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MOUNT PLEASANT OPERATION

BLAST MANAGEMENT PLAN

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MOUNT PLEASANT OPERATION BLAST MANAGEMENT PLAN	
Name of Mine:	Mount Pleasant Operation
Blast Management Plan Commencement Date:	
Blast Management Plan Revision Dates and Version Numbers	Version 06 – This version has been updated to address the requirements of Development Consent SSD 10418.
Name of Mine Operator:	MACH Energy Australia Pty Ltd
Name of Lease Holder:	MACH Energy Australia Pty Ltd and J.C.D Australia Pty Ltd

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1 INTRODUCTION

The Mount Pleasant Operation (MPO) is located in the Upper Hunter Valley of New South Wales (NSW), approximately 3 kilometres (km) north-west of Muswellbrook and approximately 50 km north-west of Singleton (Figure 1). The village of Aberdeen and locality of Kayuga are also located approximately 5 km north-northeast and 1 km north of the MPO boundary, respectively (Figure 1). MACH Energy Australia Pty Ltd (MACH Energy) purchased the MPO from Coal & Allied Operations Pty Ltd (Coal & Allied) in 2016.

MACH Mount Pleasant Operations Pty Ltd is the manager of the MPO as agent for, and on behalf of, the unincorporated Mount Pleasant Joint Venture between MACH Energy (95 per cent [%] owner) and J.C.D. Australia Pty Ltd (5% owner). This Blast Management Plan (BMP) is implemented at the MPO by MACH Energy.

The initial development application for the MPO was made in 1997. This was supported by an Environmental Impact Statement (EIS) prepared by Environmental Resources Management (ERM) Mitchell McCotter (ERM Mitchell McCotter, 1997). On 22 December 1999, the then Minister for Urban Affairs and Planning granted Development Consent DA 92/97 to Coal & Allied. This allowed for the "Construction and operation of an open cut coal mine, coal preparation plant, transport and rail loading facilities and associated facilities" at the MPO. The consent allowed for operations 24 hours per day seven days per week and the extraction of 197 million tonnes (Mt) of run-of-mine (ROM) coal over a 21 year period, at a rate of up to 10.5 Mt of ROM coal per year.

The Mount Pleasant Project Modification (MOD 1) was submitted on 19 May 2010 with a supporting Environmental Assessment (EA) prepared by EMGA Mitchell McLennan (EMGA Mitchell McLennan, 2010). MOD 1 included the provision of an infrastructure envelope for siting the mine infrastructure, the provision of an optional conveyor/service corridor linking the MPO facilities with the Muswellbrook-Ulan Rail Line and modification of the existing Development Consent DA 92/97 boundaries to accommodate the optional conveyor/service corridor and minor administrative changes. MOD 1 was approved on 19 September 2011.

The MPO South pit Haul Road Modification (MOD 2) was submitted on 30 January 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017a). MOD 2 proposed to realign an internal haul road to enable more efficient access to the South Pit open cut, with no other material changes to the approved MPO. MOD 2 was approved on 29 March 2017.

The MPO Mine Optimisation Modification (MOD 3) was submitted on 31 May 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017b). MOD 3 comprised an extension to the time limit on mining operations (to 22 December 2026) and extensions to the South Pit Eastern Out of Pit Emplacement to facilitate development of an improved final landform. MOD 3 was approved on 24 August 2018.

The MPO Rail Modification (MOD 4) was submitted on 18 December 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017c). MOD 4 proposed the following changes:

- duplication of the approved rail spur, rail loop, conveyor and rail load-out facility and associated services;
- duplication of the Hunter River water supply pump station, water pipeline and associated electricity supply that followed the original rail spur alignment; and
- demolition and removal of the redundant approved infrastructure within the extent of the Bengalla Mine, once the new rail, product loading and water supply infrastructure has been commissioned and is fully operational.

MOD 4 was approved on 16 November 2018 by the Secretary of the Department of Planning and Environment (DPE) (under Delegation). Appendix 2 of the modified Development Consent DA 92/97 illustrates the Conceptual Project Layout Plan of the approved MPO at 2021 and 2025, Approved Surface Disturbance Plan and Conceptual Final Landform incorporating the MOD 4 infrastructure relocations.

Modification 5 (MOD 5) was submitted to rectify an administrative error in Development Consent DA 92/97 and was approved by DPE (now the NSW Department of Planning, Housing and Infrastructure [DPHI]) on 29 June 2022.

Modification 6 (MOD 6) was submitted to modify Development Consent DA 92/97 and was approved on 6 November 2023. MOD 6 allows for the construction and operation of a re-transmission facility including a tower or mast, shed and associated transmission infrastructure to re-transmit local digital television signals from the Broadcast Australia site at Rossgole Lookout. Appendix 2 of the modified Development Consent DA 92/97 illustrates the Revised Approved Surface Disturbance Plan incorporating the MOD 6 infrastructure (Attachment 1).

On 22 January 2021, MACH Energy submitted the Mount Pleasant Optimisation Project (the Project) EIS in support of State Significant Development (SSD) 10418 under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). Key aspects of the Project generally involve (among other things):

- increased open cut extraction within the MPO's existing Mining Leases (MLs);
- a staged increase in extraction, handling and processing of ROM coal up to 21 million tonnes per annum (Mtpa);
- upgrades to existing infrastructure and new infrastructure to support mining of the proposed Project; and
- an extension to the time limit on mining operations to 22 December 2048.

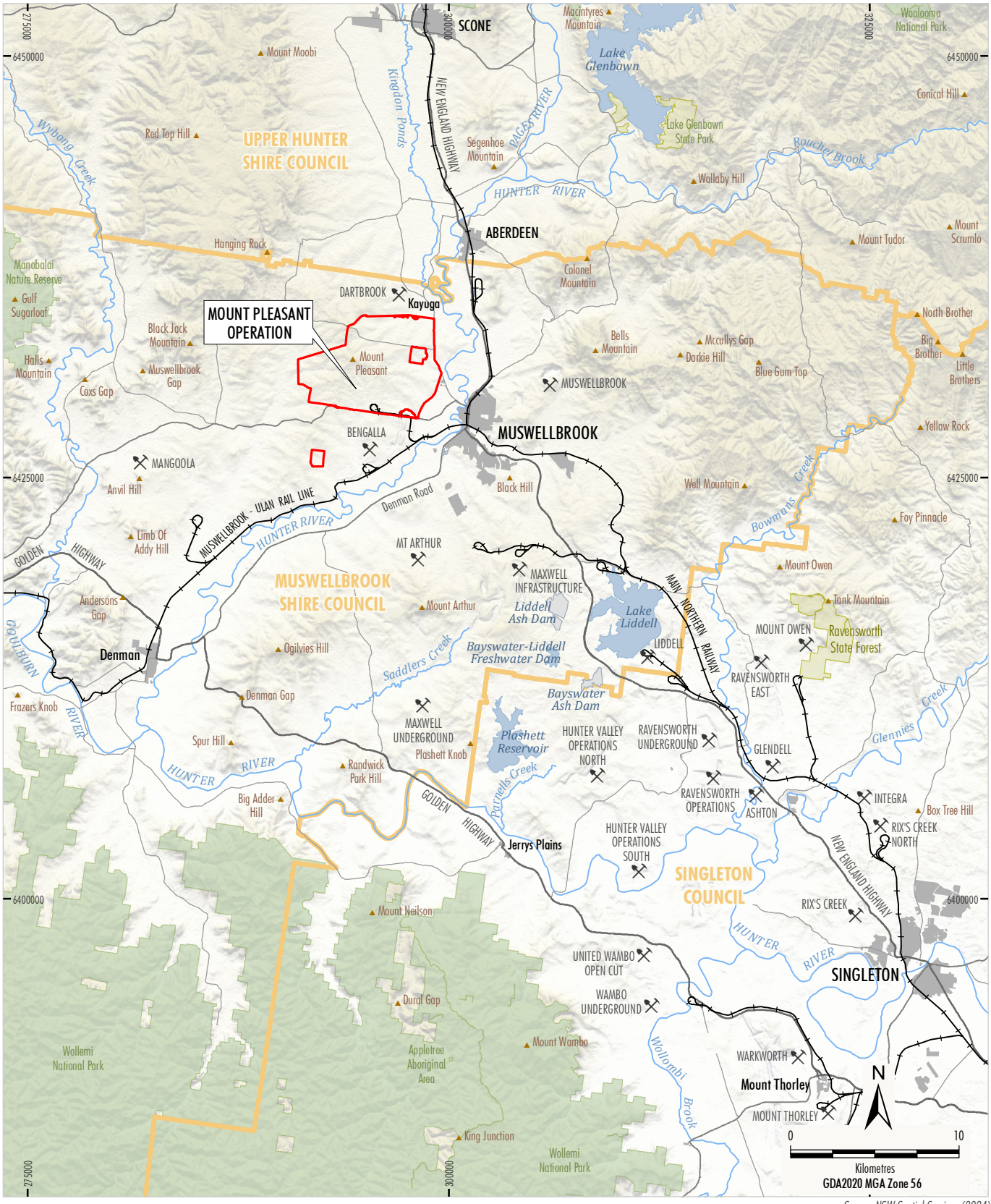
The Project was approved by the NSW Independent Planning Commission on 6 September 2022. Part A, Condition A14 of Development Consent SSD 10418 requires the surrender of Development Consent DA 92/97 within 12 months of the date of commencement of development under Development Consent SSD 10418, or an alternative timeframe agreed with the Planning Secretary of the DPE (now DPHI). Attachment 2 describes the development layout of the Project in accordance with Development Consent SSD 10418.

Following the commencement of development under Development Consent SSD 10418 and prior to the surrender of Development Consent DA 92/97, MACH Energy will comply with the requirements of both consents (Section 1.1).

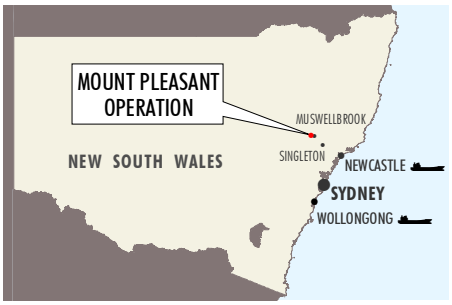
The Project EIS was supported by a Noise and Blasting Assessment (Wilkinson Murray Pty Ltd [Wilkinson Murray], 2020). The Blast Assessment findings and mitigation measures relevant to the preparation of this BMP have been incorporated into this document.

This BMP has been prepared to satisfy the relevant conditions of both Development Consent SSD 10418 and Development Consent DA 92/97 (prior to its surrender). Where relevant, this BMP builds on the components of the existing/approved BMP, including previous feedback and recommendations from government stakeholders.

Figure 2 shows the indicative Project general arrangement and existing/approved surface development areas that would continue to comprise as part of the Project and the areas that would be relinquished.



Source: NSW Spatial Services (2024)



LEGEND

- Mining Operation
- Railway
- Local Government Boundary
- State Forest/Reserve
- National Parks and Wildlife Estate
- Mining Lease Boundary (Mount Pleasant Operation)

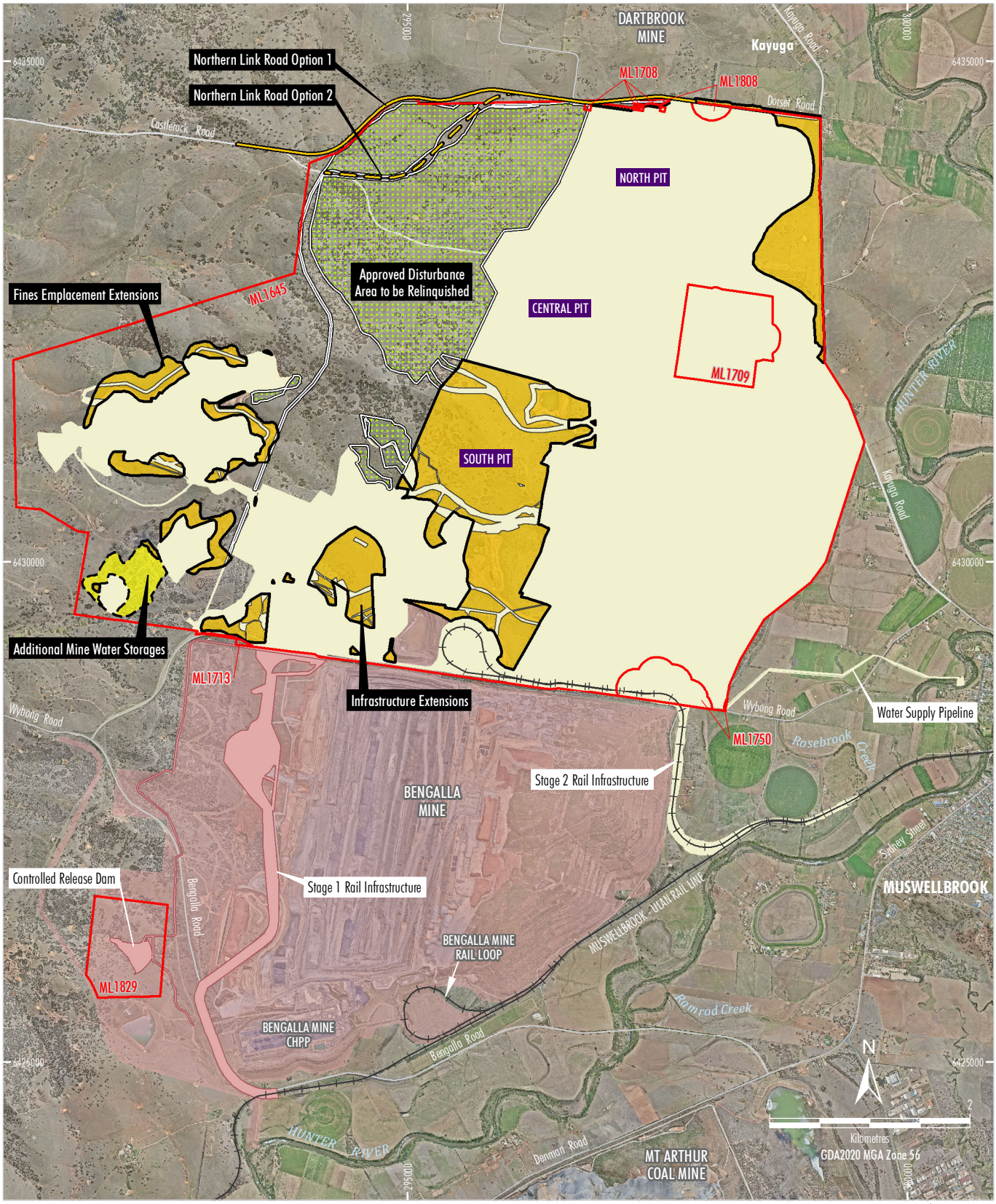
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Regional Location

Figure 1

MAC-18-03A MP2024_Figure 1_Rev A



MAC-18-03A MP2024_Figure 2_Rev E

LEGEND

- Railway
- Mining Lease Boundary (Mount Pleasant Operation)
- Project Continuation of Existing/Approved Surface Development (DA92/97) [1]
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Existing/Approved Mount Pleasant Operation Infrastructure within Bengalla Mine Approved Disturbance Boundary (SSD-5170) [1]
- Development Footprint 1 (Stage 1) - General Extension Areas [1]
- Development Footprint 1 (Stage 2) - Mine Water Dam 3 [1]
- Relinquishment Area [2]
- Northern Link Road Option 1 Centreline
- Northern Link Road Option 2 Centreline

NOTES

[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] Subject to detailed design of Northern Link Road alignment.

Source: MACH (2024); NSW Spatial Services (2024); Department of Planning and Environment (2016)
Orthophoto: MACH (Dec 2023)

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General Arrangement of the Project

Figure 2

1.1 PURPOSE AND SCOPE

This BMP has been prepared by MACH Energy to satisfy the requirements of Part B, Condition B24 of Development Consent SSD 10418 and Schedule 3, Condition 17 of Development Consent DA 92/97 (prior to its surrender).

This BMP has been prepared to manage blasting related impacts associated with construction and operation of the MPO, in accordance with Development Consent SSD 10418 and Development Consent DA 92/97 (prior to its surrender).

The BMP applies to the life of the MPO, including (but not limited to) the period of mining operations specified in Development Consent SSD 10418, which currently permits mining until 22 December 2048 and Development Consent DA 92/97 (prior to its surrender). As required by Part A, Condition A5 of Development Consent SSD 10418, the BMP will continue to apply (excluding mining operations) beyond 22 December 2048, as required, until the rehabilitation and any additional undertakings (required by the Planning Secretary of DPE [now DPHI], or the NSW Resources Regulator) have been carried out satisfactorily.

All conditions and statutory requirements under Development Consent DA 92/97 will become null and void after its surrender where the MPO will operate under Development Consent SSD 10418 and other relevant legislation.

In accordance with Part B, Condition B24 of Development Consent SSD 10418, this revision of the BMP has been prepared and reviewed by Roman Haverkamp of RWDI Australia (RWDI) (formerly Wilkinson Murray), who was endorsed by the Planning Secretary as a suitably qualified and experienced person. A copy of the endorsement by the Planning Secretary is included as Attachment 3.

As required by Part B, Condition B25 of Development Consent SSD 10418, MACH Energy will not undertake any blasting north of Castlerock Road until the BMP is approved by the Planning Secretary.

Prior to the surrender of Development Consent DA 92/97, in accordance with Part A, Condition A15 of Development Consent SSD 10418, the conditions of Development Consent SSD 10418 prevail to the extent of any inconsistency with the conditions of those consents.

In accordance with Part B, Condition B26 of Development Consent SSD 10418, MACH Energy will implement the BMP once approved by the Planning Secretary.

1.1.1 Previous Versions

A previous version of the BMP was submitted by MACH Energy restricted to initial construction blasting within the borrow pit areas and was approved on 8 February 2017.

The previously approved version of the BMP was prepared to allow for both construction and operation of the MPO (i.e. including blasting within the borrow pits and open cuts) and was approved on 3 August 2017.

The BMP was then revised by MACH Energy to reflect the approval of MOD 3/MOD 4 and was approved on 14 January 2019.

Version 5 (approved 14 April 2020) of the BMP was prepared to relocate blast monitoring site B-VO2 to more accurately represent the near sensitive receivers. Site B-VO2 will relocated approximately 1350 metres (m) to the east.

1.1.2 Current Version

This version (Version 6) of the BMP has been prepared to include the additional details regarding the blast management measures relevant to the full life of the mine following the approval of the Project and conditions under Development Consent SSD 10418, in addition to variations to the Environment Protection Licence (EPL) 20850 (approved 13 December 2023).

This BMP has been prepared to satisfy the relevant conditions of both Development Consent SSD 10418 and Development Consent DA 92/97 (prior to its surrender).

As required by Part B, Condition B24(c) of Development Consent SSD 10418, a draft version of this BMP was submitted to the NSW Environment Protection Authority [EPA], nearby mines (in accordance with Development Consent DA 92/97 [prior to its surrender]) and Muswellbrook Shire Council (MSC) (in accordance with Development Consent DA 92/97 [prior to its surrender]) for the purpose of consultation. Details of the consultation undertaken, and the outcome of that consultation is detailed in Appendix A.

1.2 STRUCTURE OF THE BLAST MANAGEMENT PLAN

The BMP is prepared with the following sections:

Section 2: Statutory Obligations – MACH Energy's statutory requirements and other obligations applicable to the BMP.

Section 3: Blast Criteria – outlines the relevant blast criteria applicable to the MPO.

Section 4: Performance Indicators – outlines the specific performance indicators that MACH Energy proposes to use to guide the implementation of the blast management measures and judge their performance.

Section 5: Existing Environment – outlines the existing environment including baseline data and sensitive receptors in the vicinity of the MPO.

Section 6: Blast Impacts and Predictions – outlines the potential impacts of blasting and predictions of previous assessments.

Section 7: Blast Management and Control Measures – describes the blast management and control measures for all sensitive receivers.

Section 8: Blast Monitoring Program – outlines the blast monitoring program components including locations, frequency and parameters.

Section 9: Response Protocols – describes the blasting criteria review protocol, blast fume emergency response and pollution incident response.

Section 10: Contingency Plan – provides a contingency plan to manage unprecedented impacts and their consequences.

Section 11: Annual Review and Improvement of BMP – provides details for review and improvement of environmental performance relating to blasting.

Section 12: Reporting Procedures – describes the management and reporting of incidents, complaints, non-compliances and exceedances of the impact assessment criteria and/or performance criteria.

Section 13: References – provides references cited in this BMP.

2 STATUTORY OBLIGATIONS

MACH Energy's statutory obligations are contained in:

- the conditions of Development Consent DA 92/97 (prior to its surrender);
- the conditions of Development Consent SSD 10418;
- the conditions of the Commonwealth Approval EPBC 2011/5795;
- the conditions of the Commonwealth Approval EPBC 2020/8735 (once granted);
- relevant licences and MLs (including EPL 20850, permits and ML 1645, ML 1708, ML 1709, ML 1750, ML 1713, ML 1808 and ML 1829); and
- other relevant legislation.

In addition, MACH Energy operates in accordance with the approved MPO Rehabilitation Management Plan and associated Annual Rehabilitation Report and Forward Program, as amended from time to time, which has replaced the Mining Operation Plan (as of 1 August 2022).

Obligations relevant to this BMP are described below.

In addition to the above, activities associated with the MPO will be undertaken in accordance with the licences, leases and permits described in the MPO Environment Management Strategy (EMS).

Obligations relevant to this BMP are described below.

2.1 DEVELOPMENT CONSENT DA 92/97

The conditions of Development Consent DA 92/97 (prior to its surrender) relevant to the content and structure of this BMP are described below. A comprehensive list of all conditions in Development Consent DA 92/97 (prior to its surrender) relevant to blasting is provided in Appendix B.

2.1.1 Blast Management Plan Requirements

This BMP has been prepared by MACH Energy to satisfy the requirements of Schedule 3, Condition 17 of Development Consent DA 92/97 (Table 1). A comprehensive list of all conditions in Development Consent DA 92/97 relevant to blasting is provided in Appendix B.

Table 1
Specific Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 3	Section Where Addressed in this BMP Document
17. The Applicant must prepare and implement a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must:	This document.
(a) be submitted to the Secretary for approval prior to carrying out any blasting on site;	This document is to be approved by DPHI.
(b) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent;	Sections 4, 7 and 9.
(c) include a road closure management plan, prepared in consultation with Council;	Appendix D.

Table 1 (Continued)
Specific Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 3	Section Where Addressed in this BMP Document
(d) include a blast monitoring program for evaluating compliance with the relevant conditions of approval; and	Sections 8 and 11.
(e) include a protocol that has been prepared in consultation with the owners of nearby mines (including the Bengalla mine) for minimising and managing cumulative blasting impacts of the mines.	Section 7.5.3.
The Applicant must implement the management plan as approved by the Secretary.	Noted.

Source: Development Consent DA 92/97

This BMP has been prepared to manage blasting related impacts associated with construction and operation of the MPO in accordance with Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418.

Blast fume will be managed in accordance with the Blast Fume Management Strategy (Appendix E) developed in accordance with the Australian Explosives Industry and Safety Group Inc. (AEISG) (2011) *Code of Practice Prevention and Management of Blast Generated NOx Gases in Surface Blasting* (Code of Practice).

2.1.2 Management Plan (General) Requirements

Schedule 5, Condition 2 of Development Consent DA 92/97 (prior to its surrender) outlines the general management plan requirements that are applicable to the preparation of the BMP. Table 2 presents these requirements and indicates where each is addressed within this BMP.

Table 2
General Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 5	Section Where Addressed in this BMP Document
2. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
(a) detailed baseline data;	Section 5.
(b) a description of:	
• *the relevant statutory requirements (including any relevant consent, licence or lease conditions);*	Section 2.
• *any relevant limits or performance measures/criteria;*	Section 3.
• *the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;*	Section 4.
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Sections 4, 7 and 9.
(d) a program to monitor and report on the:	Sections 8 and 11.
• *impacts and environmental performance of the development;*	
• *effectiveness of any management measures (see c above);*	
(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 10.
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 11.
(g) a protocol for managing and reporting any:	Section 12.
• *incidents;*	
• *complaints;*	
• *non-compliances with statutory requirements; and*	
• *exceedances of the impact assessment criteria and/or performance criteria; and*	
(h) a protocol for periodic review of the plan.	Section 11.
***Note:** The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	

Source: Development Consent DA 92/97

2.2 DEVELOPMENT CONSENT SSD 10418

The conditions of Development Consent SSD 10418 relevant to the content and structure of this BMP are described below. Additional blasting related conditions in Development Consent SSD 10418 are provided in Appendix C.

2.2.1 Blast Management Plan Requirements

Part B, Condition B24 of Development Consent SSD 10418 requires the preparation of a BMP. Table 3 details the relevant conditions from Development Consent SSD 10418.

Table 3
Specific Development Consent SSD 10418 Conditions

MPO Development Consent SSD 10418 Part B	Section where addressed in this BMP document
B24. The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Planning Secretary. The plan must:	This document.
(a) be submitted for approval within six months of the commencement of development under this consent;	
(b) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;	Section 1.1 amd Attachment 3.
(c) be prepared in consultation with the EPA;	Section 1.1.2
(d) describe the blast management system and the measures that will be implemented to ensure compliance with the blasting criteria and conditions of this consent;	Sections 7 and 9.1.
(e) include a Blast Fume Management Strategy for:	Appendix E.
(i) minimising blast fume emissions;	
(ii) rating and recording blast fume events; and	
(iii) reporting significant blast fume events to the Department and the EPA;	
(f) include a Road Closure Management Plan for any blasting within 500 metres of a public road, that has been prepared in consultation with relevant roads authorities and includes provisions for:	Appendix D.
(i) minimising the duration of closures, both on a per event basis and weekly basis;	
(ii) avoiding closures during peak traffic periods as far as reasonable; and	
(iii) using reasonable efforts to co-ordinate closures with nearby mines to minimise the cumulative effect of road closures;	
(g) identify any agreed alternative ground vibration limits for public or private infrastructure in the vicinity of the site (if relevant);	-
(h) include a strategy to manage potential blast interactions with nearby mines;	Section 7.5.3.
(i) include a strategy to monitor, mitigate and manage the effects of blasting on heritage items, including details of baseline (i.e. pre-blasting) and ongoing risk-based dilapidation surveys (subject to landowner access arrangements);	Sections 7.2.1 and 7.4.
(j) include a monitoring program for evaluating and reporting on compliance with the relevant conditions of this consent (including but not limited to condition B22(b));	Sections 8 and 11.
(k) include a protocol for identifying any blast-related exceedance, incident or non-compliance and for notifying the Department, the EPA and relevant stakeholders of these events;	Sections 9 and 12.

Table 3 (continued)
Specific Development Consent SSD 10418 Conditions

MPO Development Consent SSD 10418 Part B	Section where addressed in this BMP document
(l) include public notification procedures to enable members of the public, particularly surrounding residents, to get up-to-date information on the proposed blasting schedule; and	Section 7.5.4.
(m) include a protocol for investigating and responding to blast-related complaints.	Sections 8.1.2, 9 and 12.
B25. The Applicant must not undertake any blasting north of Castlerock Road until the Blast Management Plan is approved by the Planning Secretary.	Section 1.1.
B26. The Applicant must implement the Blast Management Plan as approved by the Planning Secretary.	Section 1.1.

Source: Development Consent SSD 10418.

2.2.2 Management Plan (General) Requirements

Part D, Condition D5 of Development Consent SSD 10418 outline general management plan requirements. Table 4 presents these requirements and indicates where each is addressed within this BMP.

Table 4
General Development Consent SSD 10418 Conditions

MPO Development Consent SSD 10418 Part D	Section where addressed in this BMP document
D5. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	-
(a) summary of relevant background or baseline data;	Section 5.
(b) details of:	
(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 2.
(ii) any relevant limits or performance measures and criteria; and	Section 3.
(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 4.
(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	Sections 6.6.5 and 11.1.
(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Sections 4, 7, 8 and 10.
(e) a program to monitor and report on the:	Sections 8, 11 and 12.
(i) impacts and environmental performance of the development; and	
(ii) effectiveness of the management measures set out pursuant to condition D4(c);	
(f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 10.
(g) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 11.
(h) a protocol for managing and reporting any:	Section 12.
(i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion;	
(ii) complaint; or	
(iii) failure to comply with other statutory requirements;	
(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Sections 7.5.4 and 11.
(j) a protocol for periodic review of the plan.	Section 11.
***Note**: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	

Source: Development Consent SSD 10418.

2.3 OTHER LEGISLATION

Other NSW Acts and Regulations that may be applicable to blasting at the MPO include, but are not limited to, the:

- *Explosives Act 2003;*
- *Explosives Regulation 2013;*
- *Roads Act 1993;*
- *Work Health and Safety Act 2011;*
- *Work Health and Safety Regulation 2017;*
- *Work Health and Safety (Mines and Petroleum Sites) Act 2013;* and
- *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014.*

3 BLAST CRITERIA

3.1 DEVELOPMENT CONSENT DA 92/97

Blasting criteria, blasting hours, blasting frequency, property inspections, property investigations and operating conditions are provided in Schedule 3, Conditions 10 to 16 of Development Consent DA 92/97 (prior to its surrender).

The prescribed blasting criteria in Table 7 of Schedule 3, Condition 10 of Development Consent DA 92/97 is presented in Table 5. However, these criteria do not apply if MACH Energy has a written agreement with the relevant infrastructure provider/owner, and MACH Energy has advised the DPE (now DPHI) in writing of the terms of the agreement.

Table 5
Development Consent DA 92/97 Blasting Criteria

Location	Airblast Overpressure (dB[Lin Peak])	Ground Vibration (mm/s [Peak Particle Velocity])	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[1]	-	*10*	*0%*
All public infrastructure	-	*50*	*0%*

Source: Development Consent DA 92/97

dB = decibels, mm/s = millimetres per second.

[1] The blasting criteria in relation to historic heritage sites applies to each historic heritage site until such a time as the relevant management requirements for the sites have been fulfilled. Refer to Section 7.4.2 for further detail.

3.2 DEVELOPMENT CONSENT SSD 10418

Blasting criteria, blasting hours, blasting frequency, property inspections, property investigations and operating conditions are provided in Part B, Conditions B12 to B25 of Development Consent SSD 10418 (Appendix C).

Part B, Condition B12 of Development Consent SSD 10418 requires MACH Energy to ensure that blasting on site does not cause exceedances of the criteria at the locations presented in Table 6. However, in accordance with Part B, Condition B13 of Development Consent SSD 10418, these criteria do not apply if MACH Energy has a written agreement with the relevant infrastructure provider or owner/s of the relevant residences, and MACH Energy has advised the DPE (now DPHI) in writing of the terms of the agreement.

MACH Energy does not have written agreement with the owner/s of the relevant residences or infrastructure. As such, MACH Energy will not exceed the blasting criteria presented in Part B, Condition B12 of Development Consent SSD 10418 (Table 6), until such time that MACH Enegry obtains the written agreement with the relevant parties.

Table 6
Development Consent SSD 10418 Blasting Criertia

Location	Airblast Overpressure (dB[Lin Peak])	Ground Vibration (mm/s [Peak Particle Velocity])	Allowable Exceedance
Residence on privately-owned land[a]	*120*	*10*	*0%*
	115	*5*	*5% of the total number of blasts over a calendar year*
Mine-owned residences	-	*10*	*0%*
Historic heritage sites[b]	-	*10*	*0%*
Other public infrastructure	-	*50 (or a limit determined by the structural design methodology in AS 2187.2 - 2006, or its latest version)*	*0%*

Source: Development Consent SSD 10418

[a]The locations referred to in Table 2 are shown in Appendix 3 of Development Consent SSD 10418.
[b]These limits do not apply to historic heritage sites located within the approved disturbance area. Refer to Section 7.4.2 for further detail.

3.3 OTHER LICENCE CONDITIONS

Blasting criteria and other blast related conditions stipulated in ML 1645, ML 1708, ML 1709, ML 1713, ML 1750, ML 1809 and ML 1829 and in EPL 20850 are generally consistent with those prescribed in Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418.

Condition L5.6 of EPL 20850 requires that offensive blast fume must not be emitted from the premises, and defines an offensive blast fume as follows:

> *Offensive blast fume means post-blast gases from the detonation of explosives at the premises that by reason of their nature, duration, character or quality, or the time at which they are emitted, or any other circumstances:*
>
> *1. are harmful to (or likely to be harmful to) a person that is outside the premises from which it is emitted; or*
>
> *2. interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted.*

Blast fume will be managed in accordance with the Blast Fume Management Strategy (Appendix E).

4 PERFORMANCE INDICATORS

4.1 BLASTING CRITERIA

Development Consent DA 92/97

The extent of compliance with the blasting criteria prescribed in Table 5 will be measured by compliance with the relevant criteria at the blast monitoring locations (refer Section 8.1).

Development Consent SSD 10418

The extent of compliance with the blasting criteria prescribed in Table 6 will be measured by compliance with the relevant criteria at the blast monitoring locations (refer Section 8.1).

4.2 BLASTING HOURS

Unless otherwise agreed with the Planning Secretary of the DPE (now DPHI), blasting will only be carried out at the MPO between 9.00 am and 5.00 pm Monday to Saturday inclusive. The extent of compliance with the blasting hours restrictions will be measured by compliance with the requirement of Condition 11, Schedule 3 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B14 of Development Consent SSD 10418. This being that no blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Planning Secretary.

4.3 BLASTING FREQUENCY

Development Consent SSD 10418

Unless otherwise agreed with the Planning Secretary of the DPE (now DPHI), MACH Energy will carry out a maximum of:

- 2 single blast events per day; and
- 8 single blast events per week, averaged over any calendar year.

A ‘blast’ refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.

The extent of compliance with the blasting frequency limits will be measured by compliance with the requirement of Part B, Condition B15 of Development Consent SSD 10418 considering however that this condition does not apply to:

- single blasts that generate a ground vibration of 0.5 mm/s or less at any residence on privately owned land; or
- blasts required to ensure the safety of the mine or its workers or the general public.

Development Consent DA 92/97

In the event that Development Consent SSD 10418 is not in force and MACH Energy must solely rely of Development Consent DA 92/97, MACH Energy will carry out a maximum of:

- 1 blast per day; and
- 5 blasts per week, averaged over any calendar year.

4.4 PROPERTY INSPECTIONS AND INVESTIGATIONS

The extent of compliance with the requirements of Schedule 3, Conditions 13 and 14 of Development Consent DA 92/97 (prior to its surrender) and Part B, Conditions B17 and B18 of Development Consent SSD 10418 will be measured through annual reporting and the Independent Environmental Audit (IEA).

Additional detail on consultation, structural inspections and dispute resolution is discussed further in Section 7.2.1.

4.5 OPERATING CONDITIONS

Development Consent DA 92/97

The extent of compliance with the operating conditions prescribed in Schedule 3, Condition 15 of Development Consent DA 92/97 (prior to its surrender) will be measured by compliance with this BMP as indicated in annual reporting. Specific performance indicators for fume emissions are described in Section 6.4 (i.e. number of blasts classified as Level 3 or above).

The extent of compliance with the operating condition restrictions to blasting within 500 metres (m) of a public road, prescribed in Schedule 3, Condition 16(a) of Development Consent DA 92/97 (prior to its surrender) will be measured by compliance with the Road Closure Management Plan (RCMP) (Appendix D). The extent of compliance with the operating condition restrictions to blasting within 500 m of land outside the site[1] not owned by MACH Energy will be measured by the requirements of Schedule 3, Condition 16(b) of Development Consent DA 92/97 (prior to its surrender) considering however that these restrictions do not apply if:

- MACH Energy has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and MACH Energy has advised the DPE (now DPHI) (in writing) of the terms of the agreement; or
- MACH Energy has:
  - demonstrated to the satisfaction of the Planning Secretary of the DPE (now DPHI) that the blasting can be carried out closer to the land without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and
  - updated this BMP to include the specific measures that would be implemented while blasting is being carried out within 500 m of the land.

Development Consent SSD 10418

Part B, Condition B22 of Development Consent SSD 10418 requires MACH Energy to:

(a) take all reasonable steps to:

(i) ensure the safety of people and livestock from blasting impacts of the development;

(ii) protect public and private infrastructure and property in the vicinity of the site from blasting damage associated with the development; and

(iii) minimise blast-related dust and fume emissions;

(b) ensure that blasting on the site does not damage heritage items (outside the approved disturbance area – see Appendix 5), and develop specific measures to protect heritage items from any blasting damage associated with the development;

[1] The 'site' is defined in Development Consent SSD 10418 as the land listed in Appendix 1 of Development Consent SSD 10418.

(c) minimise the frequency and duration of any public road closures for blasting, and use all reasonable efforts to avoid road closures during peak traffic periods;

(d) operate a comprehensive blast management system that uses a combination of meteorological forecasts and predictive blast modelling to guide the planning of blasts to minimise blasting impacts;

(e) operate a suitable system to enable interested members of the public to get up-to-date information on the proposed blasting schedule on the site and any associated road closures, including notification via SMS message of the blasting schedule and associated road closures for that day and any variations to that schedule and closures;

(f) use all reasonable efforts to co-ordinate the timing of blasting at the site with any nearby mines to minimise cumulative blasting impacts; and

(g) carry out regular blast monitoring to determine whether the development is complying with the relevant conditions of this consent.

In accordance with Part B, Condition B23 of Development Consent SSD 10418, MACH Energy will not:

… undertake blasting on the site within 500 metres of any public road or any land outside the site not owned by the Applicant, unless the blast generates ground vibration of 0.5 mm/s r less at that location, or the Applicant has:

(a) a written agreement with the relevant infrastructure owner or landowner to allow blasting to be carried out closer to the public road or land, and the Applicant has advised the Department in writing of the terms of this agreement; or

(b) demonstrated, to the satisfaction of the Planning Secretary, that the blasting can be carried out closer to the public road or land without compromising the safety of people or livestock or damaging the road or other buildings and structures, and updated the Blast Management Plan to include specific mitigation measures to be implemented while blasting is being carried out within 500 metres of the road or land.

The extent of compliance with the operating conditions prescribed in Part B, Condition B22 and B23 of Development Consent SSD 10418 will be measured by compliance with this BMP as indicated in annual reporting. Specific performance indicators for fume emissions are described in Section 6.4 (i.e. number of blasts classified as Level 3 or above).

5 EXISTING ENVIRONMENT

5.1 BASELINE DATA

Meteorological monitoring is undertaken at the MPO in accordance with Schedule 3, Condition 24 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B38 of Development Consent SSD 10418.

In accordance with Schedule 3, Condition 15(c) and Schedule 5, Condition 11 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B24(l) of Development Consent SSD 10418, up-to-date information on the proposed blasting schedule and a comprehensive summary of the monitoring results (including meteorological and blasting data) will be made publicly available on the MACH Energy website (http://machenergyaustralia.com.au/).

Blasting and blast monitoring is undertaken at the neighbouring Bengalla Mine in accordance with the requirements of Development Consent SSD 5170 for the Bengalla Continuation Project and is described in the relevant BMP.

Blast monitoring data (including measurements of overpressure and ground vibration at sample points in areas surrounding the mine) is made publicly available on the Bengalla Mine website (http://www.bengalla.com.au/environment/environmental-monitoring-data/).

5.2 SENSITIVE RECEPTORS

Potentially sensitive (non-mine owned) features in the vicinity of the MPO include:

- private dwellings;
- public roads (including Wybong Road, Kayuga Road, Dorset Road and Castlerock Road);
- infrastructure (including 66 kilovolt [kV] and 11 kV electricity transmission lines and telecommunication cables); and
- heritage sites (including Aboriginal and historic heritage sites).

A description of the historic heritage sites is provided in the Historic Heritage Management Plan. Aboriginal heritage sites are described in the Aboriginal Cultural Heritage Management Plan. Copies of these plans are publicly available on MACH Energy's website (https://machenergyaustralia.com.au/mount-pleasant/documentation/).

6 BLAST IMPACTS AND PREDICTIONS

Blasting has the potential to result in the following hazards which may present a risk to public safety or property damage, if inappropriately managed:

- airblast overpressure exceedances;
- excessive ground vibration;
- flyrock, dust and debris;
- fumes; and
- misfires.

6.1 AIRBLAST OVERPRESSURE

Blasting generates a transient air pressure greater than the surrounding atmospheric pressure, known as overpressure. An overpressure has the potential to damage buildings and infrastructure.

6.2 GROUND VIBRATION

Energy released after a blast event can result in vibration of the ground which has the potential to damage buildings and infrastructure.

6.3 FLYROCK, DUST AND DEBRIS

Flyrock is any rock material ejected from the blast site by the force of the blast. Flyrock has the potential to damage buildings and infrastructure and poses a risk to public safety.

The amount of dust and debris emitted from the blast site post-blast depends on several factors including the blast design and the rock material being blasted. The dust and debris poses a risk to public safety.

6.4 FUMES

Blasting has the potential to generate post-blast gases (fumes) from the use of ammonium nitrate-based explosives which commonly include nitric oxide (NO) and nitrogen dioxide (NO_2) and are known as the Oxides of Nitrogen or NOx. NO is invisible, and NO_2 ranges from yellow to dark red depending on the concentration and size of the gas cloud (AEISG, 2011).

In accordance with Part B, Condition B24 of Development Consent SSD 10418, MACH Energy has developed a Blast Fume Management Strategy (Appendix E) which outlines specific management measures to minimise fumes at the MPO, rate and record blast fume events and report significant blast fume events to DPHI and the EPA.

In accordance with the AEISG (2011) Code of Practice, MACH Energy will use a fume rating system for all blasts (Appendix E).

The number of blasts classified as Level 3 or above generated annually will be used as an indicator of blasting performance at the MPO.

6.5 MISFIRES

A blast misfire can occur when one or more holes in a blast pattern fail to initiate, which results in a blast event which is different to the pre-blast assessment design.

6.6 BLAST PREDICTIONS

6.6.1 Environmental Impact Statement (1997)

Chapter 12 of the Mount Pleasant Mine EIS (ERM Mitchell McCotter, 1997) assessed the impacts of blasting for the MPO.

While it was noted that the overpressure and vibration levels predicted were below the criteria of 115 dB(Lin) and 5 mm/s, these were predicted using derived average (i.e. 50%) curves. It was recognised in the EIS that operational personnel would have some years of site-specific experience to draw upon in controlling blasting impacts including use of collected data to determine MPO scaled distance equations and refining blasting techniques before approaching sensitive receptors.

Higher levels of overpressure and vibration are generally associated with poor blast design and/or control of blasting operations, and in the case of overpressure, meteorological conditions. Factors which influence the levels of vibration and overpressure include:

- Design factors:
  - stemming length;
  - burden and spacing;
  - maximum instantaneous charge (MIC) weight; and
  - initiation sequence system;
- Control factors:
  - insufficient and/or quality of stemming;
  - inadequate burden and spacing;
  - overcharging of blast hole; and
  - inadequate delays between blast holes;
- Meteorological factors:
  - low cloud; and
  - presence of a temperature inversion.

It was identified in the 1997 EIS that when blasting in the north-east of the North Pit, strict control will be placed on blasting operations to ensure criteria are met at sensitive receptors at south-west Kayuga by:

- varying MIC design;
- no blasting to take place under low cloud conditions or where temperature inversions are inferred; and
- assessment of prevailing weather conditions by correlation of weather station data.

The 1997 EIS states that "*… a network of blast monitors will be positioned around the area*".

6.6.2 Commission of Inquiry (1998-99)

Appendix C.5 of the *Mount Pleasant Mine Commission of Inquiry – Primary Submission* (Coal & Allied Operations, 1998) includes details of blast noise calculations (i.e. scaled distance equations) that was requested by the EPA to assist during the assessment to demonstrate the criterion at south-west Kayuga could be met (i.e. with varying MICs and distances).

The Mount Pleasant Mine Commission of Inquiry – Submission in Reply (Commissioner's Report) (Planning Environmental & Engineering Consultants, 1999) recognised that with appropriate blasting practice the EPA's criteria for vibration from blasting can be complied with at all relevant locations.

Other commitments of relevance to this BMP include:

- Blast overpressure and blasting would be monitored at select locations, using unmanned monitors with the capability to download information to a central computer.
- Initially, blast locations would be at a distance from residential areas, and monitoring would be used to refine blasting practices, to ensure that as blasting moves closer, relevant criteria will continue to be met.
- A 24-hour complaint hotline would be established, and procedures laid down for recording complaint details, resolving the complaint, and establishing follow-up contact with the complainant if required.

The Commissioner's Report (1999) also recommended that trial blasts be monitored in the vicinity of Racecourse Road to investigate any features of this area (i.e. if there is potential for harmonic enhancement in saturated alluvial soils) which may lead to structural damage of buildings under conditions which would normally be acceptable.

6.6.3 MOD 1 Environmental Assessment (2010)

As the blasting aspects of the MPO remained the same for the MOD 1 EA (EMGA Mitchell McLennan, 2010), no further blasting assessment was undertaken and the EIS (ERM Mitchell McCotter, 1997) and Commission of Inquiry (Coal & Allied Operations Pty Ltd, 1998; Planning Environmental and Engineering Consultants, 1999) blast assessments described in Sections 6.6.1 and 6.6.2 remained unchanged.

6.6.4 MOD 3 Environmental Assessment (2017)

MOD 3 did not include any extension to the approved MPO open cut pits, however, potential blast designs were assessed to confirm management measures required.

As a result of the assessment it was found that no exceedances of Development Consent DA 92/97 vibration and airblast criteria were predicted to occur at any privately-owned receiver, historic heritage site or public infrastructure, with the implementation of reduced blast MIC (where required due to proximity).

Relevant MIC adjustments are provided in the MOD 3 EA (MACH Energy, 2017b). As per Section 7.5, MACH Energy will continue to design all blasts to comply with blasting criteria. This would include applying the relevant MIC adjustments for identified proximal privately-owned receivers, historic heritage sites and public infrastructure, as defined in the MOD 3 EA (MACH Energy, 2017b).

6.6.5 Environmental Impact Statement (2021)

A Noise and Blasting Assessment for the Project EIS was undertaken by Wilkinson Murray (2020). The blasting assessment was conducted in accordance with the *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* prepared by the Australian and New Zealand Environment Council (ANZEC) (1990).

The Noise and Blasting Assessment (Wilkinson Murray, 2020) included assessment of potential blast impacts on people, animals, buildings/structures, infrastructure and significant natural features.

To meet relevant blasting criteria, as outlined in the Noise and Blasting Assessment (Wilkinson Murray, 2020), when blasting within the distances listed below, MACH Energy will monitor blast design based on Peak Particle Velocity limits (Table 5 and Table 6):

- 2,260 m of privately-owned residential receivers;
- 1,010 m of mine-owned residential receivers;
- 330 m of public infrastructure;
- 650 m of livestock; and
- 1,010 m of historic heritage sites.

Wybong Road, Kayuga Road and Castlerock Road will continue to be temporarily closed during blasts within 500 m of the road. Dorset Road/Northern Link Road will also be temporarily closed during blasts within 500 m of the road.

There are also no significant natural features (e.g. cliff faces or caves) that will be susceptible to impacts from blasting at the Mount Pleasant Operation and, therefore, no blast predictions have been made for natural features or Aboriginal heritage sites (Wilkinson Murray, 2020).

7 BLAST MANAGEMENT AND CONTROL MEASURES

7.1 PUBLIC SAFETY AND LIVESTOCK

7.1.1 Public Roads

In accordance with Schedule 3, Condition 17 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B24(f) of Development Consent SSD 10418, a RCMP (Appendix D) has been prepared by MACH Energy which details the specific management measures to minimise impacts when blasting within 500 m of a public road. MSC is the relevant road authority for pubic roads within 500 m.

In accordance with Part B, Condition B23 of Development Consent SSD 10418, no blasting will be undertaken within 500 m of any public road, unless the blast generates ground vibration of 0.5 mm/s or less, or MACH Energy has a written agreement with the infrastructure owner and has advised the DPHI of this agreement, or the blasting can be carried out with specific mitigation measures to avoid damage to the public road and this BMP has been updated to include specific mitigation measures to be implemented while blasting is being carried out within 500 m of the public road.

Supplementary restrictions may also apply when blasting is planned within 500 m of any public road. In accordance with Part B, Condition B24(f) of Development Consent SSD 10418, these conditions are detailed within the RCMP (Appendix D) and include:

(i) minimising the duration of closures, both on a per event basis and weekly basis;

(ii) avoid closures during peak readdict periods as far as reasonable; and

(iii) using reasonable efforts to co-ordinate closures with nearby mines to minimise the cumulative effect on road closures.

The RCMP will be reviewed and reissued prior to mining within 500 m of Dorset Road (and following completion of construction of the Northern Link Road).

7.1.2 Private Landowners

In accordance with Part B, Condition B23 of Development Consent SSD 10418, no blasting within 500 m of land outside the site[2] not owned by MACH Energy will be undertaken unless one of the following conditions has been satisfied:

1. A written agreement has been made with the relevant landowner to allow blasting to be carried out closer to the land. Prior to blasting within 500 m of the land, MACH Energy will advise DPE (now DPHI) in writing of the terms of the agreement.
2. MACH Energy has updated this BMP to include the specific measures that would be implemented while blasting is carried out within 500 m of the land, and has demonstrated to the Planning Secretary of DPE (now DPHI) that the blasting can be carried out closer to the land without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land.

As described in Section 7.5.4, private landholders and residents on the pre-blast notification register will be notified prior to blasting.

[2] The 'site' is defined in Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418 as the land listed in Appendix 1 of both Development Consents.

7.1.3 Livestock

Studies have been undertaken by Casaday and Lehmann (1967) and Heggies Australia Pty Ltd (Heggies) (2006), into the effects of vibration on livestock animals. The study by Casaday and Lehmann (1967) found that cattle were affected by sonic booms, measuring between 125 dB to 136 dB and that a conservative criterion of 125 dB be adopted for the purposes of assessment of livestock impacts. The study by Heggies (2006) found that cattle are commonly exposed to vibration levels in excess of 200 mm/s during road transportation with no adverse effects on cattle health. It was consequently presumed that there would only be an effect on cattle health at vibration levels well in excess of 200 mm/s.

Based on these two studies, MACH Energy would adopt the following blasting performance criteria for livestock:

- 125 dB(Lin Peak) airblast overpressure (Casaday and Lehmann, 1967); and
- 200 mm/s ground vibration (Heggies, 2006).

If MACH Energy receives a complaint from an owner of livestock within 1 km of an active blasting area regarding impacts on livestock, MACH Energy will investigate and undertake monitoring (as required and in consultation with the landowner) to ensure the performance indicators are being achieved. Locations and monitoring requirements will be determined as required, in consultation with affected landholders.

7.2 RESIDENTIAL LOCATIONS

No blasting will be undertaken within 500 m of land outside the site[3] not owned by MACH Energy (including privately owned residences) unless the conditions outlined in Section 7.1.2 have been satisfied.

As described in Section 7.5.4, private landholders and residents on the pre-blast notification register will be notified prior to blasting.

7.2.1 Property Inspections and Investigations

Development Consent DA 92/97

In accordance with Schedule 4, Condition 1 of Development Consent DA 92/97, all owners of privately-owned land within 2 km of the approved open cut at the MPO have been notified in writing that they are entitled to a property inspection to establish the baseline condition of any buildings and/or structures, or to have a previous property inspection updated.

To date, no written requests for a property inspection have been received by MACH Energy and therefore no property inspection reports have been prepared, nor any other specific measures identified to minimise the potential blasting impacts of the MPO on such buildings and/or structures (as required by Schedule 3, Condition 13 of Development Consent DA 92/97).

Should any owners of privately-owned land claim that buildings and/or structures on their land have been damaged as a result of a blast event at the MPO, an investigation will be conducted by a suitably qualified, experienced and independent person whose appointment has been approved by both parties.

[3] The ‘site’ is defined in Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418 as the land listed in Appendix 1 of both Development Consents.

The investigation will be commissioned within two months of the claim and a copy of the independent property investigation report provided by MACH Energy to the landowner upon its completion.

If the independent property investigation report confirms the landowners claim, and both parties agree with these findings, MACH Energy will repair the damages to the satisfaction of the Planning Secretary of the DPE (now DPHI).

However, if the landowner or MACH Energy disagrees with the findings of the independent property investigation report, then either party may refer the matter to the Planning Secretary of the DPE (now DPHI) for resolution.

Development Consent SSD 10418

Following commencement of Development Consent SSD 10418, in accordance with Part C, Condition C5(a)(iii) of Development Consent SSD 10418, MACH Energy has notified, in writing, the owners of privately-owned land within 3 km of the approved open cut mining pit(s) that they are entitled to ask for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated.

In accordance with Part B, Condition B17 of Development Consent SSD 10418, if MACH Energy receives a written request from the owner of privately-owned land within 3 kilometres of any active open cut mining pit on the site, or any other landowner where the Planning Secretary is satisfied an inspection is warranted, for a property inspection to establish the baseline condition of any buildings and structures on their land, or to have a previous property inspection updated, then within two months of receiving this request (or, in the case of a request for an inspection outside the 3 kilometres, within two months of receiving notice that the Planning Secretary is satisfied that an inspection is warranted), MACH Energy will:

(a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to:

(i) establish the baseline condition of any buildings and other structures on the land, or update the previous property inspection report; and

(ii) identify measures that should be implemented to minimise the potential blasting impacts of the development on these buildings and structures; and

(b) give the landowner a copy of the new or updated property inspection report.

Additionally, Part B, Condition B19 of Development Consent SSD 10418 requires that:

… if the landowner of any privately-owned land within 3 km of any active open cut mining pit on the site or any other landowner where the Planning Secretary is satisfied an investigation is warranted, claims in writing that buildings or structures on their land have been damaged as a result of blasting on the site, then within two months of receiving this written claim (or, in the case of a request for an inspection outside the 3 km, within two months of receiving notice that the Planning Secretary is satisfied that an inspection is warranted), the Applicant will:

(a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to investigate the claim; and

(b) give the landowner a copy of the property investigation report.

In accordance with Part B, Condition B20 of Development Consent SSD 10418, if the independent property investigation confirms the landowner's claim, and both parties agree with these findings, then MACH Energy must repair the damage to the satisfaction of the Planning Secretary.

In accordance with Part B, Condition B21 of Development Consent SSD 10418, if there is a dispute over the selection of the suitably qualified, experienced and independent person, or MACH Energy or the landowner disagrees with the dindings of the independent property invesitgationm then either party may refer the matter to the Planning Secretary for resolution.

MACH Energy will comply with Conditions B17 to B21 (inclusive) of Development Consent SSD 10418 over the life of the Project. Appendix C lists additional blast related conditions in Development Consent SSD 10418 that MACH Energy must operate under.

The extent of compliance with the requirements of Part B, Conditions B17 and B19 of Development Consent SSD 10418 will be measured through annual reporting and the IEA.

7.3 PUBLIC INFRASTRUCTURE

Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418 includes ground vibration criteria of 50 mm/s for public infrastructure (e.g. rail and electrical infrastructure). In accordance with Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418, MACH Energy would comply with this limit unless a written agreement to increase this limit is established with the relevant infrastructure owner.

Blast vibration monitoring would be undertaken at a representative location when blasting is within 500 m of public infrastructure, unless otherwise agreed with the relevant infrastructure owner.

7.4 HERITAGE SITES

7.4.1 Aboriginal Heritage

Site types present within the MPO area include isolated finds, artefact scatters, scarred trees, knapping floors and stone sources. These site types are not considered to be susceptible to impacts from blasting (as these sites do not have an inherent structural component).

If any site types are identified during the life of the MPO that are more likely to be susceptible to blast vibration (e.g. grinding grooves), a monitoring program would be developed, implemented and included in a subsequent revision of the Aboriginal Cultural Heritage Management Plan.

7.4.2 Historic Heritage

Historic heritage sites will be managed in accordance with the Historic Heritage Management Plan. MACH Energy will ensure that blasting on the site does not damage heritage items outside the approved disturbance area and will develop specific measures to protect heritage items from any blasting damage associated with the development.

In accordance with Schedule 3, Condition 10 of Development Consent DA 92/97 (prior to its surrender) and Part B, Conditions B12 of Development Consent SSD 10418, MACH Energy will design and manage blast events to limit ground vibration to 10 mm/s at historic heritage sites until they have been managed in accordance with the Historic Heritage Management Plan (e.g. excavated, salvaged or demolished). If sites remain in situ, blast vibration monitoring will be undertaken either at the site, or at representative locations, when blasting is within 500 m of the site.

A copy of the Historic Heritage Management Plan is publicly available on MACH Energy's website (http://machenergyaustralia.com.au/mount-pleasant/documentation/).

Relevant (i.e. not already managed) historic heritage sites are presented on Figure 3.

In accordance with Part B, Condition B73(g) of Development Consent SSD 10418, MACH Energy will:

> …
> *(g) include a program to monitor the effects of blasting on heritage items (including but not limited to Kayuga Cemetery) located outside of the approved disturbance area;*

The pre-blasting protocol discussed in Section 7.5.1 will apply to the heritage items listed in Table 7. The historic heritage sites in Table 7 are located outside of the approved disturbance area (Figure 3) and, in accordance with the MPO Historic Heritage Management Plan, these sites are subjected to the blasting criteria limits.

Table 7
Relevant Historic Heritage Sites

Site Number	Historic Heritage Site	Ground Vibration Limit (Peak Particle Velocity)	Allowable Exceedance	Easting	Northing
MP01	Broomfield	10 mm/s	0%	291525	6430779
MP38	Rosebrook			300111	6429779
MP41	Negoa Homestead			299971	6432221
MP46	Kayuga Recreational Ground			298936	6434487
MP50	Waitomo House			298991	6434631
MP51	Kayuga Bridge			301091	6429226
MP52	Overdene (Overton) Homestead			297841	6427711
MP53	Kayuga Cemetery			299161	6435746
-	Rosedale (Rosevale) Cottage			298970	6435090
-	Kayuga Homestead			297970	6436400

Notes:

1. In accordance with Part B, Condition B12 of Development Consent SSD 10418, the blasting criteria limits do not apply to historic heritage sites located within the approved disturbance area (Figure 3).
2. In accordance with Part D, Condition D16 of Development Consent SSD 10418, blast monitoring may be undertaken at suitable representative monitoring locations instead of at privately-owned residences or other locations listed in Part B of Development Consent SSD 10418 providing that these representative monitoring locations are set out in the respective management plan/s.
3. Blasting criteria only apply until the heritage site is excavated, salvaged or demolished in accordance with the Historic Heritage Management Plan.

As per commitments made in the Historic Heritage Management Plan, in the event that the Broomfield (MP01), Kayuga Recreational Ground (MP46) and/or the Waitomo House (MP50) are disturbed, demolished or in situ retention is not possible, MACH Energy will undertake photographic archival recording. Archival recording will be conducted by a suitably qualified archaeologist in accordance with the Historic Heritage Management Plan.

Ongoing blast vibration monitoring will be undertaken as part of the Project to monitor compliance with the relevant criteria.

Overdene (Overton) Homestead (MP52)

Overdene (Overton) Homestead (MP52) is located outside of the MPO MLs, noting that the site is located on Bengalla Mine-owned land (Figure 3). The conservation of MP52 is managed through the existing Conservation Management Plan (AECOM, 2013) which was prepared for the Bengalla Mine and outlines the conservation policies used ti assist the ongoing use, maintenance and conservation of the site.

As presented in the Historic Heritage Assessment (Extent Heritage Pty Ltd [Extent], 2020), there would be no indirect impacts to the physical fabric of MP52 (e.g. through vibration), or to its auditory setting associated with the Project and will be retained and conserved in situ, consistent with the existing Conservation Management Plan (AECOM, 2013) for the site, as managed by Bengalla Mine.

MACH Energy will comply with the blasting criteria (Table 7) for the Overdene (Overton) Homestead (MP52) and will ensure that blasting on the site does not damage heritage items outside the approved disturbance area.

Negoa Homestead (MP41)

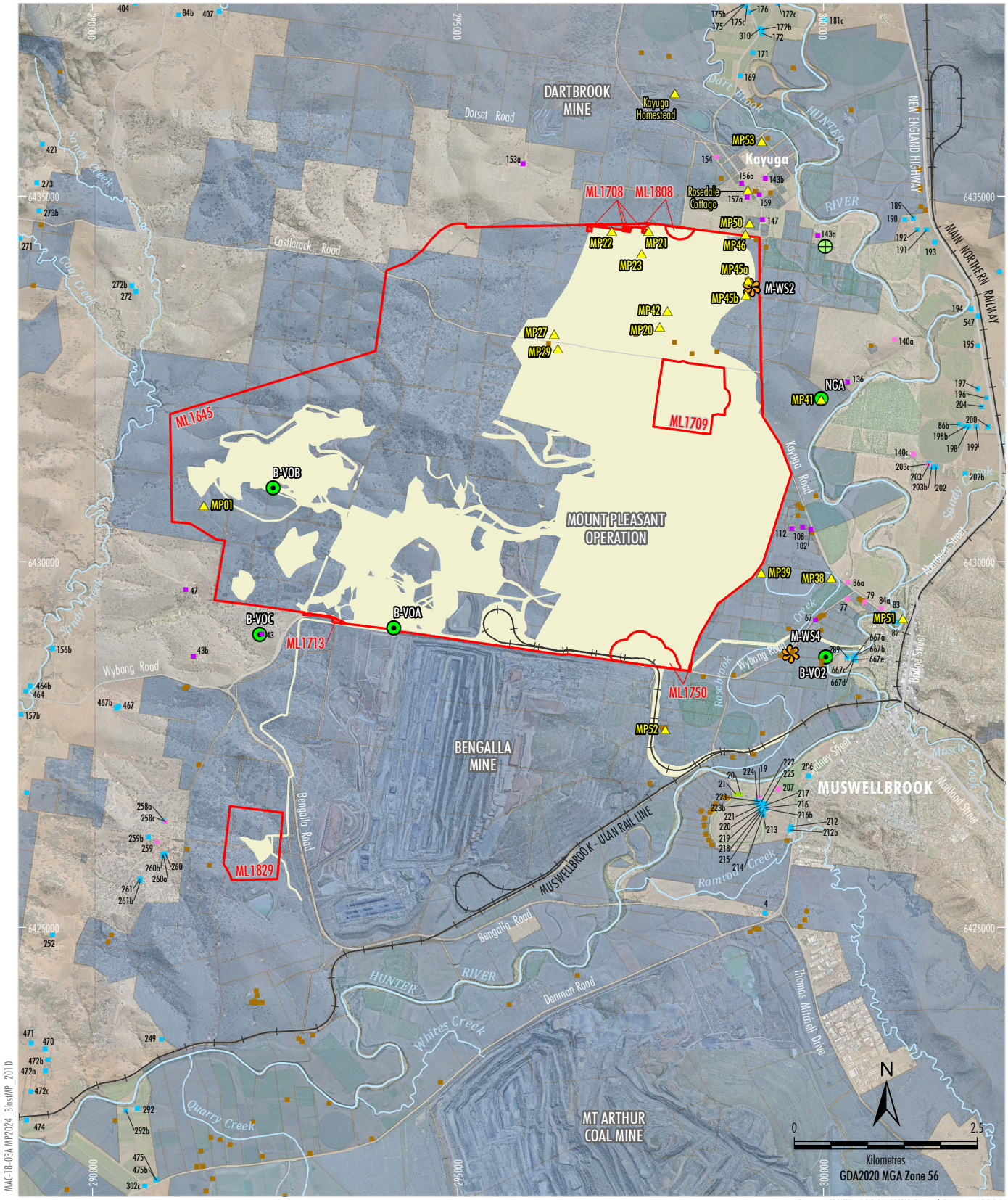
MACH Energy will comply with the blasting criteria (Table 7) for the Negoa Homestead (MP41) and will ensure that blasting on the site does not damage heritage items outside the approved disturbance area (Figure 3).

In accordance with the Negoa Homestead (MP41) Conservation Management Plan (as part of the Historic Heritage Management Plan) and Part B, Condition B24(i) of Development Consent SSD 10418, MACH Energy will undertake annual inspections of the Negoa Homestead (MP41) to identify arising repairs and maintenance matters (Section 10).

Rosebrook (MP38)

MACH Energy will comply with the blasting criteria (Table 7) for Rosebrook (MP38) and will ensure that blasting on the site does not damage heritage items outside the approved disturbance area (Figure 3).

Extent Heritage are currently in the process of developing a Conservation Management Plan for Rosebrook (MP38) in accordance with Part B, Condition B73(i) of Development Consent SSD 10418. MACH Energy will undertake annual inspections of Rosebrook (MP38) to identify arising repairs and maintenance matters (Section 10).



LEGEND

- Mine-owned Land
- Mining Lease Boundary (Mount Pleasant Operation)
- Project Continuation of Existing/Approved Surface Development (DA 927/97)[1]
- Weather Station
- Blast Monitoring Site (Vibration/Overpressure)
- Proposed Blast Monitoring Site (Vibration/Overpressure)
- 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.

Blast criteria only apply until the heritage site is excavated, salvaged or demolished in accordance with the Historic Heritage Management Plan.

^ Blast criteria do not apply to historic heritage sites located within the approved disturbance area.

Category of Rural Residence under DA 92/97

- Mine-owned

Category of Rural Residence under DA 92/97

- Privately-owned - Acquisition on Request
- Privately-owned - Mitigation on Request
- Privately-owned - Mitigation/Acquisition on Request*
- Other Privately-owned

* 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.

Source: MACH (2024); NSW Spatial Services (2024)
Orthophoto: MACH (Dec 2023)

MACHEnergy

MOUNT PLEASANT OPERATION

Blast Monitoring Locations

Figure 3

7.5 BLASTING CONTROLS / PROCEDURES

MACH Energy will design and manage blast events to meet all relevant statutory requirements to protect the safety of the public and livestock in the surrounding area and minimise the risk of impacts to residential locations, infrastructure and heritage sites.

Blast management procedures will include:

- training all relevant personnel on blast-related obligations and explosives management;
- use of appropriate initiation and detonation systems and adherence to blast loading and initiation designs;
- use of adequate burden, stemming lengths and stemming material to confine explosives;
- designing all blasts to comply with airblast overpressure and ground vibration limits;
- monitoring of blasts at all prescribed locations (refer Section 8);
- implementation of procedures to mitigate fumes for all blast events (Appendix E);
- calibration of site-specific blast models over time, using monitored data from previous blasting, to enable refinement and assessment for future blast events (refer Section 7.5.1);
- development of a blast records system which captures sufficient information to allow appropriate characterisation and comparison of blasts and meteorological conditions (refer Section 8.1.2);
- periodic review of blasting procedures to evaluate performance (refer Section 11); and
- evaluation of new technology and alternative blasting methodologies.

7.5.1 Pre-Blast Assessments (including Forecasting)

In accordance with Part B, Condition B22 of Development Consent SSD 10418, prior to each blast event, a pre-blast assessment will be prepared by the Drill and Blast Coordinator.

The pre-blast assessment will consider:

- establishing an appropriate blast exclusion zone based upon the nature of the blast;
- assessment of meteorological (e.g. wind speed and direction) conditions prior to the blast to identify all personnel, publicly accessible areas, private landholders, residential locations, infrastructure and heritage sites that may be affected;
- design of the blast (e.g. right product for the conditions);
- confirmation of radio contact with site personnel (if evacuation of work areas is required); and
- notification of all relevant external stakeholders (including those on the pre-blast notification register [Section 7.5.4]) prior to blasting.

The Drill and Blast Coordinator (or delegate) will review the pre-blast assessment and if it is identified that unfavourable blast conditions are forecast or if factors are present which may significantly increase dust or fume generation, the General Manager will be notified and will review the pre-blast assessment to determine the appropriate course of action.

A 'red light'/'green light' system will be used and refined throughout the life of the MPO, including updates to reflect changes in the mine design, community expectations and land ownership.

A forecasting model and predictive blast modelling will be used as part of the pre-blast assessment system at the MPO to simulate potential dust and fume impacts from a blast event to allow for re-scheduling or re-design as required in advance of the blast event.

If a blast is delayed by more than one hour, the meteorological conditions will be reassessed.

7.5.2 Dust and Fumes Strategy

Strategies to minimise dust (during drilling and blasting) at the MPO are described in the Air Quality and Greenhouse Gas Management Plan as follows:

- Blasting will be conducted during daylight hours when dispersion conditions are favourable, unless otherwise required for safety reasons.
- Blasting will not be undertaken during adverse weather conditions without the prior approval of the Environmental Superintendent (or delegate).
- Production drill rigs will utilise water injection (or be fitted with dust mitigation, such as sprays) and dust aprons will be lowered during drilling. Production drill rigs will not be operated without adequate dust control.
- Adequate stemming will be used in drill holes at all times.

MACH Energy has developed a Blast Fume Management Strategy (Appendix E) based on the AEISG (2011) Code of Practice, which has considered the following factors and practices to minimise fume emissions for all blasts:

- explosive formulation and quality assurance;
- explosive product selection;

- on bench practices;
- rainfall;
- blast design;
- geological conditions;
- contamination of explosives;
- sleep time; and
- reporting and documenting.

All blasting will be designed to ensure compliance with the relevant conditions from Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418 (refer Sections 3 and 4).

7.5.3 Coordination with Nearby Mines (Cumulative Blasting Protocol)

In accordance with Schedule 3, Condition 17 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B22(f) of Development Consent SSD 10418, MACH Energy has prepared a cumulative blasting protocol in consultation with nearby mines for minimising cumulative blasting impacts. This cumulative blasting protocol is detailed below.

The following mines have been identified nearby the MPO (Figure 1) and have been consulted with in respect to cumulative blast management:

- Bengalla Mine (immediately south);
- Mt Arthur Coal Mine (further south);
- Dartbrook Mine (immediately north); and
- Mangoola Coal (south-west).

Prior to each blasting event, MACH Energy will review the scheduled blasts listed on the MSC website (https://www.muswellbrook.nsw.gov.au/blast-notifications/).

Communication via email, fax or telephone to representatives of each of the above mines will be undertaken. During this communication, MACH Energy will confirm with the above mines that the schedule listed on the MSC website is correct. Following communication, blast times will be rescheduled when there is potential for blasts to occur concurrently. Additionally, blasts will be coordinated with nearby mines (including the Bengalla Mine) so that back-to-back closures of public roads are avoided, where practical.

7.5.4 System to Notify Public of Blast Schedule

Up-to-date information on the blasting schedule for residents will be made publicly available on MACH Energy's website (http://machenergyaustralia.com.au/).

MACH Energy will also inform the MSC of blast notices for placement on the MSC website: http://www.muswellbrook.nsw.gov.au/index.php/blasting/blasting-announcements. MSC will be notified of the intention to blast, and the date and time of the planned road closure, in the week prior to blasting.

MACH Energy will operate a Community Response Line (Phone Number: 1800 886 889). The Community Response Line is publicly advertised and operates 24 hours per day, seven days a week, to receive any queries (including those blast-related) from neighbouring residents or other stakeholders.

Any private landholders or residents within 2 km of the open cut extent that register an interest in being informed of the MPO blasting schedule will be included in a pre-blast notification register (including contact details for notification via telephone, email or method otherwise agreed). Other local landholders or residents may also be included in the register.

Private landholders and residents on the pre-blast notification register will be notified prior to blasting and will be re-notified if a blast event is delayed by more than two hours.

7.5.5 Strict Control – South-West Kayuga

When blasting in the north-east of the North Pit, strict control will be placed on blasting operations to ensure criteria are met at sensitive receptors at south-west Kayuga by:

- varying MIC design;
- no blasting to take place where temperature inversions are inferred; and
- assessment of prevailing weather conditions by correlation of weather station data.

8 BLAST MONITORING PROGRAM

8.1 AIRBLAST OVERPRESSURE, VIBRATION AND FUME MONITORING

Airblast overpressure, ground vibration and fume monitoring will be conducted for every blast event.

Table 8 summarises the units of measure and sampling methods for each parameter monitored during a blast event.

Table 8
Units of Measure and Sampling Methods for Parameters Monitored

Parameter	Units of Measure	Sampling Method
Airblast Overpressure	dB(Lin Peak)	Type 1 Noise Blast Logger
Ground Vibration	mm/s	Geophone Logger (or similar)
NOx Fume	AEISG (2011) Code of Practice Fume Rating System	Observation and Video

The locations of the blast monitoring equipment are outlined in Section 8.1.1.

Performance indicators to evaluate the extent of compliance with the relevant conditions of Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418 are provided in Section 4.

8.1.1 Location of Monitoring Equipment

Permanent blast monitoring locations at the MPO are shown on Figure 3 and summarised in Table 9. Additional monitoring locations (portable and permanent) will also be used across the MPO, as required and as described in Table 9. As blasting locations move, the location of monitoring will also move and therefore cannot be shown on Figure 3. For example, Table 9 describes that representative monitoring will be undertaken at the privately owned residence nearest any particular blast. Blast monitoring locations will be reviewed and where necessary relocated as a result of changes to the geographical location of the blast event or change to land ownership (where relevant).

Airblast overpressure and ground vibration monitoring will be established prior to commencement of any blasting events at the MPO. The final locations of the monitoring equipment will depend on accessibility and land ownership.

Blast monitoring instrumentation will be installed, calibrated and maintained in accordance with AS 2187.2-2006 *Explosives – Storage and use* and the manufacturer's specifications.

In accordance with Part B, Condition B25 of Development Consent SSD 10418, MACH Energy will not undertake blasting north of Castlerock Road until the BMP is approved by the Planning Secretary. Prior to mining north of Castlerock Road, MACH Energy will install a airblast overpressure and ground vibration monitor near Kayuga (Figure 3).

Table 9
Blast Monitoring Locations

Location	Site ID	Parameters	Comment
Wybong Road	B-VO2	Airblast Overpressure and Ground Vibration	Permanent monitoring device located between MPO open cut and private receivers to the south-east (including Muswellbrook).
Fines Emplacement Area	B-VOB	Airblast Overpressure and Ground Vibration	Permanent monitoring device located in the Fines Emplacement Area.
Wybong Road "Hillview"	B-VOA	Airblast Overpressure and Ground Vibration	Monitoring site located on MACH Energy owned land and situated between blasting locations and the nearest representative private receiver locations. This site would be utilised to continue validating site blasting laws and gather data for future blast designs.
Wybong Road "Broomfield"	B-VOC		
Negoa Homestead (MP41)	NGA	Airblast Overpressure and Ground Vibration	Permanent monitoring device located at historic heritage site Negoa Homestead (MP41).
Historic Heritage Sites (where relevant)	N/A (portable or permanent as suitable)	Ground Vibration	Portable or permanent monitoring device to be used at the historic heritage sites (or representative site) when blasting within 500 m (Section 7.4.2).
Public Infrastructure	N/A (portable or permanent as suitable)	Ground Vibration	Portable or permanent monitoring device to be used at a representative location when blasting within 500 m (Section 7.3).
Public Roads (Wybong or Kayuga Road)	N/A (portable or permanent as suitable)	Airblast Overpressure and Ground Vibration	Portable or permanent monitoring device to be used at Wybong, Castlerock (while open), Dorset and/or Kayuga Road when blasting within 500 m (Appendix D).
Between Blast and Boundary of Premises	N/A (portable or permanent as suitable)	NOx Fume	Location of observation point would vary depending on prevailing weather conditions (Section 8.1).
On-site Weather Station	M-WS4	Wind Speed, Wind Direction, Sigma-theta, Temperature, Temperature Lapse Rate, Relative Humidity, Solar Radiation, Rainfall.	Meteorological conditions recorded continuously in accordance with Schedule 3, Condition 24 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B38 of Development Consent SSD 10418.
Nearest Private Receiver	N/A (portable or permanent as suitable)	Airblast Overpressure and Ground Vibration	Portable or permanent monitoring device to be used at a location(s) representative of the nearest private receiver.

8.1.2 Monitoring Records

Results of blast monitoring will be kept in a legible form for at least 4 years after each blast event. These records will be made available to any authorised officer of the EPA or DPE (now DPHI) if requested.

The following is recorded for each blast event:

- date and time;
- location and discrete area;
- blast monitoring locations;
- fume characteristics;
- fume classification level;
- meteorological conditions;
- recorded airblast overpressure and vibration at each blast monitoring location; and
- MIC.

A video of each blast will also be recorded.

The above monitoring records would be used, as required, to evaluate compliance with the conditions of Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418 as described in Section 11.

8.1.3 Racecourse Road

The Commissioner's Report (1999) (refer Section 6.6.2) recommended trial blasts be monitored in the vicinity of Racecourse Road due to complaints of residents regarding impacts from the Bengalla Mine at that time.

Since that time, Bengalla Mining Company has acquired a number of the properties located between Racecourse Road and the MPO. In addition, blast monitoring results for site BOY in the vicinity of Racecourse Road reported in the *Bengalla Annual Environment Management Report 2010* (Bengalla Mining Company, 2011) and *Bengalla Annual Environmental Management Report 2011* (Bengalla Mining Company, 2012) indicate a maximum ground vibration of 1.36 mm/s over 307 blasts, with an average ground vibration of 0.37 mm/s. This is well below the contemporary maximum ground vibration criteria for private dwellings of 10 mm/s (Table 3). Therefore, further trial blast monitoring is not considered to be warranted in the vicinity of Racecourse Road.

9 RESPONSE PROTOCOLS

9.1 BLASTING CRITERIA REVIEW PROTOCOL

A Blasting Criteria Review Protocol (refer Figure 4) will be implemented following each blast event. The Drill and Blast Coordinator will be responsible for initiation and implementation of the first stage of the Blasting Criteria Review Protocol.

Any exceedance of the blasting criteria in Section 3 will be investigated to determine the likely cause of the exceedance. The Initial Investigation (Figure 4) will consider if it is possible for the exceedance to have been caused by the MPO. This will include for example, review of the timing of the MPO blast versus the exceedance, review of the blast video footage and/or review of recorded waveforms. If the exceedance is possibly related to the MPO, immediate notification to the DPE (now DPHI) and the EPA will be undertaken and the Detailed Investigation will commence.

The Detailed Investigation (Figure 4) will seek to determine:

- whether the exceedance of the criteria was directly related to the blast or if environmental factors contributed to the exceedance;
- the primary cause of the incident;
- any contributing factors which led to the incident;
- whether appropriate controls were implemented to prevent the incident; and
- appropriate recommendations for improvement.

Incident and non-compliance reporting will be conducted as described in Section 12. Blast fume and pollution incidents will be investigated and reported as described in Sections 9.2 and 9.3 respectively.

Corrective and/or preventative actions will be assigned to relevant personnel as a result of the investigation. Actions will be communicated through planning meetings and toolbox talks, and outstanding actions will be monitored for their effectiveness upon completion.

All incidents[4] and non-compliances[5] will be recorded and records maintained for a period of no less than 4 years.

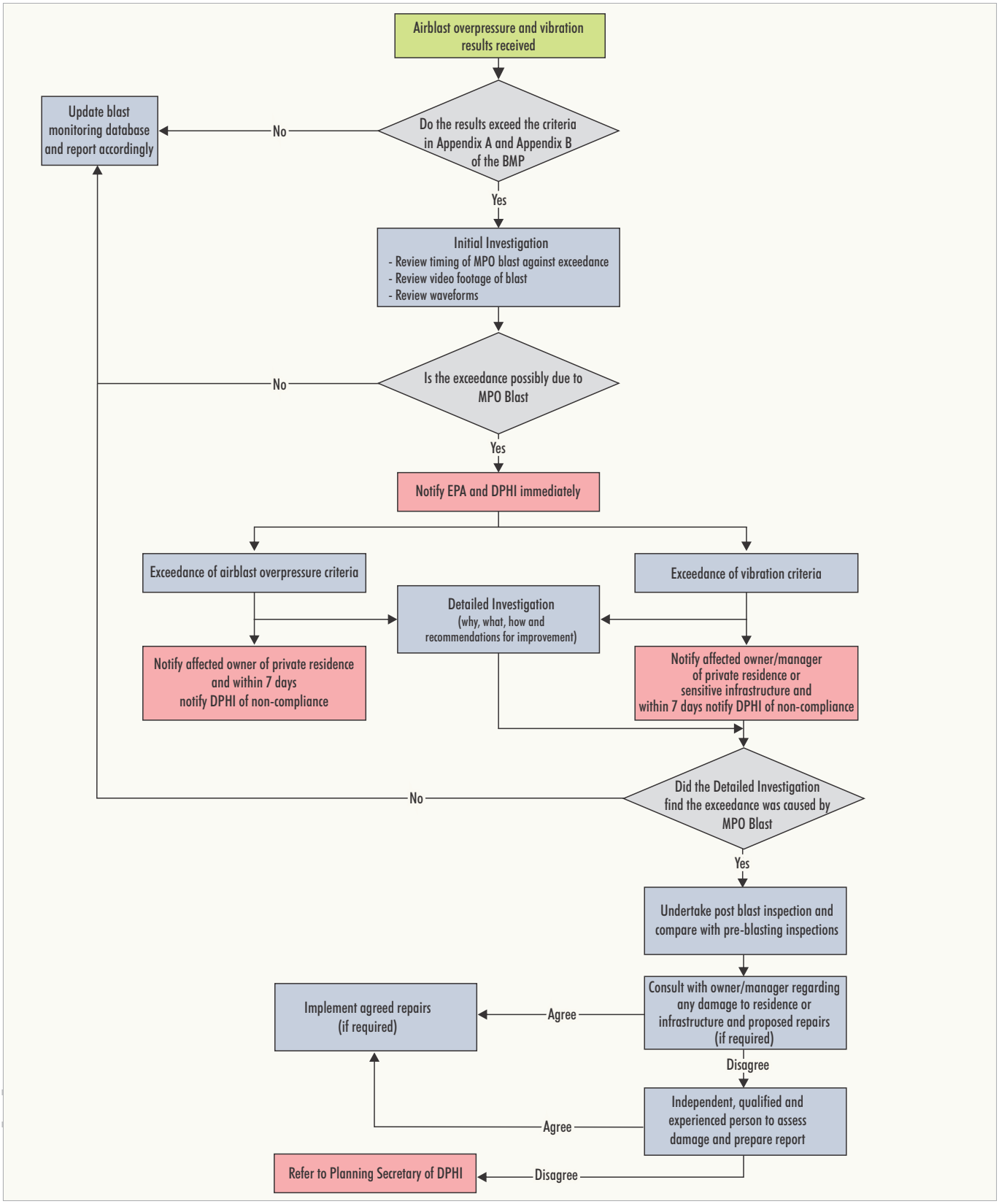
In the event that the Initial Investigation concludes that an exceedance of the blasting criteria in Section 3 was possibly due to a blasting event at the MPO, in accordance with Part C, Condition C7 of Development Consent SSD 10418 (Appendix C), MACH Energy will notify (in writing) the affected landholders, tenants and the CCC of the exceedance as soon as practicable and provide them with regular blast monitoring results, until the results show that the blasting at the MPO is complying with the blasting criteria. In the event of a non-compliance, MACH Energy will notify DPHI in writing within 7 days of becoming aware of the non-compliance.

Where an exceedance of the blasting criteria in Section 3 is determined (via the Detailed Investigation) to have been caused by a blast event at the MPO, MACH Energy will, on request, undertake property investigations in accordance with Part B, Conditions B19, B20 and B21 of Development Consent SSD 10418.

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[4] An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be a non-compliance.

[5] An occurrence, set of circumstances or development that is a breach of Development Consent DA 92/97 (prior to its surrender) and Devepment Consent SSD 10418.



MAC-18-03A MP2024_BlastMP_002A

Figure 4

If a sustained non-compliance with the blasting criteria is deemed to have occurred, MACH Energy will report the sustained non-compliance to the DPHI and any other relevant agencies in accordance with Section 12 of this BMP.

Where a landowner considers the MPO to be exceeding the blasting criteria (Table 5 and 6), the landowner may request an independent review of the impacts in accordance with Schedule 4, Condition 2 of Development Consent DA 92/97 (prior to its surrender) (Appendix B) and Part C, Condition C9 to C11 (inclusive) of Development Consent SSD 10418 (Appendix C).

9.2 BLAST FUME EMERGENCY RESPONSE

9.2.1 On-Site Incident

Any person on-site (whether employee, contractor or visitor) who believes that they may have been exposed to blast fumes should report to their immediate supervisor to be treated according to the treatment protocol described in Section 9.2.3. The immediate supervisor will immediately notify the Environmental Superintendent, who, in turn, will notify the General Manager.

9.2.2 Off-Site Incident

As described in Appendix E, if a blast fume of Level 3 or above is expected to leave the site[6], MACH Energy will notify the surrounding sensitive receivers[7].

In the event that blast fumes rated at Level 3 or above leave the site, the following actions will be undertaken:

- The Drill and Blast Coordinator will immediately notify the Environmental Superintendent that a fume event has occurred that may put members of the local community at risk.
- The Environmental Superintendent will immediately contact and notify the General Manager[8] of the risk.
- The General Manager will initiate the Pollution Incident Response as illustrated in the Pollution Incident Response Flowchart (Appendix F), including the notification of relevant sensitive receivers.

[6] The 'site' is defined in Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418 as the land listed in Appendix 1 of both Development Consents.

[7] Depending upon the meteorological conditions, residences within a reasonable distance (i.e. up to a maximum of 1 km) downwind of the blast site will be contacted. This is subject to the residents having a valid phone contact held by MACH Energy.

[8] If the General Manager position is vacant, the Environmental Superintendent will notify the Managing Director.

9.2.3 Treatment Protocol

Where a person on-site or a member of the public or community (e.g. off-site) has been exposed to blast fumes (NO_x) or displays symptoms associated with blast fumes, MACH Energy will declare an incident and commence the Pollution Incident Response as illustrated on the Pollution Incident Response Flowchart (Appendix F), including the notification of relevant sensitive receivers.

In either case (e.g. if the affected person is on-site or off-site), the treatment protocol outlined below would be followed:

1. Activate a Site Emergency by calling “Emergency, Emergency, Emergency” on the designated Radio channel.
2. Initiate First Aid priorities (DRSABCD).
3. Remove the casualty from the area if safe to do so. Do not put yourself or others in danger. Transport the casualty to the First Aid Room. The casualty is to rest calmly in a comfortable position.
4. If the casualty is not exhibiting any respiratory symptoms, request an Oxygen Therapy Unit be on stand-by.
5. Call NSW Emergency Services (Telephone: 000) if external assistance is required and advise of possible exposure to Blasting Fume (NO_x).
6. Undertake observations (pulse, respirations, oxygen levels and skin colour) every 15 minutes and document on the First Aid Treatment / Observation Sheet.
7. Request a guide be sent to wait and escort the ambulance on arrival to the relevant location.
8. Comfort and reassure the casualty. MACH Energy Representative to notify the next of kin of the situation.
9. If the casualty is unable to be transported to the First Aid Room, arrange for the Oxygen Therapy Unit and wait for the arrival of the Emergency Services.
10. If trained to do so, administer high concentration oxygen therapy if respiratory signs and symptoms commence (shortness of breath; cyanosis [blue tinge to lips/oral mucosa] etc.).
11. Do not give the casualty anything to drink or eat.
12. Assist the Emergency Services personnel if requested.
13. Request Information (Safety Data Sheet located within the First Aid Room) for Treating Medical Staff accompany Ambulance Officers to the Hospital. The “Information for the Treating Doctor sheet” (Department of Natural Resources and Mines, 2011) (see example in Appendix G) and the First Aid Treatment / Observation Sheet is to accompany the casualty.
14. Post sentries to stop unauthorised people from entering the area.
15. Notify the relevant people of the situation who will escalate the information.
16. Investigation to be commenced.

9.3 POLLUTION INCIDENT RESPONSE

MACH Energy has developed a Pollution Incident Response Management Plan as required by Condition O5 of EPL 20850. A copy of the Pollution Incident Response Management Plan is publicly available on MACH Energy’s website (http://machenergyaustralia.com.au/mount-pleasant/documentation/).

MACH Energy will investigate and report pollution incidents as described in the Pollution Incident Response illustrated in the Pollution Incident Response Flowchart (Appendix F).

10 CONTINGENCY PLAN

In the event that a blast criterion detailed in Section 3 is considered to have been exceeded (during the implementation of the response protocols described in Section 9), MACH Energy will implement the following Contingency Plan:

- The Environmental Superintendent will report the likely exceedance within 24 hours of the exceedance investigation being concluded.
- MACH Energy will then report the exceedance of the blasting criteria to the EPA immediately and to the DPHI within 7 days of becoming aware of the non-compliance.
- MACH Energy will identify the appropriate course of action (including contingency measures where necessary [refer Section 10.1]) with respect to the identified blast impact(s), in consultation with technical specialists, DPHI and the EPA.
- MACH Energy will, in the event that there is a dispute over the proposed remedial course of action or if the actions conflict with current approvals, submit the appropriate course of action to the DPHI for approval.
- MACH Energy will implement the approved course of action to the satisfaction of the DPHI.

Although ground vibration and overpressure impacts are considered unlikely to exceed criteria at items of historic heritage significance (Section 7.4), annual dilapidation surveys will be undertaken at the Negoa Homestead (MP41) and Rosebrook Homestead (MP38), as required by the Conservation Management Plans. Any defects or damage caused through blasting will be rectified and reported in the MPO Annual Review.

10.1 POTENTIAL CONTINGENCY MEASURES

Potential contingency measures will be reviewed during revisions of this BMP during the life of the MPO. Key potential contingency measures to be implemented (following exceedance of blasting criteria and implementation of the response protocols) may include the following:

- MACH Energy will notify (in writing) the affected landholders and tenants of the exceedance as soon as practicable and provide them with regular blast monitoring results, until the results show that the blasting at the MPO is complying with the blasting criteria.
- MACH Energy will send a copy of the NSW Health fact sheet entitled “Mine Dust and You” (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including tenants of any mine-owned land).
- MACH Energy will, on request, undertake property inspections and/or investigations in accordance with Part B, Conditions B17 and B19 of Development Consent SSD 10418.
- MACH Energy will, in the event that the exceedance is in relation to a historic heritage site or public infrastructure, undertake a property inspection and/or investigation in accordance with Part B, Conditions B17 and B19 of Development Consent SSD 10418.
- MACH Energy will determine specific measures (as identified by a suitably qualified, experienced and independent person whose appointment has been approved by the Secretary) that may be implemented at a building and/or structure on publicly or privately-owned land to minimise potential blasting impacts within 3 months of the investigation being completed.
- MACH Energy will determine specific measures (as identified by a suitably qualified, experienced and independent person whose appointment has been approved by the Planning Secretary of the DPHI) that may be implemented at a historic heritage site to minimise potential blasting impacts within 3 months of the investigation being completed.

- MACH Energy will re-evaluate blast designs (e.g. MPO specific scaled distance equations – refer Section 6.6) to mitigate the potential for future exceedances of blast criteria, if blast monitoring results indicate this is required.

10.2 ADAPTIVE MANAGEMENT

In accordance with Part D, Condition D4 of Development Consent SSD 10418 and Schedule 5, Condition 1A of Development Consent DA 92/97 (prior to its surrender), MACH Energy will assess and manage risks to comply with the criteria and/or performance measures outlined in Section 4.

Where any non-compliance with the criteria and/or performance measures occurs, at the earliest opportunity, MACH Energy will:

- take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
- consider all reasonable and feasible options for remediation and submit a report to the DPHI describing these options and preferred remediation measures; and
- implement remediation measures as directed by the Planning Secretary of the DPHI.

11 REVIEW AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE

11.1 ANNUAL REVIEW

In accordance with Part D, Condition D11 of Development Consent SSD 10418 and Schedule 5, Condition 3 of Development Consent DA 92/97 (prior to its surrender), MACH Energy will review and evaluate the environmental performance of the MPO by the end of March each year (for the preceding calendar year) or other such timing as agreed by the Planning Secretary of the DPHI.

In relation to blasting, the MPO Annual Review will:

- include a comprehensive review of the blast monitoring results and complaints records relating to the MPO over the past year, which includes a comparison of these results to evaluate compliance against the:
  - relevant statutory requirements, limits or performance measures/criteria (refer Sections 2 and 4);
  - monitoring results of the previous years; and
  - relevant predictions in accordance with Part A, Condition A2 of Development Consent SSD 10418;
- identify any blast non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
- identify any trends in the blast monitoring data over the life of the MPO;
- identify any discrepancies between the predicted and actual blast impacts of the MPO, and analyse the potential cause of any significant discrepancies; and
- describe what blast-related measures will be implemented over the next year to improve the environmental performance of the MPO.

Copies of the approved MPO Annual Review will be submitted to Muswellbrook Shire Council and made available to the Community Consultative Committee and any interested person upon request, in accordance with Part D, Condition D12 of Development Consent SSD 10418 and Condition 11, Schedule 5 of Development Consent DA 92/97 (prior to its surrender). The MPO Annual Review will also be made publicly available on the MACH Energy website (https://machenergyaustralia.com.au/).

As mentioned in Part D, Condition D11 of Development Consent SSD 10418 (above) relating to MPO Annual Reviews, MACH Energy will include a comprehensive review of environmental performance at the MPO in accordance with Part A, Condition A2 of Development Consent SSD 10418 requires that:

> *A2. The development may only be carried out:*
>
> *(a) in compliance with the conditions of this consent;*
> *(b) in accordance with all written directions of the Planning Secretary;*
> *(c) generally in accordance with the EIS and EAs;*
> *(d) generally in accordance with the Development Layout in Appendix 2.*

11.2 BLAST MANAGEMENT PLAN REVIEW

11.2.1 Development Consent DA 92/97

In accordance with Schedule 5, Condition 4 of Development Consent DA 92/97 (prior to its surrender), this BMP will be reviewed, and if necessary revised to the satisfaction of the Planning Secretary of the DPHI, within three months of the submission of:

- an Annual Review (Schedule 5, Condition 3);
- an incident report (Schedule 5, Condition 7);
- an IEA (Schedule 5, Condition 9); and/or
- any modification to the conditions of Development Consent DA 92/97[9].

Within four weeks of conducting a review of this BMP, MACH Energy will advise the Planning Secretary of the DPHI of the outcomes of the review, and with the agreement of the Planning Secretary submit any revised documents for the approval of the Planning Secretary.

In accordance with Schedule 5, Condition 4A of Development Consent DA 92/97 (prior to its surrender), MACH Energy may submit a revised BMP for the approval of the Secretary at any time, and may also submit any revision to this BMP required under Development Consent DA 92/97 on a staged basis.

If agreed with the Planning Secretary of the DPHI, a revision of this BMP required under Development Consent DA 92/97 (prior to its surrender) may be prepared without undertaking consultation with all parties nominated under the relevant Condition of Development Consent DA 92/97.

This BMP will be made publicly available on the MACH Energy website, in accordance with Schedule 5, Condition 11 of Development Consent DA 92/97 (prior to its surrender).

11.2.2 Development Consent SSD 10418

In accordance with Part D, Condition D7 of Development Consent SSD 10418 this BMP will be reviewed, and if necessary revised (to the satisfaction of the Planning Secretary), within three months of the submission of:

- the submission of an incident report under Part D, Condition D9 or D10 of Development Consent SSD 10418;
- the submission of an MPO Annual Review under Part D, Condition D11 of Development Consent SSD 10418;
- the submission of an IEA under Part D, Condition D13 of Development Consent SSD 10418;
- the approval of any modification of the conditions of Development Consent SSD 10418; or
- notification of a change in development phase under Part A, Condition A12 of Development Consent SSD 10418.

In accordance with Part D, Condition D8 of Development Consent SSD 10418, within 6 weeks of conducting any such review, the Planning Secretary will be advised of the outcomes of the review and any revised documents submitted to the Planning Secretary for approval.

[9] Note that in the event of an inconsistency between Schedule 5, Condition 4(d) of Development Consent DA 92/97 and any Condition in Schedule 3, the latter prevails.

In accordance Part A, Condition A24 of Development Consent SSD 10418, MACH Energy may submit a revised BMP for the approval of the Planning Secretary at any time and may also submit any revision to this BMP on a staged basis.

In accordance with Part A, Condition A25 of Development Consent SSD 10418, if agreed with the Planning Secretary, a revision to this BMP required under Development Consent SSD 10418 may be prepared without undertaking consultation with all parties nominated under the relevant conditions of Development Consent SSD 10418.

11.3 INDEPENDENT ENVIRONMENTAL AUDIT

Within one year of commencement of development under Development Consent SSD 10418, and every three years after, an IEA will be undertaken and submitted as required, in accordance with Part D, Condition D13 of Development Consent SSD 10418.

In accordance with Part D, Condition D14 of Development Consent SSD 10418, within three months of commencing the IEA, MACH Energy will submit a copy of the audit report to the Planning Secretary, and other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. MACH Energy will ensure that the recommendations will be implemented and the findings and compliance with the IEA will be reported in the MPO Annual Reviews.

Once Development Consent DA 92/97 is surrendered, all subsequent IEAs commissioned by MACH Energy will be in accordance with Part D, Condition D13 and D14 of Development Consent SSD 10418.

Subsequent versions of the IEA will be provided to the Planning Secretary of the DPE (now DPHI) and made available on the MACH Energy website. The IEA will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary of the DPE (now DPHI).

12 REPORTING PROCEDURES

In accordance with Part D, Condition D5(h) of Development Consent SSD 10418 and Schedule 5, Condition 2 of Development Consent DA 92/97 (prior to its surrender), MACH Energy has developed protocols for managing and reporting the following:

- incidents;
- complaints;
- non-compliances with statutory requirements; and
- exceedances of the impact assessment criteria and/or performance criteria.

These protocols are described in detail in the MPO EMS.

In accordance with Part D, Condition D17(vi) of Development Consent SSD 10418 and Schedule 5, Condition 8 of Development Consent DA 92/97 (prior to its surrender), MACH Energy will provide regular reporting on the environmental performance of the MPO on the MACH Energy website (https://machenergyaustralia.com.au/).

In accordance with Part D, Conditions D15 and D16 of Development Consent SSD 10418, any conditions of Development Consent SSD 10418 that require the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the NSW EP&A Act. These conditions include incident notification (Part D, Condition D9 of Development Consent SSD 10418); non compliance notification (Part D, Condition D10 of Development Consent SSD 10418); reporting and response; compliance reporting; and IEA (Part D, Condition D13 of Development Consent SSD 10418).

Blast monitoring and management will be reported as part of the MPO Annual Review described in Section 11.1 and in accordance with the reporting requirements of EPL 20850.

12.1 INCIDENT REPORTING

An incident is defined as an occurrence or a set of circumstances that causes or threatens to cause material harm to the environment and/or breaches or exceeds the limits or performance measures/criteria in Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418.

In the event that review of monitoring data, or a complaint indicates an incident has occurred, the incident will be reported in accordance with Part D, Condition D9 of Development Consent SSD 10418 and Schedule 5, Condition 7 of Development Consent DA 92/97 (prior to its surrender). The Planning Secretary will be notified in writing via the Major Projects website immediately after MACH Energy becomes aware of an incident. The notification will identify the Project name and development application number and set out the location and nature of the incident.

In accordance with Part D, Condition D10 of Development Consent SSD 10418, within seven days of becoming aware of a non-compliance MACH Energy will notify DPHI of the non-compliance.

The notification must be made in writing via the Major Projects Website and will:

- identify the MPO (including the Development Application number and name);
- set out the condition of Development Consent SSD 10418 that the incident is non-compliant with;
- describe the location and nature of the incident;
- the reason for the non-compliance (if known); and
- what actions have been, or will be, undertaken to address the non-compliance.

12.2 COMPLAINTS

MACH Energy maintains a Community Hotline (1800 886 889), which is dedicated to the receipt of community complaints. The Community Hotline is publicly advertised in a variety of MACH Energy's public communication tools and is available during operating hours (i.e. 24/7), to receive any complaints. Communication received from the hotline is recorded in a Community and Stakeholder Engagement Database.

MACH Energy has developed a procedure that outlines its commitment to receiving, responding to and maintaining a record of phone calls from the community. This procedure is supported by a Community and Stakeholder Engagement Register. This is described in MPO EMS.

In accordance with Part D, Condition D17 of Development Consent SSD 10418 and Schedule 5, Condition 11 of Development Consent DA 92/97 (prior to its surrender), a complaints register will be made available on the MACH Energy website (https://machenergyaustralia.com.au/) and updated monthly.

12.3 NON-COMPLIANCE WITH STATUTORY REQUIREMENTS

In accordance with Part D, Condition D5(h) of Development Consent SSD 10418 and Schedule 5, Condition 7A of Development Consent DA 92/97 (prior to its surrender), a protocol for managing and reporting non-compliances with statutory requirements has been developed as a component of MPO EMS and is described below.

Compliance with all approval plans and procedures is the responsibility of all personnel (staff and contractors) employed on or in association with MACH Energy and the Project. In accordance with Part A, Condition A2 of Development Consent SSD 10418 and Schedule 2, Condition 2 of Development Consent DA 92/97 (prior to its surrender), MACH Energy will carry out the development in accordance with:

- the conditions of Development Consent SSD 10418 and Development Consent DA 92/97 (prior to its surrender)[10];
- all written directions of the Planning Secretary;

[10] In accordance with Part A, Condition A4 of Development Consent SSD 10418, the conditions in Development Consent SSD 10418 and directions of the Planning Secretary prevail to the extent of inconsistency, ambiguity or conflict between them and any document/s listed in condition A2(c). In the event of an inconsistency, ambiguity or conflict between any of the document/s listed in condition A2(c), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

- Statement of Commitments (Appendix 3 of Development Consent DA 92/97);
- the 1997 EIS, EA (MOD 1), EA (MOD 2), EA (MOD 3), EA (MOD 4), the Project EIS; and
- with the Development Layout in Appendix 2 of Development Consent SSD 10418 (Attachment 2).

MACH Energy will undertake regular inspections, internal audits and initiate directions identifying any remediation/rectification work required, and areas of actual or potential non-compliance.

As described in Section 12.1, MACH Energy will report incidents in accordance with Part D, Condition D9 of Development Consent SSD 10418 and Schedule 5, Condition 7 of Development Consent DA 92/97 (prior to its surrender).

A review of compliance with all conditions in Development Consent SSD 10418, Development Consent DA 92/97 (prior to its surrender) and relevant MLs will be undertaken prior to (and included within) each MPO Annual Review (Section 11.1).

Additionally, in accordance with Part D, Condition D13 of Development Consent SSD 10418 and Schedule 5, Condition 9 of Development Consent DA 92/97 (prior to its surrender), an IEA (Section 11.3) will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary to assess whether MACH Energy is complying with the requirements in Development Consent SSD 10418 and Development Consent DA 92/97 (prior to its surrender).

12.4 ACCESS TO INFORMATION

In accordance with Part D, Condition D17 of Development Consent SSD 10418 and Schedule 5, Condition 11 of Development Consent DA 92/97 (prior to its surrender), the MACH Energy website will be maintained as a tool for the provision of information to stakeholders and interested parties about the operation and environmental performance of the MPO. Information required by MACH Energy to be available on the website is outlined in MPO EMS.

13 REFERENCES

Australian and New Zealand Environment Council (1990) *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration.*

Australian Explosives Industry and Safety Group Inc. (2011) *Code of Practice Prevention and Management of Blast Generated NOx Gases in Surface Blasting*.

Bengalla Mining Company (2011) *Bengalla Annual Environment Management Report 2010*.

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Coal & Allied Operations Pty Ltd (1998) *Mount Pleasant Mine Commission of Inquiry – Primary Submission.*

Department of Natural Resources and Mines (2011) *Prevention and management of blast fumes*. Version 2. Queensland Government.

EMGA Mitchell McLennan (2010) *Mount Pleasant Project Modification Environmental Assessment.*

ERM Mitchell McCotter (1997) *Mount Pleasant Mine Environmental Impact Statement.*

Heggies Australia Pty Ltd (2006) *Report on Vibration Effects in Transported Cattle*. Appendix D of the Albion Park Quarry Extension Revised Blast Management Plan. Accessed from: http://www.clearybros.com.au/system/files/f1/f36/f43/o382/Blast%20Management%20Plan%2018%20Nov%202015.pdf

MACH Energy Australia Pty Ltd (2017a) *Mount Pleasant Operation (DA 92/97) – South Pit Haul Road Modification.*

MACH Energy Australia Pty Ltd (2017b) *Mount Pleasant Operation – Mine Optimisation Modification Environmental Assessment.*

MACH Energy Australia Pty Ltd (2017c) *Mount Pleasant Operation – Rail Modification Environmental Assessment.*

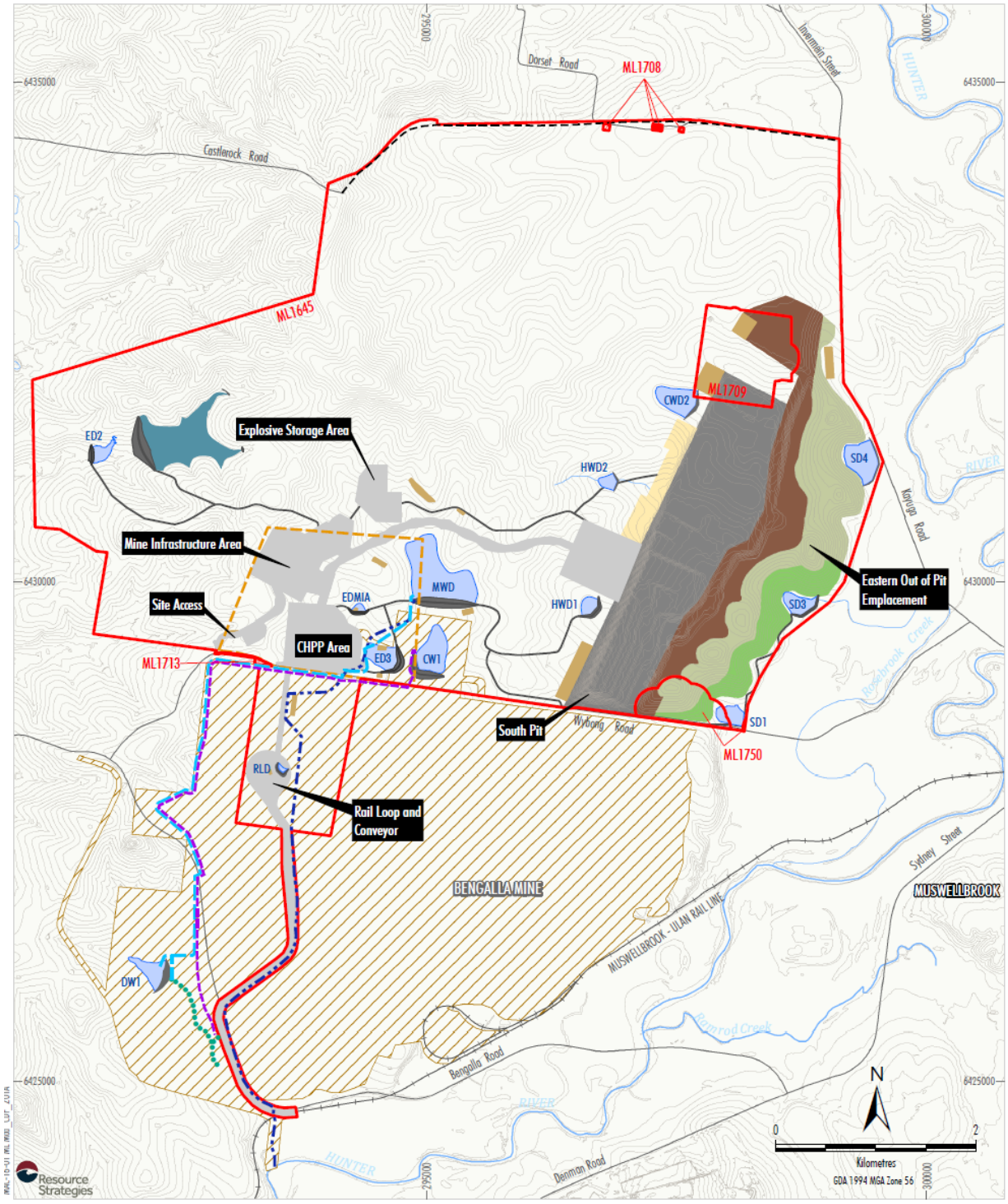
Planning Environmental & Engineering Consultants (1999) *Mount Pleasant Mine Commission of Inquiry – Submission in Reply.*

Wilkinson Murray Pty Ltd (2020) *Mount Pleasant Optimisation Project Noise and Blasting Assessment.*

ATTACHMENT 1

APPENDIX 2 OF DEVELOPMENT CONSENT DA 92/97

APPENDIX 2
FIGURE 1 - CONCEPTUAL PROJECT LAYOUT PLAN AT 2021



LEGEND

- Mining Lease Boundary
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Infrastructure Area Envelope
- Active Stripping Area
- Active Mining Area
- Active Overburden Emplacement Area
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile Area
- Access Road
- Northern Link Road

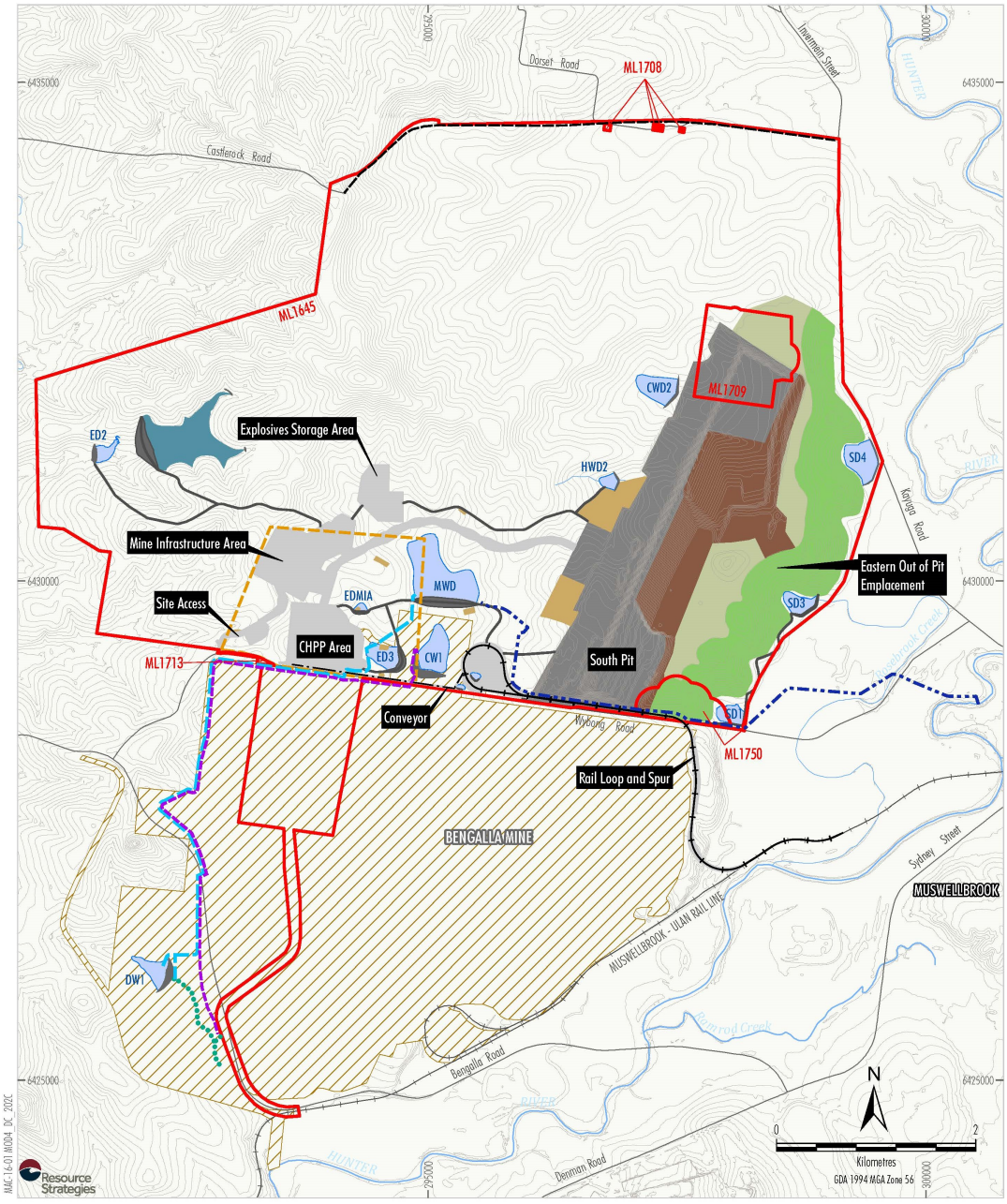
Indicative Water Pipeline Alignment

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline
- Approximate Extent of Scour Protection
- Water Dam
- Fines Emplacement Area

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2017)

MACHEnergy
MOUNT PLEASANT OPERATION

FIGURE 2 - CONCEPTUAL PROJECT LAYOUT PLAN AT 2025



LEGEND

- Mining Lease Boundary
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Infrastructure Area Envelope
- Active Mining Area
- Active Overburden Emplacement Area
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile Area
- Access Road
- Northern Link Road

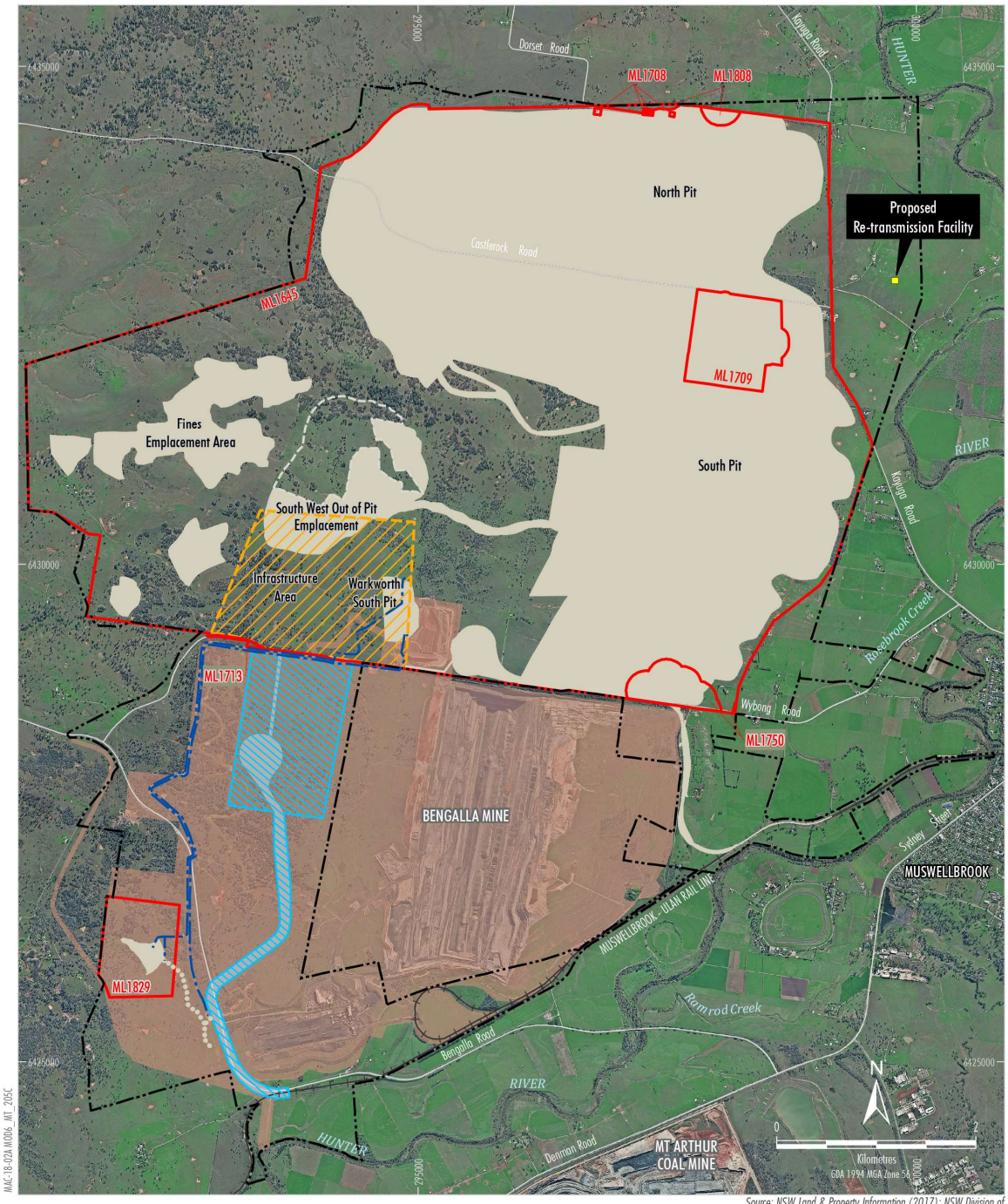
Indicative Water Pipeline Alignment

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline
- Approximate Extent of Scour Protection
- Water Dam
- Fines Emplacement Area

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2018)

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MOUNT PLEASANT OPERATION

FIGURE 3 - APPROVED SURFACE DISTURBANCE PLAN



LEGEND

- Development Consent Boundary (DA 92/97)
- Mining Lease Boundary
- Approximate Extent of Approved Surface Development [1]
- Indicative Water Pipeline Alignment
- 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)

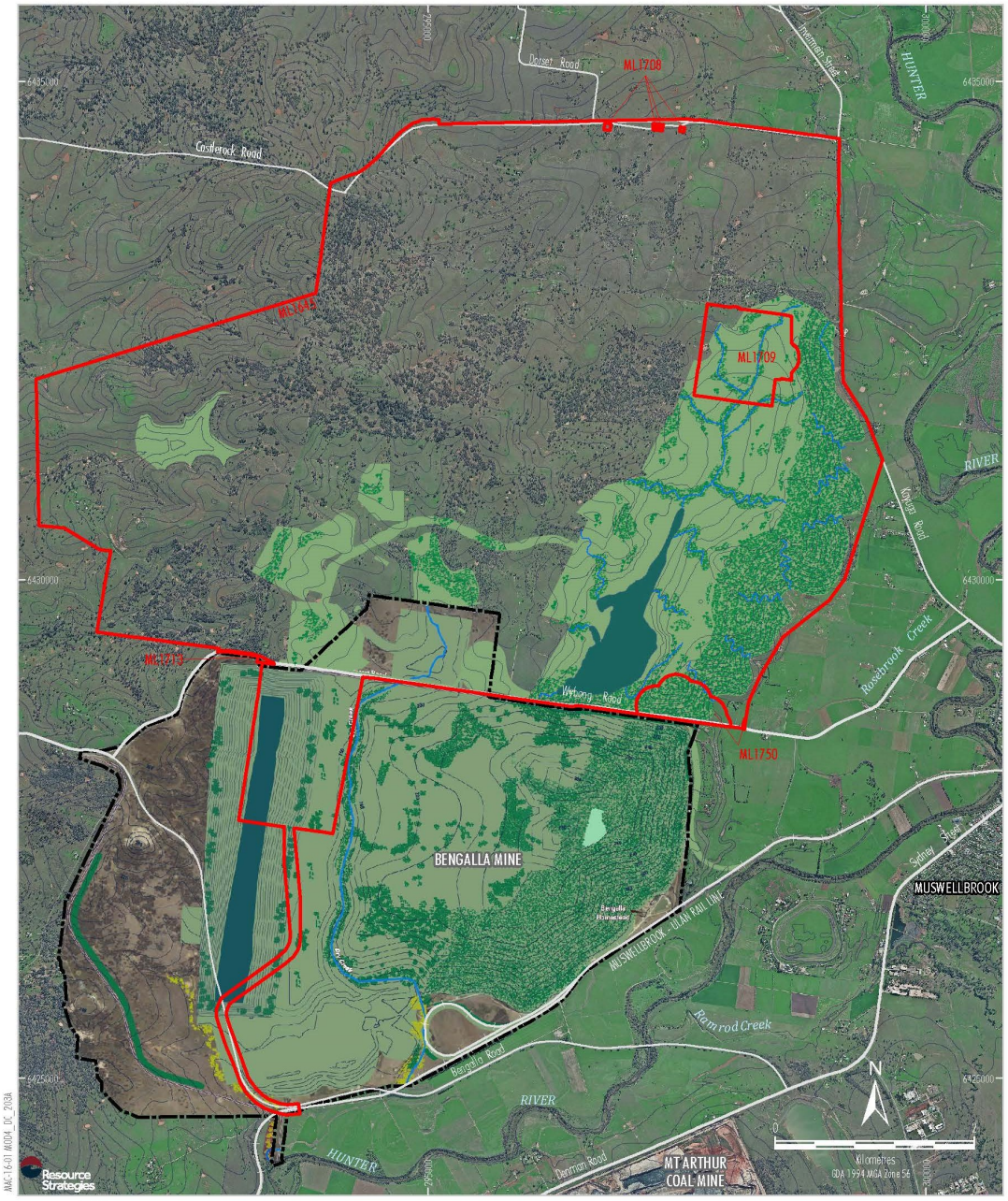
NOTE

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.

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2018); Department of Planning and Environment (2016); MACH Energy (2017)
Orthophoto: MACH Energy (Aug 2016)

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MOUNT PLEASANT OPERATION
Revised Approved Surface Disturbance Plan

FIGURE 4 - CONCEPTUAL FINAL LANDFORM



LEGEND

- Mt Pleasant Mining Lease Boundary
- Final Void
- Final Rehabilitation
- Bengalla Mine Conceptual Final Landform *
- Project Boundary (Appendix 2 of Development Consent SSD-5170) (Dated 23 December 2016)
- Dry Creek
- Final Void Lake
- Rehabilitation
- Rehabilitation Class III
- Indicative Tree Screens (or equivalent)
- Treed Rehabilitation
- Indicative Restorative Area

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

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); Department of Planning and Environment (2016); MACH Energy (2017)
Orthophoto: MACH Energy (Aug 2016)

MACHEnergy
MOUNT PLEASANT OPERATION
Conceptual Final Landform (2026)

ATTACHMENT 2

APPENDIX 2 OF DEVELOPMENT CONSENT SSD 10418

APPENDIX 2 DEVELOPMENT LAYOUT PLANS

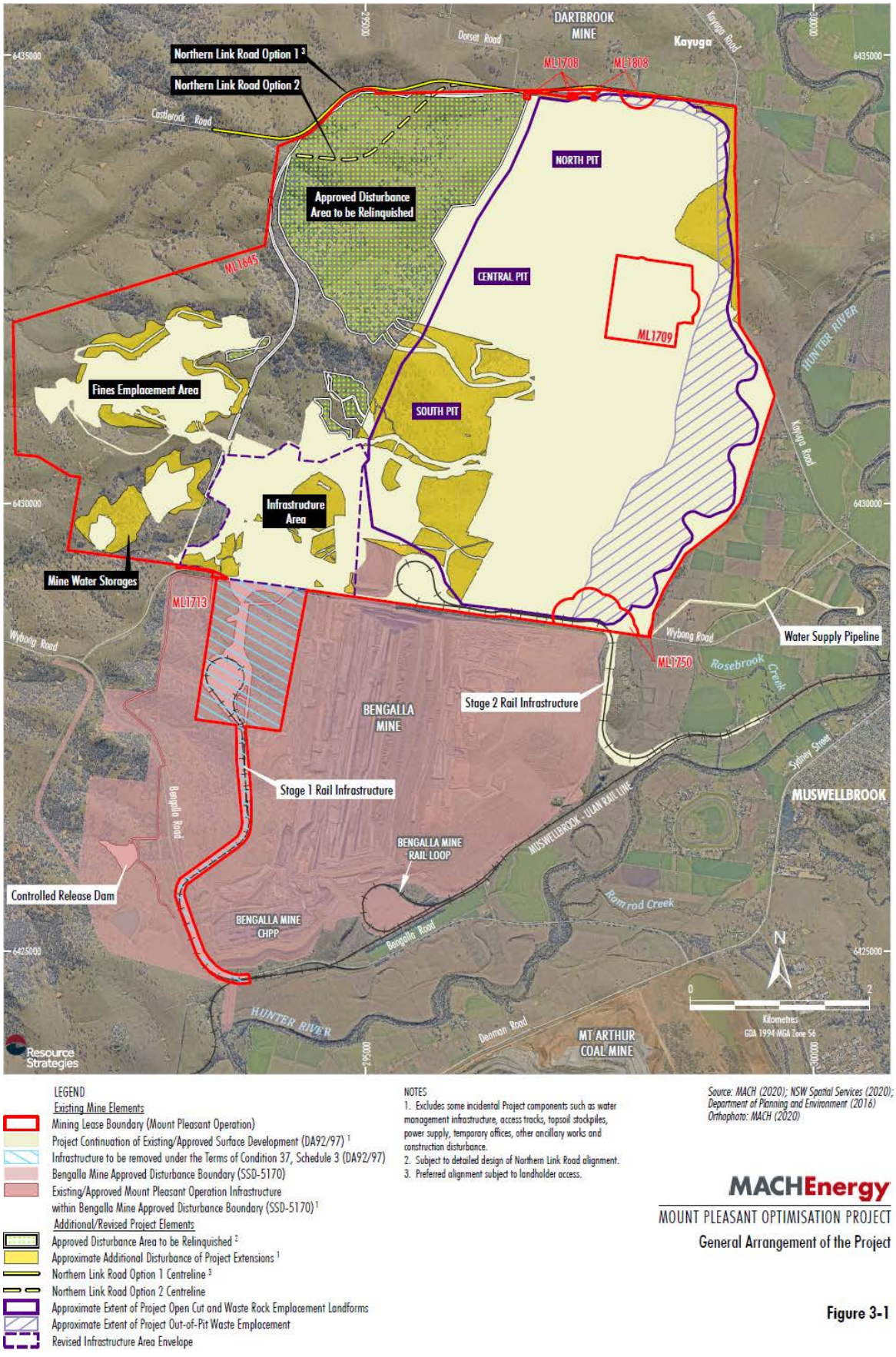


Figure 1: General Project Arrangement

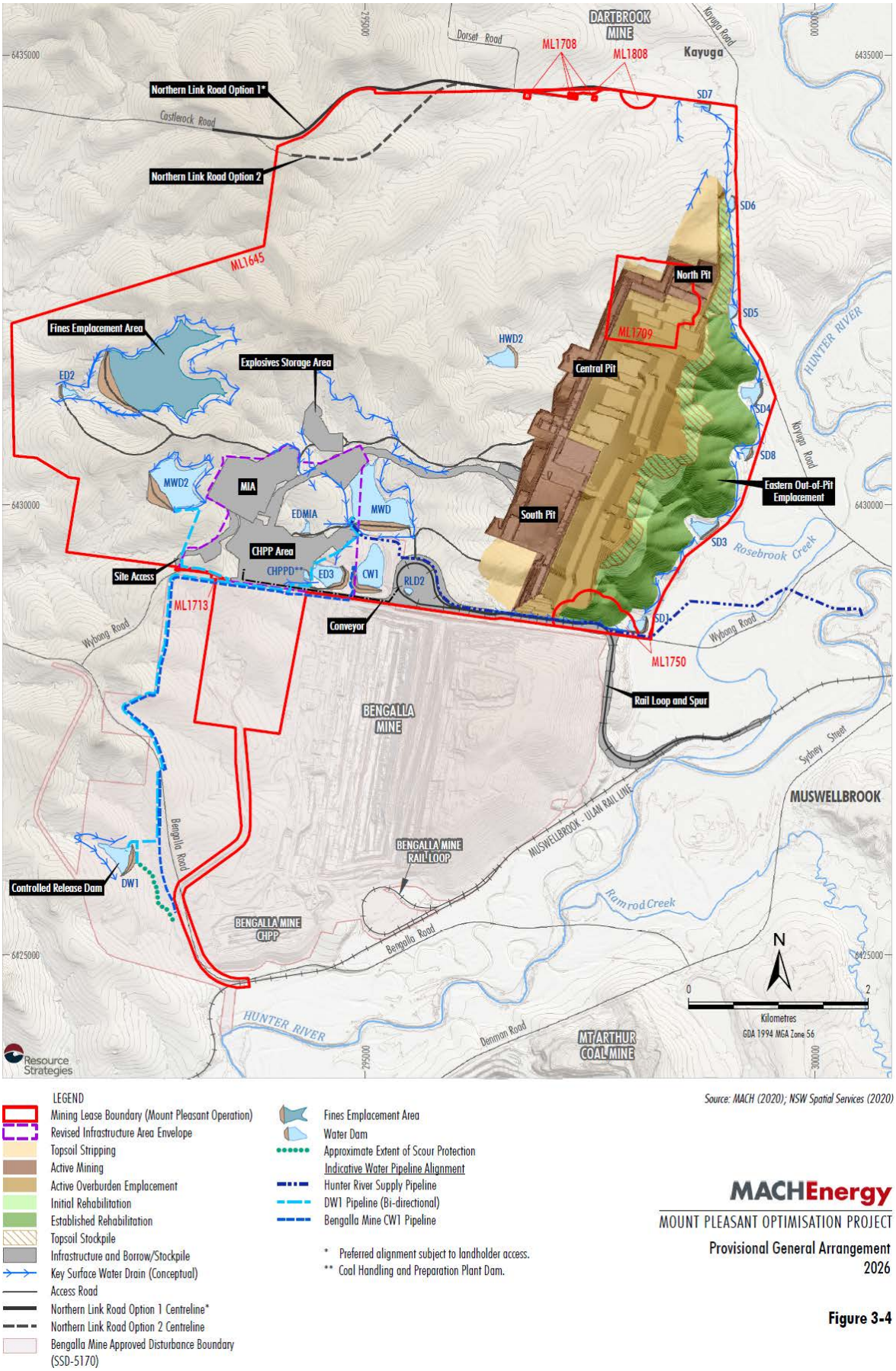
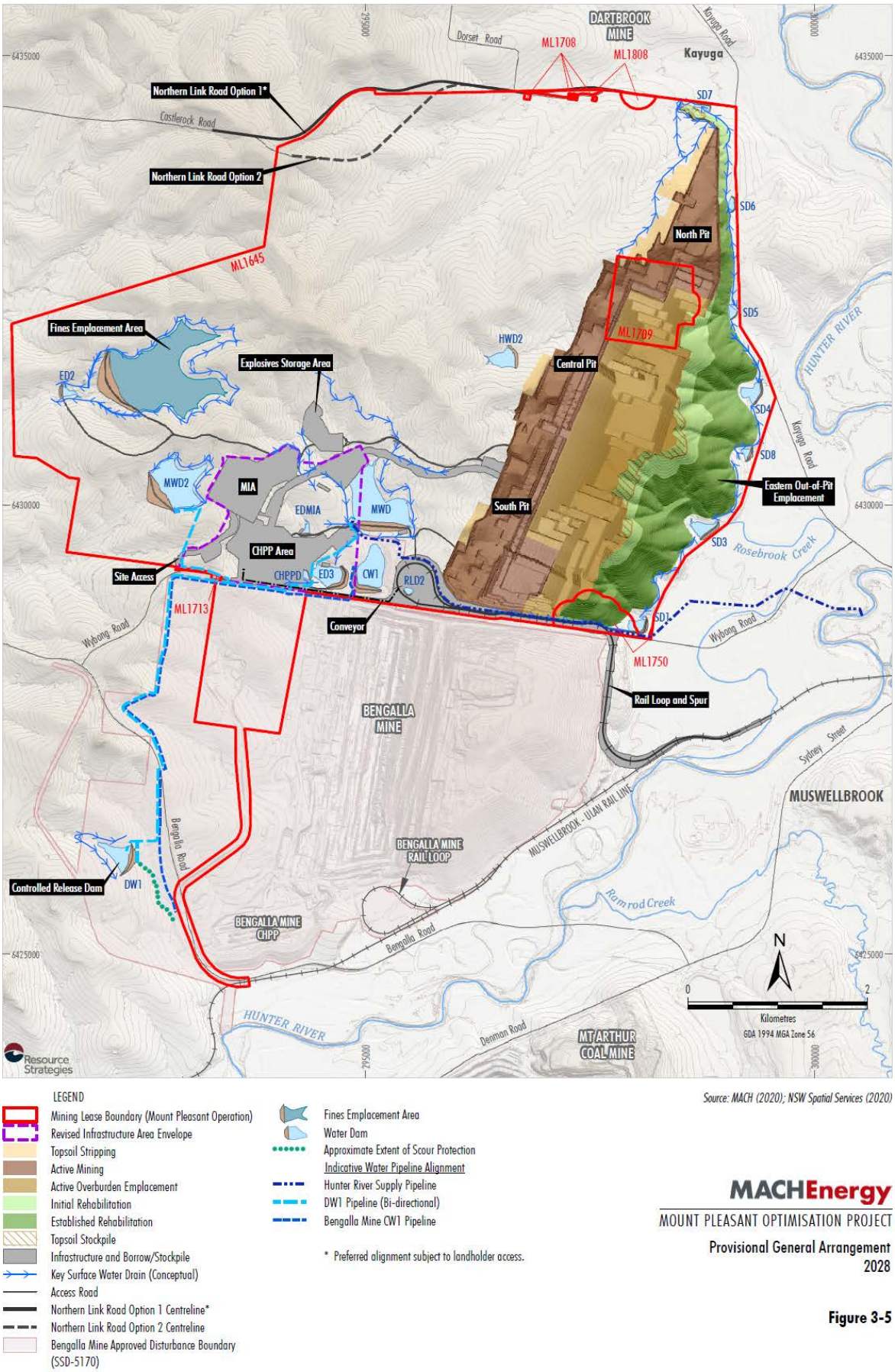


Figure 2: General Project Arrangement – 2026



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Initial Rehabilitation
- Established Rehabilitation
- Topsoil Stockpile
- Infrastructure and Borrow/Stockpile
- Key Surface Water Drain (Conceptual)
- Access Road
- Northern Link Road Option 1 Centreline*
- Northern Link Road Option 2 Centreline
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Fines Emplacement Area
- Water Dam
- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

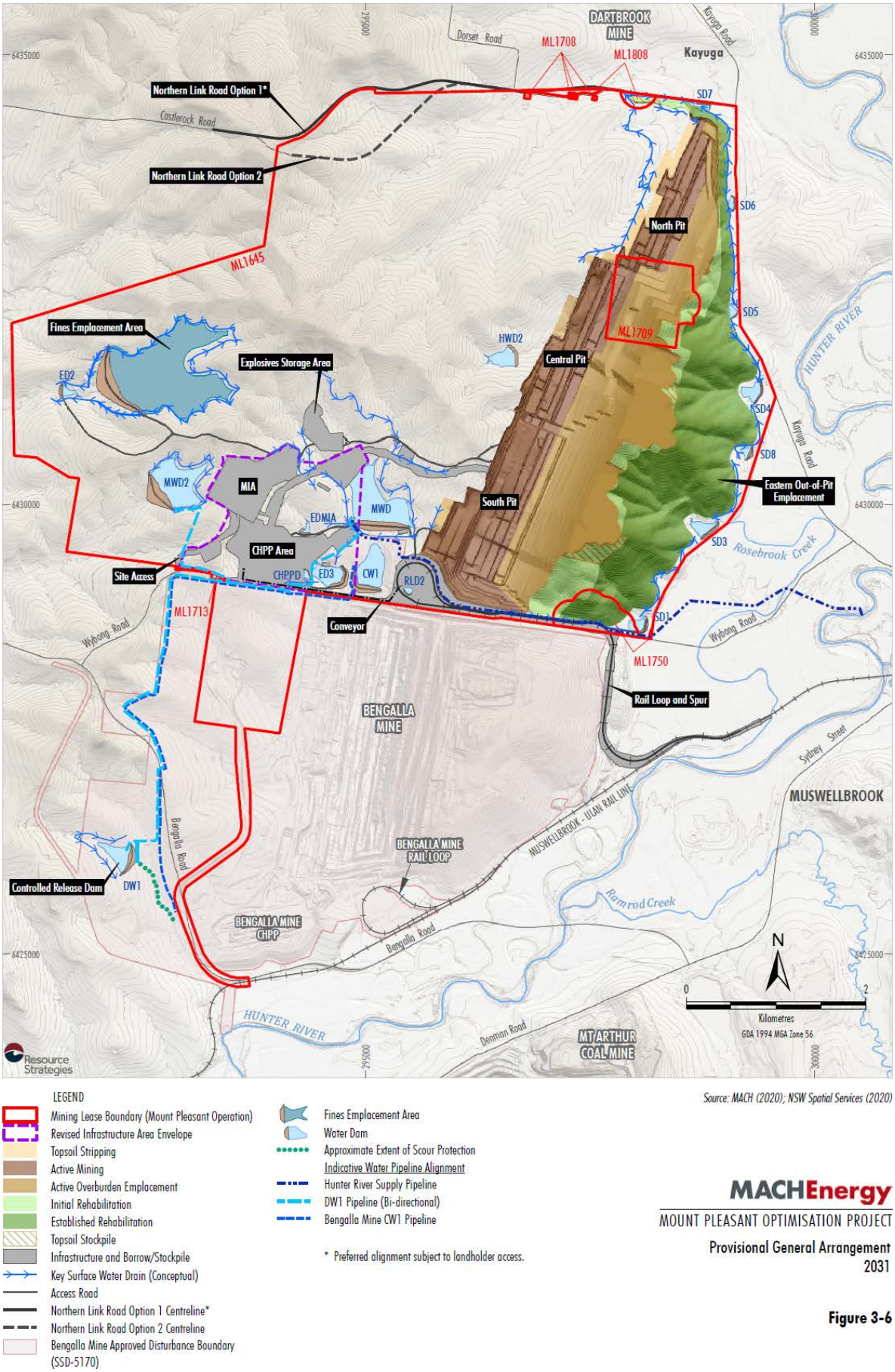
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MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2028

Figure 3-5

Figure 3: General Project Arrangement – 2028



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Initial Rehabilitation
- Established Rehabilitation
- Topsoil Stockpile
- Infrastructure and Borrow/Stockpile
- Key Surface Water Drain (Conceptual)
- Access Road
- Northern Link Road Option 1 Centreline*
- Northern Link Road Option 2 Centreline
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Fines Emplacement Area
- Water Dam
- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

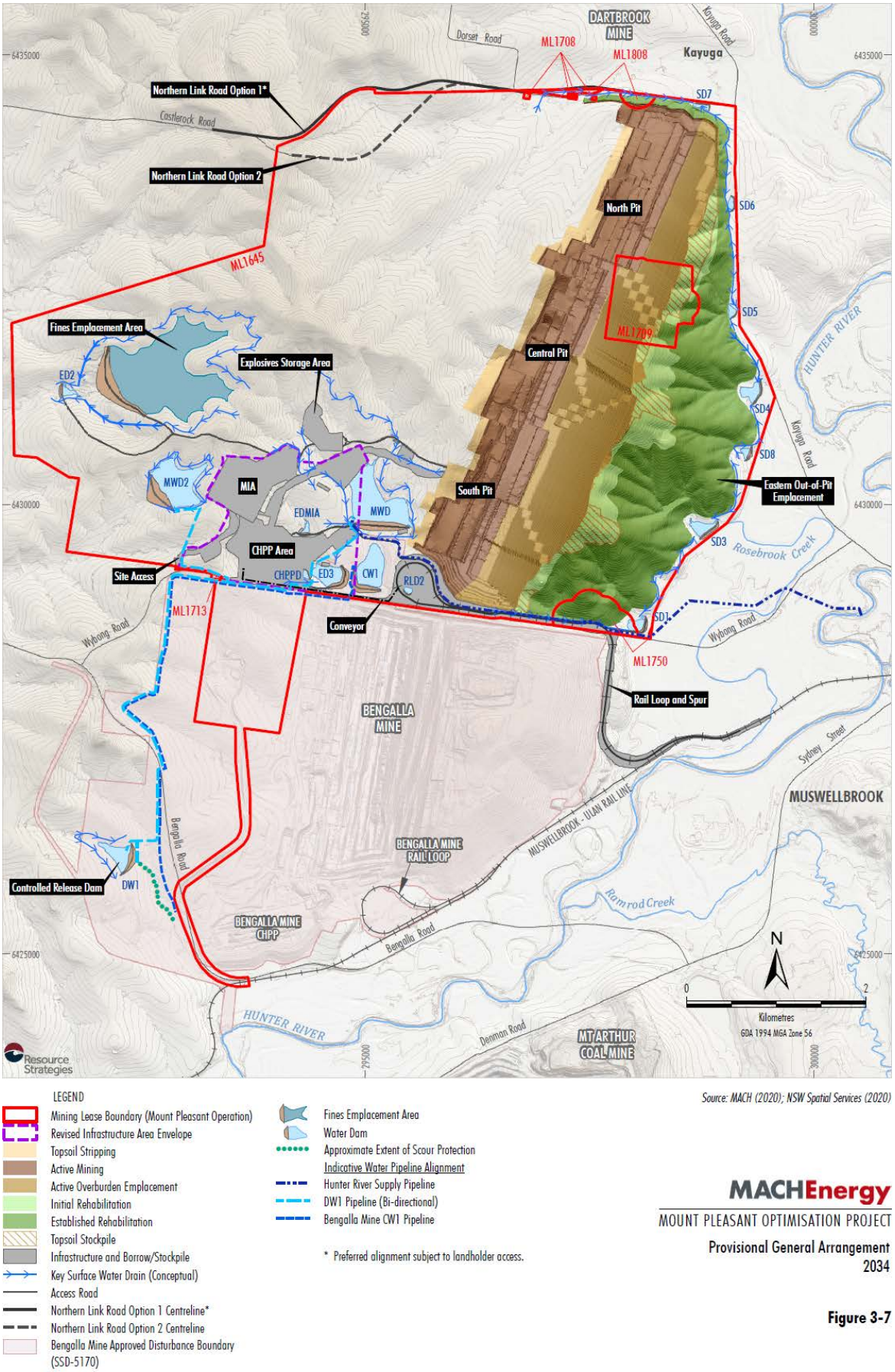
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MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2031

Figure 3-6

Figure 4: General Project Arrangement - 2031



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Initial Rehabilitation
- Established Rehabilitation
- Topsoil Stockpile
- Infrastructure and Borrow/Stockpile
- Key Surface Water Drain (Conceptual)
- Access Road
- Northern Link Road Option 1 Centreline*
- Northern Link Road Option 2 Centreline
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Fines Emplacement Area
- Water Dam
- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

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MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2034

Figure 3-7

Figure 5: General Project Arrangement - 2034

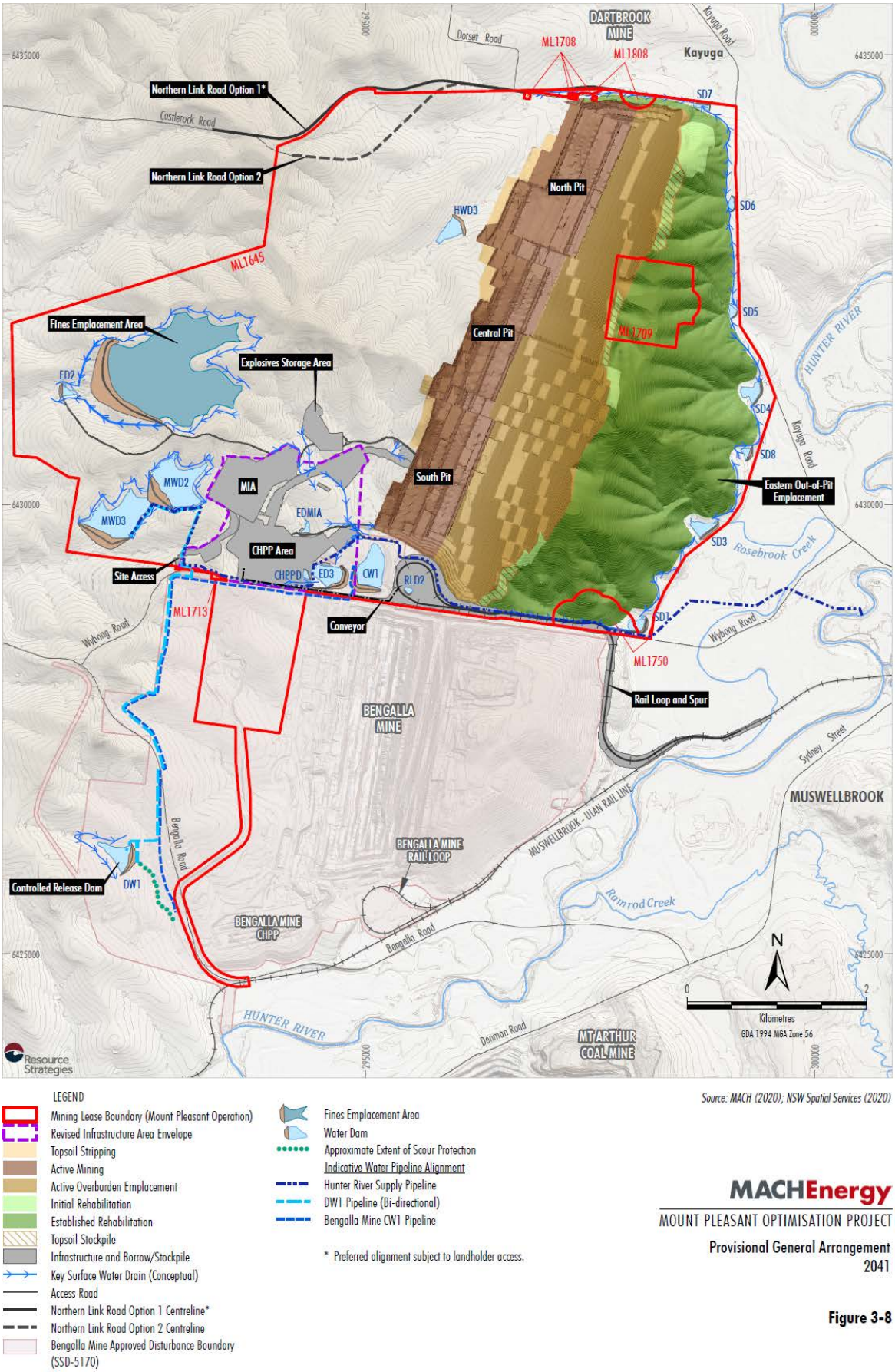
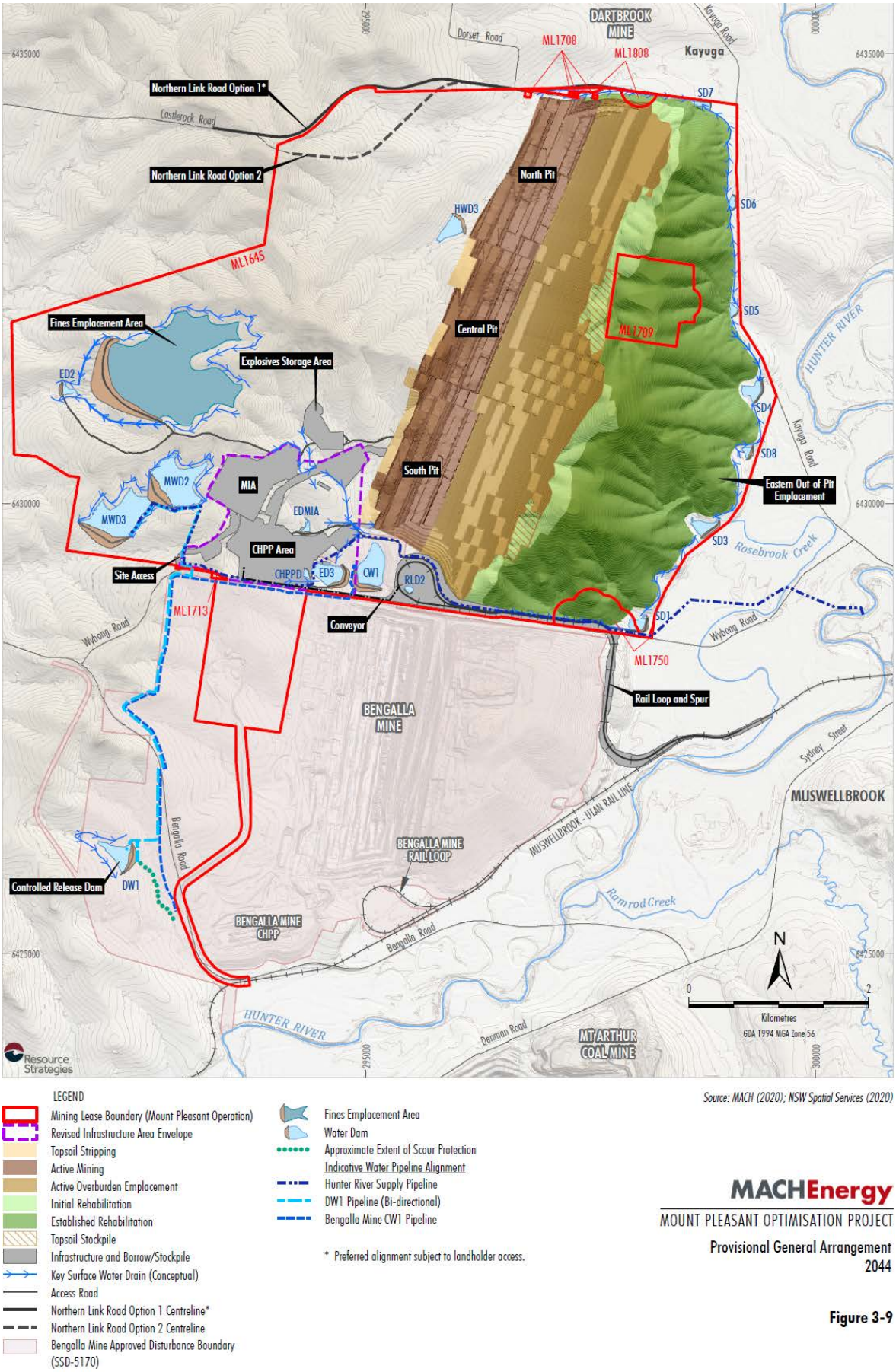


Figure 6: General Project Arrangement - 2041



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Initial Rehabilitation
- Established Rehabilitation
- Topsoil Stockpile
- Infrastructure and Borrow/Stockpile
- Key Surface Water Drain (Conceptual)
- Access Road
- Northern Link Road Option 1 Centreline*
- Northern Link Road Option 2 Centreline
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Fines Emplacement Area
- Water Dam
- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

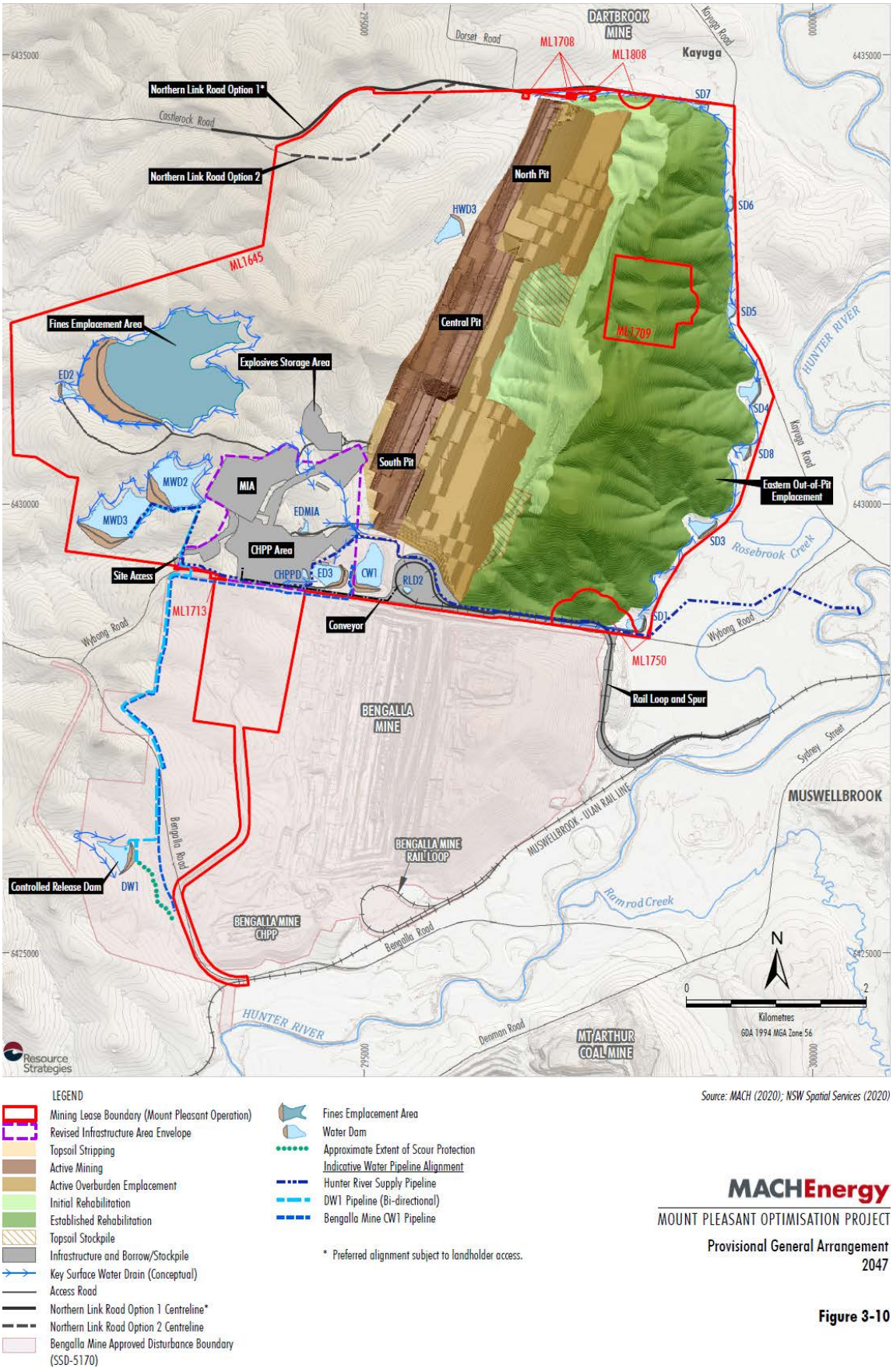
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MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2044

Figure 3-9

Figure 7: General Project Arrangement - 2044



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Initial Rehabilitation
- Established Rehabilitation
- Topsoil Stockpile
- Infrastructure and Borrow/Stockpile
- Key Surface Water Drain (Conceptual)
- Access Road
- Northern Link Road Option 1 Centreline*
- Northern Link Road Option 2 Centreline
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Fines Emplacement Area
- Water Dam
- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

MACHEnergy

MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2047

Figure 3-10

Figure 8: General Project Arrangement – 2047

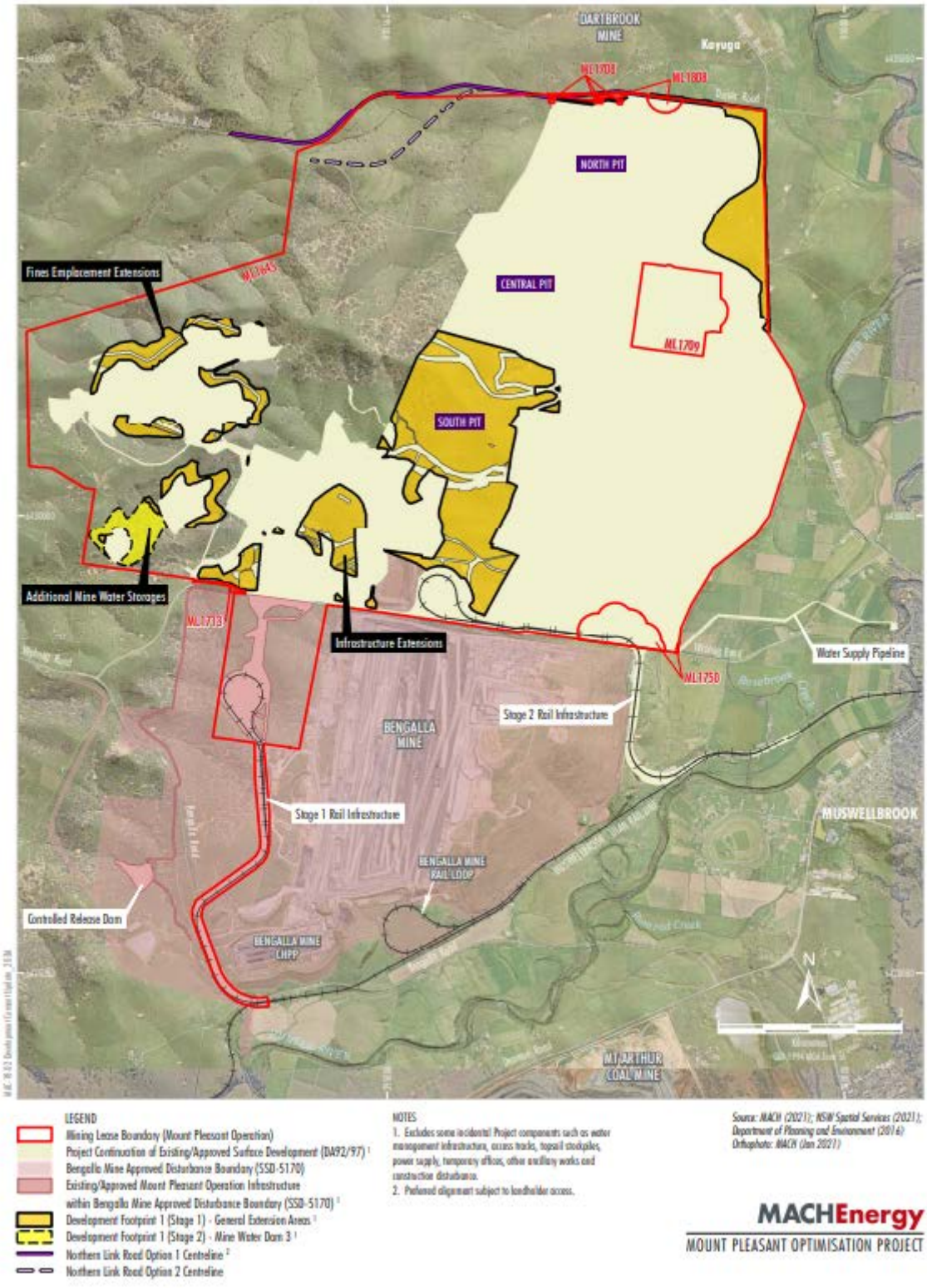


Figure 9: Staging of Project Disturbance Areas

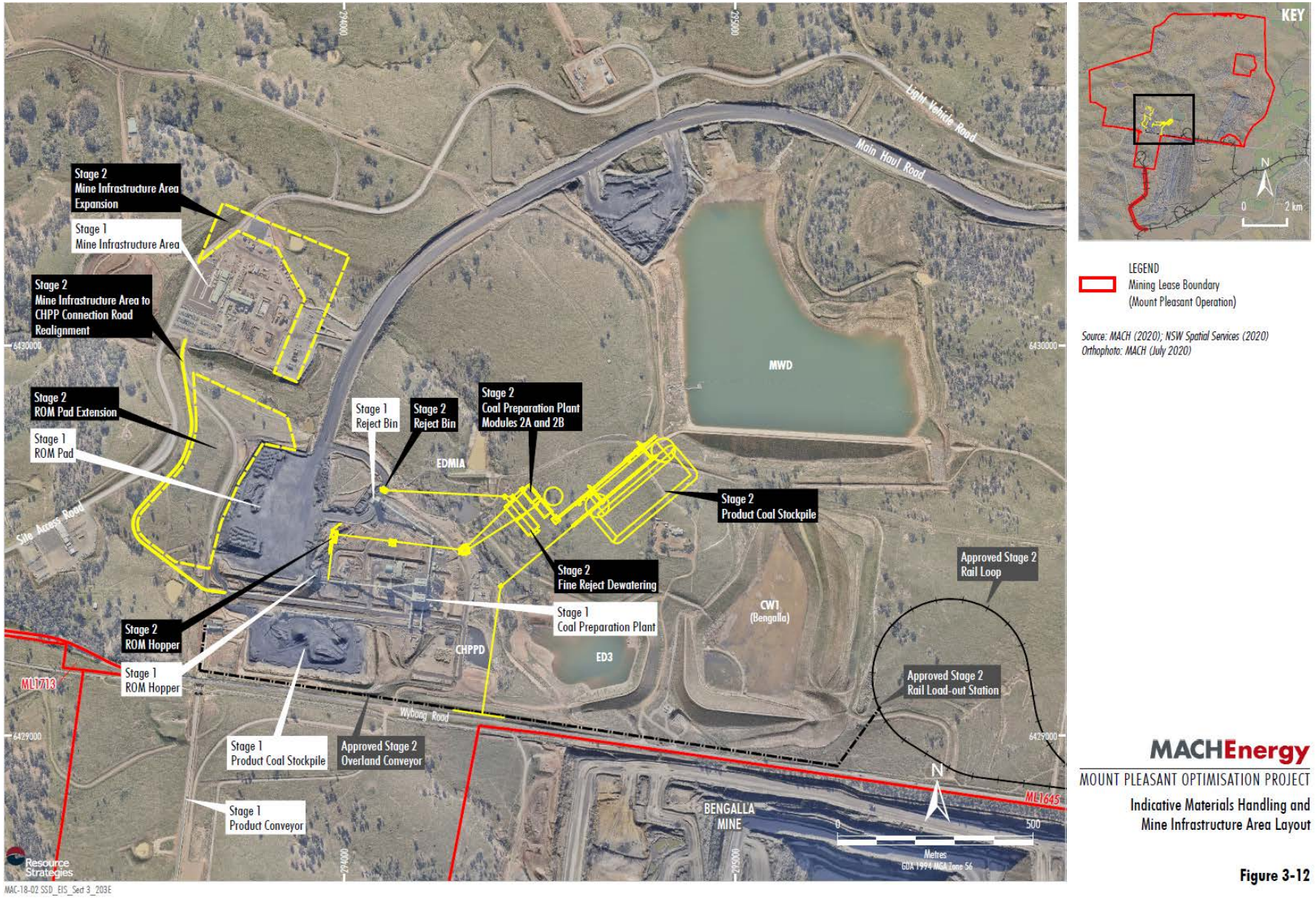


Figure 10: Indicative Mine Infrastructure Area Layout

ATTACHMENT 3

ENDORSEMENT OF ROMAN HAVERKAMP

Department of Planning and Environment

Our ref: SSD-10418-PA-10

Andrew Reid
Environmental Superintendent (Operations)
MACH Energy Australia Pty Ltd
PO Box 407
Newcastle, NSW, 2300

8/11/2023

Subject: **Mount Pleasant Optimisation Project (SSD-10418) - Endorsement of Noise and Blast Specialist**

Dear Mr. Reid,

I refer to your letter dated 18 October 2023 (SSD-10418-PA-10) requesting the Secretary's endorsement of suitably qualified and experienced person/s to prepare the Noise Management Plan and the Blast Management Plan.

Endorsement is sought for the author to prepare the Noise Management Plan in accordance with Condition B9(b) of Schedule 2, Part B and the Blast Management plan in accordance with Condition B24(b) of Schedule 2, Part B.

The Department has reviewed the nomination and information you have provided and is satisfied that Mr Roman Haverkamp from Rowan Williams Davies & Irwin Inc (RWDI) is suitably qualified and experienced. Consequently, I can advise that the Secretary endorses the appointment of Mr Roman Haverkamp to prepare the Noise Management Plan and the Blast Management Plan.

If you wish to discuss the matter further, please contact Scotney Moore on 02 9274 6342.

Yours sincerely

Wayne Jones
Team Leader - Post Approval
Resource Assessments

As nominee of the Planning Secretary

APPENDIX A

CONSULTEE FEEDBACK – KEY CORRESPONDENCE

Table A1
Consultation Comments from Nearby Mines

Nearby Mine	Comment Received
Bengalla Coal Mine	• Blast Management Plan provided on 24/09/2024. No comments received.
Mt Arthur Coal Mine	• Blast Management Plan provided on 24/09/2024. No comments received.
Dartbrook Mine	• Blast Management Plan provided on 24/09/2024. No comments received.
Mangoola Coal Mine	• Blast Management Plan provided on 24/09/2024. No comments received.

muswellbrook shire council

Enquiries
Please ask for Theresa Folpp
Direct 02 6549 3700
Our reference CM 24/59592

14 November 2024

Andrew Reid
Superintendent Environment (Operations)
MACH Energy

Dear Mr Reid

Mount Pleasant Optimisation – Muswellbrook Shire Council (Staff) comments on the Road Closure Management Plan (Revision 5)

The Mount Pleasant Operation (MPO) is currently operating under two separate development consents:

- Development Application (DA) 92/97; and
- State Significant Development (SSD) 10418.

A Blast Management Plan (BMP) has been prepared to satisfy the relevant conditions of both development consents. The Road Closure Management Plan (RCMP) has been prepared as a component of the BMP to satisfy the requirements of Condition 17(c), Schedule 3 of DA 92/97 (prior to its surrender) and Part B, Condition B24(f) of SSD 10418.

The RCMP v2 was approved by the Muswellbrook Shire Council (MSC) Local Traffic Committee on 16 May 2017. Staff have now received v5 of the document, which needs to be reported to the Local Traffic Committee for consideration, given it has been seven (7) years since the last review by the Committee and the fact that versions 3 and 4 were not reviewed by Staff.

The RCMP describes the management of blasting when being carried out within 500 metres (m) of a public road and associated traffic controls. Key public roads / lanes in the vicinity of the of the MPO and road closure control measures are outlined in Table 1.

Table 1: Public Roads and Road Closure Control Measures

Main Roads	Control Measures	Minor Roads / Lanes	Control Measures
Wybong Road (east)	Described in Section 9.3 of the RCMP along with a Traffic Control Plan	Overton Road	Signs will be installed at access to properties to temporarily block access to restricted areas during blasting.
Kayuga Road	As above	Skippens Road	As above
Castlerock Road	As above	Logues Lane	As above
Dorset Road	No blasting will be undertaken within 500 m of Dorset Road during the term of this RCMP.	Rosebrook Lane	As above
		Collins Lane	As above
		Wiltons Lane	As above
		Belgrave Road	As above
		Coal Creek Road	As above
		Lawries Lane	As above

As it is likely that Wybong Road and Kayuga Rd will be used in the future to allow the transport of more OSOM loads, Staff consulted with Transport for NSW (TfNSW) to gain feedback on the RCMP, with feedback being incorporated into this letter.

Road Classification

Section 7.2 of the RCMP states that MSC is the relevant roads authority for these roads. TfNSW are currently considering changing the classification of Wybong Road (east) and part of Kayuga Road from local to state roads as they may become are key transport routes for Over Size Over Mass (OSOM) vehicle movements to the New England Renewable Energy Zone.

TfNSW has stated that while there is an objective to ensure and future clarification change not adversely impact on existing mine operations:

> *There should be some recognition that these roads will see a change in function with the introduction of OSOM and Freight movements (at the moment the current commentary refers to some of these roads a 'back roads')…*

Interactions with Wind Turbine Blades and Other Large Loads

Specific roads identified within the RCMP are proposed to be used by various proponents for the transport of wind turbine blades to the New England Renewable Energy Zone. The number of blade movements per day and their timing are yet to be confirmed by TfNSW. However, it is understood that these movements will generally occur between 9:30 a.m. and noon.

Staff are concerned that if a road closure for blasting coincides with an OSOM movement, it could pose a safety and movement risks (including traffic congestion, confusion among road users, delays to emergency vehicles). There may also be the need for pilot vehicles to hold opposing traffic at a suitable location (the road closure location may not have sufficient width/road shoulder).

TfNSW staff have advised that the objective is for mine blasting to take precedence over blade movements.

TfNSW has stated:

> *The notice period* [for blast notices on Council's website] *is 1 week and if users sign up to the notifications they will be kept in the loop.*
>
> *Once the road is classified as state, it would be likely that MACH Energy will need to apply for Road Occupancy Licences. Via that process, the right information would be disseminated.*

To assist in communication, Staff request that the RCMP include additional notifications to TfNSW (and updates to the website) to notify when a blast will close the roads:

- In the Week Prior to Blasting (Section 9.3.4);
- The Working Day Before Blasting (Section 9.3.5); and
- The morning of Blasting (Section 9.3.6)

Traffic Data

TfNSW has stated:

> *Traffic data is reliant on 2015 numbers, are there more accurate numbers available?*

Since making that comment, TfNSW staff have advised that their own traffic counting devices installed on Bengalla Link Road are providing good information on traffic movements and peaks across 24hr periods, weekdays and weekends. Council staff have asked if this information can be made available to Council, in turn we would make this available to the mines that are dependent on the use of Bengalla Link Road

Has MACH Energy completed any recent traffic counts for Kayuga road in preparation for the road works in Dorset Road?

Blast Operating Conditions

Staff interpret Section 6.4 to mean that MACH Energy views the RCMP as the formal agreement permitting blasting within 500m of a public road, with ground vibrations exceeding 0.5 mm/s (and less than 50 mm/s).

Staff acknowledge the administrative burden involved in obtaining written agreement each time a blast is predicted to exceed 0.5 mm/s. Therefore, are satisfied with the RCMP serving as a formal agreement for such activities. However, it is understood that this allows MACH Energy to conduct blasting with ground vibrations up to 50 mm/s as frequently as necessary, within 500m of a public road.

Staff are concerned about the cumulative impact of ongoing blasting activities. Although MACH Energy is obligated to repair or bear the full cost of repairing any public infrastructure damaged because of their operations (as per Condition A27), the effects of repetitive blasting may not be immediately visible, and damage may not be attributable to a single blast event.

Is MACH Energy able to demonstrate that the cumulative blasting will not be an issue?

Others

1. Blasts requiring public road closures should not be conducted when adverse environmental conditions (or other prevailing conditions) make road closures hazardous.

   It is common practice at other mine sites to avoid road closures during adverse conditions. Road closures specifically, should not occur during foggy conditions where visibility of the road closure area is impacted.

2. Section 12, dot point 3 – Muswellbrook Shire Council should be consulted where there has been any damage to road infrastructure due to blasting.

3. Section 13.2 – a revision of the RCMP prior to any mining within 500 m of Dorset Road or the Northern Link Road, should be undertaken in consultation with MSC.

4. In relation to the Traffic Control Plan:

    a. Confirm Plan was prepared by a suitably qualified person (include certification);
    b. Add site distances between signs; and
    c. Installation of permanent signs will require a Section 138 permit.

Your feedback on these comments, or preferably an updated RCMP incorporating comments, would be appreciated by 22 November 2024 so that we can include in the agenda for 10 December 2024 Traffic Committee meeting.

Should you need to discuss the above, please contact Theresa Folpp, Environmental Planning Officer on 02 6549 3700 or email council@muswellbrook.nsw.gov.au.

Yours faithfully



Sharon Pope
Director Environment and Planning

<table>
<tr><th>Consultation Details</th><th>Comment Received from Muswellbrook Shire Council</th><th>Relevant Section in the RCMP</th><th>MACH Energy Response</th></tr>
<tr><td>Imelda Williams – Technical Officer (via email) – 18/11/2024</td><td>Having looked more closely at the plan there is reference in Section 7.2 “Public Roads” that MSC is the relevant roads authority for Skippens Road and Rosebrook Lane. This is no longer the case as both these roads have been closed and sold to MACH Energy. These 2 roads should be removed from this section and if needed included elsewhere. I can make a note of it in the report to that LTC if they are unable to make this additional change prior to resubmitting to Council.</td><td>Section 7.2</td><td>Section 7.2 has been updated to remove Skippens Road and Rosebrook Lane from the list (now MACH owned). Additionally, MACH owns part of Logues Lane. Section 7.2 has been updated to address these changes.</td></tr>
<tr><td>Sharon Pope – Director Environment and Planning (via email/letter) – 14/11/2024</td><td>The Mount Pleasant Operation (MPO) is currently operating under two separate development consents:
Development Application (DA) 92/97; and
State Significant Development (SSD) 10418.
A Blast Management Plan (BMP) has been prepared to satisfy the relevant conditions of both development consents. The Road Closure Management Plan (RCMP) has been prepared as a component of the BMP to satisfy the requirements of Condition 17(c), Schedule 3 of DA 92/97 (prior to its surrender) and Part B, Condition B24(f) of SSD 10418.
The RCMP v2 was approved by the Muswellbrook Shire Council (MSC) Local Traffic Committee on 16 May 2017. Staff have now received v5 of the document, which needs to be reported to the Local Traffic Committee for consideration, given it has been seven (7) years since the last review by the Committee and the fact that versions 3 and 4 were not reviewed by Staff.

The RCMP describes the management of blasting when being carried out within 500 metres (m) of a public road and associated traffic controls. Key public roads / lanes in the vicinity of the of the MPO and road closure control measures are outlined in Table 1.

Table 1: Public Roads and Road Closure Control Measures
<table><tr><th>Main Roads</th><th>Control Measures</th><th>Minor Roads/Lanes</th><th>Control Measures</th></tr></table></td><td>Section 7.2</td><td>Section 7.2 has been updated to include the following footnote in relation to Kayuga Road and Wybong Road:

Road may be reclassified to support the transport of wind turbine components to the New England Renewable Energy Zone.</td></tr>
</table>

<table>
<tr><th>Consultation Details</th><th>Comment Received from Muswellbrook Shire Council</th><th>Relevant Section in the RCMP</th><th>MACH Energy Response</th></tr>
<tr><td></td><td>
<table>
<tr><td>Wybong Road (east)</td><td>Described in Section 9.3 of the RCMP along with a Traffic Control Plan</td><td>Overton Road</td><td>Signs will be installed at access to properties to temporarily block access to restricted areas during blasting.</td></tr>
<tr><td>Kayuga Road</td><td>As above</td><td>Skippens Road</td><td>As above</td></tr>
<tr><td>Castlerock Road</td><td>As above</td><td>Logues Lane</td><td>As above</td></tr>
<tr><td>Dorset Road</td><td>No blasting will be undertaken within 500 m of Dorset Road during the term of this RCMP.</td><td>Rosebrook Lane</td><td>As above</td></tr>
<tr><td></td><td></td><td>Collins Lane</td><td>As above</td></tr>
<tr><td></td><td></td><td>Wiltons Lane</td><td>As above</td></tr>
<tr><td></td><td></td><td>Belgrave Road</td><td>As above</td></tr>
<tr><td></td><td></td><td>Coal Creek Road</td><td>As above</td></tr>
<tr><td></td><td></td><td>Lawries Lane</td><td>As above</td></tr>
</table>

As it is likely that Wybong Road and Kayuga Rd will be used in the future to allow the transport of more OSOM loads, Staff consulted with Transport for NSW (TfNSW) to gain feedback on the RCMP, with feedback being incorporated into this letter.</td><td></td><td></td></tr>
<tr><td></td><td>Road Classification

Section 7.2 of the RCMP states that MSC is the relevant roads authority for these roads. TfNSW are currently considering changing the classification of Wybong Road (east) and part of Kayuga Road from local to state roads as they may become are key transport routes for Over Size Over</td><td>Section 7.2</td><td>Section 7.2.5 has been added to include discussion surrounding the reclassification of local roads of key transport routes for the Over Size Over Mass (OSOM) vehicle movements to the New England Renewable Energy Zone.</td></tr>
</table>

Consultation Details	Comment Received from Muswellbrook Shire Council	Relevant Section in the RCMP	MACH Energy Response
	Mass (OSOM) vehicle movements to the New England Renewable Energy Zone. TfNSW has stated that while there is an objective to ensure and future clarification change not adversely impact on existing mine operations: *There should be some recognition that these roads will see a change in function with the introduction of OSOM and Freight movements (at the moment the current commentary refers to some of these roads a 'back roads')…*		Pending reclassification of Bengalla Road, Wybong Road and Kayuga Road, these changes will be captured in the MPO Traffic Management Plan and the RCMP
	Interactions with Wind Turbine Blades and Other Large Loads Specific roads identified within the RCMP are proposed to be used by various proponents for the transport of wind turbine blades to the New England Renewable Energy Zone. The number of blade movements per day and their timing are yet to be confirmed by TfNSW. However, it is understood that these movements will generally occur between 9:30 a.m. and noon. Staff are concerned that if a road closure for blasting coincides with an OSOM movement, it could pose a safety and movement risks (including traffic congestion, confusion among road users, delays to emergency vehicles). There may also be the need for pilot vehicles to hold opposing traffic at a suitable location (the road closure location may not have sufficient width/road shoulder). TfNSW staff have advised that the objective is for mine blasting to take precedence over blade movements. TfNSW has stated:	Section 9.2.4 and 9.3.4	Up-to-date information on the blasting schedule for residents will be made publicly available on MACH Energy's website: http://machenergyaustralia.com.au/ MACH Energy will also inform the MSC of blast notices for placement on the MSC website: http://www.muswellbrook.nsw.gov.au/index.php/blasting/blasting-announcements. TfNSW can subscribe to receive pre-blast notification through the registration of contact details via the pre-blast notification register (Section 9.2.4). Section 9.3.4 has been updated to include that in the week prior to the blasting event, MACH Energy will liaise with MSC and TfNSW to take into account the management of oversize and overmass vehicles at relevant roads in close proximity to the blasting event and forecast the movement and closure of the relevant road.

Consultation Details	Comment Received from Muswellbrook Shire Council	Relevant Section in the RCMP	MACH Energy Response
	The notice period [for blast notices on Council's website] is 1 week and if users sign up to the notifications they will be kept in the loop. *Once the road is classified as state, it would be likely that MACH Energy will need to apply for Road Occupancy Licences. Via that process, the right information would be disseminated.* To assist in communication, Staff request that the RCMP include additional notifications to TfNSW (and updates to the website) to notify when a blast will close the roads: • In the Week Prior to Blasting (Section 9.3.4); • The Working Day Before Blasting (Section 9.3.5); and • The morning of Blasting (Section 9.3.6)		
	Traffic Data TfNSW has stated: *Traffic data is reliant on 2015 numbers, are there more accurate numbers available?* Since making that comment, TfNSW staff have advised that their own traffic counting devices installed on Bengalla Link Road are providing good information on traffic movements and peaks across 24hr periods, weekdays and weekends. Council staff have asked if this information can be made available to Council, in turn we would make this available to the mines that are dependent on the use of Bengalla Link Road. Has MACH Energy completed any recent traffic counts for Kayuga road in preparation for the road works in Dorset Road?	-	Traffic counts were not undertaken on Kayuga Road, the counts were only specific to Dorset Road and Castlerock Road. These traffic counts were undertaken in August 2023. MACH Energy will provide these traffic counts to MSC, along with this reconciliation table.
	Blast Operating Conditions Staff interpret Section 6.4 to mean that MACH Energy views the RCMP as the formal agreement permitting blasting within	Section 6.3	This RCMP, once endorsed by MSC, provides formal agreement permitting blasting within 500 m of a public road, within ground vibrations exceeding 0.5 mm/s (and less than 50 mm/s), in

Consultation Details	Comment Received from Muswellbrook Shire Council	Relevant Section in the RCMP	MACH Energy Response
	500m of a public road, with ground vibrations exceeding 0.5 mm/s (and less than 50 mm/s). Staff acknowledge the administrative burden involved in obtaining written agreement each time a blast is predicted to exceed 0.5 mm/s. Therefore, are satisfied with the RCMP serving as a formal agreement for such activities. However, it is understood that this allows MACH Energy to conduct blasting with ground vibrations up to 50 mm/s as frequently as necessary, within 500m of a public road. Staff are concerned about the cumulative impact of ongoing blasting activities. Although MACH Energy is obligated to repair or bear the full cost of repairing any public infrastructure damaged because of their operations (as per Condition A27), the effects of repetitive blasting may not be immediately visible, and damage may not be attributable to a single blast event. Is MACH Energy able to demonstrate that the cumulative blasting will not be an issue?		accordance with Part B, Condition B23 of Development Consent SSD 10418. This has been added to Section 6.3 In accordance with Part B, Condition B15 of Development Consent SSD 10418, MACH Energy may carry out a maximum of: (a) 2 single blast events a day; and (b) 8 single blast events a week, averaged over a calendar year. In accordance with Part B, Condition B16 of Development Consent SSD 10418, Condition B15 does not apply to a single blast event that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blast misfires or blasts required to ensure the safety of the mine, its workers or the general public. *[a] Within conditions B15 and B16, 'single blast event' means a blast which involves either a single detonation or a number of individual blasts fired in quick succession in a discrete area of the development. Should an additional blast be required after a blast misfire, this additional blast and the blast misfire are counted as a single blast event.* Blasting frequency in accordance with Development Consent SSD 10418 is included in Section 6.3 of the RCMP. Section 9.2.3 discusses the coordination of blasting with nearby mines to minimise cumulative impacts. A communications protocol has been developed with nearby mines (including Bengalla Mine) so that cumulative impacts from simultaneous blast events are minimised. The protocol involves communications (via email, fax or telephone) to be sent and received prior to each blast, and where there is potential for blast events to occur concurrently, for the blast times to be re-scheduled, where practical. Minimising the cumulative impacts of the MPO on the surrounding area would also be achieved, for example, through review of blast schedules for nearby mines (including Bengalla

Consultation Details	Comment Received from Muswellbrook Shire Council	Relevant Section in the RCMP	MACH Energy Response
			Mine) and coordinating blast times so that back-to-back closures of public roads are avoided, where practical.
	Others 1. Blasts requiring public road closures should not be conducted when adverse environmental conditions (or other prevailing conditions) make road closures hazardous. It is common practice at other mine sites to avoid road closures during adverse conditions. Road closures specifically, should not occur during foggy conditions where visibility of the road closure area is impacted.	Section 9.2.2 and 9.3.5	Section 9.2.2 includes the following: *Blasting will not be undertaken during adverse weather conditions without the prior approval of the Environmental Superintendent (or delegate).* Additionally, the following is included in Section 9.3.5: *Blasting will not occur within 500 m of a road when adverse environmental conditions (or other prevailing conditions) make road closures hazardous.* Section 9.3.5 has been updated to add more detail relating to foggy conditions and impacted visibility.
	2. Section 12, dot point 3 – Muswellbrook Shire Council should be consulted where there has been any damage to road infrastructure due to blasting.	Section 12	Section 12 has been updated to address this comment.
	3. Section 13.2 – a revision of the RCMP prior to any mining within 500 m of Dorset Road or the Northern Link Road, should be undertaken in consultation with MSC.	Section 13	Section 13 has been updated to address this comment.
	4. In relation to the Traffic Control Plan: a. Confirm Plan was prepared by a suitably qualified person (include certification); b. Add site distances between signs; and c. Installation of permanent signs will require a Section 138 permit.	Appendix A and B	a. Appendix A and Appendix B was previously prepared (and approved) in consultation with MSC (Imelda Williams and Peter J. Higgins) in 2017. No major changes (only the pit extent) were made to this version of the traffic control plans contained in Appendix A and B, in comparison to the 2017 version. As noted on Appendix A and Appendix B, these layouts are indicative only. b. Site distances are included on the Traffic Control Plan, noting that sign spacing is the same for both directions. c. This has been included in the main text of the RCMP (Section 9.3.7).

MINUTES OF THE LOCAL TRAFFIC COMMITTEE MEETING OF THE MUSWELLBROOK SHIRE COUNCIL HELD VIA TEAMS/THE LOXTON ROOM, ADMINISTRATION CENTRE, 60-82 BRIDGE STREET, MUSWELLBROOK VIA TEAMS ON 10 DECEMBER 2024 COMMENCING AT 2:06pm

PRESENT: Cr D. Marshall (Chair), Cr D. Hartley (Alt Rep), Ms K. Scholes, Mr M. Kelly, Snr. Const. G. Hopkins and Ms W. Wallace (TfNSW).

IN ATTENDANCE: Mrs I. Williams, Ms N. Butt, Ms M. Crooks, Mr P. Chambers, Mr A. Le

1 Acknowledgement of Country

The Acknowledgement of Country was read by Cr D. Marshall.

2 Apologies

Nil

3 Confirmation of Minutes of Previous Meeting

RECOMMENDED on the motion of Ms K. Scholes and Mr M Kelly that:

The Minutes of the Local Traffic Committee Meeting held on **12 November, 2024**, a copy of which has been distributed to all members, be taken as read and confirmed as a true record.

4 Disclosure of Any Pecuniary and Non-Pecuniary Interests

Cr Hartley - Declared a pecuniaryinterest in Item 6.1 - Cr Hartley advised the Committee that he is employed by MACH Energy.

5 Business Arising

Line Marking Market Street

Cr Marshall advised the committee that he was still not satisfied that the line marking in Market Street can accommodate the passing of two buses.

Ms Scholes advised the meeting that TfNSW had been requested to undertake a road safety audit on Market Street where this issue would be investigated.

Load Limit Signage

Sen Const. G Hopkins advised the Committee that the load limit signage on some of the local roads were not correct.

Ms Scholes advised that staff had investigated and the signs had been ordered and were due for replacement early in the new year.

6 Business

6.1 MACH Energy Mt Pleasant Operations Road Closure Management Plan when Blasting within 500m of a Public Road

Disclosure of Interest

Cr Hartley declared a pecuniary interest in this item. Cr Hartley advised the Committee that he is employed by MACH Energy.

Cr Hartley left the meeting at 2.10pm and therefore took no part in discussion or voting on this matter

RECOMMENDED:

That Council use its delegate authority to approve the MACH Energy Mount Pleasant Road Closure Management Plan for Blasting within 500m of a public road as attached to this report.

VOTE: Unanimous Support

Cr Hartley returned to the meeting.

6.2 DA 2024-60 Pacific Brook Christian School

RECOMMENDED that the item be deferred until February to allow TfNSW to further investigate matter and to consider the impact of the development on the New England Highway as TfNSW would be the roads authority to sign off on the linemarking and signage on State Roads.

VOTE: Unanimous Support

GENERAL BUSINESS:

Bureen Road/ Martindale Road Intersection

Cr Hartley requested that the intersection of Bureen Road and Martindale Road be investigated.

The meeting was advised that this matter had previously been submitted to the Committee for consideration where it was recommended that centre double barrier line marking and Give Way Hold lines be line marked on the road. The Committee was also advised that a request will be raised for the linemarking to be refreshed at this location.

Speed Limit - Approach to Muswellbrook

Snr Const. Hopkins requested if the speed limit on the southern approach to Muswellbrook had been considered for review?

Ms Walker (TfNSW) advised that there would be no speed zone review, however there will be a town entry statement considered for the site.

Ms Scholes advised the Committee that a previous design had been undertaken for the town entry and would provide the design to TfNSW to consider as part of the proposal.

Maitland Street Potholes

The Committee was advised that the potholes along Maitland Street were also starting to open up again.

The Committee was also advised that a request would be sent to TfNSW to arrange for them to be filled or for heavy patching to be undertaken.

7 Closed Committee

Nil

8 Date of Next Meeting

11 February, 2025

9 Closure

The meeting was declared closed at 2:50pm.

.....
Cr. D. Marshall .
CHAIR

11. Minutes of Committee Meetings

11.1. Local Traffic Committee Minutes - 12/11/2024

139 RESOLVED on the motion of Cr D. Marshall and Cr C. Bailey that:

The Minutes of the Local Traffic Committee Meeting held on 12 November 2024 be NOTED and the recommendations contained therein be ADOPTED.

In Favour Cr C. Bailey, Cr A. Barry, Cr J. Drayton, Cr L. Dunn, Cr D. Hartley, Cr G. McNeill, Cr D. Marshall, Cr M. Morris, Cr R. Scholes and Cr S. Ward

Against: Nil

11.2. Local Traffic Committee Minutes - 10/12/2024

140 RESOLVED on the motion of Cr D. Marshall and Cr M. Morris that:

The Minutes of the Local Traffic Committee Meeting held on 10 December 2024 be NOTED and the recommendations contained therein ADOPTED.

In Favour Cr C. Bailey, Cr A. Barry, Cr J. Drayton, Cr L. Dunn, Cr D. Hartley, Cr G. McNeill, Cr D. Marshall, Cr M. Morris, Cr R. Scholes and Cr S. Ward

Against: Nil

11.3. Australia Day Nomination Committee - 10/12/2024

141 RESOLVED on the motion of Cr M. Morris and Cr A. Barry that:

Council NOTES the minutes of the meeting of the Australia Day Committee held on 10 December, 2024 and ADOPTS the recommendations contained therein.

In Favour Cr C. Bailey, Cr A. Barry, Cr J. Drayton, Cr L. Dunn, Cr D. Hartley, Cr G. McNeill, Cr D. Marshall, Cr M. Morris, Cr R. Scholes and Cr S. Ward

Against: Nil

12. Notices of Motion

Nil

13. Councillors Reports

13.1 Martindale Public School Presentation Day

Cr Marshall advised Council that he attended the Martindale Public School Christmas Party / Presentation Day recently.

APPENDIX B

BLAST RELATED DEVELOPMENT CONSENT DA 92/97 CONDITIONS

Table B1
Blast Related Development Consent DA 92/97 Conditions

<table>
<tr><th>Development Consent DA 92/97</th><th>BMP Section</th></tr>
<tr><td colspan="2">Schedule 3</td></tr>
<tr><td>Blast Management Plan
17. The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must:
(a) be submitted to the Secretary for approval prior to carrying out any blasting on site;
(b) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent;
(c) include a road closure management plan, prepared in consultation with Council;
(d) include a blast monitoring program for evaluating compliance with the relevant conditions of approval; and
(e) include a protocol that has been prepared in consultation with the owners of nearby mines (including the Bengalla mine) for minimising and managing cumulative blasting impacts of the mines.
The Applicant must implement the management plan as approved by the Secretary.</td><td>This document (refer Table 1)</td></tr>
<tr><td>Blasting Criteria
10. The Applicant must ensure that the blasting on the site does not cause exceedances of the criteria in Table 7.
Table 7: Blasting Criteria
<table>
<tr><th>Location</th><th>Airblast overpressure (dB(Lin Peak))</th><th>Ground vibration (mm/s)</th><th>Allowable exceedance</th></tr>
<tr><td rowspan="2">Residence on privately owned land</td><td>120</td><td>10</td><td>0%</td></tr>
<tr><td>115</td><td>5</td><td>5% of the total number of blasts over a period of 12 months</td></tr>
<tr><td>Historic heritage sites</td><td>-</td><td>10</td><td>0%</td></tr>
<tr><td>All public infrastructure</td><td>-</td><td>50</td><td>0%</td></tr>
</table>
However, these criteria do not apply if the Applicant has a written agreement with the relevant owner or infrastructure provider/owner, and the Applicant has advised the Department in writing of the terms of this agreement.</td><td>Section 3.1 (refer Table 5)</td></tr>
<tr><td>Blasting Hours
11. The Applicant must only carry out blasting on site between 9am and 5pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Secretary.</td><td>Section 4.2</td></tr>
<tr><td>Blasting Frequency
12. Unless otherwise agreed by the Secretary, the Applicant may carry out a maximum of:
(a) 1 blast a day; and
(b) 5 blasts a week, averaged over any calendar year;
for the development.
This condition does not apply to blasts that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blasts required to ensure the safety of the mine or its workers.
Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.</td><td>Section 4.3</td></tr>
</table>

Table B1 (Continued)
Blast Related Development Consent DA 92/97 Conditions

Development Consent DA 92/97	BMP Section
Schedule 3 (Continued)	
Property Inspections 13. If the Applicant receives a written request from the owner of any privately-owned land within 2 kilometres of the approved open cut mining pit/s on site, for a property inspection to establish the baseline condition of any buildings and/or structures on his/her land, or to have a previous property inspection report updated, then within 2 months of receiving this request the Applicant must: (c) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to: • establish the baseline condition of the buildings and/or structures on the land, or update the previous property inspection report; • identify any measures that should be implemented to minimise the potential blasting impacts of the development on these buildings and/or structures; and (d) give the landowner a copy of the new or updated property inspection report. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the property inspection report, either party may refer to the Secretary for resolution.	Section 7.2.1
Property Investigations 14. If the owner of any privately-owned land claims that the buildings and/or structures on his/her land have been damaged as a result of blasting on site, then within 2 months of receiving this claim the Applicant must: (a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to investigate the claim; and (b) give the landowner a copy of the property investigation report. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the property investigation report, either party may refer to the Secretary for resolution. If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damages to the satisfaction of the Secretary. If the Applicant or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Secretary for resolution.	Section 7.2.1
Blast Operating Conditions 15. The Applicant must: (a) implement best blasting management practice on site to: • protect the safety of people and livestock in the surrounding area; • protect public or private infrastructure/property in the surrounding area; • minimise the dust and fume emissions of the blasting on site; and • minimise blasting impacts on heritage items in the vicinity of the site; (b) co-ordinate the blasting on site with the blasting at nearby mines (including the Bengalla mine) to minimise the cumulative blasting impacts of the mines; and (c) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site, to the satisfaction of the Secretary.	Section 7 Section 7.5.3 Section 7.5.4

Table B1 (Continued)
Blast Related Development Consent DA 92/97 Conditions

Development Consent DA 92/97	BMP Section
Schedule 3 (Continued)	
16. The Applicant must not undertake blasting within 500 metres of: (a) a public road without the approval of Council; and (b) any land outside the site not owned by the Applicant, unless: • the Applicant has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Applicant has advised the Department in writing of the terms of this agreement, or • the Applicant has: – demonstrated to the satisfaction of the Secretary that the blasting can be carried out closer to the land without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and – updated the Blast Management Plan to include the specific measures that would be implemented while blasting is being carried out within 500 metres of the land.	Section 7.1.1 and Appendix D Section 7.1.2
Aboriginal Heritage Management Plan 36. The Applicant must prepare a Aboriginal Heritage Management Plan for the development to the satisfaction of the Secretary. This plan must: … (c) include: • … • a description of the measures that would be implemented to: – … – minimise the blasting impacts of the development on Aboriginal objects in the vicinity of the site; …	Section 7.4.1 (and refer to separate Aboriginal Heritage Management Plan)
Schedule 4	
NOTIFICATION OF LANDOWNERS 1. By the end of December 2011, the Applicant must: (a) notify in writing the owners of: • … • any privately-owned land within 2 kilometres of the approved open cut mining pit on the site that they are entitled to ask for an inspection to establish the baseline condition of any buildings and/or structures on their land, or to have a previous property inspection updated; and …	Section 7.2.1
2. As soon as practicable after obtaining monitoring results showing: (a) exceedance of the relevant criteria in Schedule 3, the Applicant must notify the affected landowner and tenants in writing of the exceedance, and provide regular monitoring results to each of these parties until the development is complying with the relevant criteria again; …	Section 9.1

APPENDIX C

BLAST RELATED DEVELOPMENT CONSENT SSD 10418 CONDITIONS

Table C1
Blast Related Development Consent SSD 10418 Conditions

<table>
<tr><th>Development Consent SSD 10418</th><th>BMP Section</th></tr>
<tr><td colspan="2">Part B</td></tr>
<tr><td>Blasting Criteria
B12. The Applicant must ensure that blasting on the site does not cause exceedances of the criteria at the locations in Table 2.
Table 2: Blasting criteria
<table>
<tr><th>Location</th><th>Airblast overpressure (dB(Lin Peak))</th><th>Ground vibration (mm/s)</th><th>Allowable exceedance</th></tr>
<tr><td rowspan="2">Residence on privately owned land[a]</td><td>120</td><td>10</td><td>0%</td></tr>
<tr><td>115</td><td>5</td><td>5% of the total number of blasts over a period of 12 months</td></tr>
<tr><td>Mine-owned residence</td><td>-</td><td>10</td><td>0%</td></tr>
<tr><td>Historic heritage sites[b]</td><td>-</td><td>10</td><td>0%</td></tr>
<tr><td>Other public infrastructure</td><td>-</td><td>50 (or a limit determined by the structural design methodology in AS 2187.2 - 2006, or its latest version)</td><td>0%</td></tr>
</table>
[a]The locations referred to in Table 2 are shown in Appendix 3.
[b]These limits do not apply to historic heritage sites located within the approved disturbance area.

B13. The blasting criteria in Table 2 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or infrastructure to exceed the blasting criteria, and the Applicant has advised the Department in writing of the terms of this agreement.</td><td>Section 3.2</td></tr>
<tr><td>Blasting Hours
B14. The Applicant must only carry out blasting for the development between 9.00 am and 5.00 pm (Monday to Saturday inclusive). No blasting is allowed on Sundays, public holidays or any other time without the prior written approval of the Planning Secretary.</td><td>Section 4.2</td></tr>
<tr><td>Blasting Frequency
B15. The Applicant may carry out a maximum of:
(a) 2 single blast events[a] a day; and
(b) 8 single blast events[a] a week, averaged over a calendar year.

B16. Condition B15 does not apply to single blast events[a] that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blast misfires or blasts required to ensure the safety of the mine, its workers or the general public.

[a]Within conditions B15 and B16, 'single blast event' means a blast which involves either a single detonation or a number of individual blasts fired in quick succession in a discrete area of the development. Should an additional blast be required after a blast misfire, this additional blast and the blast misfire are counted as a single blast event.</td><td>Section 4.3</td></tr>
<tr><td>Property Inspection
B17. If the Applicant receives a written request from the owner of any privately-owned land within 3 kilometres of any active open cut mining pit on the site, or any other landowner where the Planning Secretary is satisfied an inspection is warranted, for a property inspection to establish the baseline condition of any buildings and structures on their land, or to have a previous property inspection updated, then within two months of receiving this request (or, in the case of a request for an inspection outside the 3 kilometres, within two months of receiving notice that the Planning Secretary is satisfied that an inspection is warranted) the Applicant must:
(a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to:
(i) establish the baseline condition of any buildings and other structures on the land, or update the previous property inspection report; and</td><td>Section 4.4 and 7.2.1.</td></tr>
</table>

Development Consent SSD 10418	BMP Section
(ii) identify measures that should be implemented to minimise the potential blasting impacts of the development on these buildings and structures; and (b) give the landowner a copy of the new or updated property inspection report. B18. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the property inspection report, either party may refer the matter to the Planning Secretary for resolution.	
Property Investigation B19. If the owner of any privately-owned land within 3 kilometres of any active open cut mining pit on the site or any other landowner where the Planning Secretary is satisfied an investigation is warranted, claims in writing that buildings or structures on their land have been damaged as a result of blasting on the site, then within two months of receiving this written claim (or, in the case of a request for an inspection outside the 3 kilometres, within two months of receiving notice that the Planning Secretary is satisfied that an inspection is warranted) the Applicant must: (a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to investigate the claim; and (b) give the landowner a copy of the property investigation report. B20. If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damage to the satisfaction of the Planning Secretary. B21. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Planning Secretary for resolution.	Section 4.4 and 7.2.1
Blast Operating Conditions B22. The Applicant must: (a) take all reasonable steps to: (i) ensure the safety of people and livestock from blasting impacts of the development; (ii) protect public and private infrastructure and property in the vicinity of the site from blasting damage associated with the development; and (ii) minimise blast-related dust and fume emissions; (b) ensure that blasting on the site does not damage heritage items (outside the approved disturbance area – see Appendix 5), and develop specific measures to protect heritage items from any blasting damage associated with the development; (c) minimise the frequency and duration of any public road closures for blasting, and use all reasonable efforts to avoid road closures during peak traffic periods; (d) operate a comprehensive blast management system that uses a combination of meteorological forecasts and predictive blast modelling to guide the planning of blasts to minimise blasting impacts; (e) operate a suitable system to enable interested members of the public to get up-to-date information on the proposed blasting schedule on the site and any associated road closures, including notification via SMS message of the blasting schedule and associated road closures for that day and any variations to that schedule and closures; (f) use all reasonable efforts to co-ordinate the timing of blasting at the site with any nearby mines to minimise cumulative blasting impacts; and (g) carry out regular blast monitoring to determine whether the development is complying with the relevant conditions of this consent. B23. The Applicant must not undertake blasting on the site within 500 metres of any public road or any land outside the site not owned by the Applicant, unless the blast generates ground vibration of 0.5 mm/s or less at that location, or the Applicant has: (a) a written agreement with the relevant infrastructure owner or landowner to allow blasting to be carried out closer to the public road or land, and the Applicant has advised the Department in writing of the terms of this agreement; or	Section 4.5

Development Consent SSD 10418	BMP Section
(b) demonstrated, to the satisfaction of the Planning Secretary, that the blasting can be carried out closer to the public road or land without compromising the safety of people or livestock or damaging the road or other buildings and structures, and updated the Blast Management Plan to include specific mitigation measures to be implemented while blasting is being carried out within 500 metres of the road or land.	
Blast Management Plan B24. The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Planning Secretary. The plan must: (a) be submitted for approval within six months of the commencement of development under this consent; (b) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary; (c) be prepared in consultation with the EPA; (d) describe the blast management system and the measures that will be implemented to ensure compliance with the blasting criteria and conditions of this consent; (e) include a Blast Fume Management Strategy for: (i) minimising blast fume emissions; (ii) rating and recording blast fume events; and (iii) reporting significant blast fume events to the Department and the EPA; (f) include a Road Closure Management Plan for any blasting within 500 metres of a public road, that has been prepared in consultation with relevant roads authorities and includes provisions for: (i) minimising the duration of closures, both on a per event basis and weekly basis; (ii) avoiding closures during peak traffic periods as far as reasonable; and (iii) using reasonable efforts to co-ordinate closures with nearby mines to minimise the cumulative effect of road closures; (g) identify any agreed alternative ground vibration limits for public or private infrastructure in the vicinity of the site (if relevant); (h) include a strategy to manage potential blast interactions with nearby mines; (i) include a strategy to monitor, mitigate and manage the effects of blasting on heritage items, including details of baseline (i.e. pre-blasting) and ongoing risk-based dilapidation surveys (subject to landowner access arrangements); (j) include a monitoring program for evaluating and reporting on compliance with the relevant conditions of this consent (including but not limited to condition B22(b)); (k) include a protocol for identifying any blast-related exceedance, incident or non-compliance and for notifying the Department, the EPA and relevant stakeholders of these events; (l) include public notification procedures to enable members of the public, particularly surrounding residents, to get up-to-date information on the proposed blasting schedule; and (m) include a protocol for investigating and responding to blast-related complaints. B25. The Applicant must not undertake any blasting north of Castlerock Road until the Blast Management Plan is approved by the Planning Secretary. B26. The Applicant must implement the Blast Management Plan as approved by the Planning Secretary.	This document (refer Table 3)
Historic Heritage Management Plan B73. The Applicant must prepare a Historic Heritage Management Plan for the development, in respect of all non-Aboriginal cultural heritage items, to the satisfaction of the Planning Secretary. This plan must: … (g) include a program to monitor the effects of blasting on heritage items (including but not limited to Kayuga Cemetery) located outside of the approved disturbance area; …	Section 7.4.2.

Development Consent SSD 10418	BMP Section
Part C	
Notification of Landholders/Tenants C5. Within one month of the commencement of development under this consent, the Applicant must: (a) notify in writing the owner of: … (iii) any privately-owned land within 3 kilometres of the approved open cut mining pit/s that they are entitled to ask the Applicant for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated; …	Section 7.2.1
Notification of Exceedances C7. As soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise, blasting or air quality criterion in PART B of this consent, the Applicant must provide the details of the exceedance to any affected landowners, tenants and the CCC.	Section 9
Independent Review C9. If a landowner considers the development to be exceeding any relevant noise, blasting or air quality criterion in PART B of this consent, they may ask the Planning Secretary in writing for an independent review of the impacts of the development on their residence or land. C10. If the Planning Secretary is not satisfied that an independent review is warranted, the Planning Secretary will notify the landowner in writing of that decision, and the reasons for that decision, within 21 days of the request for a review. C11. If the Planning Secretary is satisfied that an independent review is warranted, within three months of the Planning Secretary's decision, the Applicant must: (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to: (i) consult with the landowner to determine their concerns; (ii) conduct monitoring to determine whether the development is complying with the relevant criterion in PART B of this consent; and (iii) if the development is not complying with the relevant criterion, identify measures that could be implemented to ensure compliance with the relevant criterion; (b) give the Planning Secretary and landowner a copy of the independent review; and (c) comply with any written requests made by the Planning Secretary to implement any findings of the review.	Section 9
Part D	
Monitoring and Environmental Audits D16. For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development. Noise, blast and/or air quality monitoring under this consent may be undertaken at suitable representative monitoring locations instead of at privately-owned residences or other locations listed in Part B, providing that these representative monitoring locations are set out in the respective management plan/s.	Noted.

APPENDIX D

ROAD CLOSURE MANAGEMENT PLAN

MACHEnergy

MOUNT PLEASANT OPERATION

ROAD CLOSURE MANAGEMENT PLAN

(For Blast Events)

Document ID:	01246769		
Company:	MACH Energy Australia Pty Ltd		
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1 INTRODUCTION

The Mount Pleasant Operation (MPO) is located in the Upper Hunter Valley of New South Wales (NSW), approximately 3 kilometres (km) north-west of Muswellbrook and approximately 50 km north-west of Singleton (Figure 1). The village of Aberdeen and locality of Kayuga are also located approximately 5 km north-northeast and 1 km north of the MPO boundary, respectively (Figure 1). The proponent of the MPO is MACH Energy Australia Pty Ltd (MACH Energy), which purchased the MPO from Coal & Allied Operations Pty Ltd (Coal & Allied) in 2016.

The initial development application for the MPO was made in 1997. This was supported by an Environmental Impact Statement (EIS) prepared by Environmental Resources Management (ERM) Mitchell McCotter (ERM Mitchell McCotter, 1997). On 22 December 1999, the then Minister for Urban Affairs and Planning granted Development Consent DA 92/97 to Coal & Allied. This allowed for the "Construction and operation of an open cut coal mine, coal preparation plant, transport and rail loading facilities and associated facilities" at the MPO. The consent allowed for operations 24 hours per day seven days per week and the extraction of 197 million tonnes (Mt) of run-of-mine (ROM) coal over a 21 year period, at a rate of up to 10.5 Mt of ROM coal per year.

The Mount Pleasant Project Modification (MOD 1) was submitted on 19 May 2010 with a supporting Environmental Assessment (EA) prepared by EMGA Mitchell McLennan (EMGA Mitchell McLennan, 2010). MOD 1 included the provision of an infrastructure envelope for siting the mine infrastructure, the provision of an optional conveyor/service corridor linking the MPO facilities with the Muswellbrook-Ulan Rail Line and modification of the existing Development Consent DA 92/97 boundaries to accommodate the optional conveyor/service corridor and minor administrative changes. MOD 1 was approved on 19 September 2011.

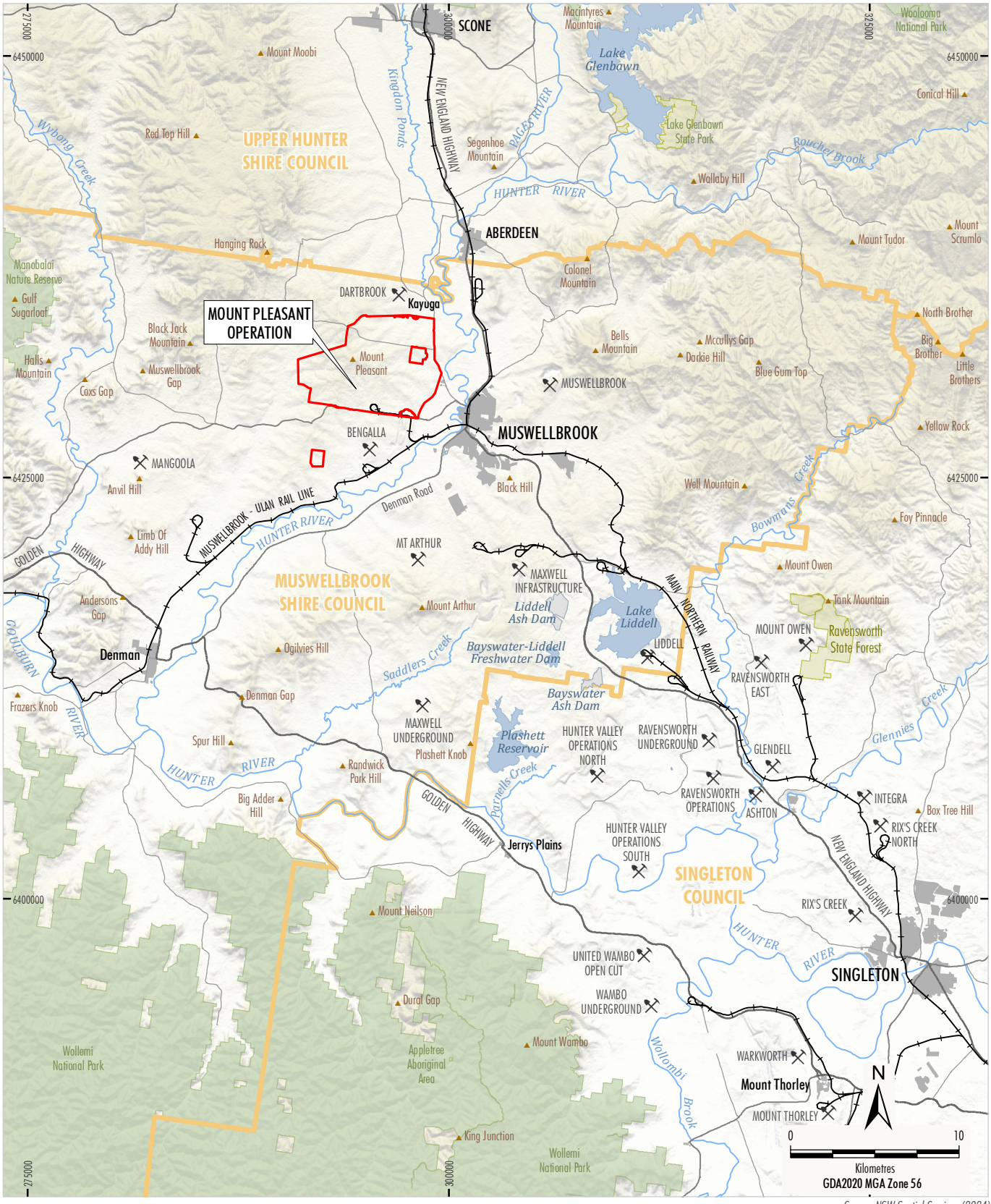
The MPO South Pit Haul Road Modification (MOD 2) was submitted on 30 January 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017a). MOD 2 proposed to realign an internal haul road to enable more efficient access to the South Pit open cut, with no other material changes to the approved MPO. MOD 2 was approved on 29 March 2017.

The MPO Mine Optimisation Modification (MOD 3) was submitted on 31 May 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017b). MOD 3 comprised an extension to the time limit on mining operations (to 22 December 2026) and extensions to the South Pit Eastern Out of Pit Emplacement to facilitate development of an improved final landform. MOD 3 was approved on 24 August 2018.

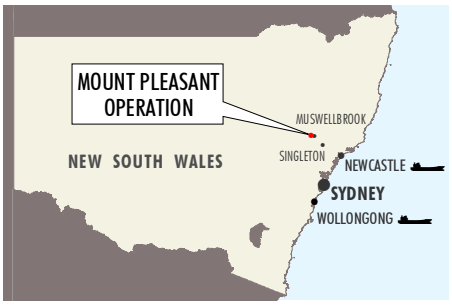
The MPO Rail Modification (MOD 4) was submitted on 18 December 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017c). MOD 4 proposed the following changes:

- duplication of the approved rail spur, rail loop, conveyor and rail load-out facility and associated services;
- duplication of the Hunter River water supply pump station, water pipeline and associated electricity supply that followed the original rail spur alignment; and
- demolition and removal of the redundant approved infrastructure within the extent of the Bengalla Mine, once the new rail, product loading and water supply infrastructure has been commissioned and is fully operational.

MOD 4 was approved on 16 November 2018 by the Secretary of the Department of Planning and Environment (DPE) (under Delegation). Appendix 2 of the modified Development Consent DA 92/97 illustrates the Conceptual Project Layout Plan of the approved MPO at 2021 and 2025, Approved Surface Disturbance Plan and Conceptual Final Landform (Attachment 1) incorporating the MOD 4 infrastructure relocations.



Source: NSW Spatial Services (2024)



LEGEND

- Mining Operation
- Railway
- Local Government Boundary
- State Forest/Reserve
- National Parks and Wildlife Estate
- Mining Lease Boundary (Mount Pleasant Operation)

MACHEnergy

MOUNT PLEASANT OPERATION

Regional Location

Figure 1

MAC-18-03A MP2024_Figure 1_Rev A

Modification 5 (MOD 5) was submitted to rectify an administrative error in Development Consent DA 92/97 and was approved by DPE (now the NSW Department of Planning, Housing and Infrastructure [DPHI]) on 29 June 2022.

Modification 6 (MOD 6) was submitted to modify Development Consent DA 92/97 and was approved on 6 November 2023. MOD 6 allows for the construction and operation of a re-transmission facility including a tower or mast, shed and associated transmission infrastructure to re-transmit local digital television signals from the Broadcast Australia site at Rossgole Lookout. Appendix 2 of the modified Development Consent DA 92/97 illustrates the Revised Approved Surface Disturbance Plan incorporating the MOD 6 infrastructure (Attachment 1).

On 22 January 2021, MACH Energy submitted the Mount Pleasant Optimisation Project (the Project) EIS in support of State Significant Development (SSD) 10418 under Part 4 of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act). Key aspects of the Project generally involve (among other things):

- increased open cut extraction within the MPO's existing Mining Leases (MLs);
- a staged increase in extraction, handling and processing of ROM coal up to 21 million tonnes per annum (Mtpa);
- upgrades to existing infrastructure and new infrastructure to support mining of the proposed Project; and
- an extension to the time limit on mining operations to 22 December 2048.

The Project was approved by the NSW Independent Planning Commission on 6 September 2022. Part A, Condition A14 of Development Consent SSD 10418 requires the surrender of Development Consent DA 92/97 within 12 months of the date of commencement of development under Development Consent SSD 10418, or an alternative timeframe agreed with the Planning Secretary of the DPE (now DPHI). Attachment 2 describes the development layout of the Project in accordance with Development Consent SSD 10418.

Following the commencement of development under Development Consent SSD 10418 and prior to the surrender of Development Consent DA 92/97, MACH Energy will comply with the requirements of both consents (Section 2).

The Project EIS was supported by a Noise and Blasting Assessment (Wilkinson Murray Pty Ltd [Wilkinson Murray], 2020). The Blast Assessment findings and mitigation measures relevant to the preparation of the Blast Management Plan (BMP) have been incorporated into this document.

The BMP has been prepared to satisfy the relevant conditions of both Development Consent SSD 10418 and Development Consent DA 92/97 (prior to its surrender). Where relevant, this BMP builds on the components of the existing/approved BMP, including previous feedback and recommendations from government stakeholders.

2 PURPOSE AND SCOPE

This Road Closure Management Plan (RCMP) has been prepared by MACH Energy as a component of the BMP to satisfy the requirements of Condition 17(c), Schedule 3 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B24(f) of Development Consent SSD 10418.

This RCMP describes the management of blasting when being carried out within 500 metres (m) of a public road and associated traffic controls.

The BMP and associated RCMP applies to the life of the MPO, including (but not limited to) the period of mining operations specified in Development Consent SSD 10418, which currently permits mining until 22 December 2048 and Development Consent DA 92/97 (prior to its surrender). As required by Part A, Condition A5 of Development Consent SSD 10418, the BMP and associated RCMP will continue to apply (excluding mining operations) beyond 22 December 2048, as required, until the rehabilitation and any additional undertakings (required by the Planning Secretary of DPE [now DPHI], or the NSW Resources Regulator) have been carried out satisfactorily.

The RCMP has been prepared cognisant of Muswellbrook Shire Council (MSC) review comments for blasting and road closure procedures for nearby mine operations (i.e. Bengalla Mine) on the same section of Wybong Road.

3 FORMAT OF THE PLAN

The RCMP is prepared with the following sections:

Section 1: Introduction.

Section 2: Purpose and Scope – describes particular components of the RCMP as specified in the Development Consent DA 92/97 conditions.

Section 3: Format of the Plan.

Section 4: Statutory Obligations – MACH Energy's statutory requirements and other obligations applicable to the RCMP.

Section 5: Blast Criteria – outlines the relevant blast criteria applicable to the MPO relating to all public infrastructure.

Section 6: Performance Indicators – outlines the specific performance indicators that MACH Energy proposes to use to guide the implementation of the blast management measures and judge their performance.

Section 7: Existing Environment – outlines the existing environment including baseline data and public roads in the vicinity of the MPO.

Section 8: Blast Impacts and Predictions – outlines the potential impacts of blasting and predictions of previous assessments.

Section 9: Blast Management and Control Measures – describes the blast management and control measures for all public roads.

Section 10: Blast Monitoring Program – outlines the blast monitoring program components for public roads including locations, frequency and parameters.

Section 11: Response Protocols – describes the blasting criteria review protocol, blast fume emergency response and pollution incident response.

Section 12: Contingency Plan – provides a contingency plan to manage unprecedented impacts and their consequences.

Section 13: Annual Review and Improvement of RCMP – provides details for review and improvement of environmental performance relating to blasting.

Section 14: Reporting Systems – describes the management and reporting of incidents, complaints, non-compliances and exceedances of the blast impact assessment criteria and/or performance criteria.

Section 15: References – provides references cited in this RCMP.

4 STATUTORY OBLIGATIONS

MACH Energy's statutory obligations are contained in:

- the conditions of Development Consent DA 92/97 (prior to its surrender);
- the conditions of Development Consent SSD 10418;
- the conditions of the Commonwealth Approvals (EPBC 2011/5795);
- the conditions of the Commonwealth Approval EPBC 2020/8735;
- relevant licences and MLs (including Environmental Protection Licence [EPL] 20850, permits and ML 1645, ML 1708, ML 1709, ML 1713, ML 1750, ML1808 and ML 1829); and
- other relevant legislation.

In addition, MACH Energy operates in accordance with the approved MPO Rehabilitation Management Plan and associated Annual Rehabilitation Report and Forward Program, as amended from time to time, which has replaced the Mining Operation Plan (as of 1 August 2022).

In addition to the above, activities associated with the MPO will be undertaken in accordance with the licences, leases and permits described in the MPO Environment Management Strategy (EMS).

Obligations relevant to this RCMP are described below.

4.1 DEVELOPMENT CONSENT DA 92/97

The conditions of Development Consent DA 92/97 (prior to its surrender) relevant to the content and structure of this RCMP are described below.

4.1.1 Road Closure Management Plan Requirements

Condition 17(c), Schedule 3 of Development Consent DA 92/97 requires the preparation of a RCMP (refer Table 1).

Table 1
Specific Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 3	Section Where Addressed
17. The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must: … *…* *(c) include a road closure management plan, prepared in consultation with Council; …*	This document (refer Section 9.3 and Appendices A and B)

Source: Development Consent DA 92/97

4.1.2 Management Plan (General) Requirements

Condition 2, Schedule 5 of Development Consent DA 92/97 (prior to its surrender) outlines the general management plan requirements that are applicable to the preparation of the RCMP. Table 2 presents these requirements and indicates where each is addressed within this RCMP.

Table 2
General Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 5	Section Where Addressed in this RCMP Document
2. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
(a) detailed baseline data;	Section 7.
(b) a description of:	
• *the relevant statutory requirements (including any relevant consent, licence or lease conditions);*	Section 4.
• *any relevant limits or performance measures/criteria;*	Section 5.
• *the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;*	Section 6.
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Sections 9 and 11.
(d) a program to monitor and report on the:	Sections 10 and 14.
• *impacts and environmental performance of the development;*	
• *effectiveness of any management measures (see c above);*	
(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 12.
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 13.
(g) a protocol for managing and reporting any:	Section 14.
• *incidents;*	
• *complaints;*	
• *non-compliances with statutory requirements; and*	
• *exceedances of the impact assessment criteria and/or performance criteria; and*	
(h) a protocol for periodic review of the plan.	Section 13.2.
Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	

Source: Development Consent DA 92/97

4.2 DEVELOPMENT CONSENT SSD 10418

The conditions of Development Consent SSD 10418 relevant to the content and structure of this RCMP are described below.

4.2.1 Road Closure Management Plan Requirements

Part B, Condition B24(f) of Development Consent SSD 10418 requires the preparation of a RCMP (refer Table 3).

Table 3
Specific Development Consent SSD 10418 Conditions

MPO Development Consent SSD 10418 Part B	Section where addressed in this BMP document
B24. The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Planning Secretary. The plan must:	
…	This document.
(f) include a Road Closure Management Plan for any blasting within 500 metres of a public road, that has been prepared in consultation with relevant roads authorities and includes provisions for:	
(i) minimising the duration of closures, both on a per event basis and weekly basis;	Section 9.
(ii) avoiding closures during peak traffic periods as far as reasonable; and	Section 9.3.5.
(iii) using reasonable efforts to co-ordinate closures with nearby mines to minimise the cumulative effect of road closures;	Section 9.2.3.
…	

Source: Development Consent SSD 10418

4.2.2 Management Plan (General) Requirements

Part D, Condition D5 of Development Consent SSD 10418 outline general management plan requirements. Table 4 presents these requirements and indicates where each is addressed within this RCMP.

Table 4
General Development Consent SSD 10418 Conditions

MPO Development Consent SSD 10418 Part D	Section where addressed in this BMP document
D5. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	-
(a) summary of relevant background or baseline data;	Section 7.
(b) details of:	
(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 4.
(ii) any relevant limits or performance measures and criteria; and	Section 5.
(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 6.
(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	Section 13.1.
(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Sections 5, 6, 9 and 10.
(e) a program to monitor and report on the:	Sections 9, 10 and 13.
(i) impacts and environmental performance of the development; and	
(ii) effectiveness of the management measures set out pursuant to condition D4(c);	
(f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 12.
(g) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 13.
(h) a protocol for managing and reporting any:	Section 14.
(i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion;	
(ii) complaint; or	
(iii) failure to comply with other statutory requirements;	
(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	
(j) a protocol for periodic review of the plan.	Section 13.2.
***Note**: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	

Source: Development Consent SSD 10418

4.3 OTHER LEGISLATION

Other NSW Acts and Regulations that may be applicable to blasting at the MPO include, but are not limited to, the:

- *Explosives Act 2003;*
- *Explosives Regulation 2013;*
- *Roads Act 1993;*
- *Work Health and Safety Act 2011;*
- *Work Health and Safety Regulation 2017;*
- *Work Health and Safety (Mines and Petroleum Sites) Act 2013;* and
- *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014.*

5 BLAST CRITERIA

5.1 DEVELOPMENT CONSENT DA 92/97

Blasting criteria, blasting hours, blasting frequency, property inspections, property investigations and operating conditions are provided in Conditions 10 to 16, Schedule 3 of Development Consent DA 92/97 (prior to its surrender).

The prescribed blasting criteria for all public infrastructure in Table 7 of Condition 10, Schedule 3 of Development Consent DA 92/97 is presented in Table 5 below. However, these criteria do not apply if MACH Energy has written agreement with the relevant infrastructure provider/owner, and MACH Energy has advised the DPE (now DPHI) in writing of the terms of the agreement.

Table 5
Blasting Criteria – All Public Infrastructure

Location	Airblast Overpressure (dB[Lin Peak])	Ground Vibration (mm/s)	Allowable Exceedance
All public infrastructure	-	*50*	*0%*

mm/s = millimetres per second.

5.2 DEVELOPMENT CONSENT SSD 10418

Blasting criteria, blasting hours, blasting frequency, property inspections, property investigations and operating conditions are provided in Part B, Conditions B14 – B22 of Development Consent SSD 10418.

The prescribed blasting criteria for all public infrastructure in Table 2 of Part B, Condition B12 of Development Consent SSD 10418 is presented in Table 6. However, these criteria do not apply if MACH Energy has written agreement with the relevant infrastructure provider/owner, and MACH Energy has advised the DPE (now DPHI) in writing of the terms of the agreement.

Table 6
Blasting Criteria – Other Public Infrastructure

Location	Airblast Overpressure (dB[Lin Peak])	Ground Vibration (mm/s)	Allowable Exceedance
Other public infrastructure	-	*50 (or a limit determined by the structural design methodology in AS 2187.2-2006, or its latest version)*	*0%*

5.3 OTHER LICENCE CONDITIONS

Blasting criteria and other blast related conditions stipulated in ML 1645, ML 1708, ML 1709, ML 1713, ML 1750, ML 1808 and ML 1829 in EPL 20850 are generally consistent with those prescribed in Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418.

6 PERFORMANCE INDICATORS

6.1 BLASTING CRITERIA

The extent of compliance with the blasting criteria prescribed in Tables 5 and 6 will be measured by compliance with the relevant criteria at the blast monitoring locations (refer Section 10.1).

6.2 BLASTING HOURS

Unless otherwise agreed with the Secretary, blasting will only be carried out at the MPO between 9.00 am and 5.00 pm Monday to Saturday inclusive. The extent of compliance with the blasting hours restrictions will be measured by compliance with the requirement of Condition 11, Schedule 3 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B14 of Development Consent SSD 10418 that no blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Planning Secretary.

6.3 BLASTING FREQUENCY

Development Consent SSD 10418

Unless otherwise agreed with the Planning Secretary of the DPE (now DPHI), MACH Energy will carry out a maximum of:

- 2 single blast events per day; and
- 8 single blast events per week, averaged over any calendar year.

A ‘blast’ refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.

The extent of compliance with the blasting frequency limits will be measured by compliance with the requirement of Part B, Condition B15 of Development Consent SSD 10418 considering however that this condition does not apply to:

- single blasts that generate a ground vibration of 0.5 mm/s or less at any residence on privately owned land; or
- blasts required to ensure the safety of the mine or its workers or the general public.

In accordance with Part B, Condition B23 of Development Consent SSD 10418, MACH Energy will not undertake blasting on the site within 500 m of any public road or any land outside the site not owned by MACH Energy, unless the blast generates ground vibration of 0.5 mm/s or less at that location, or MACH Energy has:

- a written agreement with the relevant infrastructure owner or landowner to allow blasting to be carried out closer to the public road or land, and MACH Energy has advised DPHI in writing of the terms of this agreement; or
- demonstrated, to the satisfaction of the Planning Secretary, that the blasting can be carried out closer to the public road or land without compromising the safety of people or livestock or damaging the road or other buildings and structures, and updated the BMP to include specific mitigation measures to be implemented while blasting is being carried out within 500 m of the road or land.

Development Consent DA 92/97

In the event that Development Consent SSD 10418 is not in force and MACH Energy must solely rely of Development Consent DA 92/97, MACH Energy will carry out a maximum of:

- 1 blast per day; and
- 5 blasts per week, averaged over any calendar year.

6.4 OPERATING CONDITIONS

The extent of compliance with the operating conditions prescribed in Condition 15, Schedule 3 of Development Consent DA 92/97 (prior to its surrender) and Part B, Conditions B22 and B23 of Development Consent SSD 10418 will be measured by compliance with this RCMP (and the BMP) as indicated in annual reporting (Section 13). The extent of compliance with the operating condition restrictions to blasting within 500 m of a public road will be measured by the requirements of Condition 16, Schedule 3 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B23 of Development Consent SSD 10418, considering however that this restriction does not apply if MACH Energy has the approval of MSC (i.e. through implementation of this RCMP).

This RCMP, once endorsed by MSC, provides formal agreement permitting blasting within 500 m of a public road, with ground vibrations exceeding 0.5 mm/s (and less than 50 mm/s).

7 EXISTING ENVIRONMENT

7.1 BASELINE DATA

Meteorological monitoring is undertaken at the MPO in accordance with Condition 24, Schedule 3 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B38 of Development Consent SSD 10418.

In accordance with Condition 15(c), Schedule 3 and Condition 11, Schedule 5 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B22(d) and Part D, Condition D17 of Development Consent SSD 10418, up-to-date information on the proposed blasting schedule and a comprehensive summary of the monitoring results (including meteorological and blasting data) will be made publicly available on the MACH Energy website (http://machenergyaustralia.com.au/).

Blasting and blast monitoring is undertaken at the neighbouring Bengalla Mine in accordance with the requirements of SSD 5170 for the Bengalla Continuation Project and is described in the relevant BMP.

Blast monitoring data (including measurements of overpressure and ground vibration at sample points in areas surrounding the mine) is made publicly available on the Bengalla Mine website (http://www.bengalla.com.au/environment/environmental-monitoring-data/).

7.2 PUBLIC ROADS

The main public roads in the vicinity of the MPO include (Figure 2):

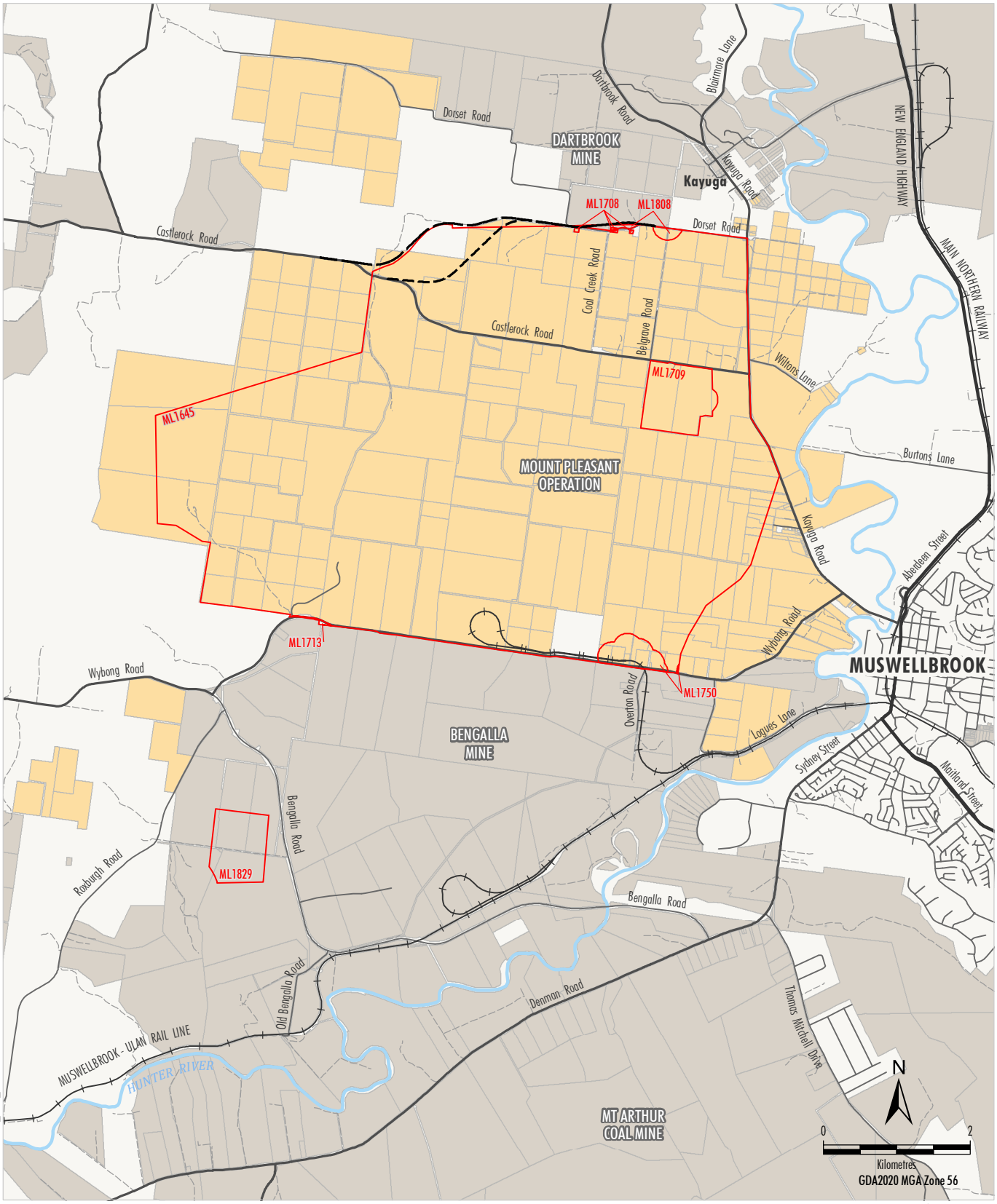
- Wybong Road[1];
- Kayuga Road[1];
- Bengalla Road[1];
- Castlerock Road; and
- Dorset Road.

There are also several minor roads and lanes which provide access to surrounding properties off these public roads including:

- Overton Road;
- Logues Lane[2];
- Collins Lane;
- Wiltons Lane;
- Belgrave Road;
- Coal Creek Road; and
- Lawries Lane.

MSC is the relevant roads authority for these roads. Skippens Road and Rosebrook Lane were closed and purchased by MACH Energy in 2023.

[1] Road may be reclassified to support the transport of wind turbine components to the New England Renewable Energy Zone.
[2] MACH Energy owns part of Logues Lane.



MAC-18-03A MPP2024_RCMP_201A

Source: NSW Spatial Services (2024)

LEGEND

- Railway
- Primary Road
- Sub-arterial Road
- Local Road
- Other Unsealed Road/Track
- Mining Lease Boundary (Mount Pleasant Operation)
- Mount Pleasant-controlled Land
- Other Mine-controlled Land
- Northern Link Road Option 2
- Northern Link Road Option 2

MACHEnergy

MOUNT PLEASANT OPERATION

Local Road Network

Figure 2

7.2.1 Wybong Road

Wybong Road is currently the main access route between Muswellbrook township and the western rural areas of the Muswellbrook Shire such as Sandy Hollow, Roxburgh, Mangoola, Wybong and Brogheda/Manobalai. The central section of Wybong Road (between Mangoola Coal entrance and Bengalla Link Road) is the busiest section of the road with over 1,200 vehicles per day. The eastern section of Wybong Road (from Bengalla Link Road to Kayuga Road) does not carry a significant proportion of mine related traffic because all mine traffic is directed to use Bengalla Link Road when travelling to and from southern and eastern destinations (MSC, 2015).

Only the eastern section of Wybong Road will be affected by temporary road closures at the MPO.

7.2.2 Kayuga Road

Kayuga Road is a back road[3] connecting Muswellbrook to Scone and providing access to rural properties and villages (Dartbrook and Kayuga areas). Only a small number of vehicles utilise the northern section of Kayuga Road (approximately 500 vehicles per day). The majority of the traffic on the section of Kayuga Road between the bridge and Wybong Road intersection, turn at the Wybong Road intersection, as Wybong Road is the main access route between Muswellbrook and rural areas in the north west of the Muswellbrook Shire (MSC, 2015).

The only section of Kayuga Road that will be affected by temporary road closures at the MPO is near the intersection of Castlerock Road.

7.2.3 Castlerock Road / Dorset Road

Castlerock and Dorset Roads are narrow sealed rural roads that provide access to a number of farms north of Wybong Road. Castlerock Road extends west from Kayuga Road and turns south to link with Wybong Road, near Ridgelands Road. Dorset Road also extends west from a point further north on Kayuga Road and turns north, becoming a gravel access road. Both roads currently carry only low volumes of traffic (MSC, 2015).

Castlerock Road will be affected by temporary road closures at the MPO as mining operations progressed to the north. Dorset Road will not be affected by temporary road closures at the MPO for several years. Following construction of the Northern Link Road, the section of Castlerock Road within the mine footprint will be permanently closed.

This RCMP will be reviewed and revised prior to mining within 500 m of Dorset Road and following completion of the Northern Link Road.

7.2.4 Mount Pleasant Northern Link Road

In accordance with Part B, Condition B96(a) of Development Consent SSD 10418, prior to the closure of the eastern portion of Castlerock Road, MACH Energy must construct the Mount Pleasant Northern Link Road (Figure 2). The Project EIS assessed two alternative Northern Link Road realignments; however, the detailed design of the preferred realignment is still being refined, pending property constraints.

[3] The New England Highway (A15) is the main route between Muswellbrook and Scone.

The Mount Pleasant Northern Link Road will provide an east-west link between Castlerock Road and Dorset Road to the north of the MPO and be constructed prior to the closure of the eastern portion of Castlerock Road. This road link will not be used by MPO traffic. It will provide a local access function for lands to the north of the MPO, replacing the function currently served by Castlerock Road.

The traffic management measures for the MPO are described in the MPO Traffic Management Plan.

The RCMP will be reviewed and reissued prior to mining within 500 m of Dorset Road (and following completion of construction of the Northern Link Road).

7.2.5 Reclassification of Local Roads

Current physical restrictions and limitations on the State road network through the surrounding roads of the MPO have been identified as barriers to the movement of oversize and/or overmass freight movements for the development of the State's Renewable Energy Zones and State Significant Developments. Discussions with MSC and Transport for NSW (TfNSW) have commenced regarding the reclassification of a number of local roads including Bengalla Road, Wybong Road and Kayuga Road to enable transport of wind turbine componentry to the New England Renewable Energy Zone.

Pending reclassification of Bengalla Road, Wybong Road and Kayuga Road, these changes will be captured in the MPO Traffic Management Plan and a revision to this RCMP.

8 BLAST IMPACTS AND PREDICTIONS

Blasting has the potential to result in the following hazards which may present a risk to public safety or property damage, if inappropriately managed:

- airblast overpressure exceedances;
- excessive ground vibration;
- flyrock, dust and debris;
- fumes; and
- misfires.

8.1 AIRBLAST OVERPRESSURE

Blasting generates a transient air pressure greater than the surrounding atmospheric pressure, known as overpressure. An overpressure has the potential to damage buildings and infrastructure.

8.2 GROUND VIBRATION

Energy released after a blast event can result in vibration of the ground which has the potential to damage buildings and infrastructure.

8.3 FLYROCK, DUST AND DEBRIS

Flyrock is any rock material ejected from the blast site by the force of the blast. Flyrock has the potential to damage buildings and infrastructure and poses a risk to public safety.

The amount of dust and debris emitted from the blast site post-blast depends on several factors including the blast design and the rock material being blasted. The dust and debris poses a risk to public safety.

8.4 FUMES

Blasting has the potential to generate post-blast gases (fumes) from the use of ammonium nitrate-based explosives which commonly include nitric oxide (NO) and nitrogen dioxide (NO_2) and are known as the Oxides of Nitrogen or NOx. NO is invisible, and NO_2 ranges from yellow to dark red depending on the concentration and size of the gas cloud (AEISG, 2011).

In accordance with the AEISG (2011) Code of Practice, MACH Energy will use a fume rating system for all blasts, outlined in the Blast Fume Management Strategy (Appendix E of the BMP).

8.5 MISFIRES

A blast misfire can occur when one or more holes in a blast pattern fail to initiate, which results in a blast event which is different to the pre-blast assessment design.

8.6 BLAST PREDICTIONS

8.6.1 Environmental Impact Statement (1997)

Chapter 12 of the Mount Pleasant Mine EIS (ERM Mitchell McCotter, 1997) assessed the impacts of blasting for the MPO.

8.6.2 Commission of Inquiry (1998-99)

Appendix C.5 of the *Mount Pleasant Mine Commission of Inquiry – Primary Submission* (Coal & Allied, 1998) includes details of blast noise calculations (i.e. scaled distance equations) that was requested by the Environment and Protection Authority (EPA) to assist during the assessment to demonstrate the criterion at south-west Kayuga could be met (i.e. with varying maximum instantaneous charges [MICs] and distances).

The Mount Pleasant Mine Commission of Inquiry – Submission in Reply (Commissioner's Report) (Planning Environmental & Engineering Consultants, 1999) recognised that with appropriate blasting practice the EPA's criteria for vibration from blasting can be complied with at all relevant locations.

Other commitments of relevance to this BMP include:

- Blast overpressure and blasting would be monitored at select locations, using unmanned monitors with the capability to download information to a central computer.
- Initially, blast locations would be at a distance from residential areas, and monitoring would be used to refine blasting practices, to ensure that as blasting moves closer, relevant criteria will continue to be met.
- A 24-hour complaint hotline would be established, and procedures laid down for recording complaint details, resolving the complaint, and establishing follow-up contact with the complainant if required.

The Commissioner's Report (1999) also recommended that trial blasts be monitored in the vicinity of Racecourse Road to investigate any features of this area (i.e. if there is potential for harmonic enhancement in saturated alluvial soils) which may lead to structural damage of buildings under conditions which would normally be acceptable.

8.6.3 MOD 1 Environmental Assessment (2010)

As the blasting aspects of the MPO remained the same for the MOD 1 EA, no further blasting assessment was undertaken and the EIS and Commission of Inquiry blast assessments described in Sections 8.6.1 and 8.6.2 remained unchanged.

8.6.4 MOD 3 Environmental Assessment (2017)

MOD 3 did not include any extension to the approved MPO open cut pits; however, potential blast designs were assessed to confirm management measures required.

As a result of the assessment, it was found that no exceedances of Development Consent DA 92/97 vibration and airblast criteria were predicted to occur at any privately-owned receiver, historic heritage site or public infrastructure, with the implementation of reduced blast MIC (where required due to proximity).

Relevant MIC adjustments are provided in the MOD 3 EA (MACH Energy, 2017b). As per Section 9.5 of the BMP, MACH Energy will continue to design all blasts to comply with blasting criteria. This would include applying the relevant MIC adjustments for identified proximal privately-owned receivers, historic heritage sites and public infrastructure, as defined in the MOD 3 EA (MACH Energy, 2017b).

8.6.5 Environmental Impact Statement (2021)

A Noise and Blasting Assessment for the Project EIS was undertaken by Wilkinson Murray (2020). The blasting assessment was conducted in accordance with the *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* prepared by the Australian and New Zealand Environment Council (ANZEC) (1990).

The Noise and Blasting Assessment (Wilkinson Murray, 2020) included assessment of potential blast impacts on people, animals, buildings/structures, infrastructure and significant natural features.

To meet relevant blasting criteria, as outlined in the Noise and Blasting Assessment (Wilkinson Murray, 2020), when blasting within the distances listed below, MACH Energy will monitor blast design based on Peak Particle Velocity limits (refer to the BMP):

- 2,260 m of privately-owned residential receivers;
- 1,010 m of mine-owned residential receivers;
- 330 m of public infrastructure;
- 650 m of livestock; and
- 1,010 m of historic heritage sites.

Wybong Road, Kayuga Road and Castlerock Road will continue to be temporarily closed during blasts within 500 m of the road. Dorset Road/Northern Link Road will also be temporarily closed during blasts within 500 m of the road.

There are also no significant natural features (e.g. cliff faces or caves) that will be susceptible to impacts from blasting at the Mount Pleasant Operation and, therefore, no blast predictions have been made for natural features or Aboriginal heritage sites (Wilkinson Murray, 2020).

9 BLAST MANAGEMENT AND CONTROL MEASURES

The pit extents shown in Appendices A and B are for illustrative purposes only for this RCMP. For blasts beyond the pit extent shown and within 500 m of a public road, the signage and traffic controls would be relocated appropriately.

In accordance with Part B, Condition B24(f) of Development Consent SSD 10418, this RCMP includes provisions for:

(i) minimising the duration of closures, both on a per event basis and weekly basis;

(ii) avoid closures during peak readdict periods as far as reasonable; and

(iii) using reasonable efforts to co-ordinate closures with nearby mines to minimise the cumulative effect on road closures.

Blast management and control measures relevant to the above obligation is described below.

9.1 PUBLIC ROADS

9.1.1 Wybong Road

When blasting is undertaken within 500 m of Wybong Road, the road closure procedure described in Section 9.3 will be implemented along with the Traffic Control Plan (Appendix A).

9.1.2 Kayuga Road

When blasting is undertaken within 500 m of Kayuga Road, the road closure procedure described in Section 9.3 will be implemented along with the Traffic Control Plan (Appendix B).

9.1.3 Castlerock Road

When blasting is undertaken within 500 m of Castlerock Road, the road closure procedure described in Section 9.3 will be implemented along with the Traffic Control Plan (Appendix B).

9.1.4 Dorset Road

No blasting will be undertaken within 500 m of Dorset Road during the term of this RCMP.

9.1.5 Northern Link Road

No blasting will be undertaken within 500 m of the Northern Link Road during the term of this RCMP.

9.1.6 Other Minor Roads and Lanes

Signs will be installed at access to properties to temporarily block access to restricted areas during blasting.

9.2 BLASTING CONTROLS / PROCEDURES

MACH Energy will design and manage blast events to meet all relevant statutory requirements to protect the safety of the public in the surrounding area and minimise the risk of impacts to public roads.

Blast management procedures will include:

- training all relevant personnel on blast-related obligations and explosives management;
- use of appropriate initiation and detonation systems and adherence to blast loading and initiation designs;
- use of adequate burden, stemming lengths and stemming material to confine explosives;
- designing all blasts to comply with airblast overpressure and ground vibration limits;
- monitoring of blasts at all prescribed locations (refer Section 10);
- implementation of procedures to mitigate fumes for all blast events (Section 9.2.2);
- calibration of site-specific blast models over time, using monitored data from previous blasting, to enable refinement and assessment for future blast events (refer Section 9.2.1);
- development of a blast records system which captures sufficient information to allow appropriate characterisation and comparison of blasts and meteorological conditions (refer Section 10.1.2);
- periodic review of blasting procedures to evaluate performance (refer Section 13); and
- evaluation of new technology and alternative blasting methodologies.

9.2.1 Pre-Blast Assessments (including Forecasting)

Prior to each blast event, a pre-blast assessment will be prepared by the Drill and Blast Coordinator.

The pre-blast assessment will consider:

- establishing an appropriate blast exclusion zone based upon the nature of the blast;
- assessment of meteorological (e.g. wind speed and direction) conditions prior to the blast to identify all personnel, publicly accessible areas, private landholders, residential locations, infrastructure and heritage sites that may be affected;
- design of the blast (e.g. right product for the conditions);
- confirmation of radio contact with site personnel (if evacuation of work areas is required); and
- notification of all relevant external stakeholders (including those on the pre-blast notification register [Section 9.2.4]) prior to blasting.

The Drill and Blast Coordinator (or delegate) will review the pre-blast assessment and if it is identified that unfavourable blast conditions are forecast or if factors are present which may significantly increase dust or fume generation, the General Manager will be notified and will review the pre-blast assessment to determine the appropriate course of action.

A ‘red light’ / ‘green light’ system will be used and refined throughout the life of the MPO, including updates to reflect changes in the mine design, community expectations and land ownership.

A forecasting model will be used as part of the pre-blast assessment system at the MPO to simulate potential dust and fume impacts from a blast event to allow for re-scheduling or re-design as required in advance of the blast event.

9.2.2 Dust and Fumes Strategy

Strategies to minimise dust (during drilling and blasting) at the MPO are described in the Air Quality and Greenhouse Gas Management Plan as follows:

- Blasting will be conducted during daylight hours when dispersion conditions are favourable, unless otherwise required for safety reasons.
- Blasting will not be undertaken during adverse weather conditions without the prior approval of the Environmental Superintendent (or delegate).
- Production drill rigs will utilise water injection (or be fitted with dust mitigation, such as sprays) and dust aprons will be lowered during drilling. Production drill rigs will not be operated without adequate dust control.
- Adequate stemming will be used in drill holes at all times.

MACH Energy has developed a Blast Fume Management Strategy based on the AEISG (2011) Code of Practice, which considers the following factors and practices to minimise fume emissions for all blasts:

- explosive formulation and quality assurance;
- explosive product selection;
- on bench practices;
- rainfall;
- blast design;
- geological conditions;
- contamination of explosives;
- sleep time; and
- reporting and documenting.

9.2.3 Coordination with Nearby Mines (Minimising Cumulative Impacts)

In accordance with Condition 5, Schedule 5 of Development Consent DA 92/97 (prior to its surrender) and Part B, Condition B22(f) of Development Consent SSD 10418, MACH Energy will use its best endeavours to minimise the cumulative impacts of the MPO on the surrounding area.

A communications protocol has been developed with nearby mines (including Bengalla Mine) so that cumulative impacts from simultaneous blast events are minimised. The protocol involves communications (via email, fax or telephone) to be sent and received prior to each blast, and where there is potential for blast events to occur concurrently, for the blast times to be re-scheduled, where practical.

Minimising the cumulative impacts of the MPO on the surrounding area would also be achieved, for example, through review of blast schedules for nearby mines (including Bengalla Mine) and coordinating blast times so that back-to-back closures of public roads are avoided, where practical.

9.2.4 System to Notify Public of Blast Schedule

Up-to-date information on the blasting schedule for residents will be made publicly available on MACH Energy's website (http://machenergyaustralia.com.au/).

MACH Energy will also inform the MSC of blast notices for placement on the MSC website: http://www.muswellbrook.nsw.gov.au/index.php/blasting/blasting-announcements.

MACH Energy will operate a Community Response Line (Phone Number 1800 886 889). The Community Response Line is publicly advertised and operates 24 hours per day, seven days a week, to receive any queries (including those blast-related) from neighbouring residents or other stakeholders.

Any private landholder or resident that registers an interest in being informed of the MPO blasting schedule will be included in a pre-blast notification register (including contact details for notification via telephone, email or method otherwise agreed). TfNSW can register to be informed of the MPO blasting schedule, through registration of contact details via the pre-blast notification register.

Private landholders and residents on the pre-blast notification register will be notified prior to blasting and will be re-notified if a blast event is delayed by more than two hours.

9.2.5 Strict Control – South-West Kayuga

When blasting in the north-east of the North Pit, strict control will be placed on blasting operations to ensure criteria are met at sensitive receptors at south-west Kayuga by:

- varying MIC design;
- no blasting to take place where temperature inversions are inferred; and
- assessment of prevailing weather conditions by correlation of weather station data.

9.3 ROAD CLOSURE PROCEDURE

Blasting frequency and requirements for road closure will vary with mine development. In accordance with Part B, Condition B15 of Development Consent SSD 10418, MACH Energy may carry out a maximum of 2 single blast events[4] a day, and 8 single blast events[2] a week, averaged over a calendar year.

In accordance with Part B, Condition B16 of Development Consent SSD 10418, Condition B15 does not apply to single blast events[2] that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blast misfires or blasts required to ensure the safety on the mine, its workers or the general public.

Temporary road closures are typically for a period of less than 20 minutes and no more than one closure per day. MSC and TfNSW will be notified of the intention to blast, and the date and time of the planned road closure, in the week prior to blasting.

9.3.1 Definitions

Shotfirer – a person who has been issued with a permit to act as a Shotfirer in an open cut coal mine by Workcover and is appointed by the General Manager or delegate.

[4] Within conditions B15 and B16, a 'single blast event' means a blast which involves either a single detonation or a number of individual blasts fired in quick succession in a discrete area of the development. Should an additional blast be required after a blast misfire, this additional blast and the blast misfire are counted as a single blast event.

MPO's nominated Outside Blasting Coordinator - a person whom has completed training to act as the Outside Blasting Coordinator under the direction of the Shotfirer charged with the responsibility of prohibiting any person from entering the Blasting Zone during the duration of the blast.

Inside Sentry - a trained person acting under the direction of the Shotfirer charged with the responsibility of prohibiting any person from entering the Blasting Zone during the duration of the blast.

Outside Sentry - a trained person acting under the direction of the Shotfirer charged with the responsibility of prohibiting any person from entering the Blasting Zone during the duration of the blast.

All sentries, located on public roads if directing traffic will be appropriately trained in their duties and certified as competent. As a minimum requirement, these sentries will have satisfactorily completed TfNSW training Course "Traffic Controllers" (or equivalent). Traffic controllers shall wear high visibility clothing meeting the requirements of AS 4602.1-2011 and displaying the logo of their employer and the words "Authorised Traffic Controller".

9.3.2 Responsibilities

Shotfirer - is responsible for the shot by using the appropriate MPO blast procedures to ensure all aspects of the blast are safe.

MPO's nominated Outside Blasting Coordinator - is responsible for assisting the Shotfirer in ensuring that the area within the Inside Sentry and Outside Sentry is clear and ensuring that public roads are safe for public use post blast.

9.3.3 Tools / Equipment and Safety Requirements

Tools and equipment and other safety requirements for this procedure include:

- Traffic Control Plan (Appendices A or B);
- signage;
- road barriers;
- high-visibility clothing;
- sentries satisfactorily completed TfNSW training Course "Traffic Controllers" (or equivalent);
- registered vehicles; and
- hand-held two-way radios.

9.3.4 In the Week Prior to Blasting

An MPO nominated person will notify the MSC of the intention to blast and date and time of the planned road closure via the MSC website and MACH Energy website. In the week prior to the blasting event, MACH Energy will liaise with MSC and TfNSW to take into account the management of oversize and overmass vehicles at relevant roads in close proximity to the blasting event and forecast the movement and closure of the relevant road.

An MPO nominated person will also advise the following emergency services via email (or other method determined in consultation with the relevant emergency service) of the date and time of planned road closures, including:

- Fire & Rescue NSW (Muswellbrook Fire Station);
- NSW Rural Fire Service;
- NSW Ambulance;
- NSW Police Force; and
- NSW State Emergency Service.

9.3.5 The Working Day Before Blasting

MPO's nominated Outside Blasting Coordinator will confirm with the Main Switchboard Secretary the scheduled date and time of the blast with the following notifications 24 hours prior to the proposed blast.

- Notification of the public (via the MSC and MACH Energy websites);
- Notification of TfNSW (via the MSC and MACH Energy websites); and
- Notification of the MPO Environment and Community Manager.

In accordance with Part B, Condition B24(f) of Development Consent SSD 10418, MACH Energy will minimising the duration of closures, both on a per event basis and weekly basis, and use all reasonable efforts to avoid road closures during peak traffic periods.

Although MACH Energy will endeavour to minimise the duration of closures, public safety is the primary objective and will not be compromised by efforts to reduce closure duration. Road closures will be scheduled to avoid peak traffic periods as far as practicable and will generally occur Monday to Friday between the hours of 10 am to 12 pm.

Signs will be posted along the public road in both directions indicating that "***this road is subject to short closures with up to 20 minutes delay for mine blasting purposes***".

The sign will also display the next blast / closure date, time and contact details, including emergency local contact number.

Blasting will be undertaken during daylight hours only. Public road closures resulting from blasting at the MPO will be scheduled to occur at times which do not impede school bus operations. The school buses operate on Wybong Road, Castlerock Road and Kayuga Road between 7:45 am and 8:20 am and between 3:40 pm and 4:00 pm, Monday to Friday (current as at June 2024).

Blasting will not occur within 500 m of a road when adverse environmental conditions (i.e. during foggy conditions where visibility of the road closure is impacted or other prevailing conditions) make road closures hazardous.

9.3.6 The Day of Blasting

MPO's nominated Outside Blasting Coordinator will confirm with MPO's Main Switchboard Secretary the scheduled time of the blast for the day. This will then be communicated via MSC's website and updated at least two hours prior to the blast time.

MPO's Main Switchboard Secretary will confirm the scheduled time of the blast for the day via the MSC website and by notifying the MPO Environment and Community Manager, emergency services listed in Section 9.3.4 above, and any other person as agreed to by the MPO Environment and Community Manager.

9.3.7 30 Minutes Prior to Blasting

The Shotfirer will inform MPO's nominated Outside Blasting Coordinator of the anticipated firing time.

All signs will be designed and manufactured to meet the requirements of AS 1743-2023 *Road Signs-Specifications*. All signs will be manufactured with class 1 reflective labelling.

Installation of permanent signs will require consent under Section 138 of the *Roads Act 1993*. MACH Energy will liaise with MSC, UHSC, and TfNSW, as required, to obtain the necessary permits and approvals prior to implementing any traffic controls on public roads. This is discussed in the MPO Traffic Management Plan.

Before road closure commences, signs and devices at approaches to the closure site will be placed in accordance with the Traffic Control Plan shown in Appendix A or Appendix B, whichever is relevant.

Traffic control will be set out in accordance with *Traffic Control at Work Sites Technical Manual* (TfNSW, 2022).

The appropriate signs as per the Traffic Control Plan shown in Appendix A or Appendix B will be positioned and spaced as illustrated on the plan for approaching traffic to see. Barrier boards will be placed across the road to prevent the passage of vehicles through the restricted area.

In times of inclement weather (heavy rain, fog, etc. at the time of the blast), in addition to the signs shown in Appendix A or Appendix B, there shall also be a sufficient number of orange flashing beacons positioned prior to and at the road closure to ensure the prominence of that road closure.

9.3.8 10 Minutes Prior to Blasting

The Shotfirer will place both inside and outside sentries in position at their stations. All sentries will have a two-way radio for communication with mining personnel responsible for controlling the blast (i.e. the Shotfirer) and each other.

In addition to this, outside sentries located on the public road shall wear approved high-visibility clothing and shall control traffic using a stop/slow bat. The Outside Sentries located on the public roads will communicate with each other to ensure that there is no traffic or people within the sentry locations.

MPO's nominated Outside Blasting Coordinator will then clear the blasting area as per normal blasting procedure. When clearing the public road temporary barriers will be placed across the road at each sentry location.

9.3.9 Two Minutes Prior to Blasting

When confirmation has been received from MPO's nominated Outside Blasting Coordinator that the blasting area within the sentries is all clear, the Shotfirer will initiate the two-minute warning at the commencement of the normal blasting procedure.

Due blasting procedure will then be followed with all sentries acting under instruction from the Shotfirer.

9.3.10 One Minute Post Blast

At the completion of one minute after firing, the Shotfirer will instruct MPO's nominated Outside Blasting Coordinator to inspect the public road for any post-blast fumes, dust, debris or damage.

On inspection of public roads:

- if there is no evidence of post-blasting fumes, dust, debris or damage then MPO's nominated Outside Blasting Coordinator will re-open the public road; or
- if there is evidence of debris or damage, then MPO's nominated Outside Blasting Coordinator will notify the Shotfirer of such debris or damage. The sentries on the public road will hold the 'stop' position and delay through traffic until such stage as the debris is removed and disposed of lawfully, damage is repaired or controlled traffic conditions put in place. When the road has been given the "all clear", the road will be opened to through traffic and all temporary traffic control signs associated with the closure removed by appropriately qualified traffic controllers. If damage to the road is confirmed to be a direct result of damage arising from MPO's blasting activities, then the following process will be implemented:
  - MSC will be notified of damage immediately by contacting the main phone number 02 6549 3700; and
  - appropriate traffic management and remediation work will be undertaken ensuring unnecessary delay is avoided and the road restored to the standard required by MSC at no cost to MSC. MPO's nominated Outside Blasting Coordinator will then remove the temporary barriers from across the public road and the sentries will remain in position with the "**SLOW**" sign displayed.

9.3.11 Clearing of the Shot

After the nominated waiting period, the Shotfirer will proceed with his inspection of the shot. If the shot is clear of any misfires then the Shotfirer will continue with due procedure. If a misfire is located it will be treated as a separate blast and the public road closure procedure will be re-initiated, either at that time or at a later date.

On completion of blasting, the Shotfirer will give permission for all sentries to leave their stations. At this stage, all temporary blasting signs will be removed from the public road.

9.3.12 Emergency Event

If the sentries placed on the public road encounter any of the following;

- an emergency vehicle (e.g. NSW Police Force, NSW Ambulance, Fire & Rescue NSW, Mines Rescue, etc.);
- a distressed or desperate citizen who insists on passing through; or
- any other situation where individual citizens or authorities object to being stopped, then the sentry will communicate with the Shotfirer the circumstances.

The Shotfirer will then abort blasting to allow the vehicle to pass through the sentries. Once the vehicle is clear of the blasting area, MPO's nominated Outside Blasting Coordinator will give the Shotfirer the all clear again to recommence the shotfiring procedures.

Sentries working at the stations on the public road are at all times subject to the requirements of the NSW Police Force, other officers of the law and TfNSW.

9.3.13 Post Blast Report

The Post Blast Report shall detail the length of the public road closure and any damage or debris on the public road that may have resulted from the blast.

10 BLAST MONITORING PROGRAM

10.1 AIRBLAST OVERPRESSURE, VIBRATION AND FUME MONITORING

Airblast overpressure, ground vibration and fume monitoring will be conducted for every blast event at the MPO.

Table 7 summarises the units of measure and sampling methods for each parameter monitored during a blast event.

Table 7
Units of Measure and Sampling Methods for Parameters Monitored

Parameter	Units of Measure	Sampling Method
Airblast Overpressure	dB (Lin Peak)	Type 1 Noise Blast Logger
Ground Vibration	mm/s	Geophone Logger (or similar)
NOx Fume	AEISG (2011) Code of Practice Fume Rating System	Observation and Video

The locations of the blast monitoring equipment are outlined in Section 10.1.1.

Performance indicators to evaluate the extent of compliance with the relevant conditions of Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418 are provided in Section 6.

10.1.1 Location of Monitoring Equipment

Airblast overpressure and ground vibration monitoring will be conducted at Wybong Road when blasting is within 500 m of Wybong Road. Similarly, airblast overpressure and ground vibration monitoring will be conducted at Kayuga Road when blasting is within 500 m of Kayuga Road.

Other blast monitoring locations at the MPO are described in the BMP.

Blast monitoring instrumentation will be installed, calibrated and maintained in accordance with AS 2187.2-2006 *Explosives – Storage and use* and the manufacturer's specifications.

NOx fume will also be monitored between the blast and boundary of the premises at Wybong Road and Kayuga Road when blasting is within 500 m.

10.1.2 Monitoring Records

Results of blast monitoring will be kept in a legible form for at least four years after each blast event. These records will be made available to any authorised officer of the EPA or DPHI if requested.

The following is recorded for each blast event:

- date and time;
- location and discrete area;
- blast monitoring locations;

- fume characteristics;
- fume classification level;
- meteorological conditions;
- recorded airblast overpressure and vibration at each blast monitoring location; and
- MIC.

A video of each blast will also be recorded.

The above monitoring records would be used, as required, to evaluate compliance with the conditions of Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418 as described in Section 13.

11 RESPONSE PROTOCOLS

11.1 BLASTING CRITERIA REVIEW PROTOCOL

A Blasting Criteria Review Protocol (refer Figure 3) will be implemented following each blast event and is described in the BMP.

11.2 BLAST FUME EMERGENCY RESPONSE

11.2.1 Off-Site Incident

In the event that blast fumes rated at Level 3 or above (refer Section 8.4) leaves the site[5], the following actions will be undertaken:

- The Drill and Blast Coordinator will immediately notify the Environmental Superintendent that a fume event has occurred that may put members of the local community at risk.
- The Environmental Superintendent will immediately contact and notify the General Manager of the risk.
- The General Manager will initiate the Pollution Incident Response as illustrated in the Pollution Incident Response Flowchart (Appendix F of the BMP), including the notification of relevant sensitive receivers.

11.2.2 Treatment Protocol

Where a person has been exposed to blast fumes or displays symptoms associated with blast fumes, their immediate supervisor should be notified immediately.

Where a member of the public or community has been exposed to blast fumes or displays symptoms associated with blast fumes, MACH Energy will declare an incident in accordance with the Pollution Incident Response Management Plan (refer Section 11.3) and notify relevant sensitive receivers.

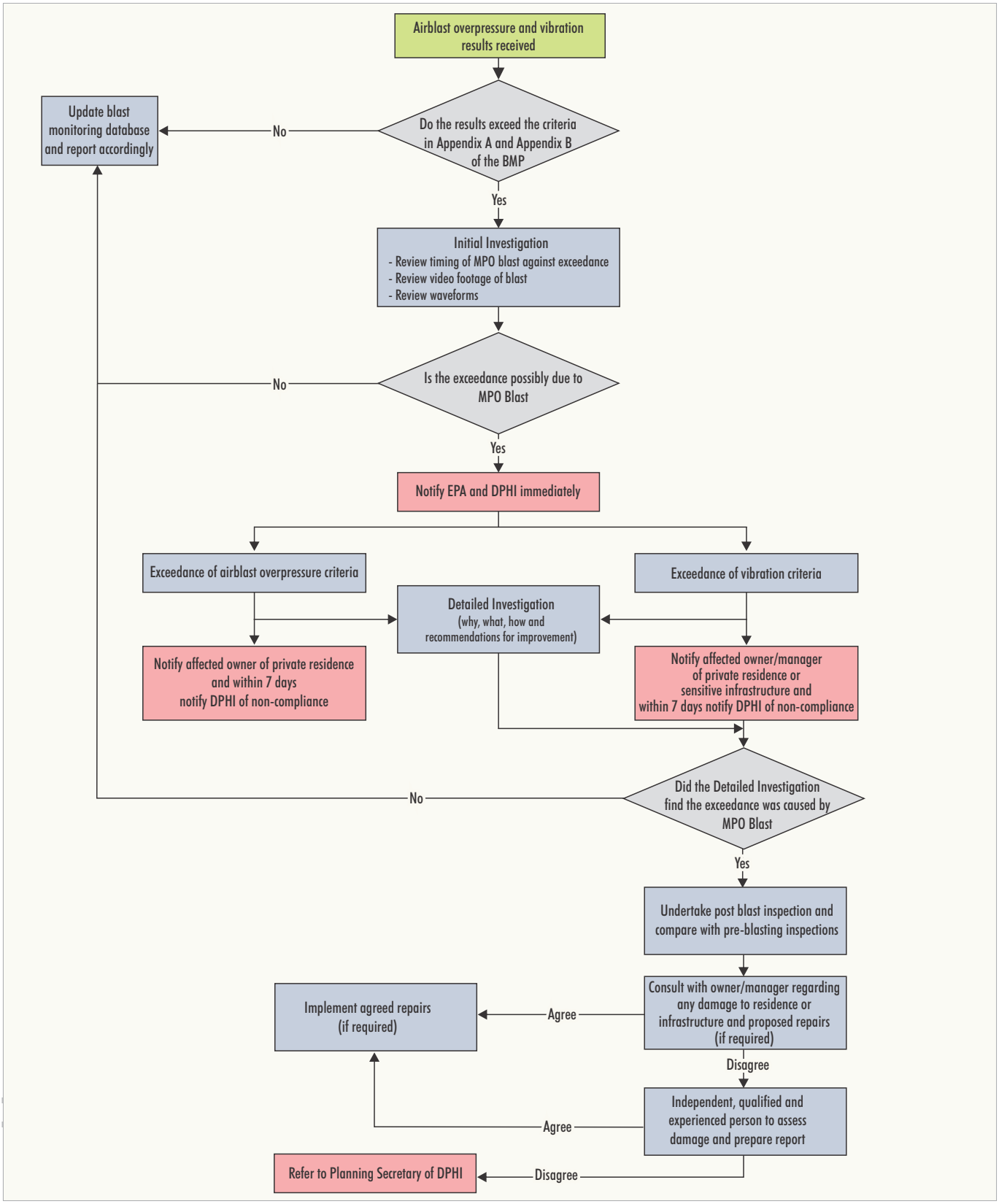
The *Exposure to NOx Gases Event Card* will outline the specific treatment protocol should exposure occur.

11.3 POLLUTION INCIDENT RESPONSE

MACH Energy has developed a Pollution Incident Response Management Plan as required by Condition O5 of EPL 20850.

MACH Energy will investigate and report pollution incidents as described in the Pollution Incident Response illustrated in the Pollution Incident Response Flowchart (Appendix F of the BMP).

[5] The 'site' is defined in Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418 as the land listed in Appendix 1 of both consents.



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MACHEnergy

MOUNT PLEASANT OPERATION

Blasting Criteria Review Protocol

Figure 3

12 CONTINGENCY PLAN

In the event that a blast criterion detailed in Section 5 is considered to have been exceeded (during the implementation of the response protocols described in Section 11), MACH Energy will implement the following Contingency Plan:

- The Environmental Superintendent will report the likely exceedance within 24 hours of the exceedance investigation being concluded.
- MACH Energy will then report the exceedance of the blasting criteria to the EPA immediately and to the DPHI within 7 days of becoming aware of the non-compliance.
- MACH Energy will identify the appropriate course of action (including contingency measures where necessary [refer Section 12.1]) with respect to the identified blast impact(s), in consultation with technical specialists, DPHI and the EPA. In the event that any damage to road infrastructure due to blasting occurs, MACH Energy will consult with MSC to identify the appropriate course of action.
- MACH Energy will, in the event that there is a dispute over the proposed remedial course of action or if the actions conflict with current approvals, submit the appropriate course of the action to the DPHI for approval.
- MACH Energy will implement the approved course of action to the satisfaction of the DPHI.

12.1 POTENTIAL CONTINGENCY MEASURES

Potential contingency measures will be reviewed during revisions of the BMP during the life of the MPO. Key potential contingency measures to be implemented (following exceedance of blasting criteria and implementation of the response protocols) are described in the BMP.

12.2 ADAPTIVE MANAGEMENT

In accordance with Part D, Condition D4 of Development Consent SSD 10418 and Schedule 5, Condition 1A of Development Consent DA 92/97 (prior to its surrender), MACH Energy will assess and manage risks to comply with the criteria and/or performance measures outlined in Sections 5 and 6.

Where any non-compliance with the criteria and/or performance measures occurs, at the earliest opportunity, MACH Energy will:

- take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
- consider all reasonable and feasible options for remediation and submit a report to the DPHI describing these options and preferred remediation measures; and
- implement remediation measures as directed by the Planning Secretary.

13 REVIEW AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE

13.1 ANNUAL REVIEW

In accordance with Condition 3, Schedule 5 of Development Consent DA 92/97 (prior to its surrender) and Part D, Condition D11 of Development Consent SSD 10418, MACH Energy will review and evaluate the environmental performance of the MPO by the end of March each year (for the preceding calendar year) or other such timing as agreed by the Planning Secretary of the DPE (now DPHI).

In relation to blasting, the MPO Annual Review will:

- include a comprehensive review of the blast monitoring results and complaints records relating to the MPO over the past year, which includes a comparison of these results to evaluate compliance against the:
  - relevant statutory requirements, limits or performance measures/criteria (refer Section 4, 5 and 6);
  - monitoring results of the previous years; and
  - relevant predictions in accordance with Part A, Condition A2 of Development Consent SSD 10418;
- identify any blast non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
- identify any trends in the blast monitoring data over the life of the MPO;
- identify any discrepancies between the predicted and actual blast impacts of the MPO, and analyse the potential cause of any significant discrepancies; and
- describe what blast-related measures will be implemented over the next year to improve the environmental performance of the MPO.

Copies of the approved MPO Annual Review will be submitted to MSC and made available to the Community Consultative Committee and any interested person upon request, in accordance with Part D, Condition D12 of Development Consent SSD 10418 and Condition 11, Schedule 5 of Development Consent DA 92/97 (prior to its surrender). The MPO Annual Review will also be made publicly available on the MACH Energy website (https://machenergyaustralia.com.au/).

As mentioned in Part D, Condition D11 of Development Consent SSD 10418 (above) relating to MPO Annual Reviews, MACH Energy will include a comprehensive review of environmental performance at the MPO in accordance with Part A, Condition A2 of Development Consent SSD 10418 which requires that:

> *A2. The development may only be carried out:*
>
> *(a) in compliance with the conditions of this consent;*
> *(b) in accordance with all written directions of the Planning Secretary;*
> *(c) generally in accordance with the EIS and EAs;*
> *(d) generally in accordance with the Development Layout in Appendix 2.*

13.2 ROAD CLOSURE MANAGEMENT PLAN REVIEW

Development Consent DA 92/97

In accordance with Condition 4, Schedule 5 of Development Consent DA 92/97 (prior to its surrender), this RCMP will be reviewed, and if necessary revised (to the satisfaction of the Planning Secretary of the DPHI), within three months of the submission of:

- an MPO Annual Review (Condition 3, Schedule 5);
- an incident report (Condition 7, Schedule 5);
- an Independent Environmental Audit (IEA) (Condition 9, Schedule 5); and/or
- any modification to the conditions of Development Consent DA 92/97[6].

Within 4 weeks of conducting a review of this RCMP, MACH Energy will advise the Planning Secretary of the DPE (now DPHI) of the outcomes of the review, and submit any revised documents for the approval of the Planning Secretary.

In accordance with Condition 4A, Schedule 5 of Development Consent DA 92/97 (prior to its surrender), MACH Energy may submit a revised RCMP for the approval of the Planning Secretary at any time, and with the agreement of the Planning Secretary, may also submit any revision to this RCMP required under Development Consent DA 92/97 on a staged basis.

If agreed with the Planning Secretary of the DPHI, a revision to this RCMP required under Development Consent DA 92/97 (prior to its surrender) may be prepared without undertaking consultation with all parties nominated under the relevant Condition of Development Consent DA 92/97.

This RCMP will be made publicly available on the MACH Energy website, in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97 (prior to its surrender).

Development Consent SSD 10418

In accordance with Part D, Condition D7 of Development Consent SSD 10418, this RCMP will be reviewed, and if necessary revised (to the satisfaction of the Planning Secretary), within three months of the submission of:

- the submission of an incident report under Part D, Condition D9 or D10 of Development Consent SSD 10418;
- the submission of an MPO Annual Review under Part D, Condition D11 of Development Consent SSD 10418;
- the submission of an IEA under Part D, Condition D13 of Development Consent SSD 10418;
- the approval of any modification of the conditions of Development Consent SSD 10418; or
- notification of a change in development phase under Part A, Condition A12 of Development Consent SSD 10418.

[6] Note in the event of an inconsistency between Condition 4(d), Schedule 5 of Development Consent DA 92/97 and any Condition in Schedule 3 of Development Consent DA 92/97, the latter prevails.

This RCMP will also be reviewed and revised prior to any mining within 500 m of Dorset Road or the Northern Link Road, which will be undertaken in consultation with MSC.

In accordance with Part D, Condition D8 of Development Consent SSD 10418, within 6 weeks of conducting any such review, the Planning Secretary will be advised of the outcomes of the review and any revised documents submitted to the Planning Secretary for approval.

In accordance Part A, Condition A24 of Development Consent SSD 10418, MACH Energy may submit a revised RCMP for the approval of the Planning Secretary at any time and may also submit any revision to this RCMP on a staged basis.

In accordance with Part A, Condition A25 of Development Consent SSD 10418, if agreed with the Planning Secretary, a revision to this BMP required under Development Consent SSD 10418 may be prepared without undertaking consultation with all parties nominated under the relevant conditions of Development Consent SSD 10418.

13.3 INDEPENDENT ENVIRONMENTAL AUDIT

Within one year of commencement of development under Development Consent SSD 10418, and every three years after, an IEA will be undertaken and submitted as required, in accordance with Part D, Condition D13 of Development Consent SSD 10418.

In accordance with Part D, Condition D14 of Development Consent SSD 10418, within three months of commencing the IEA, MACH Energy will submit a copy of the audit report to the Planning Secretary, and other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. MACH Energy will ensure that the recommendations will be implemented and the findings and compliance with the IEA will be reported in the MPO Annual Reviews.

Once Development Consent DA 92/97 is surrendered, all subsequent IEAs commissioned by MACH Energy will be in accordance with Part D, Condition D13 and D14 of Development Consent SSD 10418.

Subsequent versions of the IEA will be provided to the Planning Secretary of the DPE (now DPHI) and made available on the MACH Energy website. The IEA will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary of the DPE (now DPHI).

14 REPORTING PROCEDURES

In accordance with Part D, Condition D5(h) of Development Consent SSD 10418 and Schedule 5, Condition 2 of Development Consent DA 92/97 (prior to its surrender), MACH Energy has developed protocols for managing and reporting the following:

- incidents;
- complaints;
- non-compliances with statutory requirements; and
- exceedances of the impact assessment criteria and/or performance criteria.

These protocols are described in detail in the MPO EMS.

In accordance with Part D, Condition D17(vi) of Development Consent SSD 10418 and Schedule 5, Condition 8 of Development Consent DA 92/97 (prior to its surrender), MACH Energy will provide regular reporting on the environmental performance of the MPO on the MACH Energy website (https://machenergyaustralia.com.au/).

In accordance with Part D, Conditions D15 and D16 of Development Consent SSD 10418, any conditions of Development Consent SSD 10418 that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the NSW EP&A Act. These conditions include incident notification (Part D, Condition D9 of Development Consent SSD 10418); non-compliance notification (Part D, Condition D10 of Development Consent SSD 10418); reporting and response; compliance reporting; and IEA (Part D, Condition D13 of Development Consent SSD 10418).

14.1 INCIDENT NOTIFICATION

An incident is defined as an occurrence or a set of circumstances that causes or threatens to cause material harm to the environment and/or breaches or exceeds the limits or performance measures/criteria in Development Consent DA 92/97 (prior to its surrender) and Development Consent SSD 10418.

In the event that review of monitoring data, or a complaint indicates an incident has occurred, the incident will be reported in accordance with Part D, Condition D9 of Development Consent SSD 10418 and Schedule 5, Condition 7 of Development Consent DA 92/97 (prior to its surrender). The Planning Secretary will be notified in writing via the Major Projects website immediately after MACH Energy becomes aware of an incident. The notification will identify the Project name and development application number and set out the location and nature of the incident.

In accordance with Part D, Condition D10 of Development Consent SSD 10418, within seven days of becoming aware of a non-compliance MACH Energy will notify DPE (now DPHI) of the non-compliance. The notification must be made in writing via the Major Projects Website and will:

- identify the MPO (including the Development Application number and name);
- set out the condition of Development Consent SSD 10418 that the incident is non-compliant with;
- describe the location and nature of the incident;

- the reason for the non-compliance (if known); and
- what actions have been, or will be, undertaken to address the non-compliance.

14.2 COMPLAINTS

MACH Energy maintains a Community Hotline (1800 886 889), which is dedicated to the receipt of community complaints. The Community Hotline is publicly advertised in a variety of MACH Energy's public communication tools and is available during operating hours (i.e. 24/7), to receive any complaints. Communication received from the hotline is recorded in a Community and Stakeholder Engagement Database.

MACH Energy has developed a procedure that outlines its commitment to receiving, responding to and maintaining a record of phone calls from the community. This procedure is supported by a Community and Stakeholder Engagement Register. This is described in MPO EMS.

In accordance with Part D, Condition D17 of Development Consent SSD 10418 and Schedule 5, Condition 11 of Development Consent DA 92/97 (prior to its surrender), a complaints register will be made available on the MACH Energy website (https://machenergyaustralia.com.au/) and updated monthly.

14.3 NON-COMPLIANCE WITH STATUTORY REQUIREMENTS

In accordance with Part D, Condition D5(h) of Development Consent SSD 10418 and Schedule 5, Condition 7A of Development Consent DA 92/97 (prior to its surrender), a protocol for managing and reporting non-compliances with statutory requirements has been developed as a component of MPO EMS and is described below.

Compliance with all approval plans and procedures is the responsibility of all personnel (staff and contractors) employed on or in association with MACH Energy and the Project. In accordance with Part A, Condition A2 of Development Consent SSD 10418 and Schedule 2, Condition 2 of Development Consent DA 92/97 (prior to its surrender), MACH Energy will carry out the development in accordance with:

- the conditions of Development Consent SSD 10418 and Development Consent DA 92/97 (prior to its surrender)[7];
- all written directions of the Planning Secretary;
- Statement of Commitments (Appendix 3 of Development Consent DA 92/97);
- the 1997 EIS, EA (MOD 1), EA (MOD 2), EA (MOD 3), EA (MOD 4), the Project EIS; and
- with the Development Layout in Appendix 2 of Development Consent SSD 10418 (Attachment 2).

[7] In accordance with Part A, Condition A4 of Development Consent SSD 10418, the conditions in Development Consent SSD 10418 and directions of the Planning Secretary prevail to the extent of inconsistency, ambiguity or conflict between them and any document/s listed in condition A2(c). In the event of an inconsistency, ambiguity or conflict between any of the document/s listed in condition A2(c), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

MACH Energy will undertake regular inspections, internal audits and initiate directions identifying any remediation/rectification work required, and areas of actual or potential non-compliance.

As described in Section 14.1, MACH Energy will report incidents in accordance with Part D, Condition D9 of Development Consent SSD 10418 and Schedule 5, Condition 7 of Development Consent DA 92/97 (prior to its surrender).

A review of compliance with all conditions in Development Consent SSD 10418, Development Consent DA 92/97 (prior to its surrender) and relevant MLs will be undertaken prior to (and included within) each MPO Annual Review (Section 13.1).

Additionally, in accordance with Part D, Condition D13 of Development Consent SSD 10418 and Schedule 5, Condition 9 of Development Consent DA 92/97 (prior to its surrender), an IEA (Section 13.3) will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary to assess whether MACH Energy is complying with the requirements in Development Consent SSD 10418 and Development Consent DA 92/97 (prior to its surrender).

14.4 ACCESS TO INFORMATION

In accordance with Part D, Condition D17 of Development Consent SSD 10418 and Schedule 5, Condition 11 of Development Consent DA 92/97 (prior to its surrender), the MACH Energy website will be maintained as a tool for the provision of information to stakeholders and interested parties about the operation and environmental performance of the MPO. Information required by MACH Energy to be available on the website is outlined in MPO EMS.

15 REFERENCES

Australian and New Zealand Environment Council (1990) *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration.*

Australian Explosives Industry and Safety Group Inc (2011) *Code of Practice Prevention and Management of Blast Generated NOx Gases in Surface Blasting*.

Coal & Allied Operations Pty Ltd (1998) *Mount Pleasant Mine Commission of Enquiry – Primary Submission.*

EMGA Mitchell McLennan (2010) *Mount Pleasant Project Modification Environmental Assessment.*

Environmental Resources Management Mitchell McCotter (1997) *Mount Pleasant Mine Environmental Impact Statement.*

MACH Energy (2017a) *Mount Pleasant Operation (DA 92/97) – South Pit Haul Road Modification*.

MACH Energy (2017b) *Mount Pleasant Operation – Mine Optimisation Modification Environmental Assessment.*

MACH Energy (2017c) *Mount Pleasant Operation – Rail Modification Environmental Assessment.*

Muswellbrook Shire Council (2015) *Muswellbrook Mine Affected Roads – Stage 1 Road Network Plan.* Report prepared by Cardno.

Planning Environmental & Engineering Consultants (1999) *Mount Pleasant Mine Commission of Enquiry – Submission in Reply.*

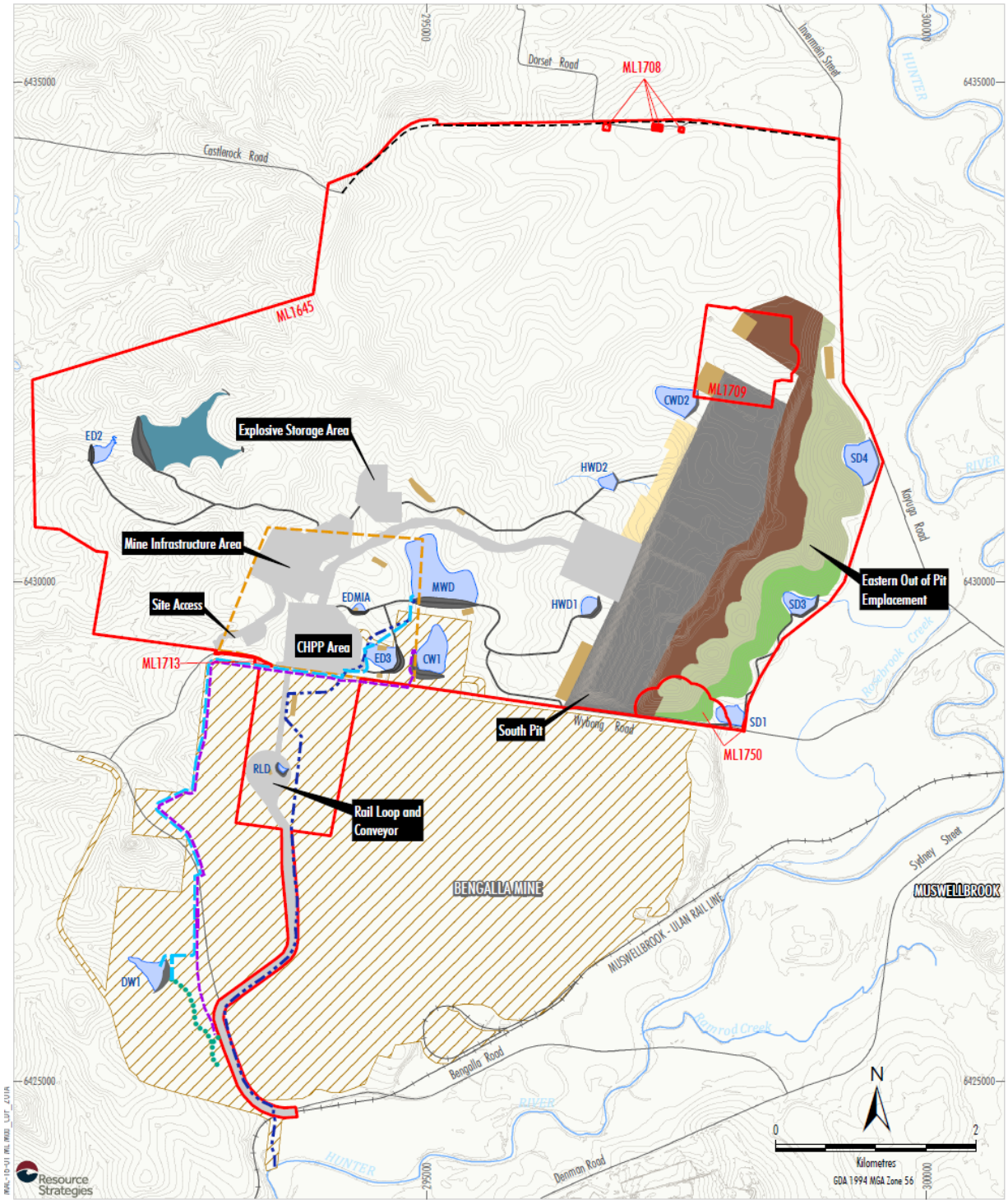
Transport for New South Wales (2022) *Traffic Control at Work Sites Technical Manual*. Issue 6.1.

Wilkinson Murray (2020) *Mount Pleasant Optimisation Project Noise and Blasting Assessment.*

ATTACHMENT 1

APPENDIX 2 OF DEVELOPMENT CONSENT DA 92/97

APPENDIX 2
FIGURE 1 - CONCEPTUAL PROJECT LAYOUT PLAN AT 2021



LEGEND

- Mining Lease Boundary
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Infrastructure Area Envelope
- Active Stripping Area
- Active Mining Area
- Active Overburden Emplacement Area
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile Area
- Access Road
- Northern Link Road

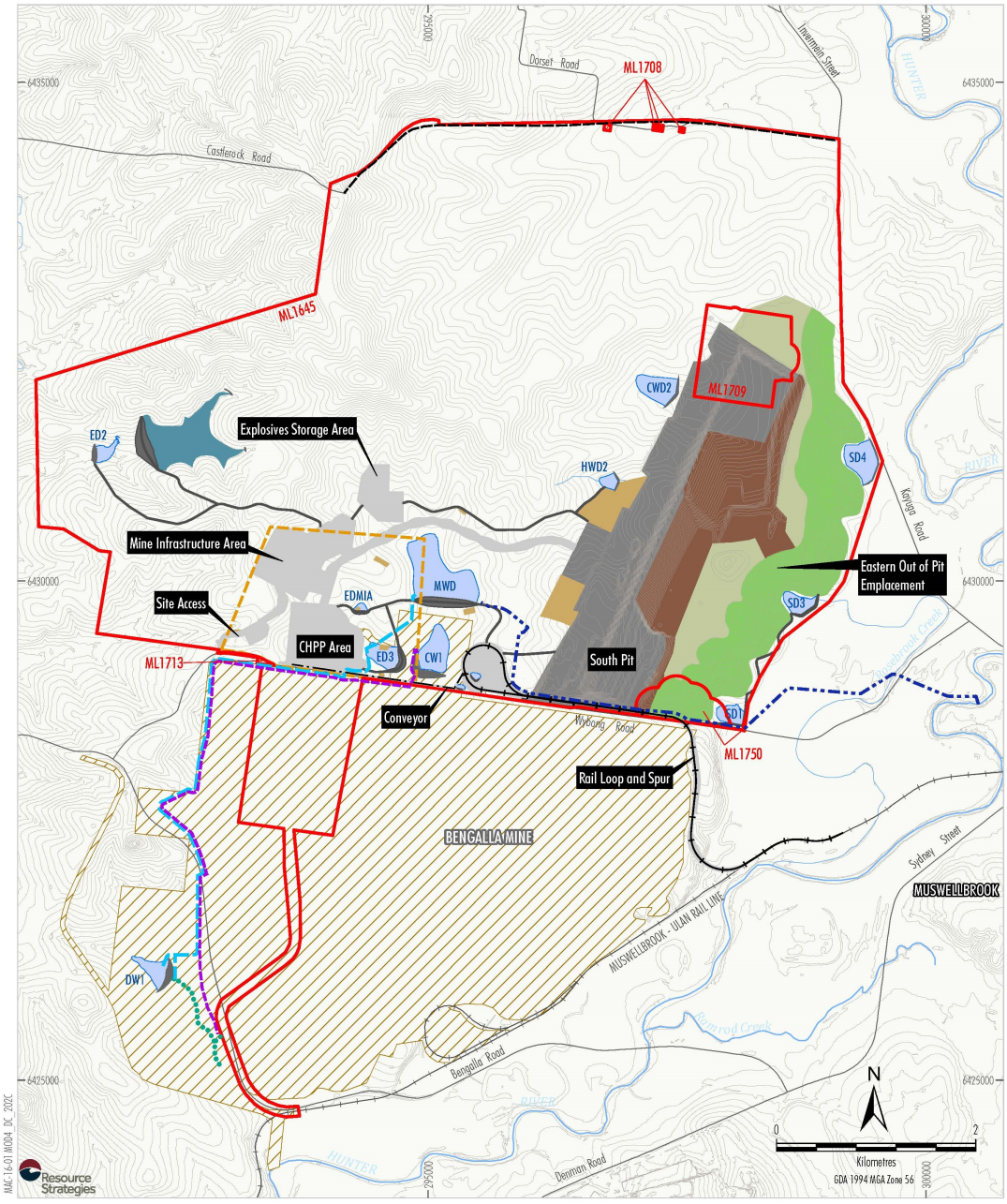
Indicative Water Pipeline Alignment

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline
- Approximate Extent of Scour Protection
- Water Dam
- Fines Emplacement Area

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2017)

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MOUNT PLEASANT OPERATION

FIGURE 2 - CONCEPTUAL PROJECT LAYOUT PLAN AT 2025



LEGEND

- Mining Lease Boundary
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Infrastructure Area Envelope
- Active Mining Area
- Active Overburden Emplacement Area
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile Area
- Access Road
- Northern Link Road

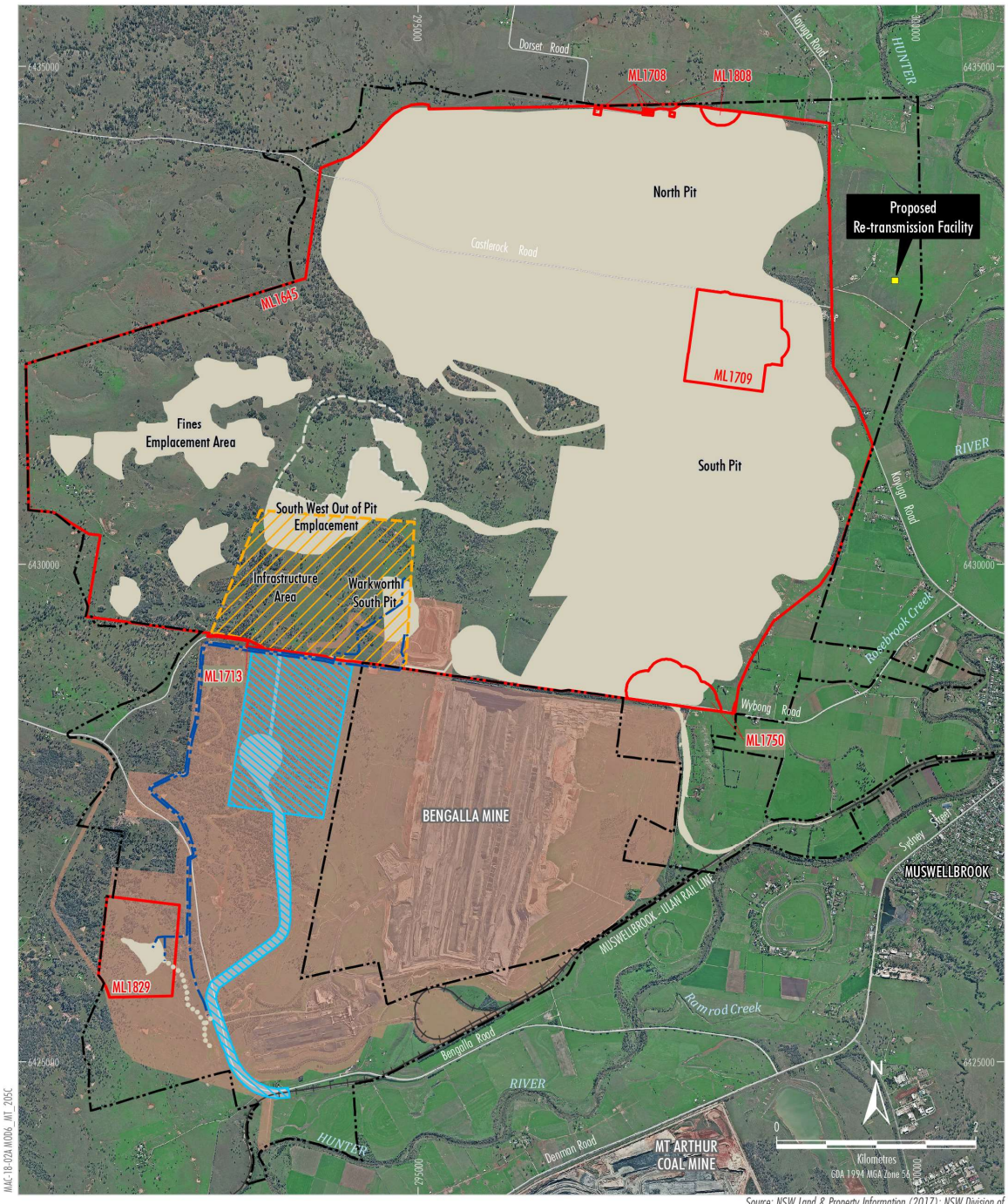
Indicative Water Pipeline Alignment

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline
- Approximate Extent of Scour Protection
- Water Dam
- Fines Emplacement Area

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2018)

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MOUNT PLEASANT OPERATION

FIGURE 3 - APPROVED SURFACE DISTURBANCE PLAN



LEGEND

- Development Consent Boundary (DA 92/97)
- Mining Lease Boundary
- Approximate Extent of Approved Surface Development [1]
- Indicative Water Pipeline Alignment
- 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)

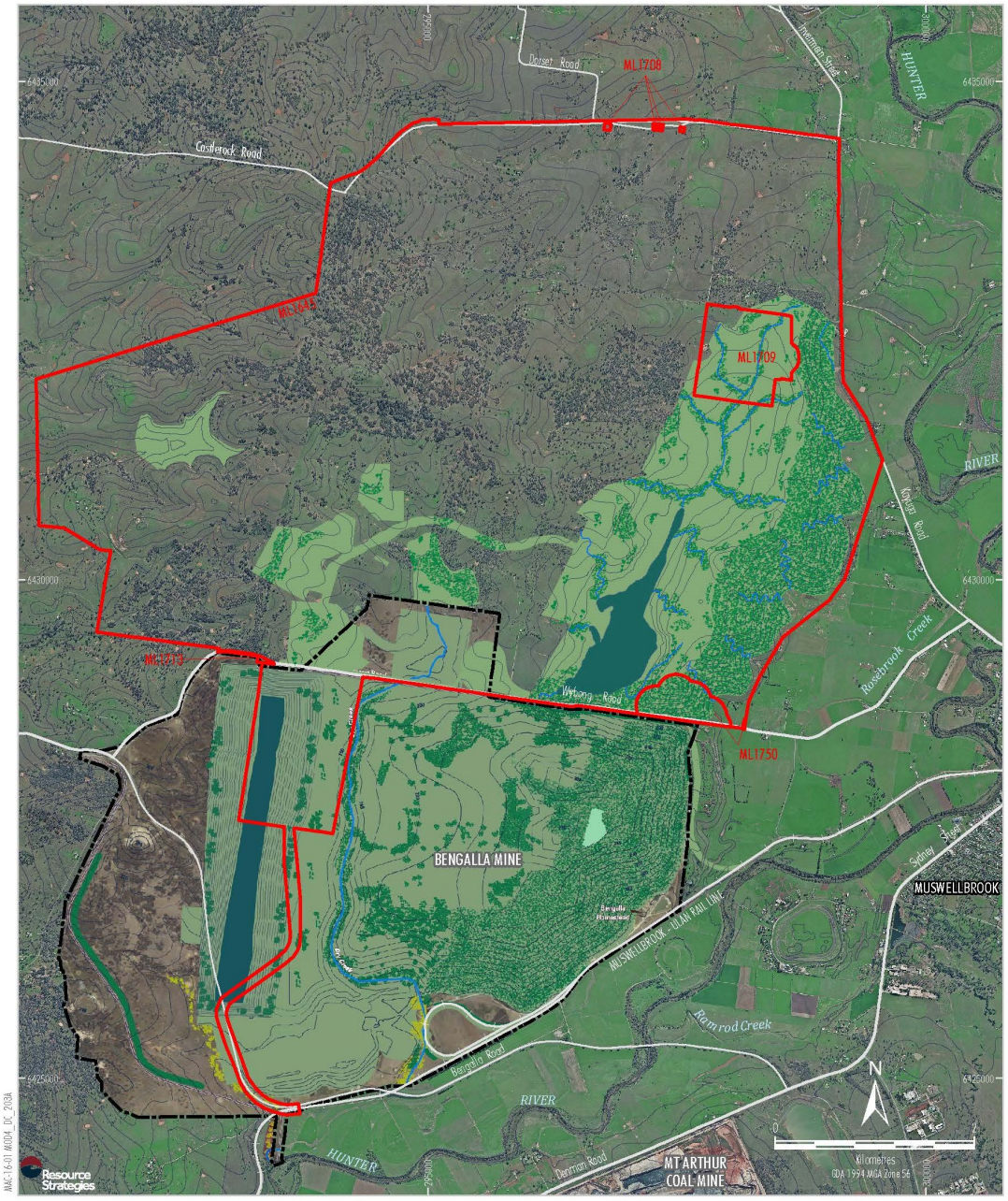
NOTE

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.

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2018); Department of Planning and Environment (2016); MACH Energy (2017)
Orthophoto: MACH Energy (Aug 2016)

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MOUNT PLEASANT OPERATION
Revised Approved Surface Disturbance Plan

FIGURE 4 - CONCEPTUAL FINAL LANDFORM



LEGEND

- Mt Pleasant Mining Lease Boundary
- Final Void
- Final Rehabilitation
- Bengalla Mine Conceptual Final Landform *
- Project Boundary (Appendix 2 of Development Consent SSD-5170) (Dated 23 December 2016)
- Dry Creek
- Final Void Lake
- Rehabilitation
- Rehabilitation Class III
- Indicative Tree Screens (or equivalent)
- Treed Rehabilitation
- Indicative Restorative Area

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

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); Department of Planning and Environment (2016); MACH Energy (2017)
Orthophoto: MACH Energy (Aug 2016)

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MOUNT PLEASANT OPERATION
Conceptual Final Landform (2026)

ATTACHMENT 2

APPENDIX 2 OF DEVELOPMENT CONSENT SSD 10418

APPENDIX 2 DEVELOPMENT LAYOUT PLANS

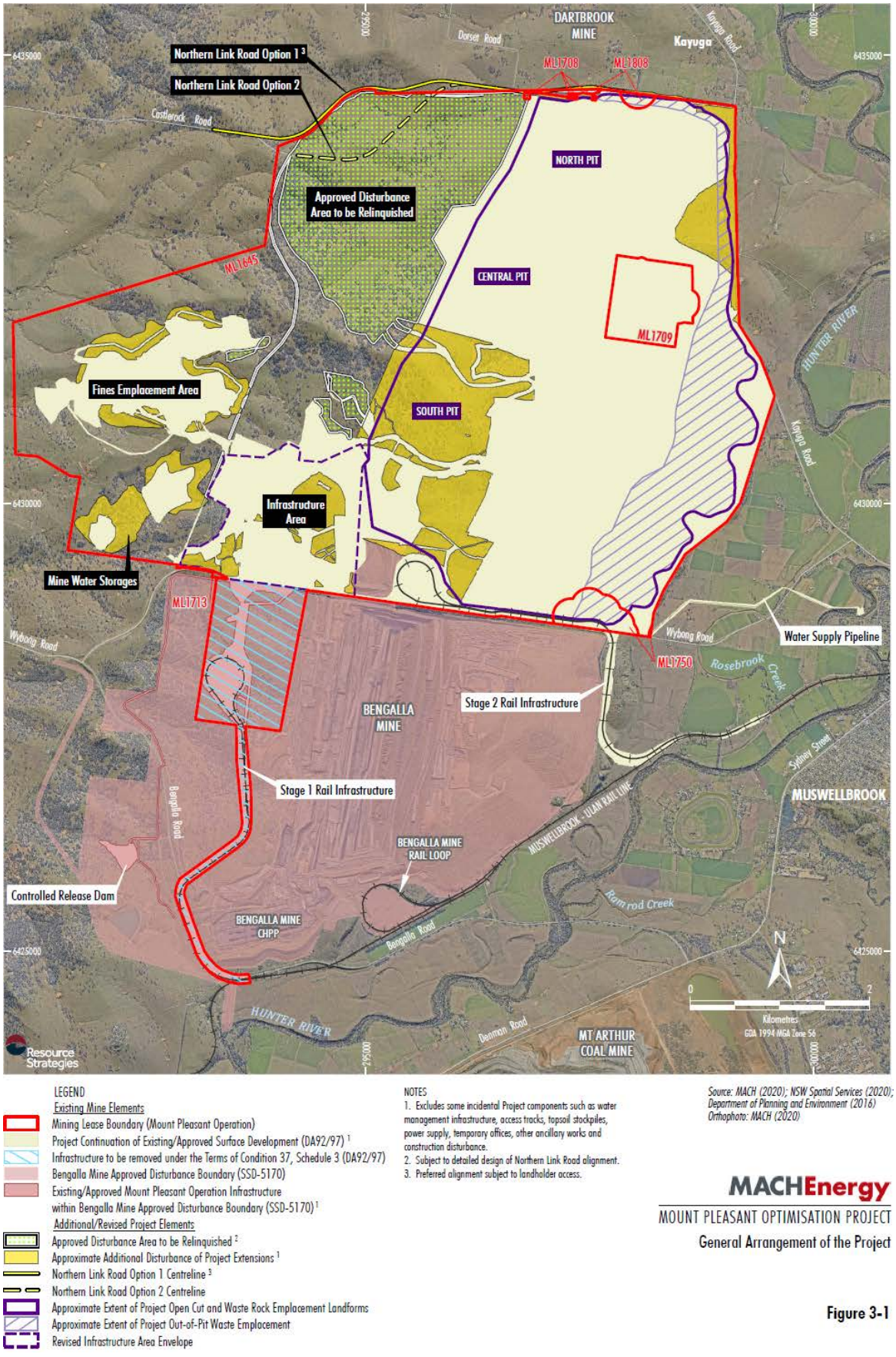


Figure 1: General Project Arrangement

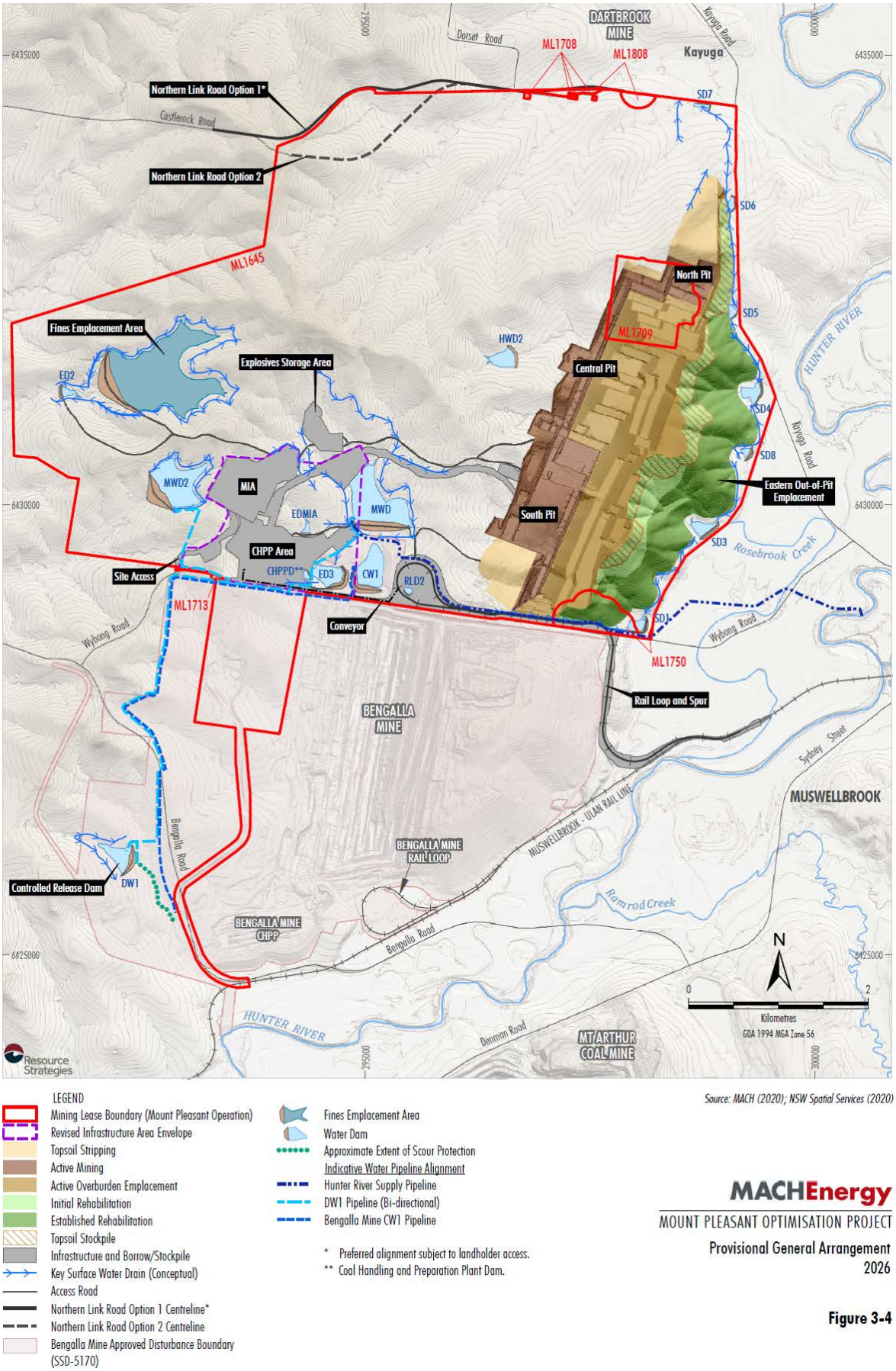
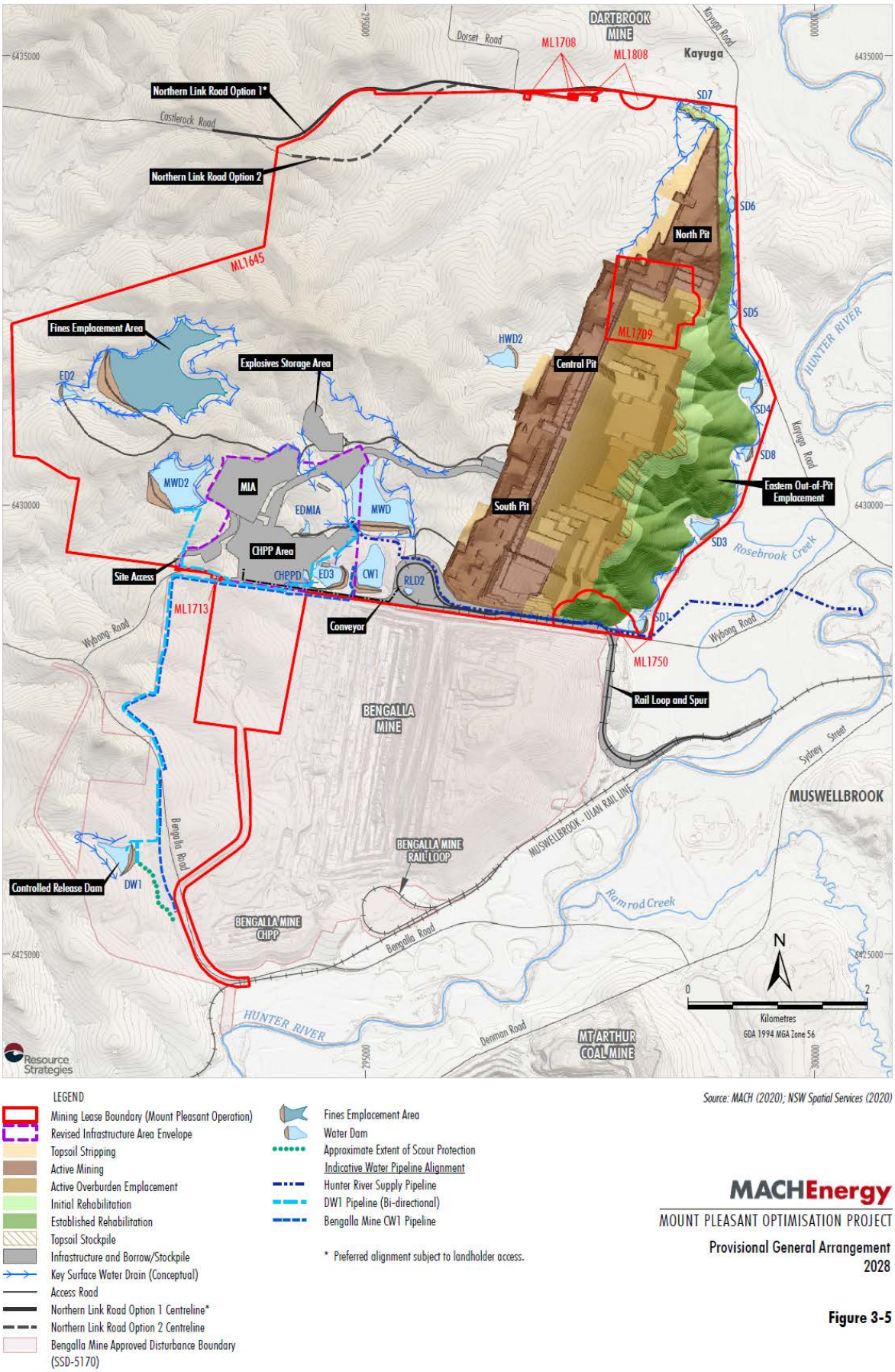


Figure 2: General Project Arrangement – 2026



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Initial Rehabilitation
- Established Rehabilitation
- Topsoil Stockpile
- Infrastructure and Borrow/Stockpile
- Key Surface Water Drain (Conceptual)
- Access Road
- Northern Link Road Option 1 Centreline*
- Northern Link Road Option 2 Centreline
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Fines Emplacement Area
- Water Dam
- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

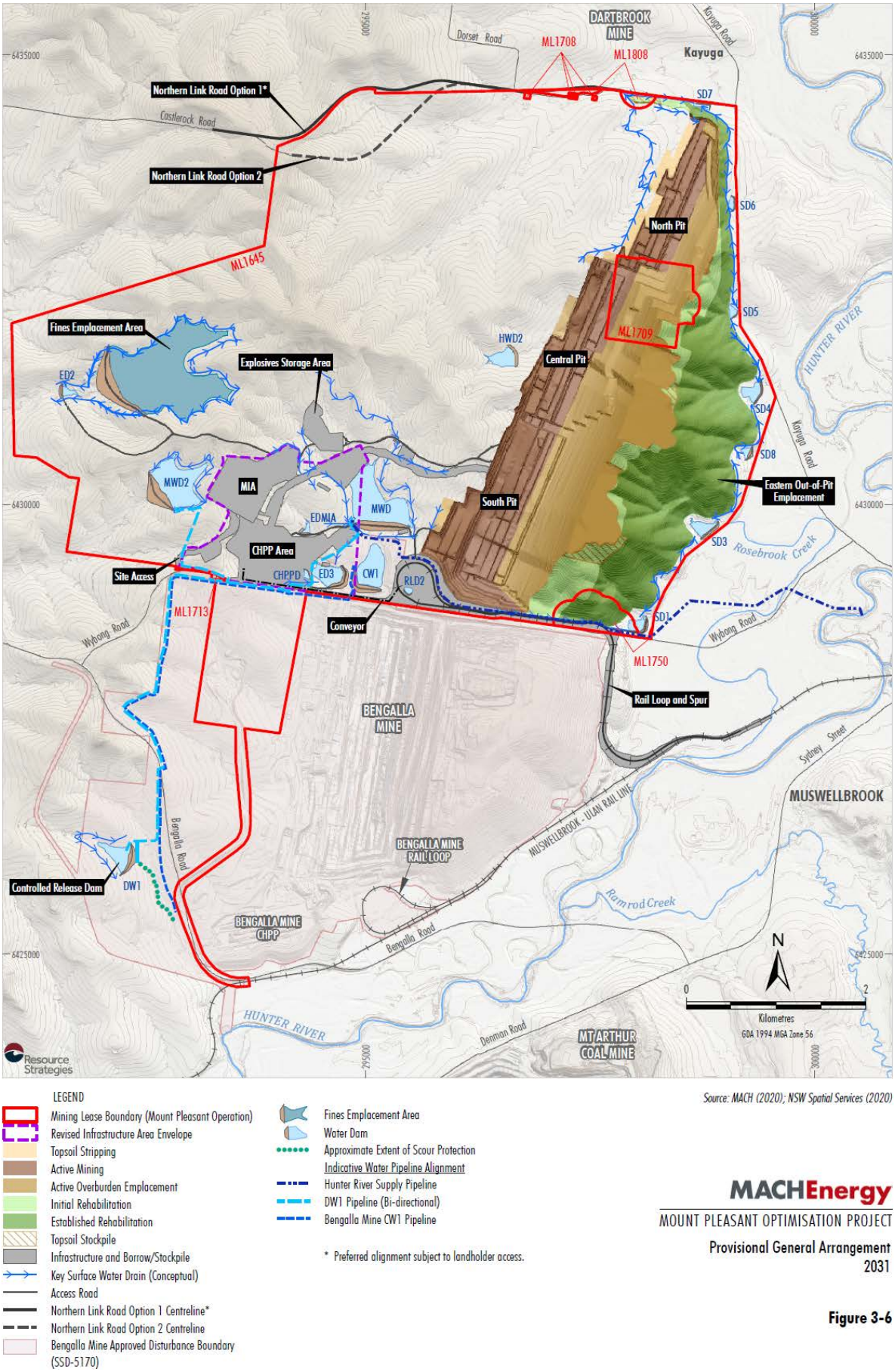
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MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2028

Figure 3-5

Figure 3: General Project Arrangement – 2028



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Initial Rehabilitation
- Established Rehabilitation
- Topsoil Stockpile
- Infrastructure and Borrow/Stockpile
- Key Surface Water Drain (Conceptual)
- Access Road
- Northern Link Road Option 1 Centreline*
- Northern Link Road Option 2 Centreline
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Fines Emplacement Area
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- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

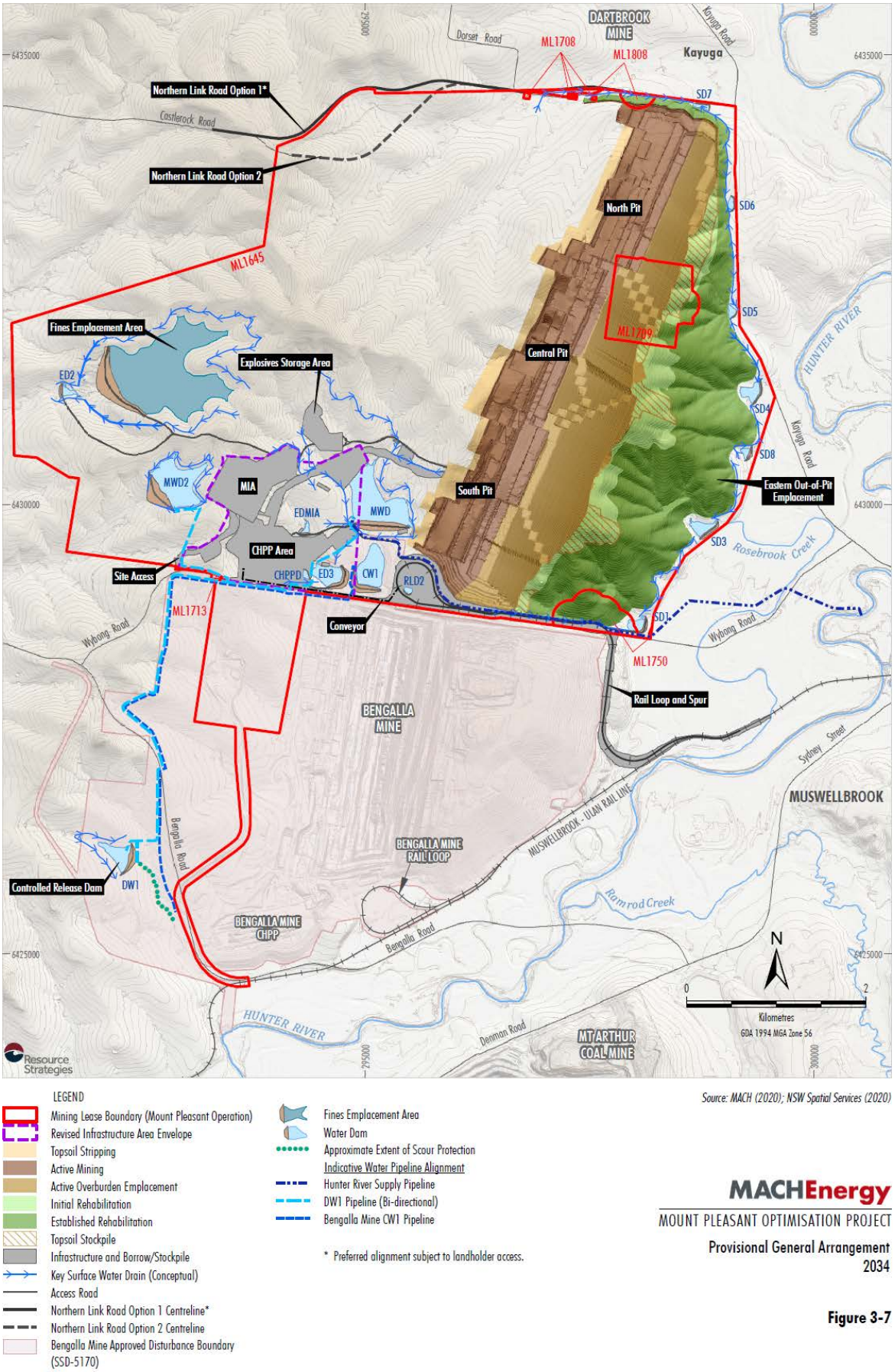
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MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2031

Figure 3-6

Figure 4: General Project Arrangement - 2031



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Initial Rehabilitation
- Established Rehabilitation
- Topsoil Stockpile
- Infrastructure and Borrow/Stockpile
- Key Surface Water Drain (Conceptual)
- Access Road
- Northern Link Road Option 1 Centreline*
- Northern Link Road Option 2 Centreline
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Fines Emplacement Area
- Water Dam
- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

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MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2034

Figure 3-7

Figure 5: General Project Arrangement - 2034

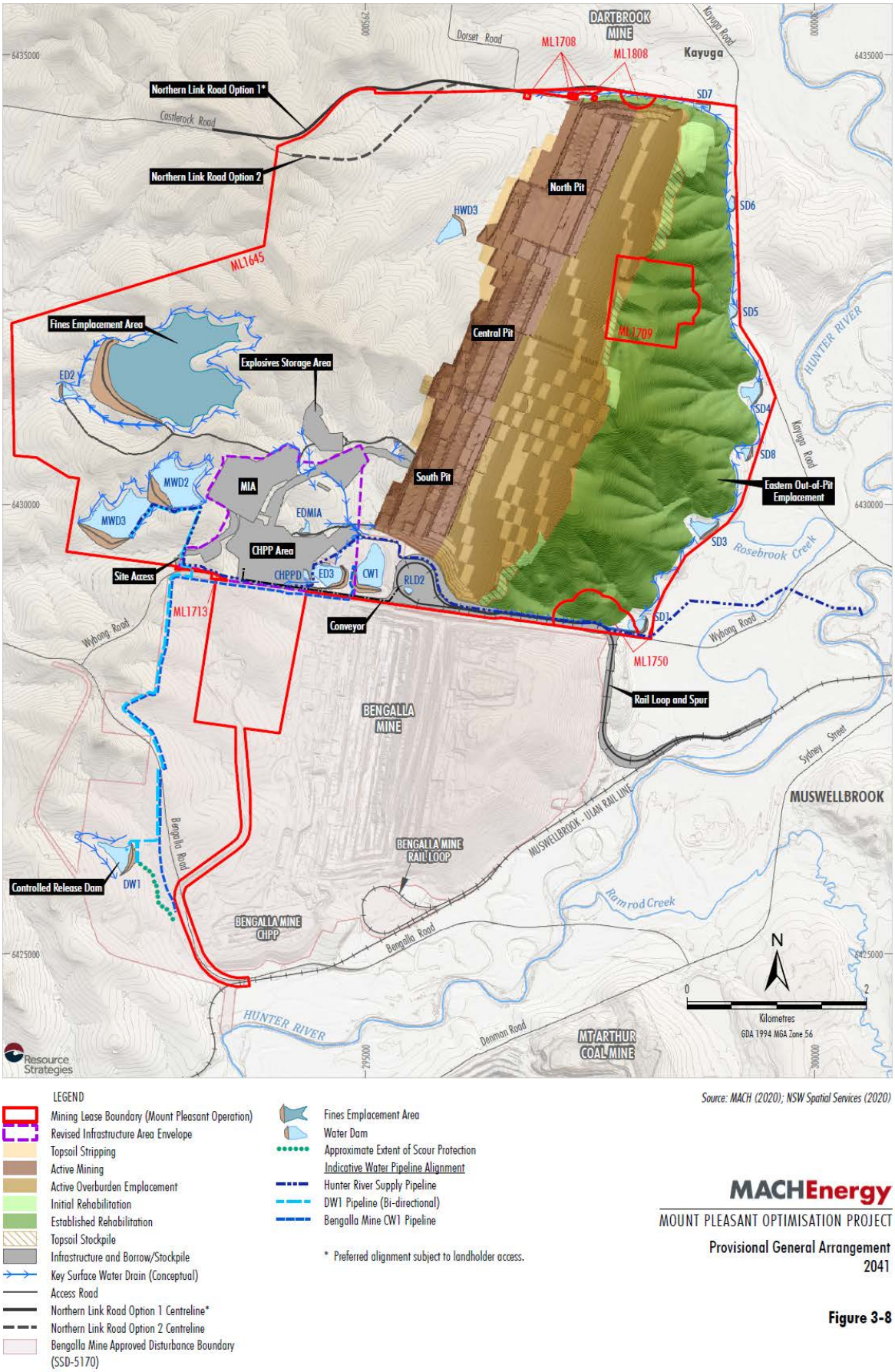
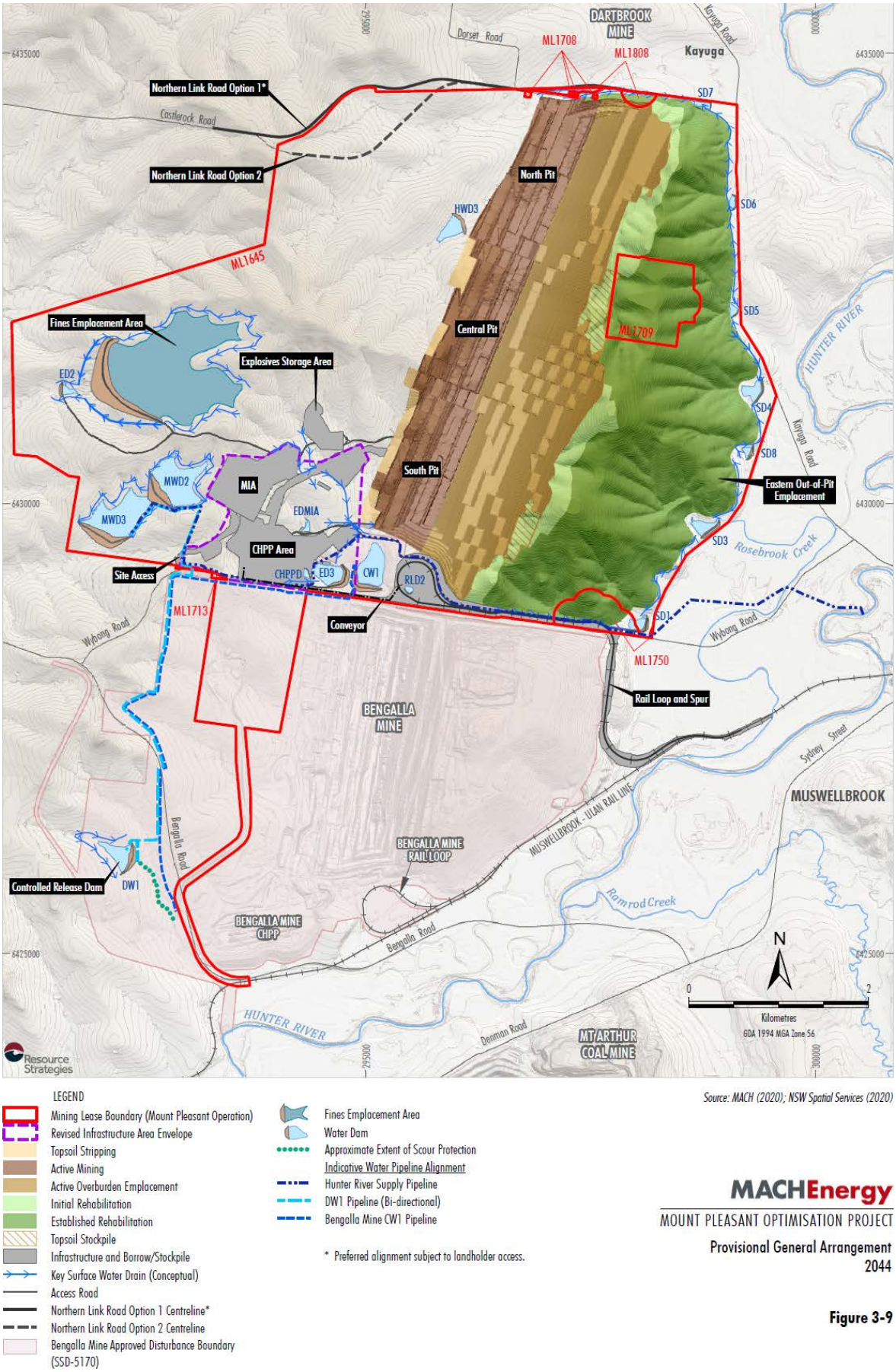


Figure 6: General Project Arrangement - 2041



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Initial Rehabilitation
- Established Rehabilitation
- Topsoil Stockpile
- Infrastructure and Borrow/Stockpile
- Key Surface Water Drain (Conceptual)
- Access Road
- Northern Link Road Option 1 Centreline*
- Northern Link Road Option 2 Centreline
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Fines Emplacement Area
- Water Dam
- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

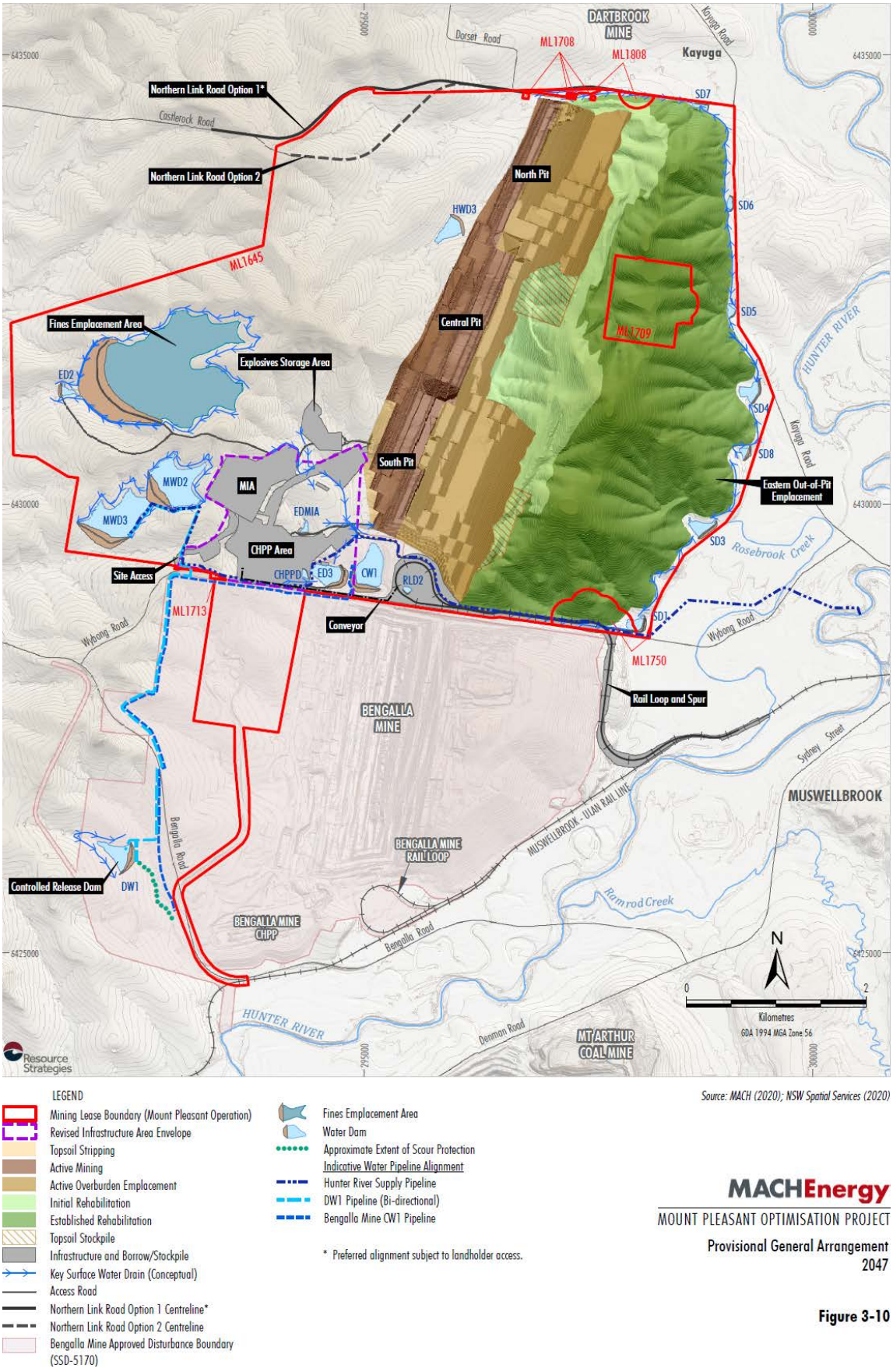
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MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2044

Figure 3-9

Figure 7: General Project Arrangement - 2044



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Revised Infrastructure Area Envelope
- Topsoil Stripping
- Active Mining
- Active Overburden Emplacement
- Initial Rehabilitation
- Established Rehabilitation
- Topsoil Stockpile
- Infrastructure and Borrow/Stockpile
- Key Surface Water Drain (Conceptual)
- Access Road
- Northern Link Road Option 1 Centreline*
- Northern Link Road Option 2 Centreline
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Fines Emplacement Area
- Water Dam
- Approximate Extent of Scour Protection
- Indicative Water Pipeline Alignment
- Hunter River Supply Pipeline
- DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline

* Preferred alignment subject to landholder access.

Source: MACH (2020); NSW Spatial Services (2020)

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MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2047

Figure 3-10

Figure 8: General Project Arrangement – 2047

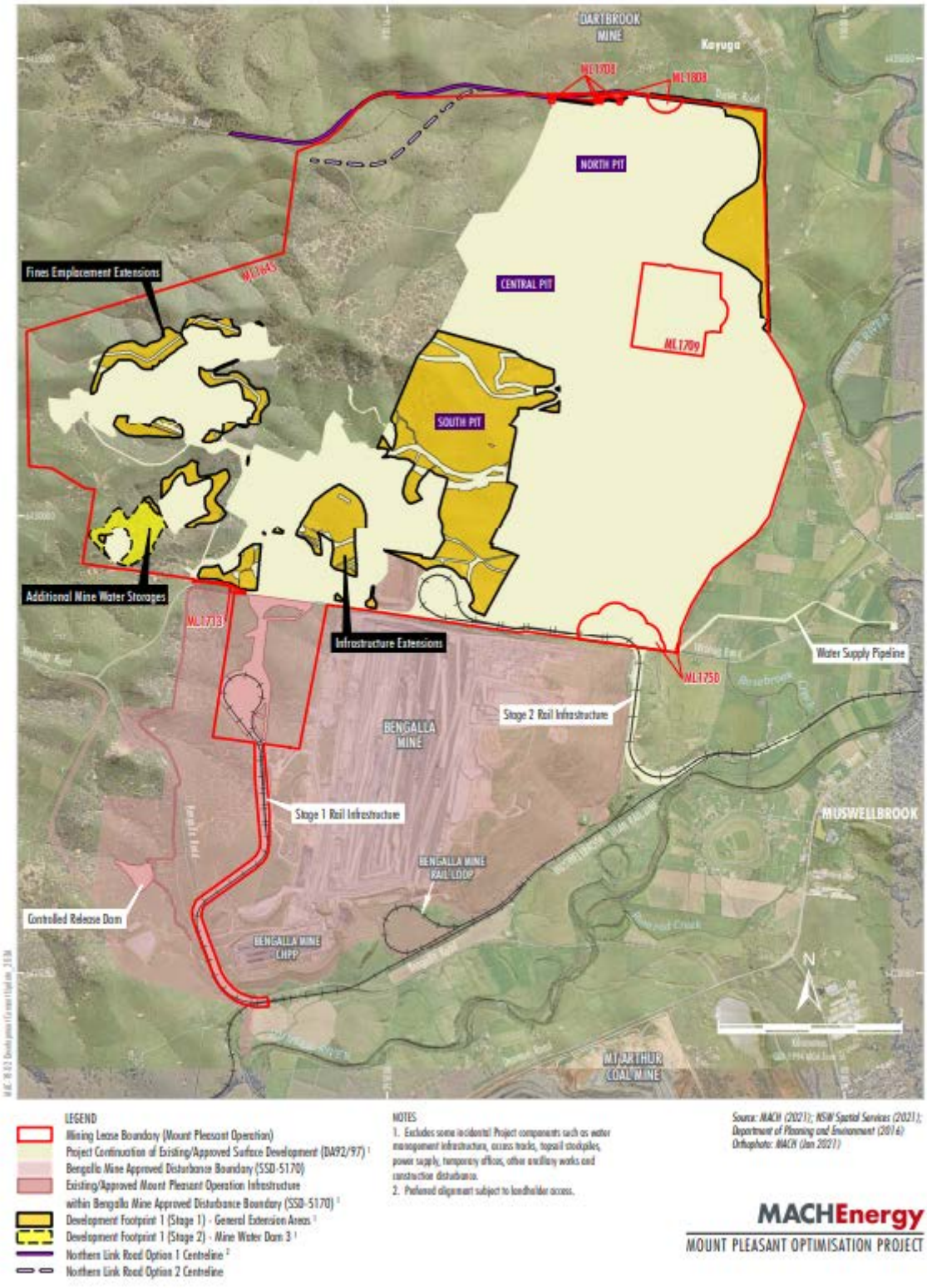


Figure 9: Staging of Project Disturbance Areas

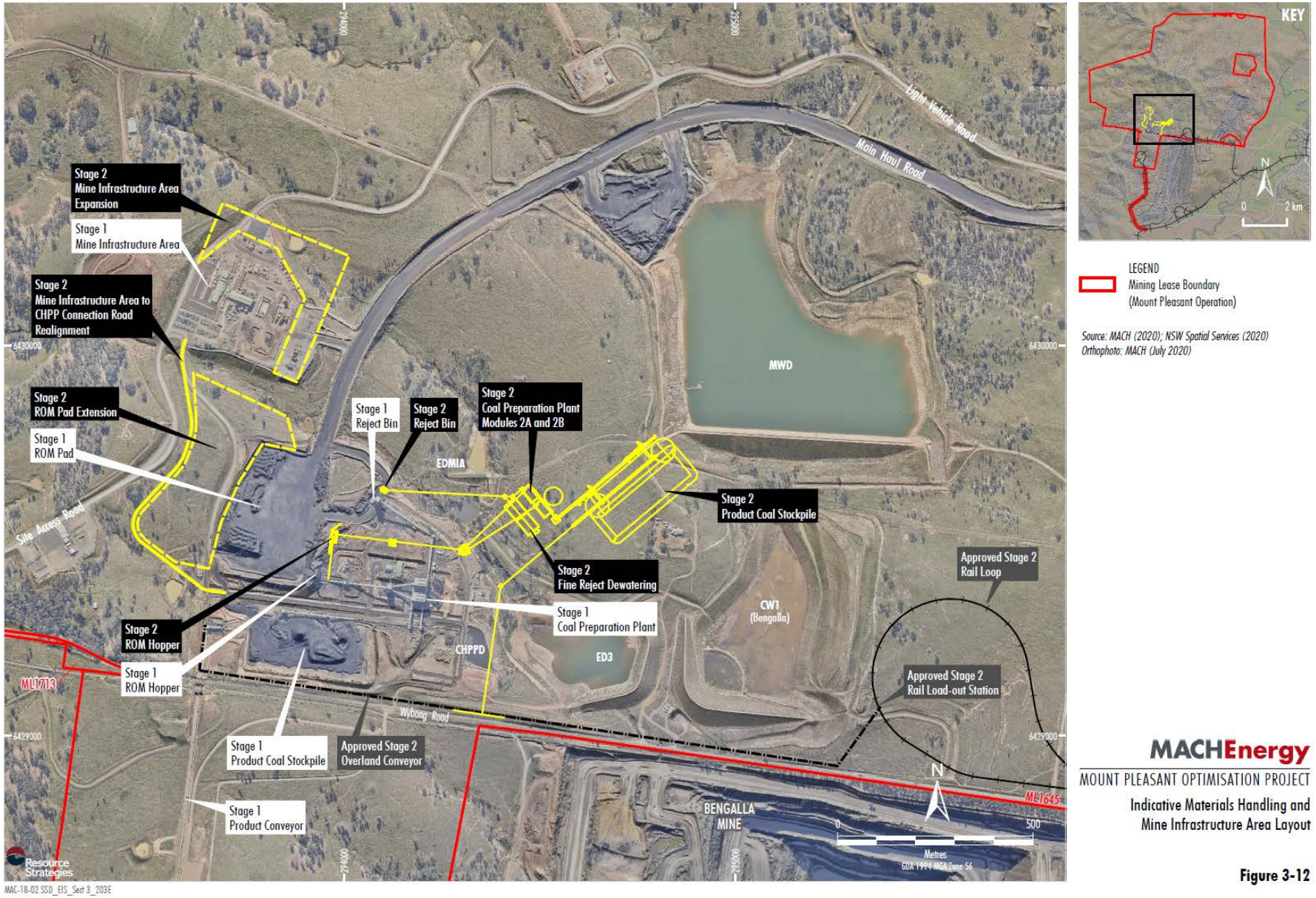
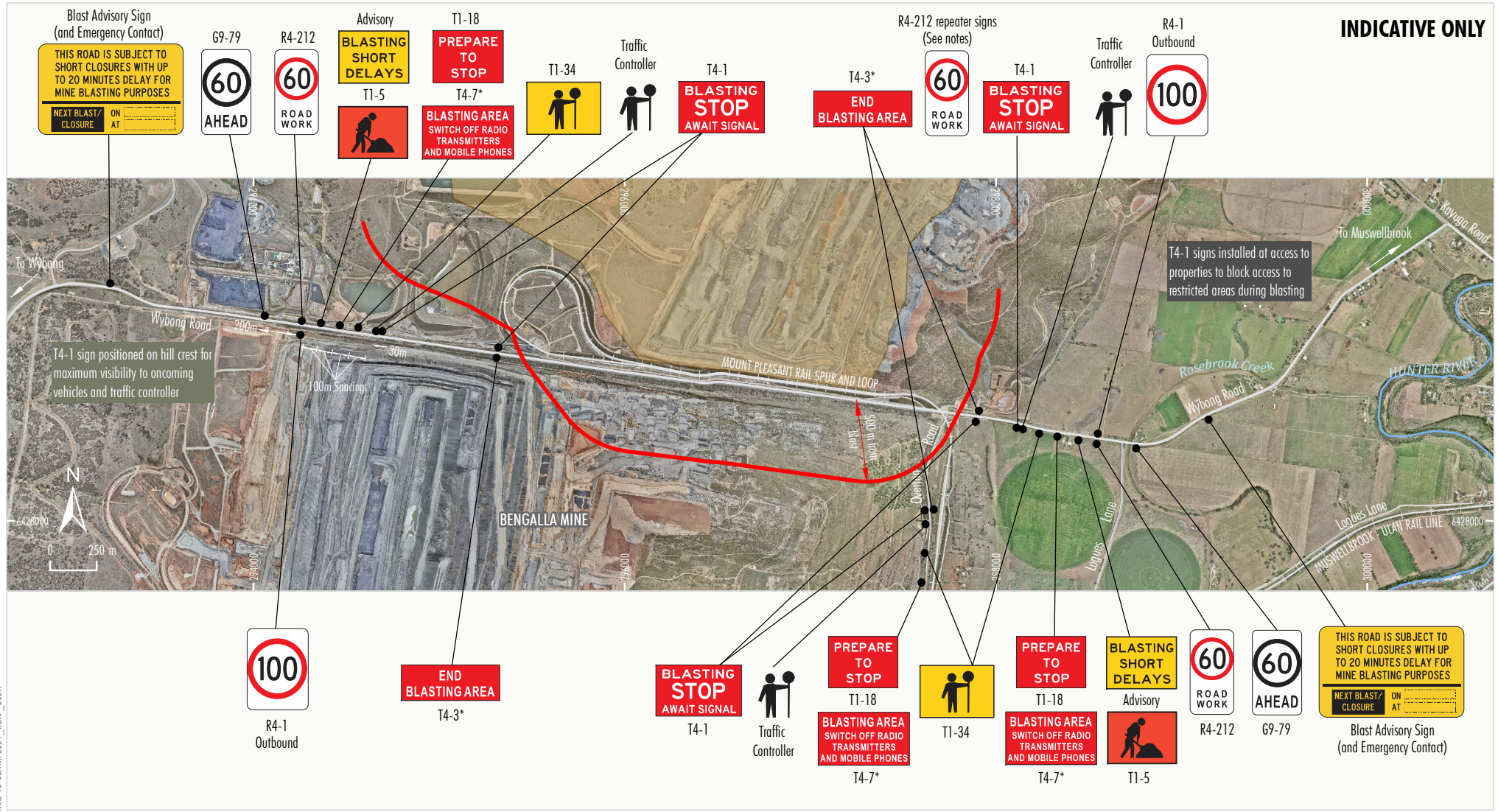


Figure 10: Indicative Mine Infrastructure Area Layout

APPENDIX A

TRAFFIC CONTROL PLAN – WYBONG ROAD

[Individual TCPs for each blast will include the Name, Certification Number and Expiry Date of Ticket, and the signature of the person preparing the TCP]



MAC-18-03A MP2024_RCMP_202A

NOTES

- Traffic control to be setout in accordance with Traffic Control at Worksites Technical Manual (RfNSW, 2022)
- Signs are folding (except for notification signs) and are provided with latching device to be secure and stable during wind
- Blasting Short Delays used with Workman T1-5 to better inform motorists
- Sign spacing is the same for both directions
- R4-212 signs to be repeated at maximum of 500m spacing
- Mount Pleasant Operation "Road Closure Procedure" is to be followed
- * If electronic detonators are used

Pit extent shown is for illustrative purposes only. For blasts beyond the pit extent shown and within 500 m of a public road, the signage and traffic controls would be relocated appropriately.

Source: MACH (2024); Australian Standard - AS1743 (2023)
Orthophoto: MACH (Dec 2023)

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MOUNT PLEASANT OPERATION

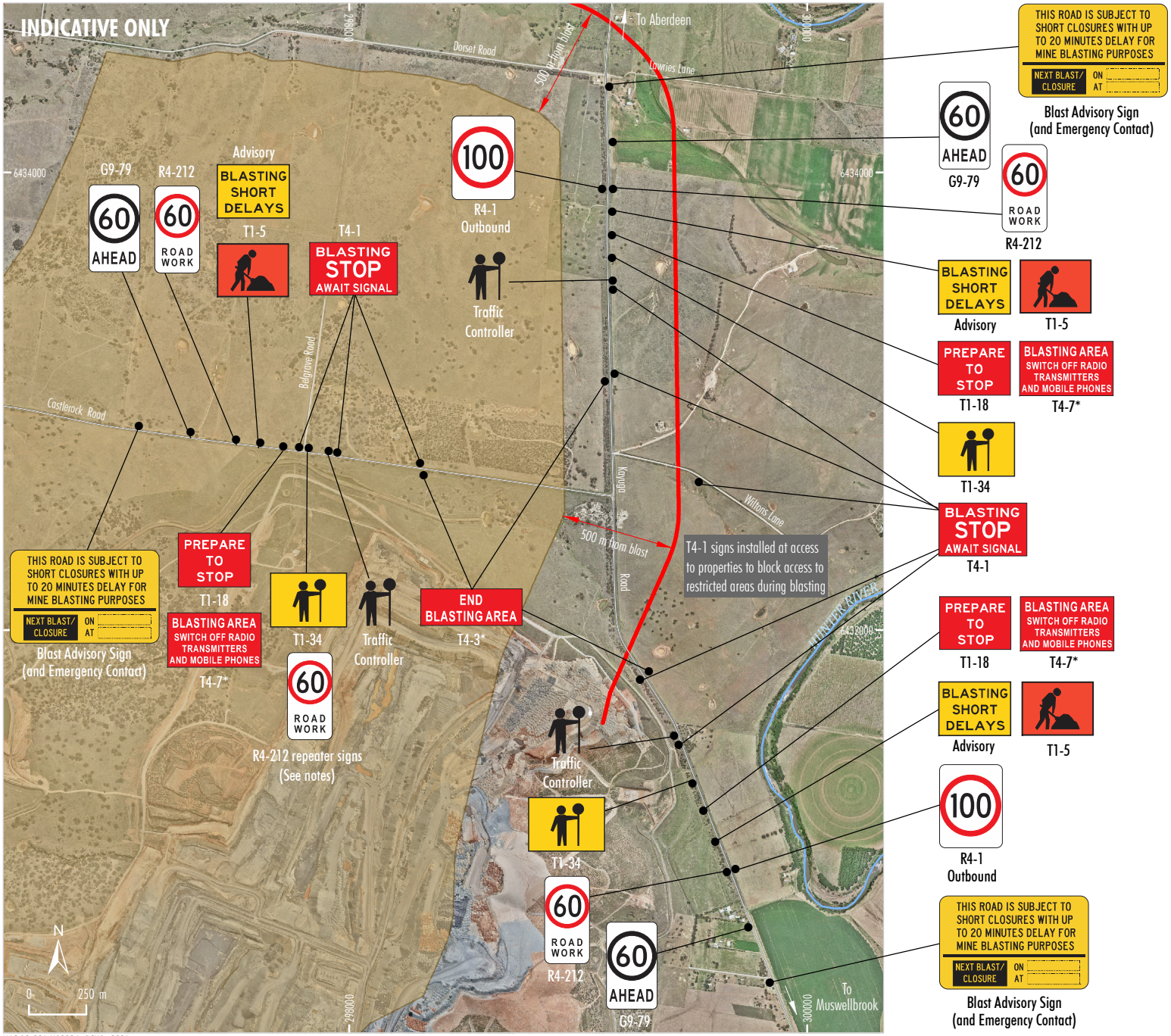
Traffic Control Plan - Wybong Road

Appendix A

APPENDIX B

TRAFFIC CONTROL PLAN – KAYUGA AND CASTLEROCK ROADS

[Individual TCPs for each blast will include the Name, Certification Number and Expiry Date of Ticket, and the signature of the person preparing the TCP]



MAC-18-03A MP2024_RCMP_203A

NOTES

- Traffic control to be setout in accordance with Traffic Control at Worksites Technical Manual (TfNSW, 2022)
- Signs are folding (except for notification signs) and are provided with latching device to be secure and stable during wind
- Blasting Short Delays used with Workman T1-5 to better inform motorists
- Sign spacing is the same for both directions
- R4-212 signs to be repeated at maximum of 500m spacing
- Mount Pleasant Operation "Road Closure Procedure" is to be followed
- * If electronic detonators are used

Pit extent shown is for illustrative purposes only. For blasts beyond the pit extent shown and within 500 m of a public road, the signage and traffic controls would be relocated appropriately.

Source: MACH (2024); Australian Standard - AS1743 (2023)
Orthophoto: MACH (Dec 2023)

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MOUNT PLEASANT OPERATION

Traffic Control Plan - Kayuga and Castlerock Roads

Appendix B

APPENDIX E

BLAST FUME MANAGEMENT STRATEGY

Post Blast Fume Management

Fume is a combination of post blast gases which are predominantly caused by a non-ideal detonation reaction i.e.:

AN + Fuel = Carbon Dioxide + Water + Nitrogen + (Nitrogen Dioxide [Fume] in a non-ideal reaction)

Nitrogen dioxide is the only post blast gas that is visible with a yellow, orange or brown colour. A fume Category Rating has been developed and is used across the MPO in classifying a fume event (Table E1).

Table E1
Fume Category – NOx Rating Scale

Level	Appearance	Colour
0 – No Fume (No NOx gas)		
1 – Fume (slight NOx gas) 1A Localised 1B Medium 1C Extensive		
2 – Minor Yellow/Orange Fume 2A Localised 2B Medium 2C Extensive		
3 – Moderate Orange Fume 3A Localised 3B Medium 3C Extensive		
4 – Significant Orange Fume 4A Localised 4B Medium 4C Extensive		
5 – Major Red/Purple Fume 5A Localised 5B Medium 5C Extensive		

NOx = Nitrogen Oxide.

Table C1 is used to assess the intensity of the NOx gases produced from a blast. The extent of the NOx gases also needs to be assessed and this is done on a simple scale from A to C where:

- A = Localised (i.e. NOx gases localised across only a few blast holes).
- B = Medium (i.e. NOx gases from up to 50% of blast holes in the shot).
- C = Extensive (i.e. extensive generation of NOx Gases across the whole blast).

Fume Minimisation and Prevention

MACH Energy manages blasting activities using all reasonable and feasible measures to minimise and prevent fume generation. Factors identified as being influential in the generation of fume and MACH Energy's associated controls are listed below:

- Explosive formulation and quality assurance:
  - Test explosive densities regularly on bench (cup density).
  - Allow adequate gassing time when loading chemically sensitised product prior to stemming.
  - Visual checks when loading (i.e. checking diesel is being added to ANFO).
  - Quality control with hole and explosive deck lengths, dip and record depths, holes loaded and backfilled to within 200 mm tolerance.
  - Quality checks by explosive supplier including but not limited to periodical calibration of Mobile and Fixed Manufacturing.
- Explosive product selection:
  - Selection of waterproof bulk explosive products.
  - In specific geology types (clay), waterproof bulk explosive product is generally used where shots are unable to be loaded and fired within 3 days.
- On bench practices:
  - Assessment of blast hole conditions.
  - Use of 'holesavers' to limit fall back of material and surface water into the hole.
  - Bench preparation prior to loading (i.e. considering drainage).
  - Loading plan/sequencing.
  - Any loading changes or changes to design are reported and must be discussed with the Drill and Blast Engineer or Drill and Blast Supervisor.
- Rainfall:
  - Cap off dry product with 0.5 m of drill cuttings if light rain predicted.
  - Use wet product if substantial rainfall predicted.
- Blast design:
  - Limit hole depth in overburden blasts to under 20 m.
  - Consider rock strength vs powder factor as over blasting can contribute to fume generation.
  - Ensure sufficient face hole burdens.
- Geological conditions:
  - Consideration of jointing and faulting when designing blasts.
  - Use blast hole liners in places where there is product loss due to cavities, as lack of confinement can contribute to fume generation.
- Contamination of explosive in the blast-hole:
  - Use recommended loading practices to limit explosive contamination.
  - Bottom loading wetholes.
  - Gas bag off water in holes if less than 0.5 m deep.
  - Monitor loaded holes for settling or slumping.

- Sleep time:
    - Ensure sleep times are in line with manufacturer recommendations.

These factors are in line with the AEISG (2011) *Code of Practice Prevention and Management of Blast Generated NOx Gases in Surface Blasting.*

Fume Management

Additional practices that occur across the MPO to manage fume are as follows:

- MACH Energy monitors meteorological conditions at the time of firing the blast to ensure that if fume does occur, the trajectory of plume is known.
- All Blasts at the MPO will be video recorded. Any blast that produces a fume event shall be recorded for a minimum of one (1) minute post blast, or until the fume event has dispersed. Videos shall be kept for a period of not less than one (1) calendar year, from the time of the blast.
- Fume events will be rated using the Fume rating scale (Table E1) and fume ratings will be recorded.
- If a blast fume of Level 3 or above is expected to leave the site[1], MACH Energy will notify the surrounding sensitive receivers[2].

Reporting of Fume Events

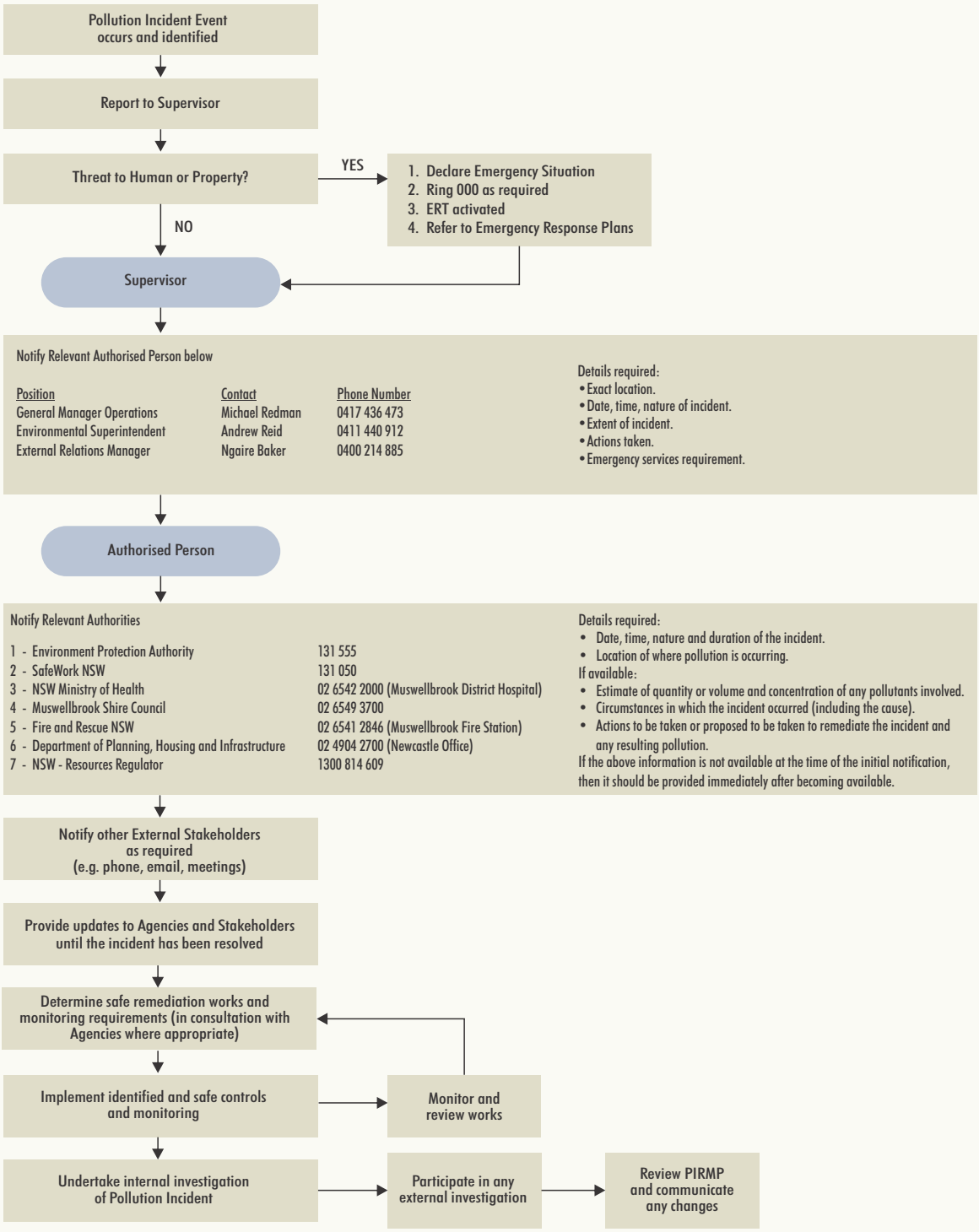
In the event a blast produces a blast fume rating of 4 or 5, or produces a rating of 3 at its highest extent and leaves the site[1], the blast must be reported to the DPE (now DPHI). All notifications to the DPE (now DPHI) will be made via the Environmental Superintendent or their delegate.

[1] The 'site' is defined in Development Consent DA 92/97 and Development Consent SSD 10418 as the land listed in Appendix 1 of both Development Consents.

[2] Depending upon the meteorological conditions, residences within a reasonable distance (i.e. up to a maximum of 1 km) downwind of the blast site will be contacted. This is subject to the residents having a valid phone contact held by MACH Energy.

APPENDIX F

POLLUTION INCIDENT RESPONSE FLOWCHART



MAC-16-03 MP2024_BlastMP_001A

MACHEnergy

MOUNT PLEASANT OPERATION

Pollution Incident Response Flowchart

APPENDIX G

INFORMATION FOR TREATING DOCTOR

INFORMATION FOR TREATING DOCTOR

Dear Doctor,
This patient has been exposed to NOx. This is a gas usually produced on mines after the use of explosives. NOx consists of multiple combinations of nitrogen and oxygen (N_2O, NO, NO_2, N_2O_4, N_2O_3, N_2O_5). Nitrogen Dioxide (NO_2) is the principal hazardous nitrous fume.

NOx irritates the eyes and mucous membranes primarily by dissolving on contact with moisture and forming a mixture of nitric and nitrous acids. But this is not the only way injury can occur. Inhalation results in both respiratory tract irritation and pulmonary oedema. High-level exposure can cause methhaemoglobinaemia. Some people, particularly asthmatics, can experience significant bronchospasm at very low concentrations.

The following effects are commonly encountered after NOx exposure:

ACUTE

- Cough.
- Shortness of breath.
- Irritations of the mucous membranes of the eyes, nose and throat.

SHORT TERM

- Pulmonary oedema - **Which may be delayed from 4 to 12 hours.**

MEDIUM TERM

- RADS (Reactive Airways Dysfunction Syndrome).
- In rare cases, bronchiolitis obliterans, which may take from two to six weeks to appear.

LONG TERM

- Chronic respiratory insufficiency.

High-level exposure, particularly associated with methhaemoglobinaemia, can cause chest pain, cyanosis/shortness of breath, tachypnoea and tachycardia. Deaths have been reported after exposure and are usually delayed. Even non-irritant concentrations of NOx may cause pulmonary oedema. Symptoms of pulmonary oedema often show until a few hours after exposure and are aggravated by physical effort.

Before transfer to you, the casualty has been advised to rest and, if any respiratory symptoms were present, should have been administered oxygen. (Refer to treatment notes). The casualty will need to be treated symptomatically, but as a base line it is suggested that the following may be required:

- Spirometry
- Chest x-ray
- Methheamoglobin estimation.

Because of the risk of delayed onset pulmonary oedema, it is recommended that as a precaution the patient be observed for up to 12 hours. As no specific antidote for NOx exists, symptoms will have to be treated when exhibited.

This information is to be reviewed as a Guide.