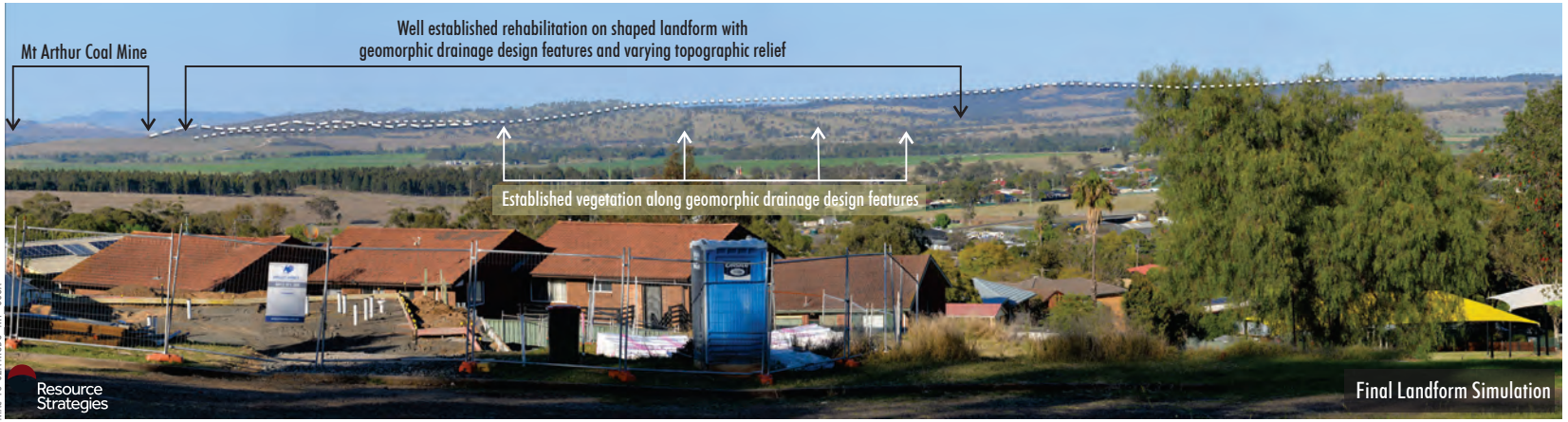
Resource Strategies





LEGEND

Conceptual Final Landform Simulation

Originally Approved (1997 EIS)

Modification 3

Source: Greenpond (2024); VPA (2023)

MACHEnergy

MOUNT PLEASANT OPERATION

Viewpoint 1

Graeme Street (Aberdeen)

Figure 32

MAC-18-02A MOD8 MT 008A

Resource Strategies

It is noted that the Technical Supplement methodology markedly reduces the sensitivity ratings of viewpoints located along roads which has resulted in lower impact ratings at several viewpoints.

Muswellbrook Residential

Photomontages were produced from the following viewpoints in Muswellbrook (Figures 30 and 31):

- The intersection of St Heliers Street and Sowerby Street at a slightly elevated position (Viewpoint 4).
- Hill Street, adjacent to a local church, primary school and entrance to a shopping centre carpark (Viewpoint 6).

Many elevated parts of Muswellbrook already have direct views onto the most visible components of the approved Mount Pleasant Operation, Bengalla Mine and Mt Arthur Coal Mine. Previous assessments concluded that the approved Mount Pleasant Operation would have high visual impacts on Muswellbrook (VPA, 2017; VPA, 2018; VPA, 2020).

However, visual impacts of the Modification at residential locations in Muswellbrook have been assessed as Moderate at both Viewpoint 4 and Viewpoint 6, in accordance with the Technical Supplement methodology (Table 19).

Aberdeen Residential

A photomontage was produced from Graeme Street (Viewpoint 1), an elevated position within Aberdeen (Figure 32).

Previous assessments determined that the Mount Pleasant Operation (inclusive of the Mount Pleasant Optimisation Project) would have high/moderate visual impacts on Aberdeen.

Visual impacts at Aberdeen associated with the Modification have been assessed as Moderate, in accordance with the Technical Supplement methodology (Table 19).

New England Highway

Photomontages were produced from the following viewpoints situated along the New England Highway (Figure 29):

- An elevated position in between Aberdeen and Muswellbrook, approximately 2.5 km from the approved Mount Pleasant Operation (Viewpoint 3).
- An elevated position located on the south-eastern outskirts of Muswellbrook (Viewpoint 5).

The approved Mount Pleasant Operation is visible from many locations along the New England Highway.

The application of the Technical Supplement reduces the sensitivity ratings of viewpoints located along roads, State-classified or otherwise. The visual impacts at Viewpoint 3 have been determined to be Low, and the visual impacts at Viewpoint 5 have been assessed as Very Low for the Modification under the Technical Supplement methodology (Table 19).

Nandowra Road

A photomontage from a small crest along Nandowra Road (Viewpoint 2) was produced for the Modification (Figure 29). Nandowra Road is located north of the approved Mount Pleasant Operation, within an area zoned as RU4 (i.e. Primary Production Small Lots).

Previous visual assessments have determined the visual impacts of the Mount Pleasant Operation at Nandowra Road as Low (VPA, 2017; VPA, 2020).

Visual Impacts associated with the Modification at Nandowra Road have also been assessed as Low (Table 19).

Rural Landholdings and Local Roads

A low density scattering of rural landholdings is present proximal to the Mount Pleasant Operation. Photomontages were prepared from the following viewpoints (Figure 29):

- Along Denman Road, south of the approved Mount Pleasant Operation (Viewpoint 7).
- Along Roxburgh Road, west of the approved Mount Pleasant Operation (Viewpoint 8).

Under the Technical Supplement, an assessment of residential viewpoints must focus on views from the property (DPE, 2022d). Given the absence of residential characteristics at both Viewpoint 7 and Viewpoint 8, the views are considered to align with a transport/infrastructure viewpoint type. However, as there are also scattered residential dwellings in these areas, these viewpoints have also been assessed as RU1 residential receivers.

Previous assessments have indicated that visual impacts to both Denman Road and Roxburgh Road would be Moderate to Low (VPA, 2017; VPA, 2020).

Table 19
Visual Impact Assessment Summary

Viewpoint	Viewpoint Type	Viewpoint Sensitivity	Scenic Quality	Overall Viewpoint Sensitivity	Modification Increment - Occupied Cells	Modification Visual Magnitude	Modification Visual Impact	SSD 10418 Visual Impact[1]
Viewpoint 1 – Graeme Street (Aberdeen)	Town dwelling primary view	High	Moderate	**High**	**7**	**Low**	**Moderate**	Moderate to High
Viewpoint 2 – Nandowra Street	Rural village primary view	Moderate	Moderate	**Moderate**	**4**	**Very Low**	**Low**	High
Viewpoint 3 – New England Highway (North)	State highway	Very Low	Moderate	**Very Low**	**13**	**Moderate**	**Low**	Moderate to High
Viewpoint 4 – St Heliers Street and Sowerby Street (Muswellbrook)	Town dwelling primary view	High	Moderate	**High**	**13**	**Moderate**	**Moderate**	High
Viewpoint 5 – New England Highway (East)	State highway	Very Low	Moderate	**Very Low**	**3**	**Very Low**	**Very Low**	Moderate to High
Viewpoint 6 – Hill Street (Muswellbrook)	Town dwelling primary view	High	Moderate	**High**	**12**	**Low**	**Moderate**	High
Viewpoint 7 – Denman Road	Local road	Very Low	Moderate	**Very Low**	**4**	**Very Low**	**Very Low**	Low to Moderate
	Rural dwelling primary view	Moderate	Moderate	**Moderate**			**Low**	
Viewpoint 8 – Roxburgh Road	Local road	Very Low	Moderate	**Very Low**	**4**	**Very Low**	**Very Low**	Low to Moderate
	Rural dwelling primary view	Moderate	Moderate	**Moderate**			**Low**	

Source: Appendix F; VPA (2020).

When assessed as representative of roads, visual impacts to both viewpoints have been determined as Very Low. When considered to be representative of residential viewpoints, visual impacts to both viewpoints have been assessed as Low when applying the Technical Supplement methodology.

Lighting Impacts

There are two types of lighting effects generally experienced from the Mount Pleasant Operation (VPA, 2020):

- Direct Light Effects – result from when the light source is directly visible and would be experienced if there is a direct line of sight between the light source and viewpoint.
- Diffuse Light Effects - relate to the general night-glow (diffuse light) that results from light of sufficient strength being reflected into the atmosphere.

Generally, most operational areas at the approved Mount Pleasant Operation are screened from direct views by the Eastern Out-of-Pit Emplacement.

Potential direct light effects from the Modification would be primarily associated with vehicle headlights, flashing safety lights of smaller vehicles and mobile lighting equipment. These impacts are consistent with the approved Mount Pleasant Operation.

A number of mining operations, power stations, residences and agricultural activities in the vicinity of the Modification contribute to diffuse light effects into the night sky (sky glow).

The Siding Springs Observatory is located approximately 195 km to the north-west of the Modification. As such, the Modification is within the Dark Sky Region (i.e. within 200 km radius of the Siding Spring Observatory), as defined in the *Dark Sky Planning Guideline* (DPE, 2023b). There are a number of light sources between the Modification and the Siding Springs Observatory, which may contribute to sky glow at the Siding Springs Observatory.

Any potential impact associated with diffuse light effects of the Modification would be similar to those assessed for the approved Mount Pleasant Operation, and therefore would not materially change any approved impacts at the Siding Springs Observatory. Notwithstanding, mitigation measures, developed in consideration of AS/NZS 4282, to minimise diffuse light impacts the Siding Springs Observatory as far as practicable, would continue to be implemented at the Mount Pleasant Operation (Section 6.14.3).

6.14.3 Mitigation Measures

Visual mitigation measures to be implemented for the Modification would include (Appendix F):

- As mining advances northward, an initial bund would be constructed to reduce views into the mining area before subsequently being integrated into the Eastern Out-of-Pit Emplacement.
- Development of the integrated waste rock emplacement to screen development of the open cut pit as practical.
- Major infrastructure associated with the existing Mount Pleasant Operation is already located west of the integrated waste rock emplacement landform, which significantly reduces the visibility of the mine infrastructure from key public viewpoints.
- The emplacement landform would be designed to look less “engineered” when viewed from Muswellbrook (i.e. incorporation of macro-relief to avoid simple blocky forms).
- Surface water drainage from the emplacement landform would incorporate micro-relief to increase drainage stability and avoid major engineered drop structures where practical.
- MACH would continue to progressively develop and revegetate the final landform, to reduce visual impacts in Muswellbrook and other local vantage points.

MACH manages and mitigates visual impacts associated with the approved in accordance with a Visual Impact Management Plan (MACH, 2024e).

The existing Visual Impact Management Plan would be revised to reflect the Modification (including any additional mitigation measures that may be required for reducing visual impacts), subject to the conditions of any Development Consent for the Modification.

6.15 GREENHOUSE GAS

The Greenhouse Gas Assessment and Mitigation Plan (Appendix I) and the supporting Greenhouse Gas Calculations Report (TAS, 2025b) (Attachment A of Appendix I) and Greenhouse Gas Abatement Evaluation and Three-Year Action Plan (Attachment B of Appendix I) were developed in accordance the *NSW Guide for Large Emitters* (EPA, 2025) (the Large Emitters Guide).

A peer review of the Greenhouse Gas Abatement Evaluation and Three-Year Action Plan (Attachment C of Appendix I) was also undertaken by Loop Decarbonisation Solutions (Loop), which concluded the report is robust and meets the expectations of a mitigation planning document under NSW guidance.

6.15.1 Key Policy Context

International

The international framework addressing greenhouse gas emissions, and the global response to climate change, commenced with adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. Two of the most important progressions of the UNFCCC were adopted at the third Conference of the Parties (in 1997) and 21st Conference of the Parties (in 2015), with the adoption of the *Kyoto Protocol* and the *Paris Agreement*, respectively.

The *Kyoto Protocol* entered into force in 2005 and imposed limits on the greenhouse gas emissions of developed countries listed in Annex 1 to the UNFCCC, with an initial commitment period of 2008 to 2012 (UNFCCC, 2024a).

The Paris Agreement is a legally binding international treaty on climate change, which was adopted by 196 Parties in 2015 (UNFCCC, 2015). The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by holding the increase in global average temperatures to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels (UNFCCC, 2015).

Under the Paris Agreement, each Party is required to prepare, communicate and maintain Nationally Determined Contributions (NDCs) that would contribute to the long-term goals of the Paris Agreement (UNFCCC, 2015).

Australia is a Party to the Paris Agreement. Australia's first NDC under the Paris Agreement was amended to commit to national greenhouse gas target of 43% below 2005 levels by 2030, and reaffirmed the target to achieve net zero emissions by 2050 (Commonwealth Department of Industry, Science, Energy and Resources, 2022).

Australia's second NDC under the Paris Agreement has communicated a greenhouse gas emissions reduction target of 62 to 70% below 2005 levels by 2035 (Commonwealth DCCEEW, 2025b).

National

The NGER Act is a national framework for reporting greenhouse gas emissions, energy production and energy consumption by corporations. The greenhouse gas emissions and energy data reported under the NGER Act is used by the Commonwealth Government in compiling Australia's national greenhouse gas emission inventory to meet its reporting obligations under the UNFCCC.

The Safeguard Mechanism (underpinned by the Commonwealth *National Greenhouse and Energy Reporting [Safeguard Mechanism] Rule 2015*) was established through the NGER Act and provides baseline emissions and offset requirements for applicable facilities that emit over 100,000 t CO_2-e per year, such as the Mount Pleasant Operation.

The Safeguard Mechanism sets a baseline level of emissions for facilities. If a facility exceeds its baseline level, it is generally required to surrender ACCUs[30] equivalent to the exceedance to the Clean Energy Regulator.

The Safeguard Mechanism Reforms (DCCEEW, 2024) introduced an amendment to the NGER Act and other legislation to establish the framework to give effect to key elements of the reforms, such as introducing a requirement for facilities to achieve greenhouse abatement via annual downward adjustment of baseline greenhouse gas emission levels.

Safeguard facility standard baselines are determined based on the amount of product each facility produces in a financial year. The reforms apply a decline rate to a facility's baseline so that baselines are reduced predictably and progressively over time (initially 4.9% per annum) on a proportionate trajectory consistent with achieving Australia's emission reduction targets of 43% below 2005 levels by 2030, and net zero by 2050 (DCCEEW, 2024) in combination with other greenhouse gas reduction measures in the economy.

It is noted that the target of 43% reduction by 2030 has been calculated with sufficient headroom allowance for higher than expected growth at new and existing Safeguard facilities (DCCEEW, 2024).

Large facilities under the NGER Act therefore have declining emissions baselines to 2050, reflective of proportionately reducing net greenhouse gas emissions below 2005 levels of 43% by 2030, and potentially adjusted to reflect 62 to 70% by 2035 and net zero by 2050.

[30] Following recent reforms, Safeguard Mechanism Credit units may be surrendered alternatively.

State

The NSW Government released the *NSW Climate Change Policy Framework* (OEH, 2016), which committed NSW to the long-term objective of achieving net-zero emissions by 2050.

NSW Climate and Energy Action (within NSW Department of Planning, Infrastructure and Environment [DPIE]) published the *Net Zero Plan Stage 1: 2020 – 2030* (DPIE, 2020) (the Net Zero Plan) in March 2020, which describes how, over the decade to 2030, the NSW Government intends to work towards its objective of achieving net-zero emissions by 2050, and an objective to reduce emissions by 70% by 2035, compared to 2005 levels.

The NSW Government has subsequently enshrined in legislation whole-of-government climate action in the Net Zero Act. The Net Zero Act legislates:

- guiding principles for action to address climate change that consider the impacts, opportunities and need for action in NSW;
- emissions reduction targets for NSW, comprising:
  - 50% net reduction on 2005 levels by 2030;
  - 70% net reduction on 2005 levels by 2035; and
  - net zero by 2050.
- an objective for NSW to be more resilient to a changing climate; and
- establishing an independent, expert Net Zero Commission to monitor, review, report on and advise on progress towards these targets.

It is noted that the Net Zero Future Act emission reduction targets established by NSW for 2030 and 2035 are more ambitious than the Commonwealth targets as set out in Australia's first NDC. However, when considered over the whole of the relevant periods between 2005 and 2030 (2% per annum), 2030 and 2035 (4% per annum) and 2035 and 2050 (2% per annum) the annual emission reduction rates are generally comparable to, or lower than, the reformed Safeguard Mechanism decline rates.

The *EPA Climate Change Policy* (NSW EPA, 2023a) outlines the NSW EPA's role in environmental regulation in NSW and how the NSW EPA is expanding its focus to explicitly regulate the causes and consequences of climate change.

Further discussion on greenhouse gas reporting and mitigation measures in NSW is provided in Appendix I.

New South Wales Guide for Large Emitters

In January 2025, EPA released the Large Emitters Guide, following a period of consultation.

The Large Emitters Guide sets out a description of NSW' emission reduction objectives, types of greenhouse gases, and the EPA's suggested greenhouse gas assessment and mitigation requirements to be addressed in Modification Reports.

The Modification is expected to generate Scope 1 and Scope 2 greenhouse gas emissions exceeding 25,000 t CO_2-e per year in some operational years (Appendix I). Therefore, the Modification meets the assessment threshold outlined in the Large Emitters Guide.

6.15.2 Background

Greenhouse Gas Emissions Scopes

The Mount Pleasant Operation has triggered the reporting requirements of the NGER Act, and MACH reports on its greenhouse emissions each financial year under its entity MACH Australia Holdings Pty Ltd.

In the context of the Mount Pleasant Operation, the most relevant greenhouse gases are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Emissions of these greenhouse gases are typically standardised by expression as carbon dioxide equivalent (CO_2-e) based on their Global Warming Potential (Appendix I).

The Greenhouse Gas Protocol (GHG Protocol) (World Business Council for Sustainable Development and World Resources Institute, 2024) contains methodologies for calculating and assessing greenhouse gas emissions.

Under the GHG Protocol, an entity's operational boundaries are established by identifying emissions associated with its operations, categorising them as direct or indirect emissions, and identifying the 'scope' of accounting and reporting for indirect emissions. Three 'Scopes' of emissions have been defined (Scopes 1, 2 and 3), with direct emissions of a controlling entity referred to as Scope 1 emissions, and indirect emissions referred to as Scope 2 and Scope 3 emissions.

The major sources of greenhouse gas emissions associated with the Mount Pleasant Operation include (Appendix I):

- off-road mobile equipment diesel consumption associated with mining operations (Scope 1 - Stationary Energy [excluding electricity generation] – mining);
- fugitive gaseous emissions that are liberated during mining from exposed coal seams (Scope 1 - Fugitives – open cut coal mines);
- emissions associated with progressive land clearing in advance of mining (Scope 1 - Land use, land use change and forestry);
- emissions associated with off-site electricity generation that is consumed by the mine (Scope 2 - Purchased Electricity); and
- emissions that would typically occur overseas from the (third-party) consumption of product coal in electricity generation (Scope 3 - Coal - Category 11 - Use of Sold Products).

TAS has also estimated some key upstream Scope 3 emissions, and downstream Scope 3 emissions associated with railing Modification coal to the Port of Newcastle and international shipping to Asian ports (Appendix I).

Greenhouse Gas Estimation Methodology

Mount Pleasant Operation's direct and indirect greenhouse gas emissions have been estimated by TAS (Attachment A of Appendix I) using published emission factors from the NGA Factors (Commonwealth DCCEEW, 2025a), where possible.

Where NGA Factors were not available (e.g. for rail and ship transport), greenhouse gas emissions have been estimated using emission factors published by the UK Department for Environment, Food and Rural Affairs (DEFRA) in *Greenhouse Gas Reporting: Conversion Factors 2024* and supplemented by relevant guidance for land clearing and explosives (Transport Authorities Greenhouse Group, 2013; Department of Climate Change, 2008).

Greenhouse Gas Scenario

In order to quantify the incremental greenhouse gas emissions of the Modification, the following scenarios have been assessed:

- **Baseline Scenario** – continuation of operations at the approved ROM coal extraction rate of 10.5 Mtpa to December 2026, consistent with the currently approved Development Consent DA 92/97. This is referred to as the 'business-as-usual' scenario in the Large Emitters Guide.
- **Modification Scenario** - operation at a ROM coal extraction rate of up to 12.5 Mtpa to December 2032, consistent with the proposed Modification to Development Consent DA 92/97. This is referred to as the 'modified-business' scenario in the Large Emitters Guide.
- **Modification Only Scenario** – the incremental increase in emissions due to the Modification (i.e. the difference in emissions between the Baseline Scenario and the Modification Scenario). This is referred to as the 'project-only' scenario in the Large Emitters Guide, and the 'Modification Only' scenario in this context.

Emission factors for electricity usage were obtained from Australia's emissions projections 2025 (Commonwealth DCCEEW, 2025b). These emission factors are based on projections for the decarbonisation of the NSW electricity grid over time.

For the purposes of the following discussion, the Modification Scenario and Modification Only Scenario are explored below.

Modification Greenhouse Gas Emissions

Modification Scenario

The Modification Scenario greenhouse gas emissions estimated by TAS (Appendix I) are summarised in Table 20.

Table 20
Summary of Greenhouse Gas Emissions Estimates for the Modification Scenario

Component	Estimated Greenhouse Gas Emissions (Mt CO_2-e)		
	Scope 1	Scope 2	Scope 3
Annual Average*	0.22	0.013	17.20
Total	1.81	0.103	137.58

Source: Appendix I.
* Excludes decommissioning phase.
Mt $CO_{2\text{-}e}$ = million tonnes of carbon dioxide equivalent.

Modification Only Scenario

The Modification Only Scenario greenhouse gas emissions estimated by TAS (Appendix I) are summarised in Table 21.

Table 21
Summary of Greenhouse Gas Emissions Estimates for the Modification Only Scenario

Component	Estimated Greenhouse Gas Emissions (Mt CO_2-e)		
	Scope 1	Scope 2	Scope 3
Annual Average*	0.18	0.008	13.93
Total	1.45	0.067	111.41

Source: Appendix I.
* Excludes decommissioning phase.
Mt $CO_{2\text{-}e}$ = million tonnes of carbon dioxide equivalent.

6.15.3 Environmental Review

Greenhouse Gas Emissions

The Modification's contribution to global, national, regional and local climate change effects, including the associated environmental impacts, would be in proportion with its contribution to global greenhouse gas emissions. Emissions from the Modification would be similar to existing open cut operations at the Mount Pleasant Operation.

International

The estimated greenhouse gas emissions of the Modification can be considered in the context of global greenhouse gas emissions associated with anthropogenic sources. Emissions from power generation (including the combustion of coal and gas), transport (e.g. automobiles, aeroplanes and ships), agriculture for food production and industrial processes (e.g. steel production) all contribute to global emissions.

Comparison of Modification Scenario annual average Scope 1 and Scope 2 emissions during mining (approximately 0.24 Mt CO_2-e per annum on average) to the total anthropogenic greenhouse gas emissions globally in 2021 (approximately 49,600 Mt CO_2-e) indicates that it would constitute approximately 0.0004% of global emissions per annum over the life of the Modification (Appendix I).

National

Due to the historically low emissions intensity of production at the Mount Pleasant Operation, its emissions intensity determination (EID) for ROM coal is 0.0178 t CO2-e / t ROM (Clean Energy Regulator, 2025). This ranks the Mount Pleasant Operation as having the 8th lowest emissions intensity among approximately 68 Australian coal mining facilities with published EIDs (Chart 1).

The emissions intensity at Mount Pleasant Operation is significantly lower than the industry default value of 0.0653 t CO2-e / t ROM, as specified under the Safeguard Rule.

Under the Modification Scenario, the Mount Pleasant Operation emissions intensity would remain well below the Safeguard Mechanism default ROM coal production variable (0.0653 t CO2-e / t ROM), and relative to other current Australian ROM coal EIDs, would rank approximately 10th lowest (excluding the existing Mount Pleasant Operation) out of approximately 68 facilities (based on historical data determinations) (Chart 1).

Due to the methodology used to calculate baseline emission intensity (i.e. the gradual transition from a site-specific factor to the full industry average) for the Mount Pleasant Operation, the facility baseline is projected to increase over the short-term, including during the Modification. This initial rising baseline trend highlights the low emissions intensity of Mount Pleasant Operation compared to the industry average of 0.0653 t CO_2-e / t ROM coal.

When comparing the required decline rate for the Safeguard emissions intensity and the calculated Scope 1 emissions intensity of the Mount Pleasant Operation incorporating the Modification, MACH could comply with the current Safeguard intensity decline rates to 2032 (Appendix I).

The proportion of Scope 1 emissions from the Modification and Modification Only Scenario compared to projected National emissions under the 'with additional measures' Scenario in 2030 is presented in Table 22. In 2030, the Modification Scenario would account for approximately 0.091% of total projected National Scope 1 emissions. As ROM coal production at the Mount Pleasant Operation is scheduled to cease coal production in 2032, the mine will not materially contribute to National Scope 1 emissions in 2035 (Table 22).

Table 22
Comparison of Modification to National Projections for 2030 and 2035

Year	National Projection (Mt CO_2-e)	Modification Scenario		Modification Only Scenario	
		Estimated Emissions (Mt CO_2-e)	Proportion of Emissions	Estimated Emissions (Mt CO_2-e)	Proportion of Emissions
Total Projected Australia Scope 1 Emissions for 'with additional measures' Scenario (Mt CO_2-e) (Commonwealth DCCEEW, 2025c)					
2030	351.4	0.320	0.091%	0.315	0.090%
2035	301.3	0.003	0.001%	0.003	0.001%

Source: Appendix I.

New South Wales

MACH understands that emissions from the Mount Pleasant Operation operating at rates of up to 21 Mtpa of ROM coal under SSD 10418 out to 2048 are already accounted for in the projections by the NSW DCCEEW. The Modification production of up to 12.5 Mtpa ROM coal to 2032 under Development Consent DA 92/97 would therefore be well within the current NSW modelling projections.

The Mount Pleasant Operation, under the Modification Scenario, is projected to generate average annual Scope 1 and 2 greenhouse gas emissions of 0.24 Mt CO_2-e, while the Modification Only Scenario would result in an average 0.19 Mt CO_2-e per year (Appendix I).

In the context of broader emissions profiles, these contributions are minor, representing 0.207% and 0.163% of NSW' total 2023 greenhouse gas emissions for the Modification and Modification Only Scenario respectively (Appendix I).

Under the Modification Scenario, the Mount Pleasant Operation emissions intensity would remain well below the Safeguard Mechanism default ROM coal production variable (0.0653 t CO_2-e / t ROM), and relative to other current NSW ROM coal EIDs, would rank approximately 5th lowest (excluding the existing Mount Pleasant Operation) out of approximately 26 facilities in NSW (based on historical data determinations) (Chart 2).

The proportion of Scope 1 emissions from the Modification and Modification Only Scenario compared to projected NSW emissions under the 'Current Policy' scenario in 2030 is presented in Table 23. In this year, the Modification Scenario would account for approximately 0.385% of total projected Scope 1 emissions. It would contribute around 1.237% of fugitive emissions from NSW and approximately 0.990% of emissions from NSW stationary energy sources (Appendix I).

Potential Impacts of Climate Change

Consideration of the potential implications of climate change involves complex interactions between climatic, biophysical, social, economic, institutional and technological processes.

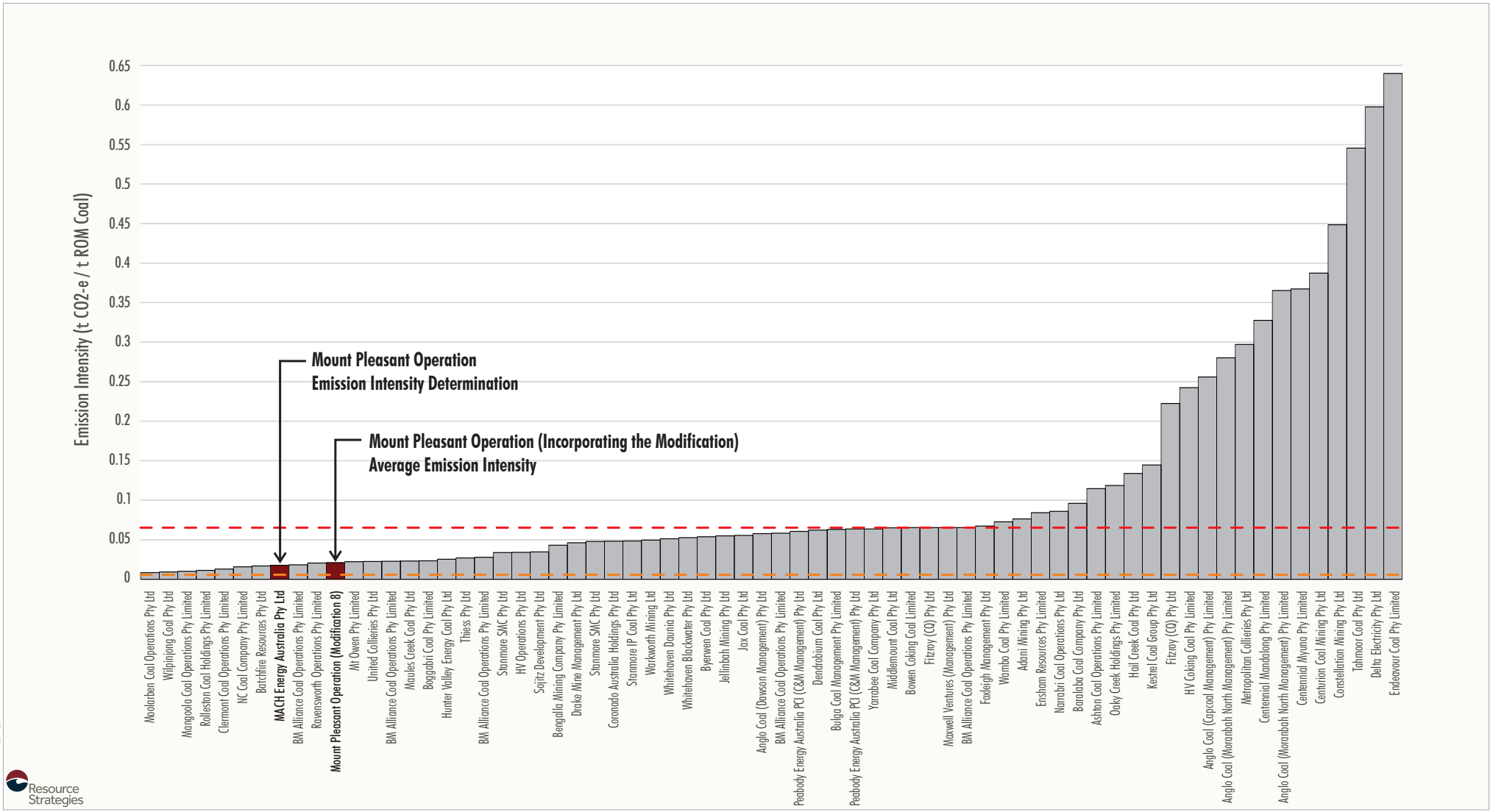
Although scientific understanding of climate change has improved, projections are still subject to a wide range of uncertainties such as (Commonwealth Scientific and Industrial Research Organisation, 2015):

> *…scenario uncertainty, due to the uncertain future emissions and concentrations of greenhouse gases and aerosols; response uncertainty, resulting from limitations in our understanding of the climate system and its representation in climate models; and natural variability, the uncertainty stemming from unperturbed variability in the climate system.*

Given the Modification would cease ROM coal production prior to 2035, potential climate change impacts have been considered within the 'near term' (i.e. up to 2050 or earlier) as the Modification would not materially contribute to global emissions past this date.

International Projections

The Intergovernmental Panel on Climate Change (IPCC) has completed a number of comprehensive assessments of potential climate change, which include projections for the 'near-term' (for the period 2021 to 2040). 'Near-term' projections indicate global mean surface temperatures are likely to increase by 0.4 to 1.1°C based on the range of all climate scenarios and relative to the reference period of 1995 to 2014 (IPCC, 2021).



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Resource Strategies

LEGEND

- Safeguard Mechanism Default Safeguard Emission Intensity
- Safeguard Mechanism Best Practice Emission Intensity

Source: After CER (2025b); TAS (2025)

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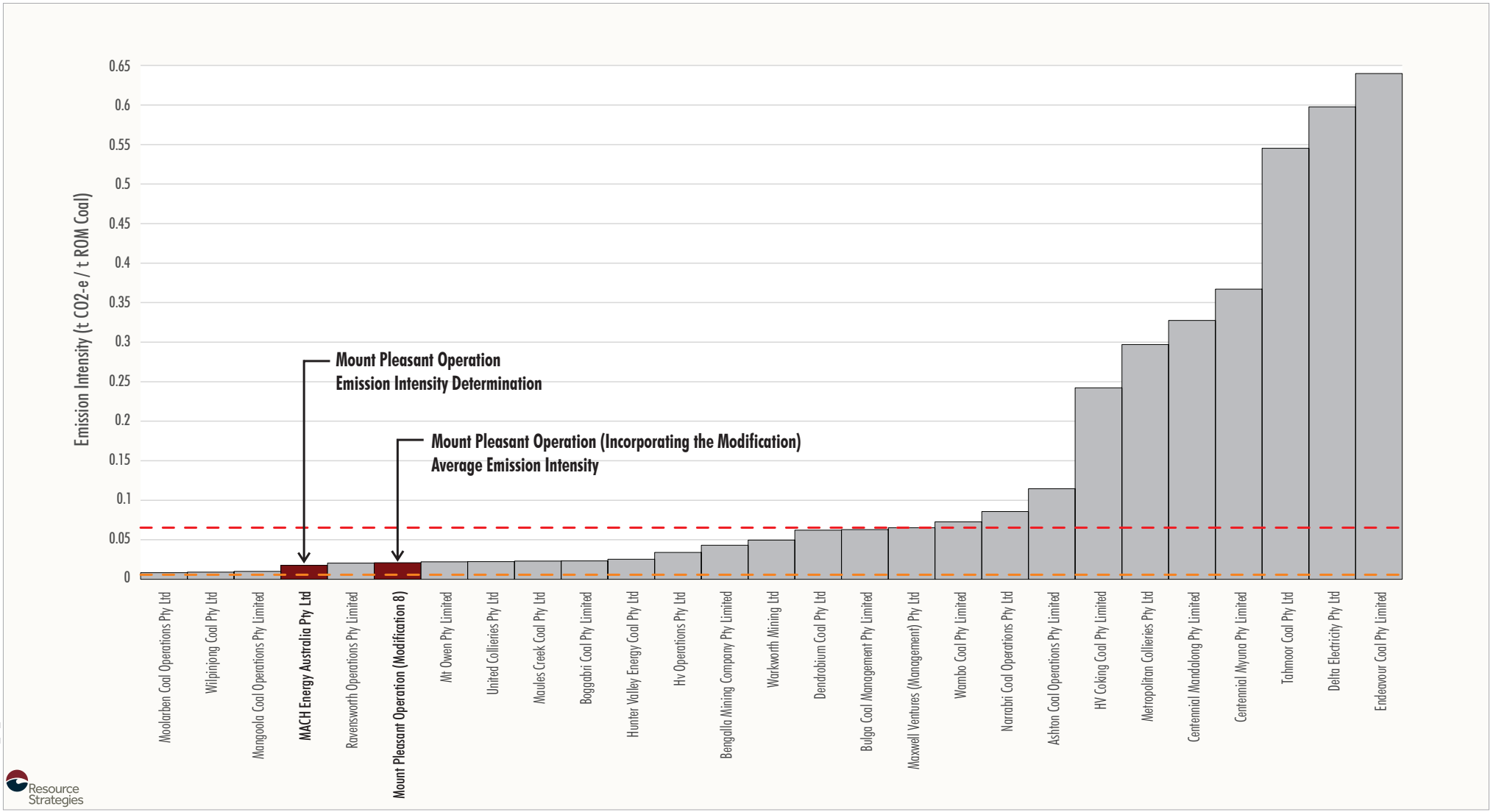
National Coal Mine Emissions Intensity Determinations and Estimated Modification Scenario Emission Intensity

Chart 1



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Resource Strategies

LEGEND

- Safeguard Mechanism Default Safeguard Emission Intensity
- Safeguard Mechanism Best Practice Emission Intensity

Source: After CER (2025b); TAS (2025)

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MOUNT PLEASANT OPERATION

NSW Coal Mine Emissions Intensity Determinations
and Estimated Modification Scenario Emission Intensity

Chart 2

Table 23
Comparison of Modification to NSW Projections for 2030 and 2035

Year	NSW Projection (Mt CO_2-e)	Modification Scenario		Modification Only Scenario	
		Estimated Emissions (Mt CO_2-e)	Proportion of Emissions	Estimated Emissions (Mt CO_2-e)	Proportion of Emissions
Total Projected NSW Scope 1 Emissions for 'Current Policy' Scenario (Mt CO_2-e) (NSW DCCEEW, 2025c)					
2030	83.0	0.320	0.385%	0.315	0.380%
2035	57.4	0.003	0.005%	0.003	0.005%
Projected Scope 1 NSW Fugitive Emissions for Coal Mining for 'Current Policy' Scenario (Mt CO_2-e) (NSW DCCEEW, 2025c)					
2030	13.2	0.163	1.237%	0.163	1.237%
2035	7.6	-	-	-	-
Total Projected NSW Scope 1 Stationary Energy Emissions for 'Current Policy' Scenario (Mt CO_2-e) (NSW DCCEEW, 2025c)					
2030	13.1	0.130	0.990%	0.125	0.956%
2035	10.4	0.003	0.027%	0.003	0.027%

Source: Appendix I.

Climate projections suggest that many changes in the climate system are likely to become larger in direct relation to increasing incremental global warming, with a warmer climate likely to intensify very wet and very dry weather and climatic events and seasons, noting the frequency is dependent on location (IPCC, 2021).

National Projections

Dowdy *et al.* (2015), as part of the *Climate Change in Australia* paper, presents regionally focused climate projections for Australia in the 'near-term' period (2020 to 2039), based on global climate model simulations and emissions scenarios developed by the IPCC. The Mount Pleasant Operation is located within the East Coast South Sub-cluster.

Table 24 presents three Representative Concentration Pathways (RCPs) projections for annual average rainfall in the East Coast South sub-cluster of Eastern Australia for 2020-2039 scenario (relative to 1995). Rainfall projections for the East Coast South sub-cluster indicate a modest overall decline in annual average rainfall across all emissions scenarios for the 2020-2039 scenario, ranging from -1% to -3% (Table 24).

Table 24
Climate Change Projections for the East Coast South Sub-cluster, Eastern Australia – Percentage Change in Rainfall (relative to 1995)

Period	2020-2039		
	RCP2.6	RCP4.5	RCP8.5
Summer	+1	+1	+2
Autumn	-2	-3	-3
Winter	-2	-5	-8
Spring	-3	-1	-3
Annual	-2	-3	-1

Source: Dowdy *et al.* (2015).

RCP2.6: Emissions scenario assuming strong mitigation measures that rapidly decline carbon dioxide (CO_2) concentration at about 420 parts per million (ppm) by 2100.

RSP4.5: Emissions scenario assuming a slow reduction in emissions that stabilises CO_2 concentration at about 540 ppm by 2100.

RSP8.5: Emissions scenario assuming an increase in emissions leading to a CO_2 concentration of about 940 parts per million (ppm) by 2100.

Other key projections for 2020–2039 from *Climate Change in Australia* include a rise in average temperatures of around 0.4 to 1.3°C above 1995 levels, with only small differences between emission scenarios (Dowdy *et al*., 2015). Little change is expected in average wind speeds, solar radiation, or relative humidity across all scenarios for 2020–2039 (Dowdy *et al*., 2015).

Regional Projections

The Mount Pleasant Operation is located within the Hunter Region (which covers approximately 26,100 km^2) of the AdaptNSW Project domain of the Interactive Climate Change Projections Map. AdaptNSW projections are based on The NSW and Australian Regional Climate Modelling 2.0 (NARCliM2.0) data which provides projections using the shared socioeconomic pathways (SSPs) from the *Sixth Assessment Report* (IPCC, 2021).

Changes to annual rainfall are predicted to vary across the Hunter Region, with rainfall projected to decrease on net annually with significant decrease projected during winter (AdaptNSW, 2025) (Table 25).

Table 25
Climate Change Projections for the Hunter Region, NSW – Percentage Change in Rainfall (Relative to the 1990-2009 Baseline)

Period	2020-2039	
	SSP1-2.6	SSP3-7.0
Summer	-4.7%	+6.0%
Autumn	-1.7%	+7.3%
Winter	-13.0%	-16.5%
Spring	-6.4%	+0.7%
Annual	-5.8%	-3.1%

Source: AdaptNSW (2025).

Locality Projections

NARCliM2.0 provides climate projections with 4 km grid cells for all of NSW, ACT, Victoria and parts of South Australia, Queensland and the Northern Territory (AdaptNSW, 2024).

The additional available spatial resolution allows potential climate change effects on the locality to be refined from the broader Hunter Region (Table 25) to the immediate location of the Mount Pleasant Operation. The locality has been defined as the 8 NARCliM2.0 grid cells which encompass the Mount Pleasant Operation (approximately 32 square kilometres).

Table 26 presents the AdaptNSW climate change projections for the 2020–2039 period (relative to the 1990-2009 baseline) under both the low-emissions and high-emissions scenarios for the locality. To provide a conservative estimate, the climate projections presented in Table 26 for the locality are the maximum mean values across the selected grid cells. It is noted, however, that these are central predicted values and there is a range of modelled outcomes under the 10 models adopted by NARCliM2.0.

Table 26
Climate Change Projections for the Locality – Various Climate Parameters (Relative to the 1990-2009 Baseline)

Climate Change Projection Parameters	2020-2039	
	SSP1-2.6	SSP3-7.0
Mean Annual Temperature	+0.85°C	+0.85°C
Average Annual Rainfall	-6.24%	-3.41%
Number of Hot Days (above 35°C) per Year	+8.43	+8.91
Number of Cold Nights (below 2°C) per Year	-7.60	-7.61
Number of Severe Fire Weather Days per Year	+1.08	+1.31

Source: AdaptNSW (2025).

The IPCC SSP projections adopted for NARCliM2.0 are not related to any specific development (including the Modification), instead they reflect future global greenhouse gas emissions and temperature scenarios. All emissions scenarios developed by the IPCC include coal as part of the global primary energy mix during the life of the Modification (i.e. to 2032) and continuing through to at least 2050.

Over the life of the Mount Pleasant Operation, it is anticipated that such climatic modelling for Australia, NSW and various regions will be updated many times as international greenhouse gas emissions projections are adjusted based on the uptake of less carbon-intensive technology and as climate science continues to evolve.

Potential Impacts of the Modification

There is limited evidence to demonstrate that the Modification would cause any net increase in global greenhouse gas emissions or global average temperature as:

- All emissions scenarios developed by the IPCC (and considered in NARCliM2.0 modelling) include coal as part of the global primary energy mix during the life of the Modification (i.e. to 2032) and continuing through to at least 2050.
- In 2024, estimated global production and consumption of coal was approximately 8,688 Mt of coal (International Energy Agency, 2025), whereas the Modification would produce an annual financial year peak of approximately 8.6 Mt of product coal.
- In this context, if the Modification does not proceed, it is likely that customers of the Mount Pleasant Operation would purchase an equivalent amount of coal from an alternate supplier to meet their demand (i.e. there would be no associated reduction in global combustion of coal).

Even if the Modification's estimated greenhouse emissions were considered to result in an incremental *increase* in global emissions, this contribution would be very small relative to current climate change projections, meaning the Modification's contribution to temperature change would also be very small. As temperature change is used as the basis for determining likely changes in other aspects of the climate (e.g. rainfall), it follows that the Modification's incremental contribution to change in these other aspects would also be very small (Appendix I).

6.15.4 Mitigation Measures

Existing Mitigation Measures

Condition 23, Schedule 3 of Development Consent DA 92/97 requires the development of an Air Quality and Greenhouse Gas Management Plan (AQGHGMP).

The current AQGHGMP was approved by DPHI in November 2024.

A wide range of reasonable and feasible existing greenhouse gas mitigation measures are already in place at the Mount Pleasant Operation and would continue for the Modification. These mitigation measures are discussed briefly below, with further detail provided in Attachment B of Appendix I.

Avoid

Mobile Fleet and Plant Maintenance

MACH and its contractors maintain major fleet items in good operating order through original equipment manufacturer (OEM) recommended servicing, targeted maintenance to extend equipment life, and use of condition based data (e.g. remote fuel-use and performance monitoring) to identify inefficiencies early. These measures minimise unnecessary fuel burn from underperforming equipment.

Body Selection and Optimisation

Truck body configurations are selected and optimised to maximise payload efficiency (e.g. light-weighted trays, combo bodies), avoiding excess fuel consumption by enabling higher payloads per trip.

Mobile Fleet Operation

Operational practices focus on avoiding unnecessary diesel use, including maximising payloads, reducing idling, optimising truck routes and sequencing, minimising off-haulage travel, and scheduling operator breaks to reduce non-productive machine hours. Ongoing operator training reinforces efficient loading, tipping and material placement.

Vegetation Clearing

A Vegetation Clearance Protocol limits native vegetation disturbance to the approved footprint and restricts clearing to what is required for the next 12 months of operations. Targeted surveys, boundary marking and salvage measures minimise disturbance of existing vegetation and protect carbon sinks. Progressive rehabilitation further supports early vegetation recovery.

Reduce

Mine Planning and Operational Efficiency

Mine design and scheduling actively reduce fuel intensity through optimised pit and dump sequencing, shorter haul distances, efficient haul road design, in-pit dumping, reduced queuing, and streamlined loading/unloading configurations. Cross-pit bridges and ROM-level-integrated dispatch systems are being implemented to cut unnecessary truck hours, idle time and back-hauls.

Fleet Planning and Monitoring

Real-time fleet data, idle-time management tools, service meter unit erosion tracking, circuit-based workflows, fuel monitoring improvements (e.g. smart-tag Radio Frequency Identification rollout [RFID]) and predictive maintenance programs reduce non productive fuel burn. Daily pre-start checks, and OEM-compliant maintenance help maintain fuel efficiency across the fleet.

Scope 2 Energy Efficiency

Electricity is monitored site-wide, supported by a 99 kilowatt solar installation and various small-scale solar systems. MACH has investigated larger renewable options (e.g. floating solar, a 50 MW solar farm), but these were not economically viable at the time of assessment.

Substitute

Mobile Fleet Procurement and Planning

Procurement decisions prioritise fuel-efficient and lower-emission machinery where reasonable and feasible. MACH's 2025 procurement review assessed lifecycle, emissions and fuel-burn performance of major fleet models, identifying Tier 4 power platforms as the preferred future engines. A watching brief is maintained on emerging repower and emission reduction technologies for alignment with future fleet replacement cycles.

Fixed Plant Procurement and Planning

New or replacement electrical equipment is selected with consideration of energy efficiency.

Fuel-Efficient Light Vehicles

Fuel efficiency is considered in procurement of site light vehicles.

Offset

Safeguard Mechanism Compliance

Where emissions cannot be reasonably and feasibly avoided or reduced, MACH surrenders ACCUs or SMCs to manage residual emissions and comply with the Mount Pleasant Operation's Safeguard baseline obligations.

Progressive Rehabilitation

Rehabilitation of disturbed areas occurs as soon as practicable (typically within six months), with temporary stabilisation measures applied where needed. Rehabilitation restores vegetation and soil carbon sinks, offsetting a portion of land-clearing emissions. MACH is also required to establish 1,000 ha of White Box–Yellow Box–Blakely's Red Gum Grassy Woodland and Derived Native Grassland Ecological Community in accordance with its Commonwealth approval (EPBC 2011/5795).

Three-Year Action Plan

MACH has recently undertaken a Scope 1 and Scope 2 greenhouse gas abatement evaluation when completing an update to its AQGHGMP under SSD 10418, inclusive of identifying a series of actions to be pursued over the next three years to gather additional information and implement additional actions to reduce greenhouse gas emissions where reasonable and feasible at the Mount Pleasant Operation.

MACH has subsequently amended the greenhouse gas abatement evaluation to reflect the context of the proposed Modification to Development Consent DA 92/97 (Attachment B of Appendix I), and has also replicated the three-year action plan, as these actions are potentially transferrable to the Modification. The three-year action plan is discussed in detail in Attachment B of Appendix I and is summarised below:

- **Operational Fuel Efficiency**– Expand the use of RFID fuel data and formalise operational efficiency training to improve fuel management, operator performance and efficiency.
- **Alternative Fuels** – Investigate the feasibility of premium diesel and renewable diesel as potential lower-emission fuel alternatives, including supply availability, technical compatibility and cost–benefit considerations.
- **Fugitives** – Evaluate future opportunities for fugitive methane pre-drainage, destruction or utilisation to potentially reduce Scope 1 fugitive emissions, including completion of a Fugitive Investigation Programme.
- **Hybrid and Electric Drive Major Equipment** – Progressively evaluate or trial hybrid and diesel-electric technologies for haul trucks, loaders and dozers to potentially reduce diesel use and improve equipment efficiency.

- **Zero Emissions Technology (Tethered Equipment)** – Examine the feasibility of potentially adopting tethered equipment, including electrical supply requirements and site constraints through a Tethered Equipment Study.
- **Electricity Supply** – Assess options to reduce Scope 2 emissions through carbon-neutral or lower-intensity electricity contracts, enhanced metering and improved understanding of electricity consumption patterns.

Adaptive Management

Should the Modification be approved, MACH anticipates that the Development Consent conditions for DA 92/97 would be updated to reflect contemporary NSW EPA guidance on the content of a Climate Change Mitigation and Adaptation Plan (CCMAP), including:

- measures to avoid and reduce Mount Pleasant Operation greenhouse gas emissions applying the NSW EPA's mitigation hierarchy (avoid, reduce, substitute and offset);
- strategies to offset excess greenhouse gas emissions (as required);
- description of the monitoring and reporting on greenhouse gas emissions performance, including performance benchmarking and NGERs reporting obligations; and
- a timetable for periodic review of the CCMAP and associated proposed mitigation, reporting and the overarching greenhouse gas management goals of MACH.

MACH anticipates developing a new CCMAP in consultation with the NSW EPA following approval of the Modification.

6.16 ECONOMICS

An Economic Assessment for the Modification was undertaken by AnalytEcon Pty Ltd (AnalyEcon) (2025) and is presented in Appendix H.

6.16.1 Background

Economic Assessment is primarily concerned with the ‘net benefits’ of a proposal for NSW and for a local region in terms of specific indicators, such as employment and income.

In this case, the local region assessment was conducted at two different scales (Figure 33):

- The Upper Hunter Statistical Area Level 3 region (the SA3 Region); and
- The Muswellbrook, Upper Hunter and Singleton LGAs (the Mount Pleasant Operation Region).

The SA3 Region was assessed in accordance with the *Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals* (NSW Government, 2015).

The Mount Pleasant Operation Region was also assessed as it better aligns with the place of residence of the local Mount Pleasant Operation workforce and, therefore, better captures the potential direct and flow-on economic effects associated with the Modification (Appendix H).

Mining; agriculture, forestry and fishing; retail trade; and health care and social assistance are the largest sectors from an employment perspective in the SA3 Region and Mount Pleasant Operation Region (Appendix H).

The mining and agriculture, forestry and fishing sectors are of greater relative importance to the regional economies than to the NSW economy from an employment perspective (Appendix H).

6.16.2 Environmental Review

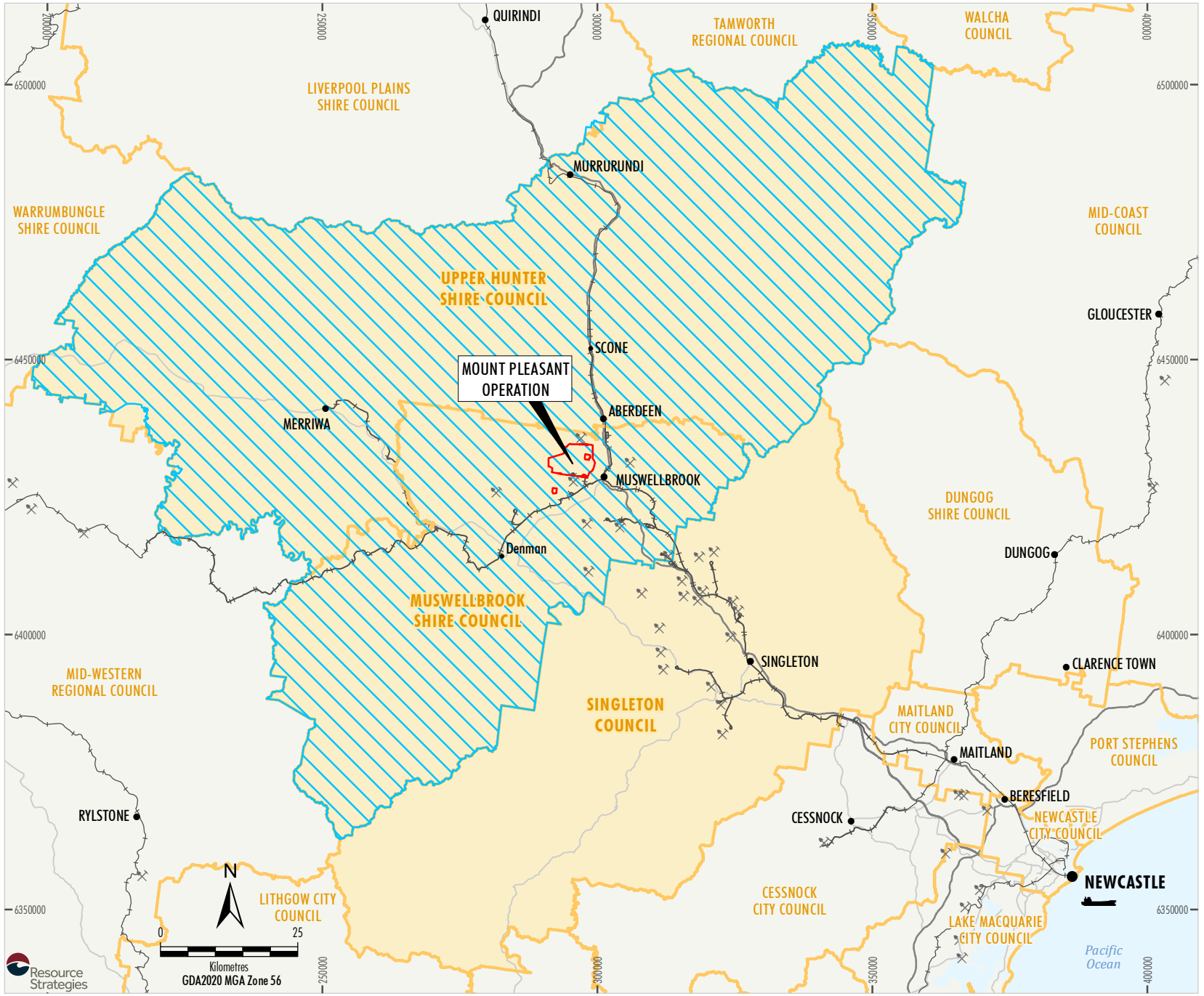
AnalytEcon (2025) has conducted a cost-benefit analysis to evaluate the potential net benefits of the Modification to NSW (Appendix H).

The assessment of flow-on effects in the local region and NSW is based on input-output modelling developed by AnalytEcon (2025).

Net Benefit for NSW

The Economic Assessment indicates the Modification would result in a total net benefit to the NSW economy of $776 million in NPV terms, inclusive of estimated costs for environmental externalities and internalisation of environmental management costs by MACH.

The estimated net benefit of the Modification for NSW consists of royalties of $645 million in NPV terms and NSW’ share of company income tax of $131 million in NPV terms (Appendix H).



LEGEND

- Mining Operation
- Railway
- Highway
- Principal Road
- Upper Hunter SA3 Region
- Local Government Area
- Mount Pleasant Operation Region
- Mining Lease Boundary (Mount Pleasant Operation)

Source: MACH (2025); Australian Bureau of Statistics (2025); NSW Spatial Services (2025)

MACHEnergy

MOUNT PLEASANT OPERATION

Economic Assessment Regions

Figure 33

MAC-18-02A MOD8_MT_253B

Sensitivity analysis undertaken shows that the Modification would generate significant net benefits to the NSW economy under a range of circumstances (Appendix H).

Employment and Income

The Modification would allow for the employment of up to 575 full-time equivalent operational personnel at the Mount Pleasant Operation. Consistent with the approach adopted for the Road Transport Assessment (Appendix E), AnalytEcon has conservatively treated a small number of operational personnel (i.e. estimated functional support and sustaining capital employees) as construction roles in the Economic Assessment (as these roles are very similar in nature to construction roles). As the regional effects analysis is largely based upon the Modification operational employment stimulus, this approach is inherently conservative.

The Modification is projected to result in the following incremental direct employment impacts (i.e. in addition to the approved Mount Pleasant Operation) associated with the operational workforce (Appendix H):

- SA3 Region – approximately 236 direct full-time equivalent jobs per annum; and
- Mount Pleasant Operation Region – approximately 340 direct full-time equivalent jobs per annum.

The Modification operational employment would result in incremental disposable income of approximately $171 million and $230 million in NPV terms in the SA3 Region and Mount Pleasant Operation Region, respectively (Appendix H).

The Modification is also projected to result in the following incremental indirect employment impacts associated with related upstream or downstream industries (Appendix H):

- SA3 Region – approximately 43 indirect full-time equivalent jobs per annum; and
- Mount Pleasant Operation Region – approximately 61 indirect full-time equivalent jobs per annum.

These incremental indirect employment opportunities would result in incremental disposable income of approximately $79 million and $134 million in NPV terms in the SA3 Region and Mount Pleasant Operation Region, respectively (Appendix H).

6.16.3 Mitigation Measures

The Modification would allow for the continued operation of the Mount Pleasant Operation that would stimulate demand in the regional and NSW economies leading to increased employment (Plate 32) and value added (Appendix H).

Cessation of the mining operations would, however, result in a contraction in regional economic activity.

Plate 32 – Members of the Mount Pleasant Operation Workforce

The magnitude of the regional economic impacts from cessation of the Mount Pleasant Operation incorporating the Modification would depend on a number of interrelated factors, including the movements of workers and their families, alternative development opportunities and economic structure and trends in the regional economy at the time.

A Mine Closure Plan would therefore be developed for the Mount Pleasant Operation in consultation with relevant regulatory authorities and community stakeholders to address this transition (Section 6.13).

6.16.4 Adaptive Management

The Mine Closure Plan would include consideration of amelioration of potential adverse socio-economic effects due to the reduction in employment at closure (Section 6.13).

It is noted that the Department of Regional NSW (2024) has recently released an issues paper that relates to support for economic transition of four coal-reliant regions in NSW, including the Hunter Region.

Under this proposal Future Jobs and Investment Authorities would be established to drive tangible outcomes in each coal-reliant region (Department of Regional NSW, 2024).

It is understood that the NSW Government's guidance of development pathways in these coal reliant regions would be informed by the timeframes for mine closures, the economic and social impacts for local businesses and workers and the regional opportunities that exist for future industries (Department of Regional NSW, 2024).

MACH also participated in the (2024) NSW Parliament inquiry into beneficial and productive post-mining land uses at the request of the Office of Regional Economic Development - Department of Regional NSW.

MACH anticipates continuing to work closely with the NSW Government over the life of the Mount Pleasant Operation on post-mining land uses that maximise post-mining socio-economic benefits to the community and associated approvals pathways for the Muswellbrook LGA and the Hunter Region.

6.17 OTHER ENVIRONMENTAL ASPECTS

6.17.1 Transport Noise

Road Noise

The RNP establishes criteria for the assessment of road transport noise in NSW (Appendix A). Relevant road transport noise criteria for residences are provided in Table 27.

Where exceedances of the road transport noise assessment criteria are predicted due to traffic-generating developments, the RNP states that an increase of up to 2 decibels (dB) is considered to be barely perceptible (DECCW, 2011).

Road traffic noise for the Modification was assessed against the road traffic noise criteria as recommended in the RNP (Table 28) for Wybong Road and Kayuga Road (Plate 33).

Plate 33 – Kayuga Road

RWDI (2025) undertook an analysis of peak hour traffic volumes in 2026 and 2032 from the Mount Pleasant Operation incorporating the Modification as provided by TTPP (Appendix E) for day and night-time peak hours, respectively.

Based on future traffic volumes, peak hour traffic noise levels at all privately-owned receptors within 600 m of Wybong Road and Kayuga Road were assessed. Seven of the identified receivers along Wybong Road and Kayuga Road are predicted to exceed the applicable road traffic noise criteria (Table 27) in 2026 and 2032. However, all seven receivers would also experience RNP exceedances without traffic from the Mount Pleasant Operation (Appendix A).

Comparison of traffic noise levels with and without the Mount Pleasant Operation indicate that these receivers would be subject to an increase in traffic noise of less than 2 dB in 2032, while the increase is predicted to be 2.2 dB at night in 2026 with peak workforce movements (Appendix A).

It is noted that all privately-owned receivers predicted to exceed the applicable road traffic noise by more than 2 dB are already subject to acquisition or mitigation upon request rights for operational noise under Development Consent DA 92/97.

Table 27
Road Noise Policy Criteria for Residential Land Uses

Road Category	Roads	Type of Project and Land Use	Total Road Transport Noise Criteria ($L_{Aeq, 1hr}$)	
			Day (7.00 am – 10.00 pm)	Night (10.00 pm – 7.00 am)
Local	Wybong Road Kayuga Road	Existing residences affected by additional traffic on existing local roads generated by land use developments.	55 dBA	50 dBA

Rail Noise

Appendix 3 of the RING deals with non-network rail lines on or exclusively servicing industrial sites. Where a non-network line extends beyond the boundary of the industrial premises, noise from that section of the track should be assessed against the recommended acceptable L_{Aeq} noise level from industrial sources for the relevant receiver type (Appendix A).

The criteria for noise impacts associated with the Mount Pleasant Operation rail spur between the site Mining Leases and the Muswellbrook–Ulan Rail Line adopted for the assessment are provided in Table 29.

The section of the Mount Pleasant Operation rail spur within the site Mining Leases and the rail loop and rail loader were assessed cumulatively as part of on-site operational noise in accordance with the requirements of the NPfI.

The EPA's RING assessment trigger levels for additional rail traffic on an existing rail network (i.e. the Muswellbrook–Ulan Rail Line and Main Northern Railway) are presented in Table 23. It is noted these trigger levels are generally consistent with the Australian Rail Track Corporation's (ARTC) EPL 3142 in regard to noise level goals for rail noise emissions.

Rail noise associated with the Modification has been considered by RWDI (2025) on both the Mount Pleasant Operation rail spur and the broader state rail network against the criteria presented in Tables 28 and 29, respectively (Appendix A).

Rail Spur Noise Assessment

An Environmental Noise Model was developed by RWDI (2025) for the Mount Pleasant Operation rail spur to predict noise levels generated by train movements on the rail section extending from the site Mining Leases to the rail network junction (Muswellbrook-Ulan Rail Line).

The assessment focused on the night-time $L_{Aeq,9hr}$ noise predictions for the closest and potentially most exposed privately-owned residential receivers as compliance would infer compliance during the day and evening and at all surrounding receivers (Appendix A).

Noise levels generated by train movements on the rail spur would generally comply with the relevant criteria, with the exception of one receiver (receiver 21) where a 1 dB night-time exceedance is predicted when assuming medium wheel defects, which is considered negligible according to the NPfI and VLAMP (Appendix A). It is noted that this receiver is already subject to acquisition upon request for air quality and mitigation upon request for operational noise in Development Consent DA 92/97.

Rail Network Noise Assessment

The rail network noise assessment was undertaken based on cumulative noise rail noise levels from the Mount Pleasant Operation rail movements and other surrounding rail movements in 2026 where cumulative rail movements are highest (Appendix A).

Table 28
Non-network Rail Line Noise Assessment Criteria

Type of Receiver	Time of Day	Acceptable L_{Aeq}
Rural residence	Day	50 dBA
	Evening	45 dBA
	Night	40 dBA

After: Appendix A.

Table 29
Network Rail Line Rail Noise Assessment Trigger Levels – Rail Infrastructure Noise Guideline

Descriptor	Rail Noise Assessment Trigger Levels
Day/evening [$L_{Aeq(15\ hour)}$]	65 dBA
Night [$L_{Aeq(9\ hour)}$]	60 dBA
Maximum pass-by [$L_{Amax(95th\ percentile)}$]	85 dBA

After: Appendix A.

The Mount Pleasant Operation incorporating the Modification was found to contribute an increase of up to 0.6 dB and 0.3 dB on the Muswellbrook-Ulan rail line (east of the Mount Pleasant Operation rail spur) and Main Northern Railway (from the Muswellbrook Junction to Antiene Rail Spur), respectively (Appendix A).

RWDI (2025) concluded that the minimum offset distance required to comply with the relevant rail noise criteria would increase marginally. Three privately-owned receivers were found to be within the minimum offset distance and may exceed the relevant noise rail noise criteria. However, these exceedances would also occur without the Mount Pleasant Operation rail movements (Appendix A).

6.17.2 Dangerous Goods

The transportation, handling and storage of all dangerous goods for the Modification would continue to be conducted in accordance with the requirements of the NSW *Work Health and Safety Regulation 2017* (or its latest equivalent). On-site consumable storage areas would continue to be designed with appropriate bunding and fuel and explosive storage areas would be regularly inspected and maintained.

6.17.3 Human Health

A Human Health Assessment was prepared for the Mount Pleasant Optimisation Project by Environmental Risk Sciences (EnRiskS) (2020) in accordance with the *Environmental Health Risk Assessment: Guidelines for Assessing Human Health Risks from Environmental Hazards* published by the Environmental Health Standing Committee (enHealth, 2012) under the Commonwealth Department of Health.

EnRiskS (2020) identified four very proximal private residential receivers (located between approximately 200 m and 1 km from the Mount Pleasant Operation) where potential exceedances of relevant air quality criteria suggested health impacts would be considered potentially unacceptable due to incremental risks associated with Mount Pleasant Optimisation Project dust ($PM_{2.5}$).

These four receivers were a subset of the locations identified as having potential air quality exceedances in the Air Quality Impact Assessment (TAS, 2020) (i.e. no additional health risks were identified that were not already identified in the application of health-based air quality assessment criteria).

It was noted that private residences that exceeded applicable criteria (including health-based criteria) would be afforded acquisition upon request rights in accordance with the VLAMP.

EnRiskS (2020) did not recommend any specific mitigation measures for potential health-related impacts beyond the recommendations adopted from other specialist studies, including implementation of:

- dust mitigation measures as described in the Air Quality and Greenhouse Gas Management Plan;
- noise mitigation measures as described in the Noise Management Plan;
- blasting mitigation measures as described in the Blast Management Plan; and
- water resources mitigation measures described in the Water Management Plan.

MACH anticipates that private residences located in very close proximity to the Mount Pleasant Operation with exceedances of applicable VLAMP criteria would continue to be afforded acquisition upon request rights under Development Consent DA 92/97, and the above environmental management plans would also be updated to address the Modification, should it be approved.

6.17.4 Hazard and Risk

MACH would continue to operate the existing declared dams (Plate 34) under the NSW *Dams Safety Act 2015* for the Modification, including construction and inspection requirements. MACH would continue to consult with Dams Safety NSW regarding the management of declared dams operated by MACH and also meet Dams Safety NSW requirements applicable to any Modification works within Bengalla Mine's CW1 and DW1 notification areas.

It is considered that the Modification would not change the existing potential risks identified in the previous assessments for the Mount Pleasant Operation. The proposed activities associated with the Modification (e.g. continuation of open cut mining and waste emplacement activities) are consistent with the approved mine and would not significantly alter the risk profile of the operation.

Notwithstanding, a range of environmental management plans and monitoring programmes would be reviewed, and where necessary, revised to include the Modification and manage any associated environmental risks (as described above).

Plate 34 – Mine Water Storage Mount Pleasant Operation

7 JUSTIFICATION OF THE MODIFICATION

This section provides a justification for the Modification and conclusion for the Modification Report.

As part of the justification of the Modification, consideration has been given to:

- the strategic context, inclusive of the status of the Mount Pleasant Optimisation Project (Section 7.1);
- the environmental assessment context (Section 7.2);
- the engagement undertaken for the Modification (Section 7.3);
- key environmental assessment outcomes including the potential impacts of the Modification (Section 7.4);
- key EP&A Act considerations (Section 7.5); and
- the benefits of the Modification (Section 7.6).

7.1 STRATEGIC CONTEXT

MACH currently has approval under Development Consent DA 92/97 to carry out mining operations until 22 December 2026. However, the original 1997 EIS contemplated 21 years or more of mining, and the original Development Consent DA 92/97 allowed for up to 21 years of mining operations.

MACH is also authorised under the separate NSW development consent for the Mount Pleasant Optimisation Project (SSD 10418) to carry out mining operations until 22 December 2048 (Section 1.3). However, the judicial review challenge has created some uncertainty about the approvals status of the Mount Pleasant Operation beyond the currently approved mining period under Development Consent DA 92/97.

In the event that the Development Consent SSD 10418 for the Mount Pleasant Optimisation Project is in force and not subject to an ongoing legal challenge, it would be MACH's preference to proceed with the Mount Pleasant Optimisation Project (and hence surrender Development Consent DA 92/97).

However, until MACH is in a position where it is able to surrender Development Consent DA 92/97 with confidence that it can rely on SSD 10418 for the Mount Pleasant Optimisation Project, MACH will continue to rely upon Development Consent DA 92/97.

In the absence of this legal certainty, MACH is seeking a Modification to Development Consent DA 92/97 to continue mining operations to 2032 for the ongoing benefit of MACH, employees, contractors and the regional community.

7.2 ENVIRONMENTAL ASSESSMENT CONTEXT

It is anticipated that the Mount Pleasant Operation would continue to operate for at least the originally approved 21 year period of mining. MACH has, however, limited the currently proposed extension of the permitted period of mining operations from 2026 to 2032 in this Modification.

The Modification does not involve any additional surface disturbance beyond the already approved surface disturbance area depicted and described in Figure 3 in Appendix 2 to Development Consent DA 92/97.

MACH has lawfully undertaken some development of additional disturbance areas pursuant to Development Consent SSD 10418 (i.e. development outside of the approved surface disturbance area depicted and described in Figure 3 in Appendix 2 to Development Consent DA 92/97).

MACH has conservatively assessed and considered the potential impacts of the Mount Pleasant Operation continuing to 2032, inclusive of a description of potential impacts that would arise within the approved surface disturbance plan/area[31].

MACH considers that the material and essential features of the Mount Pleasant Operation would remain substantially the same, as compared to the currently approved Mount Pleasant Operation when applying either the Originally Approved Development Comparator or the Modification 4 Development Comparator (Section 4.1.1).

MACH considers that the consent authority can be satisfied that the Mount Pleasant Operation incorporating the Modification satisfies the "substantially the same development" test (regardless of which comparator is applied).

[31] Refer to, amongst other things, Figure 3 in Appendix 2 of DA 92/97.

7.3 STAKEHOLDER ENGAGEMENT OVERVIEW

Contemporary and targeted consultation has been conducted for the Modification. MACH has consulted with a number of stakeholders during development of this Modification Report (Section 5), including the following key NSW Government agencies:

- DPHI – Resource Assessments;
- NSW Resources (including the Industry Advisory and Mining Concierge);
- NSW DCCEEW, including:
  - Water Group; and
  - EPA.

MACH has also continued its regular consultation with the MSC, the UHSC, the Mount Pleasant Operation CCC, the local Aboriginal Community and local private landholders. Additional targeted Modification consultation was also undertaken for the SIA (Appendix G).

Many local stakeholders consulted as part of the Modification expressed significant concern about the implications of the Mount Pleasant Operation closing in December 2026 in the absence of the Modification (and/or the Mount Pleasant Optimisation Project).

Other key concerns included the continuation of cumulative impacts with other mining operations on local amenity, primarily air quality and noise, and potential cumulative interactions with renewable energy development in the region.

Key comments and issues raised during consultation have been considered and addressed in preparation of this Modification Report.

7.4 CONSOLIDATED SUMMARY OF ASSESSMENT OUTCOMES

MACH could operate the Mount Pleasant Operation incorporating the Modification in accordance with existing criteria and performance measures as set out in Development Consent DA 92/97 and the existing environmental management framework with only minor augmentations.

The Modification does not involve any additional surface disturbance beyond the already approved surface disturbance area depicted and described in Figure 3 in Appendix 2 to Development Consent DA 92/97.

MACH has undertaken a review of the potential environmental impacts of the Modification to identify key environmental issues requiring assessment. The key environmental issues identified are summarised in Table 31.

These reviews indicate that the Mount Pleasant Operation environmental management and monitoring measures being applied by MACH could continue to be effectively applied to minimise the potential impacts on existing environmental values and the nearest private dwellings. The Modification would not significantly increase potential environmental impacts in comparison to the approved Mount Pleasant Operation.

It is considered that the consent authority can be satisfied that the environmental impacts of the development as proposed to be modified are acceptable, subject to the environmental performance conditions of Development Consent DA 92/97.

Table 30
Key Outcomes of the Environmental Review

Environmental Aspect	Summary of Environmental Assessment Conclusions	Key Mitigation Measures for the Modification
Operational Noise	With the implementation of MACH's noise management measures (including noise attenuated major mobile plant), the noise envelope of the Mount Pleasant Operation incorporating the Modification would effectively be unchanged from the approved mine.	MACH would develop a noise bund in advance of the mining operation moving into North Pit and would continue to position the bulk of mobile equipment during the night-time to optimise the noise shielding provided by the Eastern Out-of-Pit Emplacement. MACH would continue to implement the existing real-time noise management system and associated response protocols in the Noise Management Plan.

Table 30 (Continued)
Key Outcomes of the Environmental Review

Environmental Aspect	Summary of Environmental Assessment Conclusions	Key Mitigation Measures for the Modification
Air Quality	Air quality modelling indicates that no additional exceedances of applicable Development Consent DA 92/97 air quality criteria are predicted to arise at any privately-owned residences as a result of the Modification. One privately-owned parcel of vacant land would be afforded acquisition upon request rights for air quality (this land parcel already has acquisition upon request rights for noise impacts).	The real-time air quality monitoring system and response protocols detailed in the Air Quality and Greenhouse Gas Management Plan would continue to be implemented, including proactive and reactive management measures.
Water Resources	The Modification would not result in a material change to the groundwater and surface water impacts of the previously approved Mount Pleasant Operation. The outcomes of contemporary site water balance modelling undertaken for the Modification are not materially different to the outcomes of water management system modelling undertaken for the previously approved Mount Pleasant Operation.	Water monitoring and management at the Mount Pleasant Operation would continue to be undertaken in accordance with an approved Water Management Plan. MACH would maintain appropriate groundwater and surface water licences in accordance with the relevant water sharing plans.
Biodiversity	The Modification does not involve any additional surface disturbance beyond the already approved surface disturbance area depicted and described in Figure 3 in Appendix 2 to Development Consent DA 92/97.	Key biodiversity management measures at the Mount Pleasant Operation would continue to be implemented for the Modification, including the implementation of progressive rehabilitation.
Aboriginal Cultural Heritage	Approximately 29 Aboriginal cultural heritage sites, primarily assessed as being of low scientific significance within the approved surface development area/plan would be salvaged in the period between 1 January 2026 and 31 December 2032, dependent on pit progression and the location of ancillary infrastructure. The Modification would not cause, within a regional context, a loss of heritage resources that could be viewed as being very rare or unique, or unlikely to exist elsewhere.	Cultural heritage at the Mount Pleasant Operation would continue to be managed in accordance with an approved Aboriginal Cultural Heritage Management Plan. MACH would separately seek an AHIP/s, in consultation with RAPs, to authorise salvage of those sites not covered by an existing AHIP. If required, MACH would lodge variation application/s to extend the life of AHIPs #C0002092, #C0004783 and/or #C0002053 to align with the revised period of permitted (ROM coal) mining operations.
Social and Community Infrastructure	The potential impacts of the Modification are a continuation of the social impacts currently being experienced from the Mount Pleasant Operation. Negative social impacts would continue to be experienced by people in close geographical proximity to the current operation, while positive social impacts would continue to be experienced generally over a wider geographical area.	MACH would continue to work with local government and the community to minimise potential social impacts of the Modification and maximise potential opportunities. MACH would continue to implement and improve existing management plans, procedures and personnel that address existing social impacts.

Table 30 (Continued)
Key Outcomes of the Environmental Review

Environmental Aspect	Summary of Environmental Assessment Conclusions	Key Mitigation Measures for the Modification
Visual/Final Landform	The continuation of mining to 2032 and the ongoing northern and western development of the Eastern Out-of-Pit Emplacement would alter the views of the Mount Pleasant Operation, particularly when viewed from Muswellbrook, Aberdeen and other local public vantage points. Overall, landscape and visual impacts associated with Modification would be largely consistent with previously assessed and approved impacts at Mount Pleasant Operation.	Visual and landscape treatments and mitigation measures have been incorporated in the design of the Modification to reduce visual impacts in Muswellbrook and other local vantage points. Existing lighting mitigation measures would continue to be applied to minimise direct and indirect lighting impacts.
Greenhouse Gas	The approved total ROM coal extraction and annual projected greenhouse gas emissions of the Mount Pleasant Optimisation Project are already included in NSW' greenhouse gas projections out to 2048. The Modification's greenhouse gas emissions would represent a smaller subset of the projected SSD 10418 emissions. Based on internal projections, MACH could comply with the current Safeguard intensity decline rates to 2032.	MACH has prepared a Climate Change Mitigation and Adaptation Plan to document reasonable and feasible Scope 1 and Scope 2 greenhouse gas mitigation measures that could be applied at the Mount Pleasant Operation, which has been provided to the EPA and DPHI for consultation. This would be updated to incorporate the Modification. MACH would continue to comply with its obligations to report greenhouse gas emissions and energy consumption/production under the NGER Act and the associated Safeguard Mechanism.

7.5 CONSIDERATIONS OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

7.5.1 Objects of the Environmental Planning and Assessment Act 1979

Section 1.3 of the EP&A Act relevantly describes the objects of the EP&A Act (Section 4.1.2).

The Modification is considered to be generally consistent with the objects of the EP&A Act, because:

- The Modification would facilitate continued local and regional employment, economic development opportunities and community contributions.
- The Modification would develop the State's valuable coal resources within MACH's Mining Leases, with the value of coal production recognised in the *Strategic Statement on Coal Exploration and Mining in NSW* (NSW Government, 2020).
- The Modification has been designed and assessed having regard to relevant principles of ESD, including in relation to the:
  - continued implementation of MACH's adaptive approach to environmental management and high standards for environmental, occupational health and safety performance;
  - assessment and management of greenhouse gas emissions associated with the Modification;
  - consideration of risks and uncertainty in project planning and environmental assessment;
  - consultation with community and regulatory stakeholders; and
  - the significant socio-economic benefits arising from the proposed continuation of the Mount Pleasant Operation.
- The Modification is compatible with its near neighbours, including agricultural businesses.
- The Modification would incorporate a range of measures for the protection of the environment, including the protection of native plants and animals, threatened species, and their habitats.

- The approximately 12,875 ha of biodiversity offset areas for the purpose of the Mount Pleasant Operation would offset the biodiversity impacts associated with continuing to carry out mining operations in accordance with the approved surface disturbance plan/area until 31 December 2032.
- Multiple Aboriginal and historical heritage assessments have been undertaken at the Mount Pleasant Operation to date and the implementation of mitigation measures for potential direct and indirect impacts on heritage would continue.
- The Modification would make maximum use of the existing Mount Pleasant Operation infrastructure, coal handling, rail transport and the existing Fines Emplacement Area. The proposed development incorporates leading mine landform design principles and progressive rehabilitation that would act to minimise the visual contrast of the waste rock emplacement with the surrounding environment.
- The Modification would be determined by the Minister, or the Minister's Delegate, however, a wide range of stakeholders have been consulted throughout the assessment process.
- The Mount Pleasant Operation incorporating the Modification would continue to be developed in a manner that incorporates community input, including via the public exhibition of the Modification documents and the major project assessment process.

7.5.2 Evaluation under Section 4.15(1) of the Environmental Planning and Assessment Act 1979

In evaluating the Modification, the consent authority is required, pursuant to section 4.55(3), to take into consideration the matters referred to in section 4.15(1) of the EP&A Act as are of relevance to the proposed modified development (Section 4.1.4).

This Modification Report has been prepared to address the matters in section 4.15(1) of the EP&A Act as are of relevance to the proposed modified development including as follows:

- Consideration of the provisions of relevant environmental planning instruments is provided in Section 4.3 and Attachment 3.
- This Modification Report has been prepared in consideration of the relevant provisions of the EP&A Regulation.
- The existing Voluntary Planning Agreement with the MSC under Development Consent DA 92/97 would continue to apply to the modified Mount Pleasant Operation.
- A description of the existing environment, an assessment of the potential environmental impacts associated with the Modification, and a description of the potential measures to avoid, mitigate, rehabilitate, remediate, monitor and/or offset the potential impacts of the Modification are described in Section 6 and Appendices A to K.
- The suitability of the site for the development has been assessed and determined previously in the context of Development Consent DA 92/97 and also separately in 2022 by the IPC in the context of SSD 10418 (Section 1.3). The suitability and assessment of the final landform as proposed for the Modification has been considered in Sections 3 and 6.
- This Modification Report will be placed on public exhibition and MACH will respond to any submissions made on the Modification through a Submissions Report.
- This Modification Report demonstrates why the Modification is considered to be in the public interest.

7.6 JUSTIFICATION FOR THE MODIFICATION

MACH currently has approval under Development Consent DA 92/97 to carry out mining operations until 22 December 2026. However, the original 1997 EIS contemplated 21 years or more of mining, and the original Development Consent DA 92/97 allowed for up to 21 years of mining operations.

The Modification seeks an extension to the currently permitted period of mining operations under Development Consent DA 92/97, to provide greater certainty of continued operations at the Mount Pleasant Operation, in light of litigation-related uncertainty regarding the Mount Pleasant Optimisation Project (SSD 10418).

The Modification would facilitate the following key socio-economic benefits:

- retention of approximately 575 full-time equivalent positions during the Modification period, preventing the complete loss of employment that would otherwise occur upon cessation of mining by 22 December 2026;
- direct and indirect flow on economic effects of continued and increased ROM coal production in the six year extension period (2027-2032);

- continuation of existing Voluntary Planning Agreement payments to MSC; and
- the continuation and incremental increases in royalty payments to the NSW government from MACH coal product sales[32].

The Economic Assessment indicates the Modification would result in a total net benefit to NSW of $776 million in NPV terms.

The Modification would also allow for MACH's continued support for local and regional businesses, and investment in social enterprises, sporting groups and community groups within the region for an additional six years.

In a scenario where the Modification is not approved and MACH is also not in a position to carry out the Mount Pleasant Optimisation Project pursuant to a development consent and EPBC Act approvals:

- the Mount Pleasant Operation would cease to be permitted to carry out coal extraction under Development Consent DA 92/97 in 2026 (and would operate for a significantly shorter period than the originally assessed/approved mine life of 21 years);
- the significant operational employment and direct flow-on economic effects of the Mount Pleasant Operation would cease in 2026;
- the mine would largely remain in South Pit and mining operations would not be extended to access the valuable coal resources within North Pit in the period 2027 to 2032; and
- final landform changes associated with the Modification and proposed continuation of mining to 2032 under Development Consent DA 92/97 would not occur.

This Modification Report has demonstrated that MACH could continue to operate the Mount Pleasant Operation (as modified) in accordance with existing criteria and performance measures in Development Consent DA 92/97 and the existing environmental management framework with only very minor augmentation of the existing Consent Conditions.

7.7 CONCLUSION

The assessment of the proposed Modification has been undertaken in the context of various legal challenges relating to the Mount Pleasant Optimisation Project Development Consent SSD 10418.

Many stakeholders consulted for the Modification had anticipated that continued and expanded operations at the Mount Pleasant Operation arising from the Mount Pleasant Optimisation Project would provide some buffer to the socio-economic impacts of the proposed Mt Arthur Coal Mine and Mangoola Coal closures in 2030.

The proposed Modification to extend operations under Development Consent DA 92/97 would involve a range of positive socio-economic effects (Plate 35), but also the continuation and extension in time of current environmental impacts from the Mount Pleasant Operation, which can continue to occur in accordance with existing conditions and management measures at the mine.

In weighing up the main environmental impacts (costs and benefits) associated with the proposal, as assessed and described in this Modification Report, the Modification, on balance, is considered to have significant merit and be in the public interest. This is consistent with the key conclusions reached by the IPC in approving the Mount Pleasant Optimisation Project.

Plate 35 – Workforce at the Mount Pleasant Operation

[32] **As of Quarter 2 2025, the Mount Pleasant Operation has already contributed more than $650 million in royalty payments to the NSW Government for State infrastructure and services.**

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