Department of Planning, Housing & Infrastructure

Our ref: SSD-10418-PA-3

Mariah Lane
Environmental Advisor
Mach Energy Australia Pty Ltd
PO Box 407
Newcastle, NSW, 2300

05/11/2024

Mount Pleasant Optimisation Project – Biodiversity Management Plan

Dear Ms Lane

Thank you for submitting the Biodiversity Management Plan submitted in accordance with Condition B63, Schedule 2 of the consent for the Mount Pleasant Optimisation Project (SSD-10418). I also acknowledge your response to the Department's review comments and request for additional information.

I note the Biodiversity Management Plan has been prepared in consultation with BCS; and contains the information required by the conditions of approval.

Accordingly, as nominee of the Planning Secretary, I approve the revised Biodiversity Management Plan (Rev. 02, November 2024).

You are reminded that if there are any inconsistencies between the Plan and the conditions of approval, the conditions prevail. Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Charissa Pillay on 02 99955944.

Yours sincerely

Stephen O'Donoghue
Director
Resource Assessments
As nominee of the Planning Secretary

MACHEnergy

MOUNT PLEASANT OPERATION

BIODIVERSITY MANAGEMENT PLAN

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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) northwest of Muswellbrook and approximately 50 km northwest 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).

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.

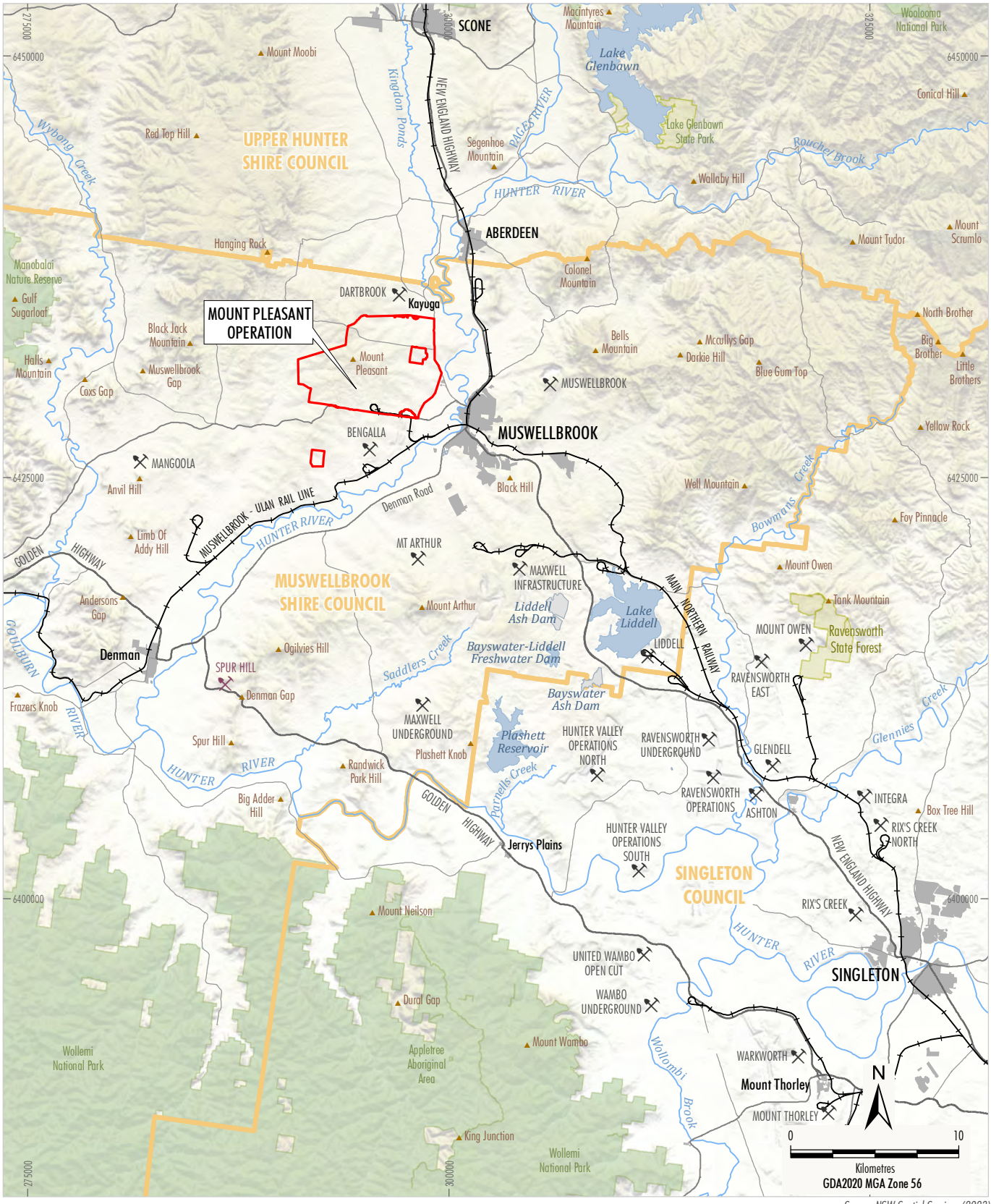
The Mount Pleasant Project Modification (MOD 1) was submitted on 19 May 2010 with a supporting Environmental Assessment (EA) prepared by EMGA Mitchell McLennan (EMGA Mitchell McLennan, 2010). MOD 1 included the provision of an infrastructure envelope for siting the mine infrastructure, the provision 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.

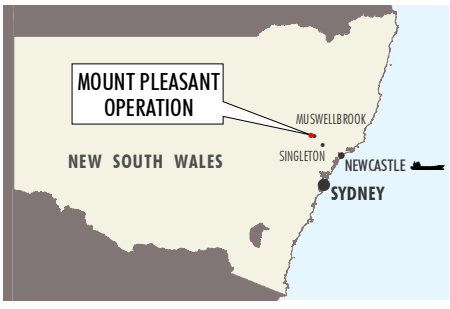
The MPO Mine Optimisation Modification (MOD 3) was submitted on 31 May 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017b). MOD 3 comprised an extension to the time limit on mining operations (to 22 December 2026) and extensions to the South Pit Eastern Out of Pit Emplacement to facilitate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



Source: NSW Spatial Services (2023)



LEGEND

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

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MOUNT PLEASANT OPERATION

Regional Location

Figure 1

MAC-18-03A MP2023_Figure 1_Rev B

MOD 4 was approved on 16 November 2018 by the Planning 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.

Modification 5 (MOD 5) was submitted to rectify an administrative error in Development Consent DA 92/97 and was approved by DPE 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 will allow 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 Mount Pleasant Optimisation Project generally involve (among other things):

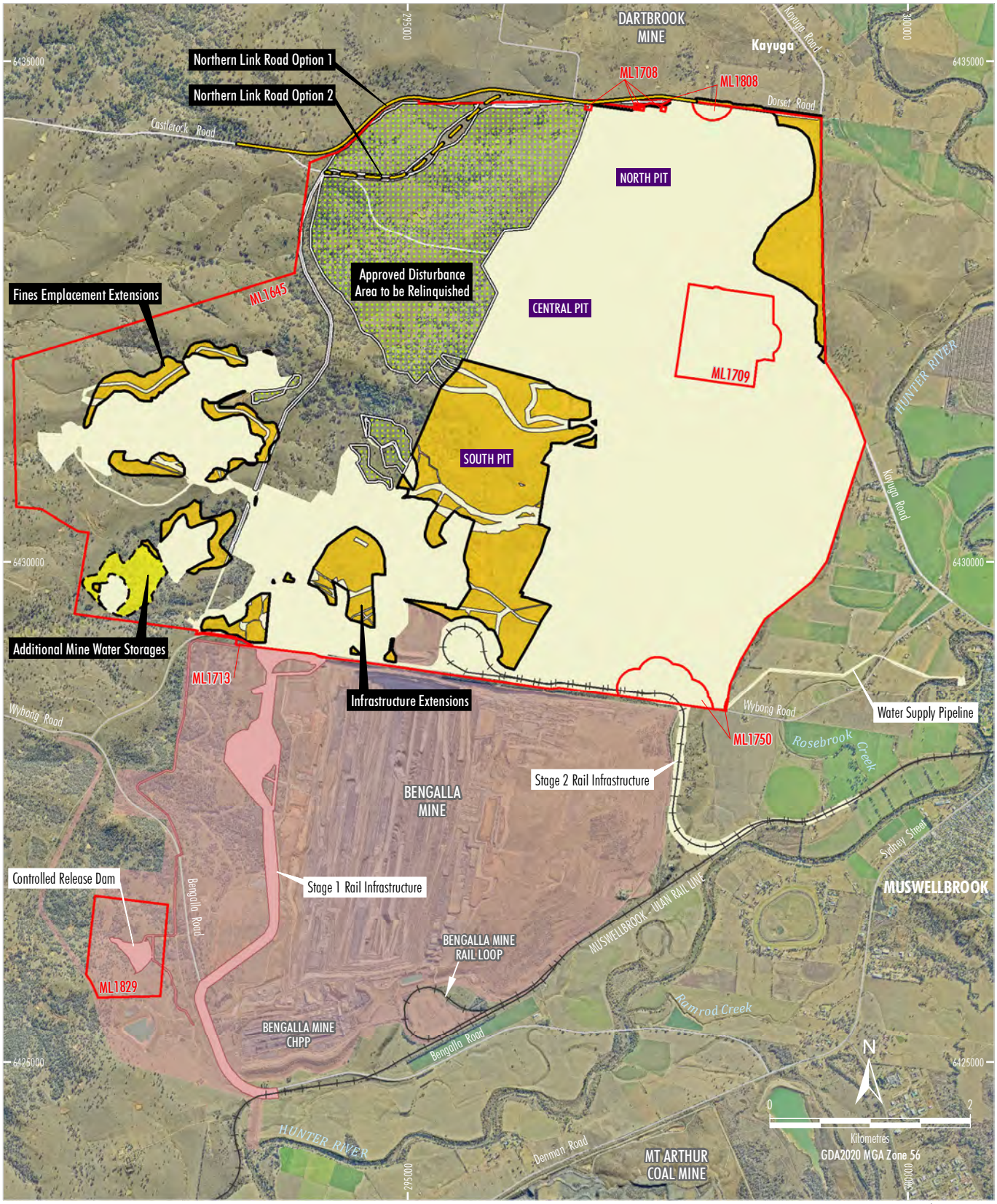
- increased open cut extraction within the MPO's existing Mining Leases (MLs);
- a staged increase in extraction, handling and processing of ROM coal up to 21 million tonnes per annum (Mtpa);
- upgrades to existing infrastructure and new infrastructure to support mining of the proposed Project; and
-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

The Project was approved by the NSW Independent Planning Commission (IPC) 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 other timeframe agreed with the Planning Secretary of the DPE.

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).

Where relevant, this Biodiversity Management Plan (BioMP) builds on the relevant components of the previous approved BioMP, including previous feedback from consultation with relevant government stakeholders conducted for Development Consent DA 92/97. This revision of the BioMP has been prepared by MACH Energy and Dr Colin Driscoll of Hunter Eco, who was endorsed to prepare this plan by the DPE on 17th May 2023 (Attachment 2).

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.



MAC-18-03A MP2023_Figure 2_Rev D

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.

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

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MOUNT PLEASANT OPERATION

General Arrangement of the Project

Figure 2

1.1 PURPOSE AND SCOPE

This BioMP has been prepared by MACH Energy to satisfy the requirements under Development Consent SSD 10418, specifically Part B, Condition B63. It also satisfies the requirements of Schedule 3, Condition 32 of Development Consent DA 92/97 (prior to its surrender).

This BioMP applies to all employees and contractors at the MPO and covers all areas within the MPO boundary. The BioMP 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 (until its surrender). As required by Part A, Condition A5 of Development Consent SSD 10418, this BioMP 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 the DPE [now the NSW Department of Planning, Housing and Infrastructure (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.

This BioMP has been prepared to manage biodiversity impacts associated with construction and operation of the MPO, including for example, staged construction activities, open cut mining, operation of the coal handling and preparation plant (CHPP), ongoing construction and operation of the Fines Emplacement Area, rehabilitation and the supply of water to the MPO.

Upon the commencement of development under Development Consent SSD 10418, and before 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 B64 of Development Consent SSD 10418, MACH Energy will not commence construction of the Northern Link Road or extract more than 10.5 Mt of ROM coal in a calendar year until the BioMP is approved by the Planning Secretary.

In accordance with Part B, Condition B65 of Development Consent SSD 10418, MACH Energy will implement the BioMP as approved by the Planning Secretary.

1.1.1 Previous Version

The previously approved version of the BioMP was prepared by MACH Energy to provide a contemporary outline of MACH Energy's proposed biodiversity management measures following the approval of MOD 4 under Development Consent DA 92/97. The Biodiversity and Conservation Division (BCD) provided comments on the previous version.

1.1.2 Current Version

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. This version of the BioMP describes the management measures proposed for the remnant vegetation and habitat within the relinquishment area (Section 6) and incorporates updated vegetation mapping of the MPO area undertaken by Hunter Eco (2021a) as part of the Project EIS.

As required by Part B, Condition B63(c) of Development Consent SSD 10418, a draft version of this BioMP was submitted to the BCD and Muswellbrook Shire Council (MSC) (in accordance with Development Consent DA 92/97 [prior to its surrender]) for the purposes of consultation. Details of the consultation undertaken and the outcome of that consultation is detailed in Appendix A.

In accordance with Part B, Condition B63(a) of Development Consent SSD 10418, this BioMP will be submitted to DPE (now DPHI) for approval prior to commencement of development under Development Consent SSD 10418.

1.2 STRUCTURE OF THE BIODIVERSITY MANAGEMENT PLAN

The remainder of the BioMP is structured as follows:

- Section 2: Outlines the statutory obligations relevant to this BioMP.
- Section 3: Describes the existing environment at the MPO in relation to biodiversity values.
- Section 4: Outlines the vegetation clearance protocol used at the MPO.
- Section 5: Provides a description of the seed collection program and seed/tubestock planting activities at the MPO.
- Section 6: Outlines the strategies to manage remnant vegetation on-site.
- Section 7: Describes the additional biodiversity management measures undertaken across the MPO area.
- Section 8: Provides a description of the biodiversity monitoring program relevant to biodiversity measures undertaken.
- Section 9: Provides the performance and completion criteria.
- Section 10: Describes biodiversity contingency measures which will be implemented as necessary if performance and completion criteria are not being met.
- Section 11: Outlines the personnel at the MPO responsible for monitoring, reviewing and implementing the plan.
- Section 12: Provides a description of the review process for the environmental performance of the MPO in relation to biodiversity.
- Section 13: Describes the reporting procedures.
- Section 14: Lists the references cited in this BioMP.

2 STATUTORY OBLIGATIONS

MACH Energy's statutory obligations relevant to biodiversity management are contained in the conditions of Development Consent SSD 10418 and Development Consent DA 92/97 (prior to its surrender), as outlined in Section 2.1 and Section 2.2. In addition to the above, activities associated with the MPO will be undertaken with the licences, permits and leases described in the MPO Environmental Management Strategy (EMS).

2.1 DEVELOPMENT CONSENT SSD 10418

The conditions of Development Consent SSD 10418 relevant to the content and structure of this BioMP are described in Sections 2.1.1 and 2.1.2 below. Additional biodiversity related conditions from Development Consent SSD 10418 are provided in Appendix B.

2.1.1 BioMP Requirements

Part B, Condition B63 of Development Consent SSD 10418 outlines the biodiversity management required at the MPO, including the preparation of a BioMP (refer Table 1).

Table 1
Biodiversity Management Development Consent SSD 10418 Conditions

MPO Development Consent SSD 10418 Part B	Section where addressed in this BioMP document
B63. The Applicant must prepare a Biodiversity Management Plan to the satisfaction of the Planning Secretary. This plan must:	
(a) be submitted for approval prior to the commencement of development under this consent;	Section 1.1.2
(b) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;	Section 1, Attachment 2
(c) be prepared in consultation with BCD;	Section 1.1.2, Appendix A
(d) describe the vegetation clearance protocol to avoid accidental clearance in vegetation to be retained, including the relinquishment area;	Section 4
(e) describe how a mixture of pasture and woodland would be established in the final land use to minimise long-term impacts to vegetation and habitat;	Section 7.1
(f) describe measures to establish 66.6 ha of PCT 1605 and 7 ha of PCT 1602 as part of the rehabilitation program, consistent with the Rehabilitation Management Plan referred to in condition B92;	Section 7.1
(g) describe the measures to be implemented within the approved disturbance areas to:	
(i) minimize the amount of clearing;	Section 4
(ii) minimize impacts of ground disturbance on fauna and fauna habitat resources, including undertaking pre-clearance surveys;	Section 4.2
(iii) provide for the reuse of trees containing features with the potential to provide significant habitat for nesting threatened birds, hollow-dwelling and/or arboreal mammals;	Section 4.2.3
(iv) maximise the relocation of the Tiger Orchid (Cymbidium canaliculatum) recorded; and	Section 4.3.5
(v) manage the provenance, collection and propagation of seed;	Sections 4.3.6, 5.1.1

Table 1 (Continued)
Biodiversity Management Development Consent SSD 10418 Conditions

MPO Development Consent SSD 10418 Part B	Section where addressed in this BioMP document
(h) describe the measures to be implemented on the site to:	
(i) control weeds, including measures to avoid and mitigate the spread of aggressive tussock grasses (e.g. Coolatai Grass, Jaragua Grass, and African Love Grass) along with priority and environmental weeds;	Section 7.2.1
(ii) control feral pests with consideration of actions identified in relevant threat abatement plans;	Section 7.2.2
(iii) limit vehicle speed;	Section 7.6
(iv) manage bushfire hazards;	Section 7.7
(v) avoid impacts to the variant of PCT 483 with Spotted Gum in the canopy mapped within the relinquishment area; and	Section 6
(vi) manage potential impacts to Delma vescolineata, if it is listed as a threatened species under the BC Act and/or EPBC Act in consideration of any relevant Commonwealth Conservation Advice, Recovery Plan and Threat Abatement Plans;	Section 7.9
(i) investigate and identify habitat that supports populations in the wild of Delma vescolineata, and identify, and where relevant, implement measures to remove threats to that population;	Section 7.9
(j) demonstrate how development under this consent will be carried out in a manner that avoids or minimises to the greatest extent practicable any serious or irreversible damage to the survival of Delma vescolineata;	Section 7.9
(k) describe how potential conflicts with Aboriginal heritage values will be addressed;	Section 2.1.4
(l) include a seasonally-based program to monitor and report on:	Section 8 and 12
(i) priority and environmental weeds, vertebrate pests and rehabilitation; and	
(ii) the effectiveness of the above measures, progress against the detailed performance indicators and completion criteria, and identify improvements that could be implemented to improve biodiversity outcomes; and	Section 9
(m) include details of who would be responsible for monitoring, reviewing, and implementing the plan.	Section 11
B64. The Applicant must not commence construction of the Northern Link Road or extract more than 10.5 Mt of ROM coal in a calendar year until the Biodiversity Management Plan is approved by the Planning Secretary.	Section 1.1
B65. The Applicant must implement the Biodiversity Management Plan as approved by the Planning Secretary.	Section 1.1

2.1.2 Management Plan (General) Requirements

Part D, Condition D5 of Development Consent SSD 10418 outlines general management plan requirements. Table 2 presents these requirements and indicates where each is addressed within this BioMP.

Table 2
General Development Consent SSD 10418 Conditions

MPO Development Consent SSD 10418 Part B	Section where addressed in this BioMP 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 3
(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 9
(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 9
(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	Section 2.1.3
(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Sections 4 to 7
(e) a program to monitor and report on the:	Sections 8 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 12
(h) a protocol for managing and reporting any:	
(i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion;	Section 12
(ii) complaint; or	Section 13
(iii) failure to comply with other statutory requirements;	Section 13
(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 3
(j) a protocol for periodic review of the plan.	Section 12
***Note**: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	

2.1.3 Relevant Commitments or Recommendations

In accordance with Part D, Condition D5(c) of Development Consent SSD 10418, relevant commitments or recommendations identified in the EIS are listed in Table 3.

Table 3
Other Relevant Commitments or Recommendations

Relevant Commitments or Recommendations	Section where addressed in this BioMP document
Night-lighting of the Project construction activities would be kept to a practicable minimum.	Section 6 and 7.10
Low speed limits would continue to be imposed on all vehicles using the mine roads and tracks.	Section 7.6

2.1.4 Other Related Management Plans

Rehabilitation Strategy

MACH Energy will prepare a Rehabilitation Strategy for the Project in consultation with BCD, the NSW Resources Regulator and MSC, in accordance with Part B, Condition B89 of Development Consent SSD 10418. The Rehabilitation Strategy will provide the details of target revegetation communities and species to be established in proposed revegetation areas.

Rehabilitation Management Plan

MACH Energy will prepare a Rehabilitation Management Plan (RMP) for the Project, in accordance with the provisions under the NSW *Mining Act, 1992* and Part B, Condition B92 of Development Consent SSD 10418. The RMP will be prepared in accordance with the NSW Resources Regulator *Form and Way – Rehabilitation Management Plan for Large Mines* (July 2021).

The RMP will also be developed to satisfy the requirements relevant to rehabilitation management under SSD 10418 and relevant requirements within ML 1645, ML 1713, ML 1708, ML 1808, ML 1709, ML 1750 and ML 1829 and will include a supporting Annual Rehabilitation Report and Forward Program.

Aboriginal Cultural Heritage Management Plan

Potential conflicts with Aboriginal heritage values will be addressed through implementation of the Aboriginal Cultural Heritage Management Plan required in accordance with Part B, Condition B69 of Development Consent SSD 10418.

The Aboriginal Cultural Heritage Management Plan will be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary, in consultation with Heritage NSW and Registered Aboriginal Parties.

A Ground Disturbance Permit (GDP) is required for all activities on previously undisturbed land and includes a review of cultural heritage impacts. If the proposed works are outside the previously cultural heritage assessed area for the project, due diligence must be completed in accordance with the site approved Aboriginal Cultural Heritage Management Plan.

The Aboriginal Cultural Heritage Management Plan will be developed prior to commencement of any works associated with the Project that would harm Aboriginal cultural heritage sites.

2.2 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 BioMP are described in Sections 2.2.1 and 2.2.2 below.

2.2.1 BioMP Requirements

Table 4 presents the requirements of Schedule 3, Condition 32 of Development Consent DA 92/97 and where they are addressed in the BioMP.

Table 4
Biodiversity Management Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 3	Section where addressed in this BioMP document
32. The Applicant must prepare a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must:	
(a) be prepared in consultation with BCD and Council, and be submitted to the Secretary for approval by 30 June 2019, unless otherwise agreed by the Secretary;	Section 1, Appendix A
(b) include:	
• *a description of the short, medium, and long term measures that would be implemented to:*	
o *manage the remnant vegetation and habitat on the site; and*	Sections 6, 7 & 8
o *avoid and manage remnant vegetation and habitat within the relinquishment area;*	Sections 6, 7 & 8
• *a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:*	
o *implementing revegetation and regeneration within the disturbance areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata;*	Sections 6 & 7
o *maximising salvage and beneficial use of resources in areas that are to be impacted, including vegetative, soil and cultural heritage resources;*	Sections 4, 5, 6 & 7
o *protecting vegetation and soil outside the disturbance areas;*	Sections 4, 6 & 7
o *rehabilitating creeks and drainage lines on the site, to minimise net loss of streamlength and aquatic habitat;*	Section 7.1.3
o *managing salinity;*	Section 7.8
o *conserving and reusing topsoil;*	Section 7.4
o *undertaking pre-clearance surveys;*	Section 4
o *managing impacts on fauna;*	Sections 4 & 7
o *landscaping the site and along public roads to minimise visual and lighting impacts;*	Section 7.10
o *collecting and propagating seed;*	Section 5
o *salvaging and reusing material from the site for habitat enhancement;*	Sections 4, 5 & 7

Table 4 (Continued)
Biodiversity Management Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 3	Section where addressed in this BioMP document
o *salvaging, transplanting and/or propagating threatened flora and native grassland;*	Sections 4 & 5
o *controlling weeds and feral pests;*	Section 7.2
o *managing grazing and agriculture on site;*	Section 7.5
o *controlling access; and*	Section 7.6
o *bushfire management;*	Section 7.7
• *a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;*	Section 8
• *a description of the potential risks to successful revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and*	Section 10
• *details of who would be responsible for monitoring, reviewing, and implementing the plan.*	Section 11
The Applicant must implement the management plan as approved by the Secretary.	

2.2.2 Management Plan (General) Requirements

Schedule 5, Condition 2 of Development Consent DA 92/97 outlines general management plan requirements. Table 5 presents these requirements and indicates where each is addressed within this BioMP.

Table 5
General Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 5	Section where addressed in this BioMP 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 3
(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;*	N/A
• *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;*	N/A
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 4 – 12
(d) a program to monitor and report on the:	Sections 8 and 12
• *impacts and environmental performance of the development;*	
• *effectiveness of any management measures (see c above);*	

Table 5 (Continued)
General Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 5	Section where addressed in this BioMP document
(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 12
(g) a protocol for managing and reporting any: • *incidents;* • *complaints;* • *non-compliances with statutory requirements; and* • *exceedances of the impact assessment criteria and/or performance criteria; and*	Section 13
(h) a protocol for periodic review of the plan.	Section 12
***Note:** The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	

2.3 OTHER LEGISLATION AND REQUIREMENTS

Obligations from relevant guidelines, protocols, Australian Standards, codes or policies will be addressed in this BioMP, in accordance with Part A, Condition A34 of Development Consent SSD 10418 and Schedule 2, Condition 13 of Development Consent DA 92/97 (prior to its surrender).

3 EXISTING ENVIRONMENT

The MPO area sits on predominantly undulating hills on the western side of the Hunter River and consists of a mosaic of land previously cleared for agriculture and scattered areas of regrowth and fragmented remnant vegetation. Where vegetation is present, it typically represents recent regeneration and scattered remnant trees in grasslands. Several small ephemeral creeks and drainage lines flow across the MPO area during rainfall events and ultimately drain to the Hunter River.

The MPO is located to the north of and adjacent to Bengalla Mine and south of the township of Kayuga (Figure 1). The MPO is generally bounded by Wybong Road in the south, Kayuga Road in the east, Dorset Road in the north and Sandy Creek in the west, however, site rail infrastructure does extend south of Wybong Road in the east (Figure 2). Land use in the vicinity of the MPO is generally characterised by coal mining operations and agriculture.

A number of previous flora and fauna studies have been undertaken at the MPO, including:

- *Mount Pleasant Vegetation Mapping of the State Significant Development Area* (Hunter Eco, 2018);
- *Mount Pleasant Optimisation Project Baseline Flora Report* (Hunter Eco, 2021a);
- *Mount Pleasant Optimisation Project Baseline Fauna Survey Report* (Future Ecology, 2020); and
- *Mount Pleasant Optimisation Project – Biodiversity Development Assessment Report* (Hunter Eco, 2021b).

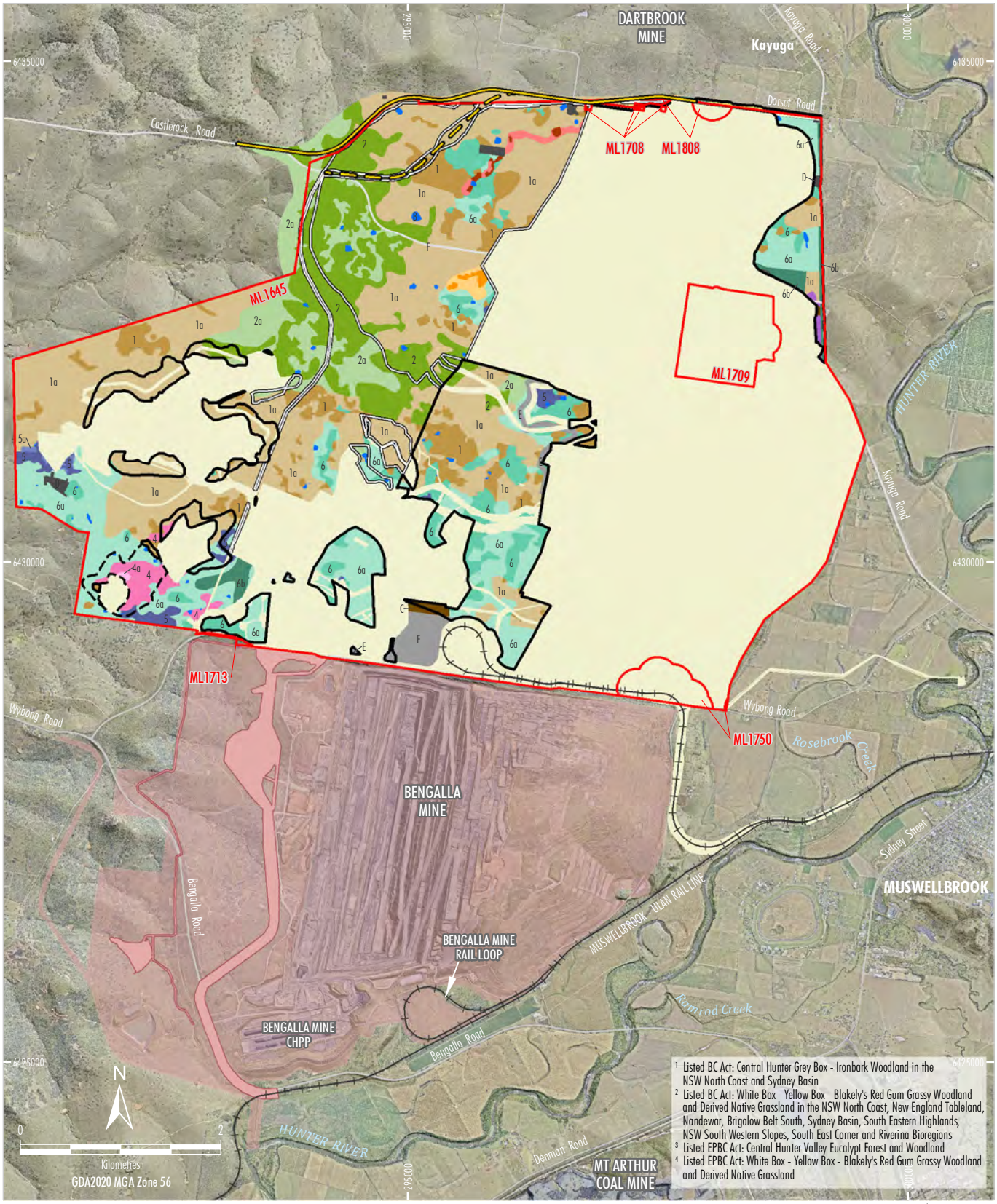
Based on these studies, vegetation has been mapped across the MPO area and comprises a combination of exotic pastures, derived grassland, previous plantings (both native and exotic), scattered mature trees and patches of woodland. Areas of woodland/forest are fragmented due to historical land clearance and disturbance of natural communities from agricultural practices. Areas identified as non- native vegetation are cropping/grazing, farm dams, disturbed land, dwellings, infrastructure and local roads (Figure 3).

Contemporary vegetation mapping of the MPO area was undertaken in 2021 by Hunter Eco (2021a) to verify Plant Community Types (PCTs) over the full extent of the MPO area. As shown on Figure 3, seven PCTs and 16 vegetation zones have been mapped across the MPO area, with a mixture of woodland, derived native grassland and plantation.

Analysis of this vegetation mapping indicates that the predominant PCTs being disturbed by the MPO are the following (Hunter Eco, 2021a):

- PCT 483 Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley.
- PCT 1691 Narrow-leaved Ironbark – Grey Box – Spotted Gum shrub – grass woodland of the central and lower Hunter.
- PCT 1605 Narrow-leaved Ironbark – Native Olive shrubby open forest of the central and upper Hunter.

Of the native vegetation at the MPO, some communities represent Threatened Ecological Communities (TECs) listed under the NSW *Biodiversity Conservation Act, 2016* (BC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act). The vegetation communities which correspond with TECs are listed in Table 6.



[1] Listed BC Act: Central Hunter Grey Box - Ironbark Woodland in the NSW North Coast and Sydney Basin
[2] Listed BC Act: White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions
[3] Listed EPBC Act: Central Hunter Valley Eucalypt Forest and Woodland
[4] Listed EPBC Act: White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland

LEGEND

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

Grassy Woodlands

- 1 Grey Box x White Box Grassy Woodland (PCT483) [2, 4]
- 1a Derived Native Grassland (PCT483) [2, 4]
- 2 Grey Box x White Box - Spotted Gum Grassy Woodland (PCT483) [2, 4]
- 2a Derived Native Grassland (PCT483) [2, 4]
- 3 Forest Red Gum Grassy Open Forest (PCT618) [2, 4]
- 3a Derived Native Grassland (PCT618) [2, 4]
- 4 Narrow-leaved Ironbark - Grey Box Grassy Woodland (PCT1691) [1, 3]
- 4a Derived Native Grassland (PCT1691)

Dry Sclerophyll Forests (Shrub/grass sub-formation)

- 5 Spotted Gum - Narrow-leaved Ironbark Woodland (PCT1602) [3]
- 5a Derived Native Grassland (PCT1602)
- 6 Narrow-leaved Ironbark - Native Olive Shrubby Open Forest (PCT1605) [3]
- 6a Derived Native Grassland (PCT1605)
- 6b Plantation (PCT1605)
- 7 White Box - Narrow-leaved Ironbark - Blakely's Red Gum (PCT1606) [2, 4]
- 7a Derived Native Grassland (PCT1606) [2, 4]

Dry Sclerophyll Forests (Shrubby sub-formation)

- 8a Derived Native Grassland (PCT1655)

Other

- A Cropping/Grazing
- B Dam
- C Disturbed
- D Dwellings
- E Infrastructure
- F Local Roads

Source: MACH (2023); NSW Spatial Services (2023); Department of Planning and Environment (2016) Orthophoto: MACH (Dec 2022)

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MOUNT PLEASANT OPERATION

Vegetation Mapping

Figure 3

Table 6
Threatened Ecological Communities

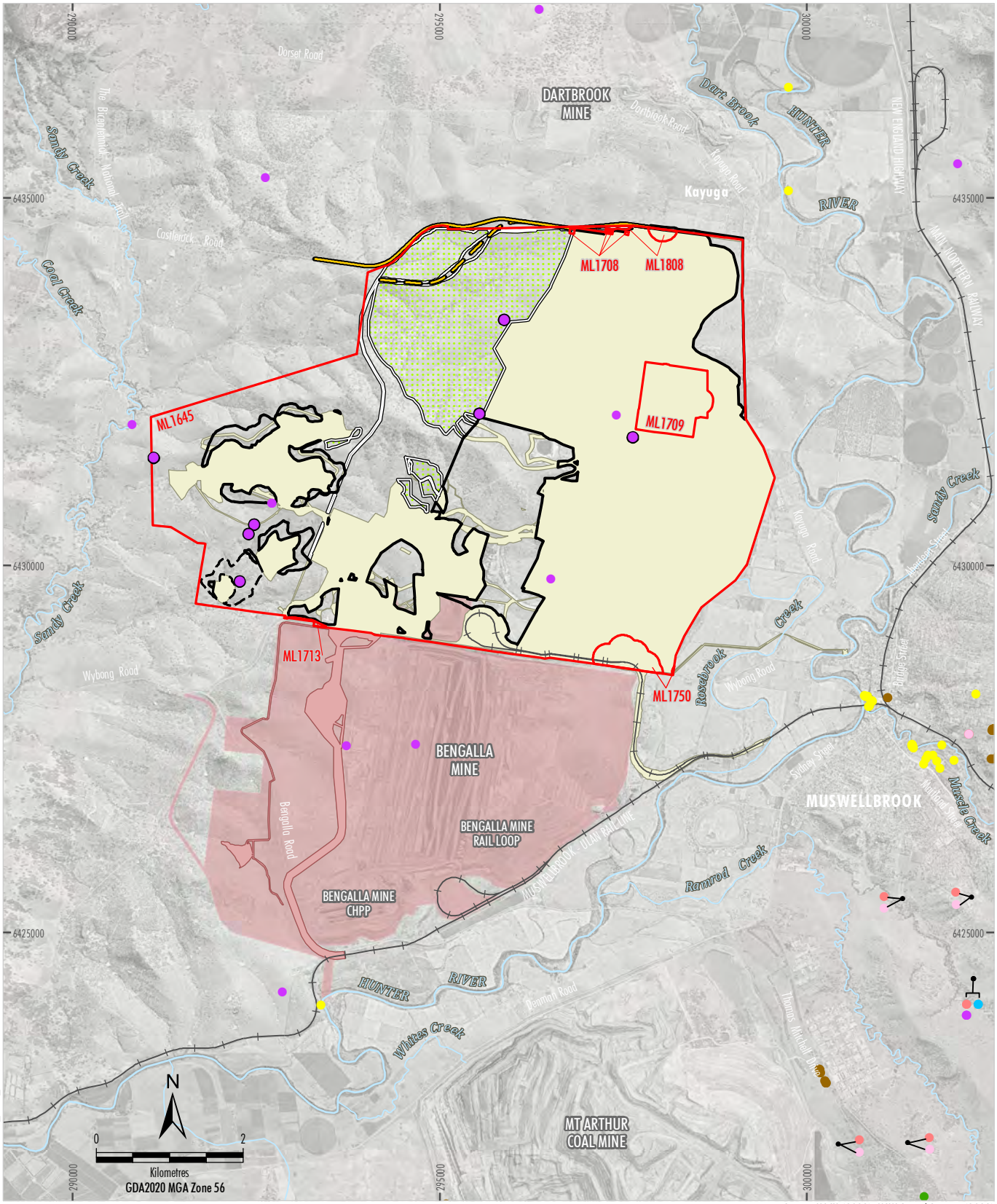
Threatened Ecological Community (EPBC Act)	Threatened Ecological Communities (BC Act)	Existing Vegetation Communities
Central Hunter Valley Eucalypt Forest and Woodland. **Critically Endangered.**	Central Hunter Ironbark – Spotted Gum – Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions. **Endangered.**	• Spotted Gum – Narrow-leaved Ironbark Woodland PCT 1602. • Spotted Gum – Grey Box x White Box Woodland/Forest PCT 483 variant.
White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland. **Critically Endangered.**	White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions. **Critically Endangered.**	• White Box – Narrow-leaved Ironbark – Blakely's Red Gum PCT 1606[1]. • Grey Box/White Box Grassy Woodland PCT 483[1]. • Forest Red Gum Grassy Open Forest PCT 618[1].
Central Hunter Valley Eucalypt Forest and Woodland. **Critically Endangered.**	Central Hunter Grey Box-Ironbark Woodland in the NSW North Coast and Sydney Basin Bioregions. **Endangered.**	• Narrow-leaved Ironbark – Grey Box Grassy Woodland PCT 1691. • Narrow-leaved Ironbark Shrubby Forest PCT 1605.

Source: Hunter Eco (2021a)

[1] Including the DNG component of the vegetation community.

Fauna habitat across the MPO area has been impacted by agricultural practices. Notwithstanding, some fauna habitat values remain, mostly within woodland areas and where mature trees are present, other than potential threatened reptile habitat in open grassland.

The threatened species and populations which have been previously recorded within the MPO area from past surveys are summarised in Table 7 and shown on Figures 4 to 6.



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LEGEND

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

Survey Database

Threatened Flora

- Weeping Myall (*Acacia pendula* population in the Hunter Catchment)
- Tiger Orchid (*Cymbidium canaliculatum* population in the Hunter Catchment)
- Pine Donkey Orchid
- Pine Donkey Orchid population in the Muswellbrook Local Government Area
- River Red Gum (*Eucalyptus camaldulensis* population in the Hunter Catchment)
- Narrow-leaved Black Peppermint
- Tarengo Leek Orchid

Survey Record Sources: Hunter Eco (2021); Future Ecology (2020a); Cumberland Ecology (2010)
Database Record Sources: ALA (2020); DPIE (2020)

Source: MACH (2023); NSW Spatial Services (2023); Department of Planning and Environment (2016)
Orthophoto: MACH (Dec 2022)

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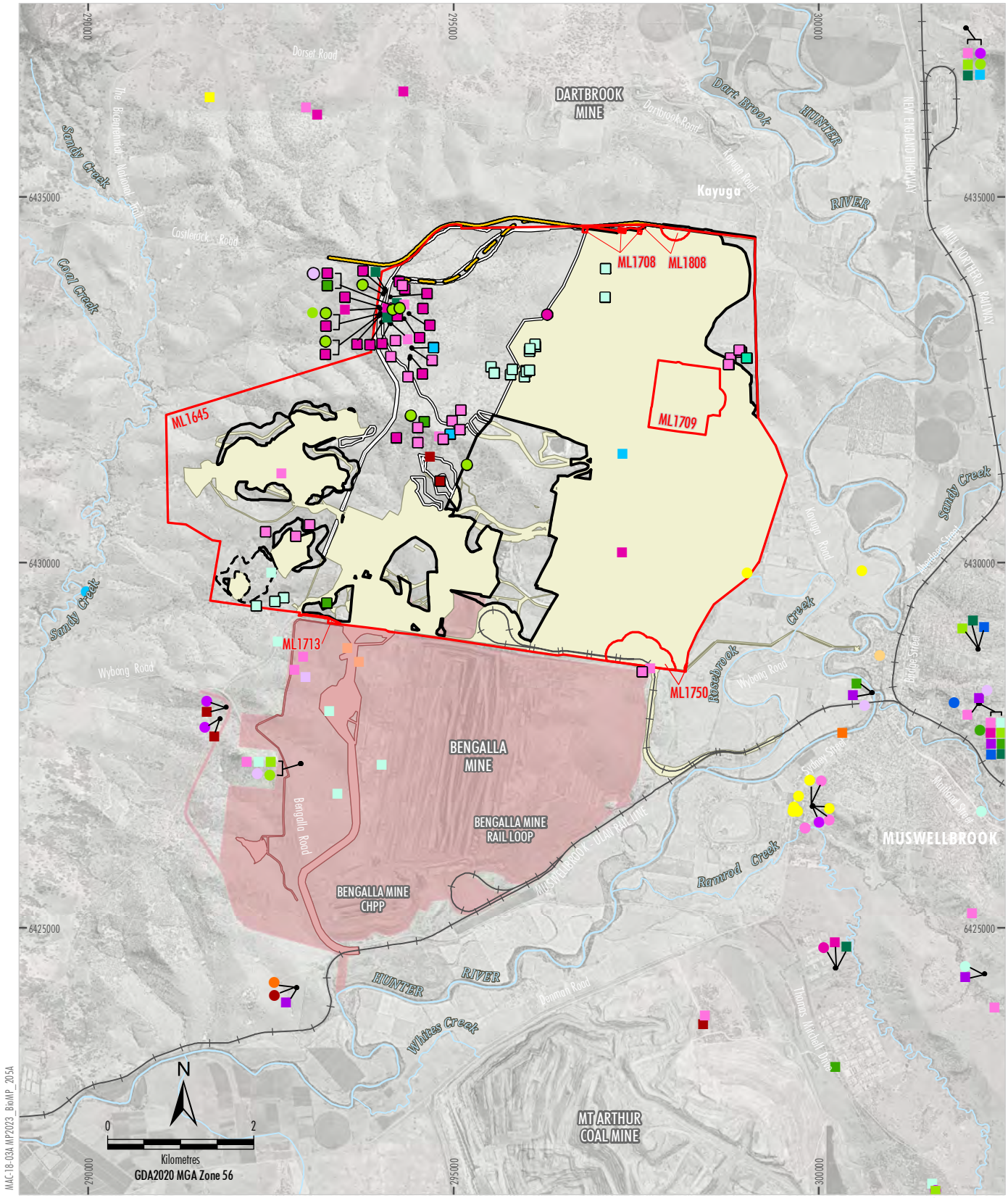
MOUNT PLEASANT OPERATION

Threatened Flora

Figure 4



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LEGEND

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

Survey / Database

Threatened Birds

- Freckled Duck
- Black-necked Stork
- Australasian Bittern
- Grey Falcon
- Black Falcon
- White-bellied Sea-Eagle
- Spotted Harrier
- Little Eagle
- Red-backed Button-quail
- Australian Painted Snipe
- Glossy Black-Cockatoo
- Little Lorikeet
- Turquoise Parrot
- Masked Owl
- Powerful Owl
- Barking Owl
- White-throated Needletail
- Brown Treecreeper (eastern subspecies)
- Speckled Warbler
- Black-chinned Honeyeater (eastern subspecies)
- Regent Honeyeater
- White-fronted Chat
- Scarlet Robin
- Flame Robin
- Grey-crowned Babbler (eastern subspecies)
- Varied Sittella
- Dusky Woodswallow
- Diamond Firetail

Survey Record Sources: Future Ecology (2020a, 2020b); Eco Logical Australia (2017a, 2017b)
Database Record Sources: ALA (2020); Birdlife Australia (2020); DPIE (2020)

Source: MACH (2023); NSW Spatial Services (2023); Department of Planning and Environment (2016)
Orthophoto: MACH (Dec 2022)

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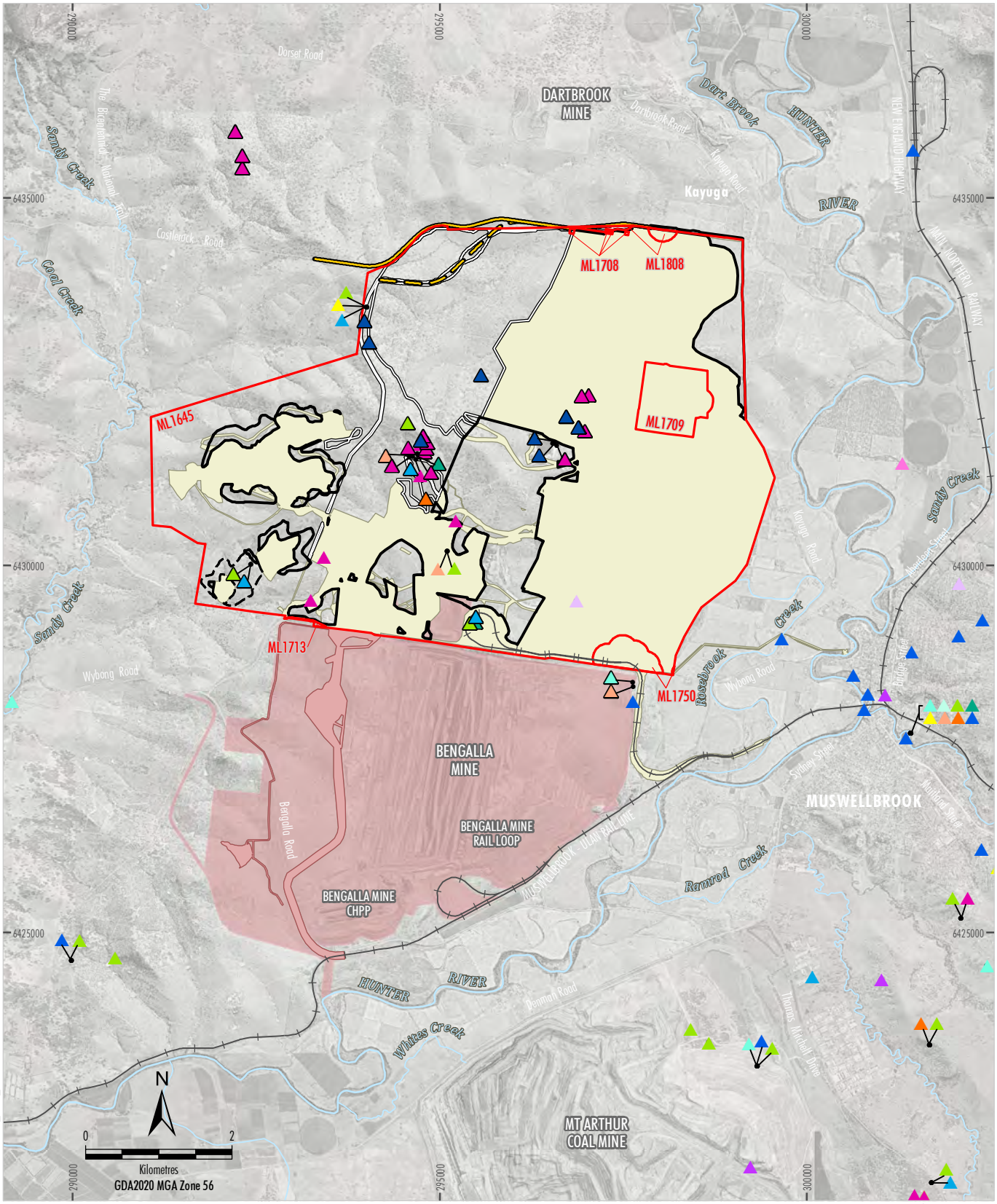
MOUNT PLEASANT OPERATION

Threatened Birds

Figure 5



LEGEND

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

Survey	Database	Threatened Mammals
		Spotted-tailed Quoll
		Brush-tailed Phascogale
		Koala
		Squirrel Glider
		Grey-headed Flying-fox
		Yellow-bellied Sheathtail-bat
		Eastern Coastal Free-tailed Bat
		Little Bent-winged Bat
		Large Bent-winged Bat
		Eastern False Pipistrelle
		Southern Myotis
		Greater Broad-nosed Bat
		Eastern Cave Bat

Survey Record Sources: Future Ecology (2020a, 2020b); Eco Logical Australia (2017a, 2017b)
Database Record Sources: ALA (2020); DPIE (2020)

Source: MACH (2023); NSW Spatial Services (2023); Department of Planning and Environment (2016)
Orthophoto: MACH (Dec 2022)

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MOUNT PLEASANT OPERATION

Threatened Mammals

Figure 6

Table 7
Threatened Species and Populations Recorded within the MPO Area

Threatened Species/Populations/Communities		BC Act	EPBC Act
Common Name	**Scientific Name**		
Fauna Species			
Freckled Duck	*Stictonetta naevosa*	V	-
Black Falcon	*Falco subniger*	V	-
Spotted Harrier	*Circus assimilis*	V	-
Powerful Owl	*Ninox strenua*	V	-
White-throated Needletail	*Hirundapus caudacutus*	-	V
Brown Treecreeper (eastern subspecies)	*Climacteris picumnus victoriae*	V	V
Speckled Warbler	*Chthonicola sagittata*	V	-
Black-chinned Honeyeater (eastern subspecies)	*Melithreptus gularis gularis*	V	-
Flame Robin	*Petroica phoenicea*	V	-
Scarlet Robin	*Petroica boodang*	V	-
Grey-crowned Babbler (eastern subspecies)	*Pomatostomus temporalis temporalis*	V	-
Varied Sittella	*Daphoenositta chrysoptera*	V	-
Dusky Woodswallow	*Artamus cyanopterus cyanopterus*	V	-
Diamond Firetail	*Stagonopleura guttata*	V	V
Spotted-tailed Quoll	*Dasyurus maculatus*	V	E
Squirrel Glider	*Petaurus norfolcensis*	V	-
Grey-headed Flying-fox	*Pteropus poliocephalus*	V	V
Yellow-bellied Sheathtail bat	*Saccolaimus flaviventris*	V	-
Eastern Coastal Free-tailed Bat	*Micronomus norfolkensis*	V	-
Large Bent-winged Bat	*Miniopterus orianae oceanensis*	V	-
Eastern False Pipistrelle	*Falsistrellus tasmaniensis*	V	-
Southern Myotis	*Myotis macropus*	V	-
Greater Broad-nosed Bat	*Scoteanax rueppellii*	V	-
Eastern Cave Bat	*Vespadelus troughtoni*	V	-
Populations			
Tiger Orchid (*Cymbidium canaliculatum*) – Endangered Population in the Hunter Catchment		E	-

Source: Future Ecology (2020) and Hunter Eco (2021a)

V – Vulnerable.

E – Endangered.

BC Act = NSW *Biodiversity Conservation Act, 2016*.

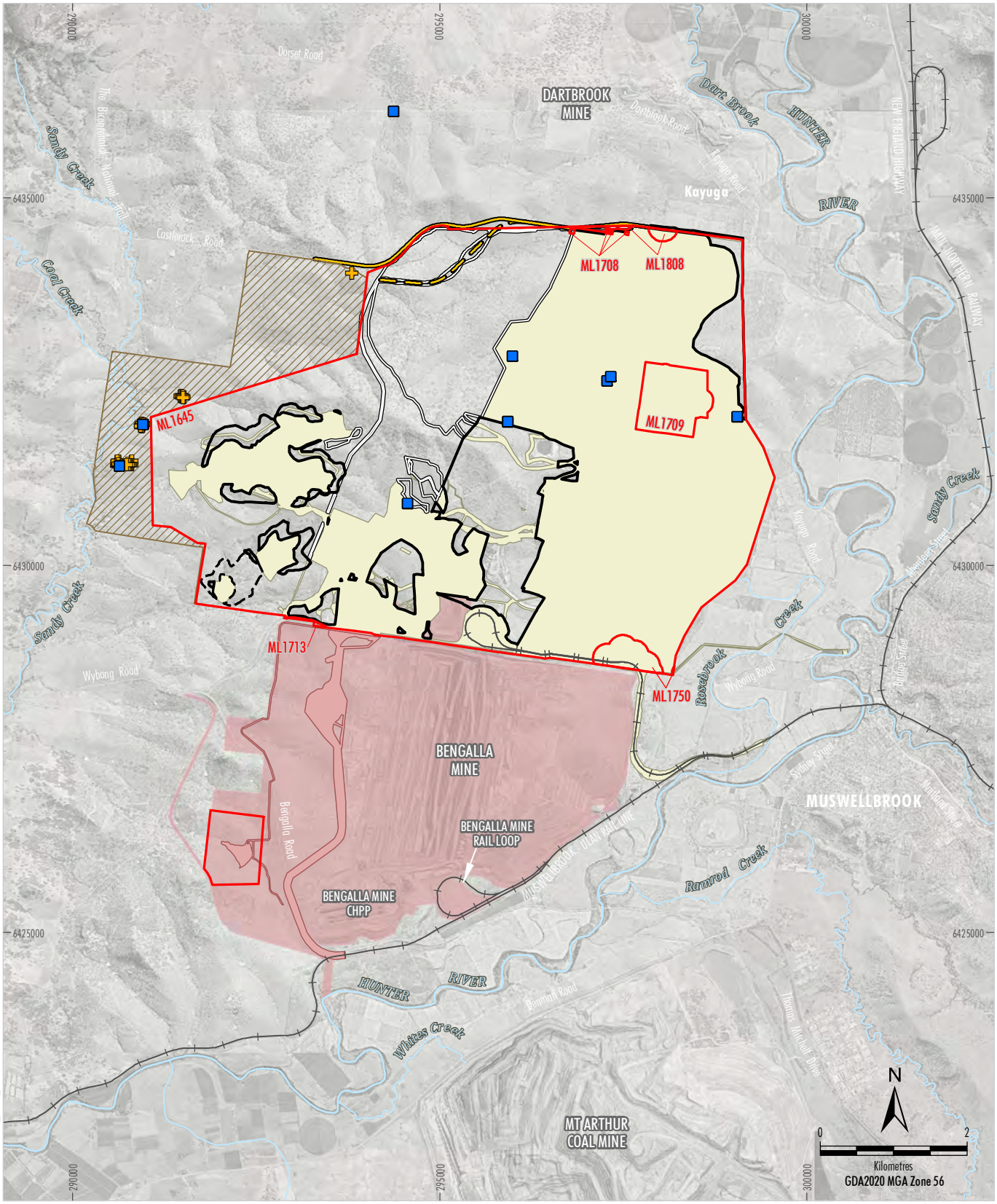
EPBC Act = Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999.*

Delma vescolineata

During targeted field surveys across a 2,300 hectare (ha) study area for the Project, zoologists made one record inside the approved MPO development area (EPBC 2011/5795 and Development Consent DA 92/97) of what was then identified as the Striped Legless Lizard (*Delma impar*).

In July 2022, a genetic and morphological study was published (Mahony *et al*, 2022) which describes the previously identified occurrences of the Striped Legless Lizard (*Delma impar*) from the Hunter Valley and Liverpool Plains of NSW to be a new species, *Delma vescolineata*. Mahony *et al* (2022) recognise that "*Delma vescolineata* is morphologically similar to *Delma impar*' and that '*Delma impar* exhibits morphological variability across its distribution and it is feasible that this is similar to *Delma vescolineata* …". This morphological similarity both within and between the two species meant that prior to the genetic study, it was not possible to detect the new species.

The *Delma vescolineata* individual recorded inside the approved MPO development area (EPBC 2011/5795 and Development Consent DA 92/97) was found under a dried cow pat (dung) within a disturbed area surrounded by an open grassy area with scattered trees (Figure 7). During the same surveys, a second individual was recorded outside the ML (Figure 7). This individual was recorded under lightly embedded rock on a farm track in an area of grassy open hillside with no trees.



LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Project Continuation of Existing/Approved Surface Development (DA92/97)
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Existing/Approved Mount Pleasant Operation Infrastructure within Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Development Footprint 1 (Stage 1) - General Extension Areas
- Development Footprint 1 (Stage 2) - Mine Water Dam 3
- Relinquishment Area
- Northern Link Road Option 1 Centreline
- Northern Link Road Option 2 Centreline
- Broomfield Study Area
- Reptile Survey Tile
- *Delma vescolineata*

Source: Future Ecology (2020a, 2022, 2023)

Source: MACH (2023); NSW Spatial Services (2023); Department of Planning and Environment (2016)
Orthophoto: MACH (Dec 2022)

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MOUNT PLEASANT OPERATION

Delma vescolineata

Figure 7

4 VEGETATION CLEARANCE PROTOCOL

A Vegetation Clearance Protocol (VCP) has been implemented to minimise impacts on threatened species during native vegetation clearing at the MPO. In accordance with Part B, Condition B63(d) of Development Consent SSD 10418, the VCP is employed at the MPO to avoid accidental clearance of vegetation to be retained, including the relinquishment area (Figure 2). Key components of the VCP are outlined below.

A flow diagram showing a graphical representation of the VCP is provided on Figure 8.

Key components of the VCP includes:

- delineation process (Section 4.1);
- pre-clearance procedures (Section 4.2) which include:
    - a GDP process (Section 4.2.1);
    - pre-clearance targeted fauna surveys (Section 4.2.2);
    - salvage of material for habitat enhancement (Section 4.2.3);
- clearing procedures (Section 4.3) which includes:
    - timing considerations (Section 4.3.1);
    - general vegetation clearance and management strategies (Section 4.3.2);
    - detailed fauna management strategies (Section 4.3.3 – 4.3.6); and
    - clearance restrictions (Section 4.3.7).

4.1 DELINEATION OF AREAS TO BE CLEARED

Delineation of approved native vegetation clearing areas will be achieved via a two-step process:

- Step 1 – approved disturbance boundaries will be digitally captured and displayed within the site survey and GIS databases. This data will be made available either digitally or in map format to inform and guide mine planning, vegetation clearing, land preparation and mine rehabilitation activities.
- Step 2 – where native vegetation clearing at the MPO is to be carried out on a campaign basis, prior to each clearing campaign the area to be cleared will be identified and marked out.

Digital and/or map data will be provided to relevant site personnel and contractors to inform the required (campaign) clearing extents for pre-clearance surveys, fauna management, habitat salvage, topsoil and weed and pest management. These digital and map data have been updated to be consistent with Development Consent SSD 10418, inclusive of the relinquishment area described in the Project EIS. Clearance boundaries will be distinctly marked on the ground for the clearing extents to eliminate the risk of accidental over-clearing.

4.2 PRE-CLEARING PROCEDURE

4.2.1 Ground Disturbance Permit

MACH Energy has implemented a GDP process that must be completed prior to any ground disturbance activities being carried out on-site. The GDP provides an internal check against all relevant approvals and management actions that may be required to be obtained and/or implemented prior to carrying out the clearing or ground disturbance activities. A copy of the current GDP form is provided in Attachment 3 (note the internal GDP form may be amended from time to time as required).

The purpose of the GDP is to:

- clearly identify the area to be disturbed;
- identify any environmentally (or other) sensitive feature(s) (refer to Parts 4, 5 and 6 of the GDP [Attachment 3]) within or adjacent to the area to be disturbed;
- initiate appropriate actions where special management measures may be required for those identified environmentally (or other) sensitive feature(s), such as pre-clearance surveys or fauna impact mitigation actions;
- check that all appropriate approvals and management actions are in place prior to carrying out the disturbance; and
- provide an auditable record of actions undertaken to allow disturbance to proceed.

A GDP will be completed by the relevant Project Manager and approved by MACH Energy's Environmental Superintendent or delegate prior to any clearing activities (including for each clearing campaign) commencing at the MPO. If extensive pre-clearance survey data indicate any environmentally (or other) sensitive feature(s) are within the disturbance footprint (refer Figure 8), the Environment Superintendent will engage a suitably qualified ecologist/fauna specialist. All contractors undertaking works at the MPO will be made aware of the GDP process through various mechanisms including site inductions and toolbox meetings.

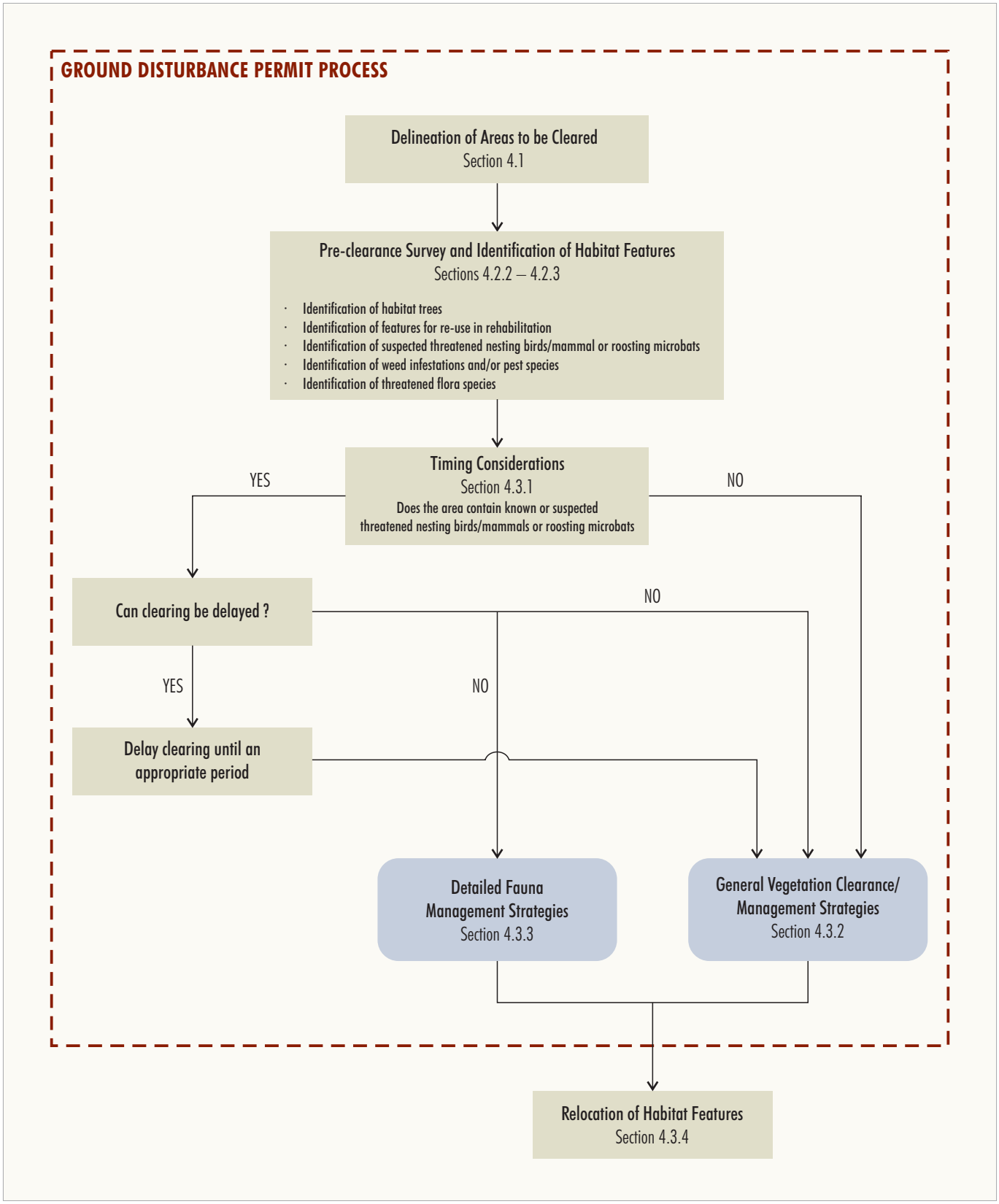

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Figure 8

4.2.2 Pre-clearance Survey

In conjunction with the GDP process and prior to native vegetation clearing at the MPO, a pre-clearance survey will be conducted by a suitably qualified and licensed ecologist/fauna specialist. The objective of the pre-clearance survey is to identify:

- potential habitat features located within proposed disturbance areas (such as hollows [e.g. habitat for threatened birds, arboreal mammals and bats]) that may require special management during clearing and that can be salvaged (where practicable) for reuse in rehabilitation areas, adjoining non-disturbed native vegetation areas or in the relinquishment area (Section 4.2.3);
- actively nesting threatened birds, arboreal mammals and/or suspected active microbat roosts that may require active management prior to, or during, disturbance to minimise impacts on threatened fauna species (e.g. birds, arboreal mammals and hollow dwelling bats) (Section 4.3.3);
- presence of individuals of the threatened Tiger Orchid (*Cymbidium canaliculatum*) population to be avoided/salvaged during disturbance activities (Section 4.3.5);
- presence of rocky areas that could provide habitat for *Delma vescolineata* (Section 4.3.3);
- flora in fruit which can be utilised for seed collection (Section 4.3.6);
- weed infestations adjacent to, or within, the proposed disturbance area that may need treatment prior to or during disturbance (Section 7.2.1); and
- pest species that may require control prior to disturbance (Section 7.2.2).

Where practicable, the surveys will be undertaken in consideration of seasonality. However, mine planning constraints may not always allow sufficient time for delays to clearing works to allow for ideal survey timing.

4.2.3 Habitat Feature Salvage

Trees containing features with the potential to provide significant habitat (i.e. numerous suitable hollows) for nesting threatened birds or hollow dwelling bats and/or arboreal mammals (e.g. for the Squirrel Glider [*Petaurus norfolcensis*]) will be clearly marked as habitat trees and retained for reuse wherever practicable.

Where practical and feasible, habitat features such as large hollows and surface rock identified during the pre-clearance surveys will be salvaged and stockpiled for reuse in rehabilitation areas or relocated to adjoining areas of remnant vegetation or to the relinquishment area. Remaining tree limbs, stumps, shrubs and other woody vegetation may be mulched or used in whole or in part in rehabilitation areas.

Salvaged habitat features will be reused in native vegetation rehabilitation areas, as follows:

- Stag trees – hollow bearing timber for vertical placement within rehabilitation areas for birds, arboreal mammals and hollow dwelling bats, and bark retained timber for microbats.
- Coarse Woody Debris – horizontal placement of hollow logs or small piles of timber and rocks creating cavities for habitat by small ground dwelling mammals and reptiles (e.g. *Delma vescolineata*) placed for inter-connectivity across rehabilitation areas.
- Habitat trees and non-habitat trees used generally as coarse woody debris.

The location and inventory of salvaged and re-used material for habitat enhancement will be reported in the MPO Annual Review (Section 12.1).

4.3 CLEARING PROCEDURE AND MANAGEMENT STRATEGIES

A number of management strategies are available to MACH Energy to minimise impacts of ground disturbance on fauna during clearing activities.

Mine planning will consider the staging of clearing and scheduling of clearing works with consideration of impacts on threatened species (Section 4.3.1). The practicality of implementing each strategy is dependent on the characteristics of the habitat feature in question and will be determined by the Environmental Superintendent prior to, or during clearing. The implementation of specific management actions will be determined on a case-by-case basis by the Environmental Superintendent with input from suitably qualified and licensed ecologist/fauna specialist, where necessary. Examples of possible management strategies to be considered are provided below.

Prior to undertaking clearing activities, MACH Energy will contact Wildlife Information Rescue and Education Services (WIRES) and any relevant local wildlife group to advise of future clearing activities. WIRES will be notified at least seven days prior to significant clearing activities where habitat trees are present to determine if they are able to manage injured animals. If they are not, alternative arrangements should be made.

4.3.1 Timing Considerations

The timing for clearing areas of vegetation will be determined by the Environmental Superintendent in consultation with mine planners and with input from a suitably qualified and licensed ecologist/fauna specialist. Timing will be determined on a case-by-case basis in consideration of:

- undertaking clearing on a progressive basis to minimise the active area of disturbance at any one time and to maximise direct placement of topsoil onto rehabilitation areas (where available);
- suitability of the area to be cleared for roosting threatened microbats or nesting threatened birds/arboreal mammals (i.e. whether it contains potential roosting or nesting habitat [at the time of proposed clearing] for relevant threatened birds, microbats and arboreal mammals);
- pre-clearance surveys identifying suspected roosting threatened microbats or nesting threatened birds/arboreal mammals;
- avoiding winter, spring and summer breeding/hibernating periods, noting however that mine scheduling constraints that may not allow clearing to be delayed to avoid winter, spring and summer breeding/hibernating periods;
- consideration of scheduling for construction to occur outside breeding and torpor seasons. If clearing is required to occur during breeding and/or torpor seasons, a written assessment by the Project Ecologist to justify clearing activities (i.e. no impact to breeding or torpor habitat) will be recorded and provided in the subsequent MPO Annual Review (Section 12.1).
- outcomes of pre-clearance surveys and subsequent advice from suitably qualified and licensed ecologist/fauna specialist regarding development of appropriate management strategies for threatened flora and/or fauna relevant to the area to be cleared; and
- experience from past clearing campaigns.

If no threatened species are recorded or considered likely to be present at the time of the proposed clearing, then clearing will be undertaken in accordance with the general strategies described in Section 4.3.2. If suspected roosting threatened microbats or nesting threatened birds/arboreal mammals are recorded or considered likely to be present at the time of the proposed clearing and clearing cannot be delayed, then the management described in Section 4.3.3 will be implemented (in addition to the strategies described in Section 4.3.2). In either case, the relocation of habitat features (described in Section 4.2.3) will be undertaken.

4.3.2 General Vegetation Clearance/Management Strategies

In any area designated for clearing, non-habitat vegetation will be cleared first with identified habitat trees (i.e. containing numerous hollows suitable for nesting birds or roosting microbats) left standing to encourage the self-relocation of fauna that may be inhabiting the habitat tree. Where practical and feasible, habitat trees left standing will be shaken (under appropriate supervision) to encourage fauna (e.g. the Squirrel Glider) to relocate.

Where practical and feasible, habitat trees in a particular area will not be felled for at least 24 hours following the felling of surrounding non-habitat trees. Felling of habitat trees will be carried out under the supervision of a person suitably qualified and/or experienced in fauna handling (with the appropriate licences) and once felled will be left undisturbed (other than ensuring the hollow opening is not blocked) overnight to enable fauna to relocate.

4.3.3 Detailed Fauna Management Strategies

Staged land clearing will be undertaken to minimise impacts to native fauna species, this will allow fauna to gradually self-relocate outside of the approved disturbance area. A suitably qualified and licensed ecologist/fauna specialist will be present during clearing of habitat trees to manage vertebrate animals in accordance with appropriate licenses.

Habitat trees will be inspected immediately prior to, and after felling, for animals. The suitably qualified and licenced ecologist/fauna specialist may:

- leave animals to move on their own accord (prior to or after felling);
- capture and release animal(s) into surrounding suitable habitat either at the time of capture or at a more suitable time depending on the animal (e.g. at night for arboreal mammals and bats); and
- capture injured animal(s) for assessment and if required for further assessment by WIRES or veterinary services in relation to the animal's welfare.

Where threatened fauna is observed using a particular habitat feature during pre-clearance surveys (and where threat abatement is not possible) an attempt will be made to either promote self-relocation (e.g. gently shaking the tree to encourage threatened birds, bats and mammals to move to an alternate tree) or capturing and releasing the fauna species (e.g. in relation to bats and mammals) into a suitable proximal undisturbed area.

Some examples of fauna management strategies that will be considered (as appropriate) are described below. All management strategies that involve handling of fauna will be carried out under the supervision of the Environmental Superintendent by a suitably qualified and licensed ecologist/fauna specialist using accepted techniques and subject to safety considerations. The suitably qualified and licensed ecologist/fauna specialist would manage any unexpected finds.

MACH Energy will engage with experienced and accredited Fauna Spotter Catchers. Fauna Spotter Catchers have successfully completed Nationally Recognised Fauna Spotter Catcher training courses.

Nesting Birds

The following strategies will be employed in relation to habitat trees with confirmed nesting threatened birds:

- if the nest is active the area will be avoided and retained until the fledglings have left the nest (where possible based on mine scheduling constraints); or
- if unavoidable, the fledglings will be collected (where safe to do so) and cared for by a wildlife carer for subsequent release; or
- if the nest is inactive (i.e. no young are present):
  - the tree will be cleared within two weeks following the confirmation that the nest is inactive; or
  - the tree will be re-inspected immediately prior to clearing; or
  - the nest will be removed.

Arboreal Mammals

The following strategies will be employed in relation to habitat trees with confirmed nesting threatened arboreal mammals:

- habitat trees with confirmed or suspected roosting threatened mammals will be managed by:
  - shaking the tree with machinery prior to clearing to encourage arboreal mammals to move to an alternative site;
  - soft pushing the tree to the ground with the objective of causing minimal impact to the roost;
  - inspecting the felled tree to confirm whether mammals have exited the tree and relocate the fauna where appropriate; and
  - leaving the felled tree overnight to allow any remaining mammals time to exit.

Hibernating, Roosting and/or Breeding Microbats

The following strategies will be employed in relation to habitat trees with suspected or confirmed hibernating, roosting and/or nesting threatened microbats:

- habitat trees with suspected or confirmed bat roosts will be managed by:
  - shaking the tree with machinery prior to clearing;
  - soft pushing the tree to the ground with the objective of causing minimal impact to the roost;
  - preferentially positioning the tree on the ground so the entrance to the hollow faces upwards (i.e. so bats are able to exit);
  - inspecting the felled tree to confirm whether bats have exited the tree; and
  - leaving the felled tree overnight to allow any remaining bats time to exit.
- if a bat roost containing a maternity colony (young bats) or hibernating microbats is found during inspection of the felled tree, the following will be undertaken:
  - If the roost is located in a portion of the tree that is not able to be relocated, the bat fauna will be collected and temporarily stored in a cool location for release at night.
  - If the roost is located in a portion of the tree able to be relocated:
    a. The cavity opening will be temporarily blocked with a piece of cloth.
    b. The section of the tree will be removed.

c. Adults and young captured leaving the roost will be placed within the roost.

d. The ends of the extracted tree section and cavity openings will be temporarily blocked during transportation.

e. Collected roost and bat fauna will be temporarily stored in a cool location.

f. Prior to dusk, the roost will be positioned within an appropriate release location above the ground with a freefall of approximately 1-3 metres (m).

g. The roost will be checked the following morning for success of adult retrieval of young.

h. In the case of unsuccessful adult retrieval of young then the juvenile bats will be assessed by a veterinarian or experienced wildlife carer.

Reptiles

Rocky areas with potential *Delma vescolineata* will be searched prior to clearing and any reptiles will be collected and relocated to similarly rocky habitat within the relinquishment areas or elsewhere in the ML.

Section 7.9 details additional protocols to be implemented on site to manage the impacts to the *Delma vescolineata.*

4.3.4 Relocation of Habitat Features

Some threatened species are known to utilise a network of nests/roosts, rather than being fixed to one nest/roost. Hence there is potential to relocate known nests/roosts to proximal suitable habitat in non-disturbance areas (e.g. rehabilitation areas, adjoining non-disturbed native vegetation areas or the relinquishment area) when the nest/roost is unoccupied by the threatened species. Where it is practical to relocate nests/roosts then this will be carried out under the supervision of the Environmental Superintendent by an appropriately qualified and/or experienced person(s) (who is also licensed) using accepted techniques.

Small piles of timber and surface rocks creating cavities for habitat for small ground dwelling mammals and reptiles (e.g. *Delma vescolineata*) will be collected to place across rehabilitation areas.

4.3.5 Relocation of Tiger Orchid

Individual members of the Tiger Orchid (*Cymbidium canaliculatum*), endangered population in the Hunter Catchment listed under the BC Act, have been previously identified in the MPO area (Table 6). Figure 4 shows the location of known occurrences. If a known occurrence is within a proposed disturbance area, MACH Energy will attempt to modify the disturbance to avoid the orchid. If disturbance cannot be modified, the entire tree containing the orchid will be salvaged prior to disturbance and relocated to proximal, suitable habitats in non-disturbance areas. Relocation will be carried out under the supervision of the Environmental Superintendent by a suitably qualified and licensed ecologist using accepted techniques.

Detailed strategies have been developed to guide translocation efforts for the Tiger Orchid. The *Guidelines for the translocation of threatened plants in Australia* (Commander *et at.,* 2018) and the *Mangoola Open Cut Translocation Management Plan* (Glencore, 2018) were consulted to guide the translocation method of the Tiger Orchid and to identify suitable post-translocation management actions and have been implemented since 2021, with Tiger Orchid monitoring programs occurring annually following the translocation of the Tiger Orchid and reported in the MPO Annual Review. MACH Energy have also successfully propagated the Tiger Orchid in a nursery. The propagated orchids have been placed on the rehabilitated areas and are being monitored.

The initial success of the translocation efforts has been reported in the 2021 and 2022 MPO Annual Review. The Tiger Orchid monitoring program is discussed in Section 8.6.

4.3.6 Seed Collection

Flora which has been identified as being in fruit during pre-clearance surveys will be relayed to site environmental staff (Section 4.2.2).

A priority is the collection of seed from species characteristic of the local occurrences of PCTs 1605 and 1602 and White Box hybrid (*Eucalyptus moluccana x Eucalyptus albens*) for rehabilitation (Section 7.1). The Rehabilitation Strategy and RMP prepared under the Development Consent SSD 10418 Conditions B89 and B92 outlines the seed collection process and species selection for each of these PCTs in further detail.

Where it is safe, viable and economical to collect seeds from the identified flora, the following procedures will be undertaken:

- Seed collectors will be notified of the time of clearing and be present for seed collection during the clearing as required.
- Fruit located at accessible heights to enable seed collection will be accessed with maximum harvesting of fruit/seed.
- Fruit not located at accessible heights will be collected in close liaison with earthmoving operators during felling.

Seed collected during clearance activities will be stored and managed as per the procedures outlined in Section 5.

4.3.7 Clearance Restrictions

Part B, Condition B63(g)(ii) of Development Consent SSD 10418 requires the BioMP to describe the measures to be implemented on the site to minimise clearing within approved disturbance areas.

Disturbance of vegetation will be restricted to the approved disturbance area, and the area cleared at any particular time will generally be no greater than that required to accommodate development needs for the following 12 months, in order to minimise clearing in a reasonable and practical manner.

Limits of clearing will be delineated by either high visibility tape at appropriate intervals, temporary fencing or an equivalent boundary marker that will be installed any time prior to clearing. This may include the use of protective fencing (e.g. parawebbing) erected around individual trees on the edge of the clearance area. MACH Energy staff and contractors will be made aware of clearing limits.

To avoid unnecessary or inadvertent vegetation and habitat removal, disturbance will be restricted to the delineated area and no stockpiling of equipment, machinery, soil, or vegetation will occur beyond this boundary. Where vegetation clearing is required, clearing will be conducted in such a way that damage to surrounding vegetation is avoided.

4.4 ANCILLARY INFRASTRUCTURE

Where clearing is required for approved ancillary infrastructure (e.g. access tracks, water management structures, installation of monitoring equipment, etc.), the procedures described in Sections 4.1 to 4.3 will be applied. In addition, where threatened flora or habitat trees (Section 4.2.3) are present, the design and implementation of the ancillary works will consider:

- avoidance (i.e. if the location of the works is flexible);
- delaying works until the habitat tree is no longer in use (e.g. fledglings have left the nest or are old enough to be cared for by a wildlife carer); and
- implementing fauna management strategies (Section 4.3.3) if avoidance and/or delaying works are not practicable.

4.5 REPORTING REQUIREMENTS

Once clearing activities are completed, a vegetation clearing report will be prepared and provided to BCD on request. The report will detail the following:

- final area of land cleared;
- identity of vegetation removed;
- number of hollow-bearing trees removed; and
- inventory of habitat features salvaged and stockpiled/relocated.

5 COLLECTION AND USE OF LOCALLY SOURCED NATIVE SEEDS AND SUPPLEMENTARY TUBESTOCK PLANTING

5.1 NATIVE VEGETATION SEEDING

As described in the RMP and Rehabilitation Strategy, the rehabilitation of disturbed areas will be based on the use of local provenance seed, where practical and feasible. Consideration will be given to site conditions, including soil type and condition, landform, time of year, climate, water availability and vegetation community establishment outcomes, and also the best methods of rehabilitation application.

In addition to potentially sourcing seeds from an external provider, a Seed Harvesting Facility has been established on-site, and is used for native seed harvesting operations (Plates 1 and 2). MACH Energy currently undertakes ongoing seed collection programs on the MPO area. Seeds are stored in the Seed Harvesting Facility, or alternatively in a long-term seed storage facility, located off-site. Record sheets and GIS databases have been developed and will continue to be maintained to track the collection, storage and utilisation of the MPO seed resource.

Plates 1 and 2 – Seed Harvesting Facility

A priority is the collection of seed from species characteristic of the local occurrences of PCTs 1605 and 1602 and White Box hybrid (*Eucalyptus moluccana x Eucalyptus albens*) for rehabilitation. The Rehabilitation Strategy and RMP prepared under the Development Consent SSD 10418, in accordance with Conditions B89 and B92, will detail seed collection and species selection for each of these PCTs in further detail.

Rehabilitation of woodland at the Project will continue to focus on locally occurring flora species, while acknowledging that seed supply may be a limiting factor. In this case, other appropriate native species that have performed well in the region will also be considered. Subject to seed and seedling supply availability and suitability, flora species to be used in rehabilitation would aim to include those typical of the Box-Gum Woodland Critically Endangered Ecological Community (CEEC) (Table 8).

5.1.1 Seed Management

A seed calendar will be developed for use on-site, which contains information relating to:

- species flowering time, which can be referenced in terms of habitat value;
- fruiting and seed collection time;
- additional information on collection; and
- data on viability of seed collected (where available).

The seed calendar will be used to inform the optimal timing for the collection of seeds for areas planned for disturbance.

Seed collection and propagation activities will continue to be undertaken when conditions allow with consideration of:

- Progressive collection of native seed to augment revegetation resources.
- Strategically timed and cost-effective seed collection utilising the seed collection calendar.
- Collection of fruit directly from the plant into collection bags for transfer to drying rooms.
- Maintenance of a seed inventory for the Seed Harvesting Facility which records the amount of seed collected, species type and treatment and propagation specifications.
- Collection of seed identified during pre-clearance surveys (Section 4.2.2) using the measures outlined in Section 4.3.6.
- Gaining consent of the landowner and/or manager where seed is required to be collected on land not owned or managed by MACH Energy.
- The use of Florabank Guidelines (Greening Australia, 2022), when seed collection is undertaken outside of clearance areas.

To avoid the spread of weeds and exotic species, seed collection will only be carried out for native species. The seedbank will be supplemented (e.g. from commercially available material from endemic native species to the local area).

Harvested seeds not used in direct sowing or production of tubestock will be stored for future use on rehabilitation areas or shared with other seed harvesters/users. Storage and management of seed stocks will be undertaken according to best practice so as to maintain seed viability. This may include:

- Storage of seed in paper or calico bag.
- Labelling of seed collection and storage bags with relevant details (e.g. species and collection and storage dates).
- Maintenance of a seed inventory which will record the amount of seed collected, species type and treatment and propagation specifications.

Native vegetation seed will be sown simultaneously with pasture species when appropriate. Sowing will occur as soon as possible after seedbed preparation to optimise the conditions for germination prior to surface crust development.

Native vegetation establishment relies on initial establishment of local pioneer species to condition the soil for successive plant regeneration. These include wattles and grass species known to occupy disturbed environments throughout the local area. Sterile cover crops may be used within the seed mix to establish effective cover prior to native seed propagating.

5.1.2 Provisional Seed Species List

As described in the MPO Rehabilitation RMP and Rehabilitation Strategy, species selected for use in rehabilitation and native revegetation areas are based on existing native vegetation types within proximal areas and the final rehabilitation and land use objectives for the MPO. The provisional species lists for the target PCT communities targeted for revegetation of the MPO is provided in Table 8. These species lists and seed mixes may be subject to amendment due to availability from MPO's Seed Harvesting Facility and/or from external providers. It is anticipated that the provisional list of species for the target PCTs will be further augmented and refined over the life of the MPO based on the results of rehabilitation monitoring, on-site rehabilitation investigations and trials and consultation with key stakeholders.

Table 8
Plant Community Types and Provisional Species Lists
Proposed for Native Ecosystem Rehabilitation

Species	Common Name
PCT 1605 Narrow leaved Ironbark / Native Olive Shrubby Open Forest	
Eucalyptus crebra	Narrow-leaved Ironbark
Notelaea microcarpa	Native Olive
Myoporum montanum	Boobialla
Olearia elliptica	Sticky Daisy Bush
Breynia oblongifolia	Coffee Bush
Acacia paradoxa	Kangaroo Wattle
Acacia falcata	Falcate Wattle
Acacia decora	Western Golden Wattle
Dodonaea viscosa	Hop Bush
Sida hackettiana	Spiked Sida
Lomandra longifolia	Matt Rush
Solanum cinereum	Nawarra Burr
Calotis lappulaceae	Burr Daisy
Einadia hastata	Nodding Saltbush
Enchylaena tomentosa	Ruby Saltbush
Atriplex semibaccata	Creeping Saltbush
PCT 1602 Narrow leaved Ironbark/ Grey Box/ Spotted Gum Shrub / Grass Woodland	
Eucalyptus moluccana	Grey Box
E. crebra	Narrow-leaved Ironbark
Corymbia maculata	Spotted Gum
Eucalyptus tereticornis	Forest Red Gum
Eucalyptus fibrosa	Broad-leaved Ironbark
Acacia parvipinnula	Silver-stem Wattle
Acacia amblygona	Fan Wattle
Bursaria spinosa	Blackthorn
Olearia elliptica	Sticky Daisy Bush
Dodonaea viscosa	Hop Bush
Acacia decora	Western Golden Wattle
Acacia paradoxa	Kangaroo Thorn

Table 8 (Continued)
Plant Community Types and Provisional Species Lists
Proposed for Native Ecosystem Rehabilitation

Species	Common Name
PCT 1602 Narrow leaved Ironbark/ Grey Box/ Spotted Gum Shrub / Grass Woodland	
Daviesia ulicifolia	Gorse Bitter Pea
Acacia falcata	Falcate Wattle
Indigofera australis	Native Indigo
Kunzea ambigua	Tick Bush
Breynia oblongifolia	Coffee Bush
Allocasuarina luehmannii	Bull Oak
Einadia hastata	Nodding Saltbush
Enchylaena tomentosa	Ruby Saltbush
Atriplex semibaccata	Creeping Saltbush
Sida hackettiana	Spiked Sida
Dysphania carinata	Green Crumbweed

These species lists have been developed in consultation with specialist ecologists, including Greg Major, a Restoration Ecologist, and Dr Carmen Castor who has 18 years' experience in research in mine site native ecosystems rehabilitation in the Hunter Valley.

A revegetation rationale has been developed to guide where each PCT will be re-established on MPO final landforms (e.g. Ironbark communities would be more suited to upper slope areas and Grey Box – White Box communities would be more suited to lower slopes and flatter areas). The annual rehabilitation plans include details of target PCTs and PCT planting plans/maps.

Consistent with the MSC's recommendations on the approved Rehabilitation Strategy, highly competitive exotic grasses (e.g. Rhodes Grass [Chloris gayana]) and non-local Australian species (e.g. Golden Wreath Wattle [Acacia saligna]) will not be used anywhere on-site.

5.2 TUBESTOCK PLANTING

Native vegetation establishment in rehabilitation areas may be supplemented with tubestock, where required, immediately or following establishment of pasture and native cover. Where practical and feasible, tubestock will be propagated in a local nursery from locally sourced seed. Tubestock planting will generally be undertaken in spring and autumn, when weather conditions are optimised for vegetation establishment, however opportunistic rehabilitation and assisted native regeneration will be undertaken in summer and winter months if areas become available and prevailing weather conditions are favourable. Depending upon the ground conditions, alternate planting methods will be considered (e.g. long stem tube stock for locations proximal to large watercourses).

Species selection will be designed to promote the development of forest and woodland with structured understorey, mid-storey and tree canopy coverage. This will increase overall biodiversity values and promote survival of these vegetation types in the post-mining landscape. In order to enhance vegetation connectivity, species of the target vegetation communities will be seeded and planted adjacent or close to similar vegetation communities where possible.

6 STRATEGIES TO MANAGE REMNANT VEGETATION ON-SITE

As described in Section 3, the vegetation across the MPO area typically represents recent regeneration and scattered remnant trees in grasslands. Vegetation is primarily composed of derived native grassland, exotic pasture, previous plantings, scattered mature trees and patches of woodland. Of the native vegetation at the MPO, some communities represent TECs under the BC Act.

MACH Energy currently undertakes management measures to maintain the remnant vegetation across the MPO area. These measures include:

- Weed control (Section 7.2.1).
- Pest control (Section 7.2.2).
- Opportunistic monitoring of erosion to inspect for high-risk areas required for erosion control and, where required, the implementation of stabilisation and remediation works (Section 7.3).
- Control of stock to avoid overgrazing (Section 7.5).
- Management of human access and disturbance including installation of fencing, gates and signage where required, to prevent unauthorised entry/use (Section 7.6).
- Retaining dead timber in woodland areas (i.e. preventing fire wood collection).
- Avoidance of disturbance of areas outside the approved surface disturbance footprint through the:
    - effective demarcation of approved areas of disturbance, through the measures described in Section 4.1 and through use of the GDP process (Section 4.2.1); and
    - effective use of erosion and sediment controls to minimise disturbance on areas of remnant vegetation in proximity to/downstream of approved areas of disturbance (Section 7.3).
- Design of the Mine Infrastructure Area (MIA) to minimise the clearance of existing stands of trees and to use natural aesthetics as much as possible, in order to minimise the visual impact of the site (Section 7.10).
- Night-lighting of Project construction activities will be kept to a practicable minimum.

Further detail on the biodiversity management measures undertaken across the MPO area (including for the areas of remnant vegetation) is described in Section 7. Associated monitoring for these management measures is described in Section 8.

Wildlife Corridors

In accordance with the rehabilitation objectives in Schedule 3, Condition 53 of Development Consent DA 92/97, the MPO final landform will be revegetated with native tree, shrub and grass species as listed in the Rehabilitation Strategy and the RMP. This will allow the landform to assimilate with the open woodland communities in the surrounding environment.

The revegetated eastern face would provide a contiguous wildlife corridor with the revegetated eastern face of the Bengalla Mine for native woodland bird species. Given the close proximity of the revegetated woodland areas, bird species could utilise both areas for habitat establishment and foraging. In addition, the vegetation on the eastern face of the MPO Eastern Out of Pit Overburden Emplacement would develop a contiguous wildlife corridor with the Bengalla Mine rehabilitation and surrounding remnant woodland, and also be visually consistent with the revegetation of the eastern face of the Bengalla Mine landform.

Standing dead stag/habitat trees will be installed across the MPO Eastern Out of Pit Overburden Emplacement to provide immediate habitat ‘steppingstones’ prior to development of planted trees over the next few decades.

MACH Energy has undertaken preliminary consultation with the Bengalla Mining Company regarding integration of rehabilitation across the MPO and the Bengalla Mine. MACH Energy proposes to continue collaboration with the Bengalla Mining Company by (for example) undertaking joint rehabilitation workshops to discuss rehabilitation strategies, revegetation species and implementation measures. MACH Energy is committed to information sharing to facilitate integration of rehabilitation across the MPO and the Bengalla Mine.

Relinquishment Areas

The native vegetation within the relinquishment areas was previously approved to be cleared but instead will be retained and managed. Measures to avoid accidental clearance in the relinquishment area (including the variant of PCT 483 with Spotted Gum in the canopy mapped within the relinquishment area) are described in Section 4.

MACH Energy retains the ability to construct some relatively minor and more flexible infrastructure (e.g. light vehicle roads, water management structures and other ancillary infrastructure) within the relinquishment areas. However, any such works will avoid the clearing of mature native trees and will be designed to avoid any increase in the total native vegetation cleared by the MPO. The ancillary works will be designed and implemented as per the principles outlined in Section 4.4.

Remnant vegetation and habitat within the relinquishment areas will be managed consistent with the measures used to maintain remnant vegetation across the MPO area.

MACH Energy will consult with BCD prior to construction within the variant of PCT 483 with Spotted Gum within the relinquishment area. BCD will review the potential impacts in the canopy mapped within the relinquishment area and advise MACH Energy if alternative arrangements should be made.

7 ADDITIONAL BIODIVERSITY MANAGEMENT MEASURES

In addition to the implementation of the VCP (Section 4) and seed collection program (Section 5), the management measures that will be implemented across the MPO area to minimise biodiversity disturbance are outlined below. Section 8 describes the biodiversity monitoring procedures relevant to these management measures.

7.1 REHABILITATION OF DISTURBANCE AREAS

The proposed final land uses for the MPO area include permanent water infrastructure and storage areas, agricultural land (pasture), native woodland and grassland areas and the final void. MACH Energy has identified parts of the Project final landform that would potentially be conducive to high-intensity agricultural use (e.g. mine infrastructure areas). These areas would be rehabilitated to pasture using appropriate grass species.

Rehabilitation of the MPO occurs progressively as areas become available. Temporary rehabilitation, including hydro-mulching and seeding of temporary landforms (e.g. mine access roads etc.), is undertaken across the site to mitigate visual impacts, dust impacts, as well as erosion and sediment management. Temporary rehabilitation is undertaken within six months of the areas becoming available.

7.1.1 Woodland Rehabilitation

The objectives for woodland rehabilitation areas include:

- Establish native vegetation comparable to suitable reference/analogue sites.
- Landform is functional and indicative of a landscape on a self-sustaining trajectory.
- Habitat features are salvaged and re-used in rehabilitation areas to provide fauna habitat resources.
- Restore self-sustaining native woodland ecosystems characteristic of vegetation communities found in the local area.
- Establish areas of self-sustaining riparian habitat and potential habitat for threatened flora and fauna species.

Rehabilitation of woodland at the Project will continue to focus on locally occurring flora species, while acknowledging that seed supply may be a limiting factor. In this case, other appropriate native species that have performed well in the region will also be considered. Subject to seed and seedling supply availability and suitability, flora species to be used in rehabilitation would aim to include those typical of the Box-Gum Woodland CEEC.

Where relevant, management practices described in the *National Recovery Plan – White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Department of Environment, Climate Change and Water [DECCW], 2011) will continue to be used as the basis for the re-establishment of grassy woodland areas on-site.

The EPBC Act 2011/5795 approval requires development of a Threatened Ecological Community Mine Site Rehabilitation Management Plan to guide the re-establishment of the Box-Gum Woodland CEEC across the Project area, including rehabilitated mine landforms. The Threatened Ecological Community Mine Site Rehabilitation Plan was approved by the Commonwealth Government on 22 October 2020.

An equivalent area of PCTs 1605 and 1602 approved to be cleared on Figure 3 (Table 9) will be established in rehabilitation areas.

Table 9
Natural Occurrence of Plant Community Types 1605 and 1602 and Additional Rehabilitation Target Areas

PCT	Description of the Natural Occurrences on Site (Hunter Eco, 2021a)	Rehabilitation Area Target (ha)
PCT 1605	Canopy was clearly dominated by Narrow-leaved Ironbark (*Eucalyptus crebra*) making up 99% of the tree species with 1% being Grey Box x White Box hybrid (*Eucalyptus moluccana* x *Eucalyptus albens*) mostly recorded at the edges of the mapped areas. Ground cover consisted of 37 grass species and 37 forb species.	66.6
PCT 1602	This community made up only approximately 4% of the mapped woodland with the canopy dominated by Spotted Gum (*Corymbia maculata*) and Narrow-leaved Ironbark (*Eucalyptus crebra*). Shrub cover consisted of ten mostly low species and ground cover consisted of 47 forb species and 30 grass species.	7

PCT 1602 generally occurs on lower slopes with undulating terrain in sandstone/siltstone lithology. At MPO it occurs on lower slopes and along sedimentary ephemeral drainage lines. PCT 1605 generally occurs on flats and hillslopes in sandstone lithology which is where it occurs in MPO. Section 5 provides methodology to source seed and seedling supply to establish PCT 1605 and PCT 1602, including specific detail of what species would be planted if locally occurring flora cannot be sourced and the potential impact if alternative species are planted.

MACH Energy have implemented seasonal weed and strategic cattle management (grazing) since 2016 within various target seasons, mainly summer and spring, when weed growth and presence tends to be at its height (Section 8.9). Significant fencing is in place to strategically manage areas. MACH Energy have committed to continuing this management, through contracted specialists and the Hunter Local Land Services to allow for native vegetation re-establishment of both woodland and grassland assemblages, and exclusion of pasture weed and exotic grass species from native vegetated areas.

Approved disturbance boundaries and areas designated for native vegetation are digitally captured and displayed within the site survey and GIS databases. Digital and/or map data have been provided to relevant site personnel and contractors to inform the required (campaign) clearing extents for pre-clearance surveys, fauna management, habitat salvage, topsoil and weed and pest management (Section 4.1).

All seed supply is certified and weed free. Seed collection and propagation activities are undertaken when conditions allow, within consideration of the Florabank Guidelines (Greening Australia, 2022). To avoid the spread of weeds and exotic species, seed collection will only be carried out for native species (Section 5).

7.1.2 Pasture Rehabilitation

The objectives for pasture rehabilitation areas include:

- Infrastructure would be decommissioned and removed (unless the NSW Resources Regulator agrees otherwise).
- Landform is functional and indicative of a landscape on a self-sustaining trajectory.
- Establish/restore grassland areas to support sustainable agricultural activities.
- Achieve the nominated land capability classification.

Consultation with MSC indicated a preference for intensive agricultural/industrial post-mining land uses that provide employment for the local community. Consequently, rehabilitation of the Project will consider both low and high intensity agricultural land uses.

Low intensity agriculture would consist of reinstating grazing use and high intensity agriculture may include activities such as feedlots, poultries or agricultural processing facilities. However, until such a time as a specific proposal is developed for such intensive uses, planning for all non-woodland areas would target low intensity agriculture.

The Project final landform areas proposed for agriculture are shown in Attachment 4 (Appendix 2 of Development Consent SSD 10418) and would be prepared to accommodate agricultural activities such as sustainable/managed livestock grazing.

Agricultural rehabilitation areas would be cultivated and then broadcast sown with pasture species. The species mix would be developed in consultation with an agronomist, and depend on the growth media available and environmental conditions at the time of rehabilitation. Species selection would also take into consideration potential for species to encroach on rehabilitation areas with native ecosystem re- establishment.

Improved pasture species commonly present in the surrounding grazing country that would be considered for rehabilitation of low intensity agricultural areas. Native grass species would also be considered in pasture species such as Couch (*Cynodon dactylon)*, Wallaby Grasses (*Rytidosperma spp.)* and Spear Grasses (*Austrostipa spp.)* which have been shown to develop well in post mining landscapes of the Hunter Valley (Huxtable, Koen and Waterhouse, 2005). No pasture grasses would be used that are not already present in the surrounding landscape.

Further detail on the rehabilitation program at the MPO is outlined in the RMP and Rehabilitation Strategy, including detailed performance and completion criteria. Scheduled rehabilitation (including the spatial extent, location and target rehabilitation phase) is defined by the Rehabilitation Strategy and the RMP. A description of the potential risks to successful rehabilitation, including contingency measures that would be implemented to mitigate these risks are outlined detail in the RMP and Rehabilitation Strategy.

7.1.3 Rehabilitation of Drainage Lines

The main drainage feature within the vicinity of the MPO is the Hunter River which flows in a southerly direction approximately 1 km to the east of the MPO area (Figure 2). There are a number of ephemeral drainage lines which traverse the MPO area and drain into the Hunter River, however no perennial streams/creeks exist on-site.

As outlined in the RMP and as part of the Project EIS (MACH Energy, 2021), the objective of the final landform is to develop drainage features in the post-mining landform that mitigate erosion potential. This will be achieved by incorporating micro-relief into the drainage design.

The NSW Mineral Council's (2007) *Rehabilitation by Design Practice Notes* and Department of Environment & Climate Change's (2008) *Managing Urban Stormwater Soils and Construction Volume 2E Mines and Quarries* provide principles for the construction of stable batter slopes. MACH Energy has considered these principles in developing the conceptual Final Landform, provided in the RMP.

Geomorphic features will be incorporated into the design of the relevant final landform drainages. This will also be informed by investigation into the physical characteristics of waste rock and soil materials at the MPO for provision of appropriate rock, sub-soil and topsoil material for use on outer batters and in drainage features.

Throughout the life of the MPO, the conceptual final landform may be revised to reflect the outcomes of the ongoing investigations, in consultation with MSC and relevant NSW Government agencies.

The outcomes of this work will be reflected in future versions of the RMP.

7.2 WEED AND PEST CONTROL

A total of 16 high threat weed species were identified by Hunter Eco (2021a). These are Galenia (*Galenia pubescens),* Khaki Weed *(Alternanthera pungens),* Cobbler's Pegs *(Bidens pilosa),* Greater Beggar's Ticks *(Bidens subalternans),* Saffron Thistle *(Carthamus lanatus),* Fireweed *(Senecio madagascariensis),* Noogoora Burr *(Xanthium occidentale),* Bathurst Burr *(Xanthium spinosum),* Tiger Pear *(Opuntia aurantiaca),* Devil's Tongue *(Opuntia humifusa),* Common Prickly Pear *(Opuntia stricta var. stricta),* Kikuyu Grass *(Cenchrus clandestinus),* White Foxtail Grass *(Cenchrus longisetus),* Coolatai Grass *(Hyparrhenia hirta),* Dallas Grass *(Paspalum dilatatum)* and African Boxthorn (*Lycium ferocissimum)*.

A total of six feral animal species recognised as threats to native wildlife were identified by Future Ecology (2020). These are the Feral Dog (*Canis lupus familiaris*), Fox (*Vulpes vulpes*), Cat (*Felis catus*), Rabbit (*Oryctolagus cuniculus*), Feral Pig (*Sus scrofa*) and Fallow Deer (*Dama dama*).

Ongoing management activities are undertaken to control the presence of these species, as outlined in the sections below.

7.2.1 Weed Control

A weed control program is implemented at the MPO to avoid and mitigate the spread of aggressive tussock grasses (e.g. Coolatai Grass, Jaragua Grass, and African Love Grass) along with priority and environmental weeds (e.g. high threat weed species).

Weed management at the MPO is undertaken in accordance with advice from the Upper Hunter Weeds Authority, and in accordance with the *Biosecurity Act, 2015*. MACH Energy also has a weed management procedure which is implemented across the MPO area. This procedure provides additional management and control measures which will be implemented at the MPO. The procedure includes a description of the Weeds of National Significance, priority and environmental weed species which pose a threat to the site.

Monitoring of weed presence, extent and other factors which may contribute to growth/decline of populations will occur regularly, as outlined in Section 8.

Weed control measures that will be undertaken at the MPO by MACH Energy staff and/or an appropriately qualified contractor include (but are not limited to):

- Implementation of appropriate weed management measures on identified weeds in the MPO area, including:
  - physical removal (i.e. cultivation, slashing or mulching); and/or
  - chemical spraying using herbicides.
- Ensuring machinery hygiene protocols are implemented for all machinery working in/around the MPO area to control the spread of weeds.
- Management of cattle movement to mitigate the risks associated with the control of weeds in manure, around stockyards, and key access corridors.
- Use of erosion and sediment control measures in accordance with the Water Management Plan to control nutrient/weed migration (Section 7.3).
- Consultation with neighbouring landowners and the relevant government stakeholders, such as the Upper Hunter Weeds Authority, regarding regional weed management strategies.

- Regular inspections and maintenance of topsoil stockpiles noting that there can be a high density of weed propagule in topsoil.
- Where chemical spraying is utilised, consideration of appropriate measures to ensure the safety and effectiveness of spraying will be undertaken (i.e. approval of an appropriate contractor and chemicals, timing of application during active growth, as well as consideration of surrounding land uses and prevailing weather conditions to reduce spread). Chemical spraying will not occur within or adjacent to waterbodies, watercourses or stormwater systems. In these areas, the chemical will be applied manually.
- Control of priority weeds, or plants identified as key threatening processes and weeds of regional priority on MACH-owned land in accordance with the relevant NSW Department of Primary Industries control category and the *Hunter Regional Strategic Weed Management Plan 2017 – 2022* (Hunter Local Land Services, 2017).

The Environmental Superintendent will be responsible for ensuring that the above weed control measures and hygiene protocol are adhered to. Any incidences, non-compliances or exceedances of the performance criteria (Section 10.1) will be reported in accordance with the protocols outlined in Section 10.2 and 13.1.

Routine visual weed inspections across the MPO area will be conducted bi-annually (Section 8.9). Ad-hoc observations and reporting of weeds by the general workforce is also considered part of the inspection program.

Introduced plants have the potential to out-compete native species, to alter habitat and affect land use (agricultural or recreational). Under the *Biosecurity Act, 2015*, MACH Energy has a statutory responsibility to prevent the spread of priority weeds. The consideration of these species has been incorporated into the weed management procedure. MACH Energy will ensure maintenance staff in charge of weed inspections are knowledgeable regarding the identification of weed species prevalent in the Upper Hunter area, especially for weed species identified as priority under the *Biosecurity Act, 2015,* and for weeds of national significance under the *Australian Weeds Strategy 2017 – 2027* (Commonwealth of Australia, 2017).

MACH Energy will undertake the weed control program in consultation with private landholders in direct proximity to the MPO, as required, based on the results of the weed monitoring program (Section 8.9). The purpose of consultation is to facilitate a coordinated weed control program for the benefit of all landholders. The control of weeds is intended to be adaptive and will be informed/reviewed based on inspections (Section 8.9).

Weed control for the tree screening areas related to visual management of the MPO is outlined in the Visual Impact Management Plan (VIMP). The outcomes of the above weed control measures are reported in the MPO Annual Review.

7.2.2 Pest Control

Pest control will be undertaken in consultation with the Hunter Local Land Services (in accordance with the requirements of the NSW *Local Land Services Act, 2013*), the Wybong Wild Dog Association and surrounding landowners as required. Experienced and qualified pest management contractors will be appointed by the Environmental Superintendent to implement the pest management measures. Activities undertaken at the MPO will include (but not necessarily be limited to):

- Using a range of appropriate pest control measures to minimise collateral damage to native animals, depending upon the outcomes of pest monitoring (Section 8.2), for example:
  - destruction of habitat;
  - trapping;
  - targeted shooting programs; and
  - baiting.
- A focus on those species which are known to impact native flora and fauna. Key target species will include the feral dog, feral pig and fox (although pest monitoring will be undertaken for all pest species and pest control measures will be undertaken accordingly).

Routine monitoring of pest activity across the MPO area will be conducted bi-annually (Section 8.9). Ad-hoc observations and reporting of feral animal sighting by the general workforce is also considered part of the inspection program.

Pest management will continue to involve the implementation of appropriate control programs for target species, on an as needed basis as determined through monitoring.

The Environmental Superintendent will be responsible for ensuring that the above pest control measures are adhered to. Any incidences, non-compliances or exceedances of the performance criteria (Section 10.1) will be reported in accordance with the protocols outlined in Section 10.2 and 13.1.

The outcomes of these pest management activities will continue to be reported in the MPO Annual Review.

7.3 EROSION AND SEDIMENT CONTROL

Erosion and migration of sediment from disturbance areas into adjacent vegetation has the potential to facilitate weed invasion through the introduction of weed seed and nutrients that favour weed species. In addition, migrated sediment has the potential to adversely affect surrounding natural watercourses.

Consistent with Schedule 3, Condition 28 (b) of Development Consent DA 92/97 and Part B, Condition B52 (f) of Development Consent SSD 10418, a detailed Erosion and Sediment Control Plan is required for the MPO. The following measures will be adhered to in all areas of the site where disturbance from construction and/or initial mining activities occurs:

- relevant internal approvals and permits will be obtained before commencement of surface disturbance (e.g. GDPs [Section 4.2.1]);
- the extent of disturbance (including trafficable areas) will be minimised and identified using appropriate pegging, barriers or signage;
- appropriate erosion and sediment controls will be approved and established prior to land disturbance and will remain in place until exposed areas are stabilised;
- clean water runoff from undisturbed catchments will be diverted around the disturbance areas via diversion drains and banks to discharge into natural watercourses, where practical;

- runoff from disturbed areas will be diverted into sediment dams;
- drains, diversion banks and channels will be stabilised and scour protection will be provided as necessary;
- temporary erosion and sediment control measures will be used on-site and may include silt fences, hay bales, jute mesh, check dams, cross banks, contour banks, armouring and straw mulching;
- pre-strip areas will receive weed control spraying prior to disturbance, where practical; and
- topsoil will be stockpiled for reuse and all stockpiles will be managed as described in Section 7.4.

Drainage considerations will be incorporated into the landform design plan to slow and direct water flow and minimise erosion. Diversion drains will be constructed as per MACH Energy design plans. Additionally, MACH Energy undertakes routine visual inspections over the MPO area, including areas of remnant vegetation located outside active mining areas. Where active erosion or high-risk areas are identified, MACH Energy will undertake suitable stabilisation or remediation works.

7.4 TOPSOIL MANAGEMENT

Topsoil management strategies are described in the approved RMP for the MPO and are summarised below.

Soil Resources

Soil management is fundamental in successful land management and rehabilitation of the MPO. The key objectives for managing the soil landscape (in context of vegetative cover and soil stability) include:

- minimising bare soil patches which could potentially be affected by wind and water movement; and
- maintaining favourable nutrient, infiltration and stability characteristics.

Analysis of the soil management units present in the Project area has been undertaken by GT Environmental (2020) as part of the Soil Resource Assessment for the Project EIS. This included evaluation of 138 soil observation sites in or adjacent to the Project area. Soil management units have been classified in accordance with the *Australian Soil Classification* (Isbell, 2002) and grouped according to soil morphology, position in the landscape, and parent material (GT Environmental, 2020).

Management of Soil during Stripping

Topsoil stripping activities will continue to be undertaken in accordance with the erosion and sediment control provisions in the Water Management Plan. The areas cleared in advance of mining will be delineated to minimise the potential for accidental additional vegetation clearance and potential impacts to fauna. Where required, the areas will also be deep ripped to alleviate compaction and watered to minimise dust generation, prior to stripping. Following these activities, vehicle movement will be kept to a minimum on areas/soils proposed to be stripped.

Topsoil and subsoil will be stripped and salvaged to maximise its value for re-use in rehabilitation, this process will be guided by soil mapping and the suitable soil stripping depths described in GT Environmental (2020). Where practicable, soil will be stripped when moist (but not saturated) to reduce air quality impacts, and where possible, will be transported directly to areas available for rehabilitation.

Soil Stockpile Management

Where direct placement of topsoil on rehabilitation areas is not possible, soil will be stockpiled away from active transport corridors and on level or gently sloping ground, where available, to minimise erosion and potential soil loss. Topsoil and subsoil (including alluvial soils) will be stockpiled separately where practical.

Both short-term and long-term topsoil and subsoil stockpiles will be managed to minimise soil loss and maintain the viability of the soil. Long-term topsoil and subsoil stockpiles (i.e. stockpiles that will remain for longer than six months) will be managed to maintain soil viability, seed reserves and microbial soil associations.

Soil stockpiles will be sign-posted and captured using GIS and mapped/flagged during the GDP process to identify the stockpile and to minimise accidental disturbance.

Soil Replacement on Rehabilitation Areas

Soil conditioning activities will be undertaken with the aim of increasing moisture and organic content and to buffer surface temperatures to improve germination. Activities may involve aeration, the application of dust suppressant to minimise dust generation and the application of soil ameliorants (as required) such as gypsum, or organic materials such as wood and mulch.
Soil testing will be undertaken prior to soil replacement to inform amelioration requirements, including the required rate of ameliorant application.

7.5 MANAGEMENT OF GRAZING AND AGRICULTURE

Livestock will be excluded from active operational mining areas and rehabilitation areas (excluding rehabilitation areas which have a final land use of agricultural use). Grazing, cultivation and routine agricultural management activities may be undertaken on MACH Energy owned land by MACH Energy or other parties with prior approval (e.g. under licence). Grazing and agricultural practices will be undertaken so as to not overstock the property and to avoid overgrazing, having regard to seasonal conditions.

Any grazing or agricultural activities will be undertaken on existing suitably cleared farming land, and will not involve the additional clearing of remnant native vegetation.

7.6 ACCESS RESTRICTIONS AND SPEED LIMITS

Vehicle access to the MPO area will be limited to authorised personnel only in order to avoid unnecessary disturbance of the mine site. Consistent with MACH Energy policy, speed limits will be imposed on all vehicles using the mine roads and tracks.

Vehicle access will be limited to haul roads, access roads and tracks wherever possible to avoid soil compaction (which can reduce the infiltration of water into the soil and restrict root growth, and consequently reduce natural regeneration), weed spread and vegetation disturbance. Signage, fencing and access security (i.e. locked gates) will be installed around particularly sensitive areas (e.g. rehabilitation areas) to denote authorised access only and thereby minimise vehicle access to the area.

7.7 BUSHFIRE MANAGEMENT

The main objectives of bushfire management are to minimise the risk of bushfires and to rapidly control any outbreaks that might occur. Control measures are in place to protect people, property, assets, places of heritage value, threatened flora and fauna and to minimise the potential spreading of bushfires in and around the MPO as detailed in the Bushfire Management Plan.

The control measures implemented to prevent and manage bushfires focus on adequate preparation for bushfire events and minimising the amount of fuel available at the MPO and its surrounding land. These measures may include:

- Slashing of vegetation along roads and internal tracks which are used as fire trails and assist dividing the site into control zones.

- Controlled burns to be undertaken under the advice of the NSW Rural Fire Service, at intervals across the site to create a mosaic fire pattern and allow fauna refuge in unburnt vegetation.
- Establishing firebreaks where required around the MPO area to prevent the spread of bushfires onto, or from, adjacent properties.
- Ensuring fire bans, as determined by the NSW Rural Fire Service, are adhered to by all personnel and enforced by MACH Energy.
- Maintaining ready access for vehicles to engage in water extraction at dams on-site or at defined water fill points.
- Potential ignition sources such as those resulting from hot work practices including welding and cutting will be restricted where possible to workshop areas or within active parts of the mine where vegetation is non-existent. If this is not possible due to the remoteness of the location, all due care and caution will be employed to minimise the potential for fire ignition, including requiring appropriate fire control equipment to be on hand.
- Water carts with fire fighting equipment capable of extinguishing fire outbreaks shall be maintained on-site. This fire fighting equipment, together with graders and bulldozers used for mining, provide effective bushfire fighting capability.
- The use of livestock for rotational grazing to reduce pasture based fuel loads.
- A network of water supply points to assist the NSW Rural Fire Service with logistical support.
- Any incident of unplanned bushfire will be reported directly to the General Manager who will initiate an emergency response. If required, the local Rural Fire Service will be notified.
- Maintaining high level of employee/contractor awareness in relation to bushfire risk (e.g. toolbox talks).
- Reviewing and maintaining asset protection zones and control lines.
- If required, implementing appropriate operating procedures such as work restrictions on days of higher fire danger risk and requiring fire control equipment on hand.

In the event of a bushfire at the MPO, emergency response procedures will be enacted in accordance with the Bushfire Management Plan in accordance with Development Consent SSD 10418.

7.8 MANAGING SALINITY

An assessment of the waste rock material associated with the development of the Project is provided in the Geochemistry Assessment prepared by RGS Environmental Pty Ltd (RGS Environmental). From this assessment, it was concluded that the waste rock materials generated from the Project would typically be neutral to slightly alkaline and generally non-saline (RGS Environmental, 2020).

In order to understand the selective handling of materials, characterisation of soils and overburden will be undertaken throughout the development of the mine. Topsoil and subsoil characterisation will be undertaken in order to:

- identify any physical or chemical deficiencies or limiting factors (including salinity) which may affect vegetation establishment and landform stability; and
- develop selective placement strategies and/or develop suitable amelioration techniques.

Overburden characterisation is important for similar reasons and more specifically to:

- identify material for use in the root zone which is capable of supporting sustainable vegetation establishment; and

- identify materials which limit plant growth or which may contaminate surface or ground water, and hence may require special handling, treatment or disposal.

Overburden and soil characterisation will be used to inform the rehabilitation of the site, as outlined in the RMP.

7.9 DELMA VESCOLINEATA

The following section includes the following protocols to be implemented on site to manage the impacts to the *Delma vescolineata:*

- Targeted pre-clearance inspections (Section 7.9.1);
- habitat investigation (Section 7.9.2); and
- measures to manage potential impacts to *Delma vescolineata* (Section 7.9.3).

Section 4.2.3 provides the salvage and reuse of material for habitat enhancement.

7.9.1 Targeted Pre-clearance Inspections

Targeted pre-clearance inspections for *Delma vescolineata* inspections will be undertaken in the defined and delineated clearance area prior to clearing. The following methodology is provided to guide the targeted pre-clearance inspections for *Delma vescolineata*:

1. The pre-clearance survey will be undertaken by a suitably qualified and licensed ecologist/fauna specialist.
2. The pre-clearance survey will be conducted the 48 hours prior to clearing activities. The inspections will extend into any area of direct disturbance by machinery, equipment and vehicles.
3. The following methods are to be employed for the pre-clearance survey:
    a) Active searches of the ground surface.
    b) Active searches of any surface and partially imbedded rock (if present).
    c) Active searches of any material on the ground surface (i.e. timber, tiles, logs etc.).
4. Any legless lizards found during the pre-clearance survey will be collected and relocated outside of the clearance area into suitable habitat on MACH-owned land.

Tile grids (a typical method to detect legless lizards) are not proposed as tile grids create habitat and may have the perverse outcome of attracting lizards into the clearance area.

7.9.2 Habitat Investigation

During the habitat investigation surveys conducted in 2023, there was a total of seven *Delma vescolineata* individuals recorded. Six individuals were recorded inside the approved MPO development area (EPBC 2011/5795 and Development Consent DA 92/97) during planned targeted surveys (Figure 7). One *Delma vescolineata* individual was recorded outside the ML (Figure 7). This individual was recorded under lightly embedded rock on a farm track in an area of grassy open hillside with no trees.

Figure 7 also includes the records of *Delma vescolineata* individuals recorded during the 2018 habitat investigation surveys, for completeness. One individual was recorded in the Broomfield Study Area and one individual was recorded within the approved MPO development area.

The habitats in which *Delma vescolineata* was found at site are consistent with that described by Mahony *et al,* (2022), and the species is known from sites containing no natural surface refugia, sheltering beneath discarded rubbish or dried faecal material of cattle. Interestingly, Mahony *et al*, (2022) note that *Delma vescolineata* may have had natural low abundance and has benefited from historic woodland clearing providing more preferred habitat.

No Critical Habitat as defined under section 207A of the EPBC Act has been identified or included in the Register of Critical Habitat for *Delma vescolineata* (Department of Climate Change, Energy, the Environment and Water, 2023 [DCCEEW], 2023).

MACH Energy will ensure that a suitably qualified and licensed ecologist/fauna specialist will undertake a study to investigate and identify habitat that supports populations in the wild of *Delma vescolineata*. The study occurred on the Broomfield property (235 ha), where the *Delma vescolineata* was previously recorded (Figure 7). This record is also in a conservation heritage area being established by MACH Energy. The results of the *Delma vescolineata* habitat investigation will be included in the MPO Annual Reviews.

The survey method involved:

- Survey Tiles – 25 survey tiles were placed in the Broomfield study area in 2023 (Figure 7) and an additional 150 roof tiles and 20 sheets of roofing iron were placed in the Broomfield study area (Plate 3).
- Searching cow pats, logs, lightly embedded rocks.

Surveys would occur between September and December, with survey tiles checked weekly over an 8 week period, consistent with the survey method for other Delma sp. (DPE, 2022). Parameters to be recorded include:

- Survey effort;
- Findings (e.g. *Delma vescolineata* or different lizard species);
- Weather conditions leading up to and during the surveys;
- Ground cover percentage estimate and approximate height of ground cover;
- Presence of cow pats, logs, lightly embedded rocks; and
- Livestock.

After the study, MACH Energy would identify, and where relevant, implement measures to remove threats to that population (e.g. measures to maintain a good coverage of mostly native tussock grasses). Once the results of this investigation are available, MACH Energy will include the findings in the subsequent MPO Annual Review (Section 12.1), which will be provided to BCD.

After 3 years of monitoring the survey tiles, the need for an ongoing monitoring programme would be reviewed.

Plate 3 – Survey Tile used during planned targeted surveys at the MPO.

7.9.3 Measures to Manage Potential Impacts to *Delma vescolineata*

Part B, Condition B63(h) of Development Consent SSD 10418 requires the BioMP describe the measures to be implemented on the site to manage potential impacts to *Delma vescolineata* in consideration of any relevant Commonwealth Conservation Advice, Recovery Plan and Threat Abatement Plans, if the species is listed as a threatened species under the BC Act and/or EPBC Act.

Although *Delma vescolineata* was listed as a threatened species under the EPBC Act on 16 July 2024, there are currently no relevant Recovery Plans for this threatened species. There are general Threat Abatement Plans under the EPBC Act that would be relevant to the habitat for the legless lizard, namely *Threat Abatement Plan for Competition and Land Degradation by Rabbits* (Department of Environment and Energy [DEE], 2016), *Threat Abatement Plan for Predation by Feral Cats* (Department of the Environment [DotE], 2015) and *Threat Abatement Plan for Predation by the European Red Fox* (Department of the Environment, Water, Heritage and the Arts [DEWHA], 2008).

In accordance with the *Conservation Advice for Delma vescolineata (Hunter Valley delma)* (DCCEEW, 2024), MACH Energy will implement control programs for feral cats, wild and stray dogs, and European red foxes in areas where the *Delma vescolineata* occurs, through baiting, shooting, trapping and/or den fumigation, if predation by these species is considered to be substantial.

The proposed weed and pest control methods detailed in Sections 7.2.1 and 7.2.2 are not recognised to pose as threats to the *Delma vescolineata* population at the MPO (DCCEEW, 2024).

7.9.4 Offsets

MACH Energy will retire the applicable biodiversity credits in accordance with Part B, Condition B62 of Development Consent SSD 10418.

B62. If the Legless Lizard, Delma vescolineata, is listed as a threatened species under the BC Act and/or EPBC Act during the life of this consent, or otherwise agreed by the Planning Secretary, the Applicant must retire the applicable biodiversity credits (consistent with the applicable Biodiversity Risk Weighting as per the relevant row in Table 9) within 2 years of the species being listed as a threatened species under the BC Act and/or EPBC Act.

The retirement of credits must be carried out in consultation with the Planning Secretary and BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act, including the application of Ancillary Rules: Biodiversity conservation actions that may be relevant to Delma vescolineata published under clause 6.5 of the Biodiversity Conservation Regulation 2017.

***Table 9:** Biodiversity credit requirements – Delma vescolineata*

Biodiversity Risk Weighting	Credits Required Stage 1	Credits Required Stage 2	Northern Link Road Option 1	Northern Link Road Option 2
1.5	4,060	352	293	225
2	5,413	469	391	300
3	8,120	704	586	450

7.9.5 Summary

Part B, Condition B63(h) of Development Consent SSD 10418 requires the BioMP to demonstrate how the development will be carried out in a manner that avoids or minimises to the greatest extent practicable any serious or irreversible damage to the survival of *Delma vescolineata*. MACH Energy will implement the following to manage potential impacts to *Delma vescolineata*:

- VCP, including measures to:
  - delineate areas to be disturbed;
  - targeted pre-clearance inspections to identify presence of *Delma vescolineata*; and
  - collection and relocation of *Delma vescolineata* outside of the clearance area into suitable habitat on MACH-owned land (if found).
- mine site rehabilitation and revegetation, including:
  - Placement of salvaged timber and surface rocks creating habitat for reptiles (e.g. *Delma vescolineata*) in rehabilitation areas.
- feral animal management; and
- weed management.

MACH Energy's biodiversity consultants would continue to record and report any observations of *Delma vescolineata* to assist in research and understanding of the species over the life of the Project. *Delma vescolineata* was listed as a threatened species under the EPBC Act on 16 July 2024. In accordance with Part B, Condition B62 of Development Consent SSD 10418, MACH Energy will retire the relevant biodiversity credits (Appendix B) in consultation with BSC within 2 years of this date.

7.10 VISUAL MANAGEMENT

Visual management at the MPO is undertaken in accordance with the VIMP, developed under Schedule 3, Condition 47of Development Consent DA 92/97 and Part B, Condition B77 of Development Consent SSD 10418.The VIMP outlines the management measures to mitigate visual impacts from the MPO area, including:

- visual bunding/screen planting along key roads with viewpoints of the MPO area;
- progressive rehabilitation of the MPO Overburden Emplacement to shield views of the MPO area from the east (including from the township of Muswellbrook);
- screen planting along mine haul/access roads;

- visual treatment of mine infrastructure and lighting; and
- light screening from the MOD 4 rail infrastructure.

The MIA, located in the south-west corner of the MPO area (Attachments 1 and 4), has been designed to minimise the clearance of existing stands of trees and to utilise natural aesthetics as much as possible from the surrounding environment. Planting of native trees will be interspersed through the MIA. This has been undertaken to assist in shielding the MIA from surrounding viewpoints and to reduce the visual impact of the MPO.

7.11 BIODIVERSITY OFFSETS

MACH Energy will retire the credits specified in Table 7, Part B, Condition B55 of Development Consent SSD 10418 (refer Appendix B), unless otherwise agreed by the Planning Secretary, in accordance with the Biodiversity Offsets Scheme of the BC Act, in consultation with BCD.

7.11.1 Staged Retirement

In accordance with Part B, Condition B56 of Development Consent SSD 10418, prior to the disturbance within the Development Footprint 1 (Stage 1) (Figure 2), MACH Energy will retire the Stage 1 credits as specified in Table 7 (Part B, Condition B55 of Development Consent SSD 10418) (Appendix B).

In accordance with Part B, Condition B57 of Development Consent SSD 10418, prior to the disturbance within the Development Footprint 1 (Stage 2) (Figure 2), MACH Energy will retire the Stage 2 credits as specified in Table 7 (Part B, Condition B55 of Development Consent SSD 10418) (Appendix B).

Additionally, with the agreement of the Planning Secretary, in accordance with Part B, Condition B58 of Development Consent SSD 10418, MACH Energy may adjust the staging of surface disturbance and the associated credit retirements in Table 7 (Part B, Condition B55 of Development Consent SSD 10418) (Appendix B). Except in accordance with Part B, Condition B59 of Development Consent SSD 10418, the relevant credits must be retired, prior to the commencement of the associated surface disturbance.

In accordance with Part B, Condition B59 of Development Consent SSD 10418, MACH Energy may carry over surplus retired credits to satisfy the credit requirements of a later stage. This may occur, for example, where approved clearing for an earlier stage was not undertaken, but the impact has already been offset.

In accordance with Part B, Condition B60 of Development Consent SSD 10418, with the agreement of the Planning Secretary, in consultation with BCD, biodiversity credits associated with any undisturbed areas agreed under condition B59 as not to be subject to any surface disturbance may be removed from the total credit obligations in Table 7 of Development Consent SSD 10418 (Appendix B) (subject to recalculation and possible reduction).

7.11.2 Biodiversity Credits Required – Northern Link Road

In accordance with Part B, Condition B61 of Development Consent SSD 10418, prior to the commencement of construction of the Northern Link Road, MACH Energy will retire the biodiversity credits specified in Table 8 (Part B, Condition B61 of Development Consent SSD 10418) (Appendix B), unless otherwise agreed by the Planning Secretary in consultation with BCD. The retirement of credits will be carried out in consultation with BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act.

8 BIODIVERSITY MONITORING PROGRAM

The objective of biodiversity monitoring is to evaluate the vegetation and fauna habitat condition at the MPO (including recovery and/or enhancement of native vegetation) and to identify appropriate management actions to be applied, where required.

Biodiversity monitoring includes priority and environmental weed monitoring, vertebrate pest monitoring, monitoring of access and rehabilitation monitoring.

8.1 MONITORING OF PRIORITY AND ENVIRONMENTAL WEEDS

Control of priority and environmental weeds will be undertaken across the MPO, as described in Section 7.2.1. To inform control measures required monitoring would include:

- Routine visual inspections (at least bi-annually) across the MPO area to identify high threat weed infestations in disturbance/rehabilitation areas (mapping extent, identifying species, and estimating cover).
- Visual follow-up inspections for areas where weed control measures have been undertaken. These inspections will assess the effectiveness of the weed management measures implemented and the requirement for any additional management measures.
- Regular visual inspections for weeds on topsoil stockpiles (Section 8.9).
- Identification of weed infestations adjacent to, or within the proposed disturbance area during pre-clearance surveys (Section 4.2.2).

Ad-hoc observations and reporting of weeds by the general workforce is also considered part of the inspection program. Monitoring for priority and environmental weeds will also be undertaken opportunistically and will inform weed management measures. The results of weed monitoring are reported annually in the MPO Annual Review.

8.2 MONITORING OF VERTEBRATE PESTS

Monitoring of vertebrate pests will be undertaken across the MPO area to identify what, where, when and how to target appropriate resources to control and minimise animal pest populations. This would include:

- Routine monitoring of the activity of pests at the MPO at least bi-annually, using various measures as suitable, including:
  - opportunistic sightings;
  - track counts on sand-pads; and
  - motion sensor cameras.
- Follow-up inspections on areas subject to vertebrate pest control to assess the effectiveness of control measures implemented and the requirement for any additional control measures.
- Identification of vertebrate pest infestations adjacent to or within the proposed disturbance area during pre-clearance surveys (Section 4.2.2).

Ad-hoc observations and reporting of feral animals by the general workforce is also considered part of the inspection program. The results of pest monitoring are reported annually in the MPO Annual Review.

8.3 MONITORING OF ACCESS

Monitoring of all fencing (including gates and locks) and signage would be undertaken annually as well as opportunistically, to ensure adequate site access restrictions. Maintenance would be undertaken as required. In addition, all rehabilitation areas will be regularly monitored during visual inspections for unauthorised access.

8.4 MONITORING OF REHABILITATION AREAS

Monitoring of rehabilitation areas at the MPO is described in detail in the RMP. Rehabilitation monitoring will be undertaken annually[1] and will utilise the principles of Landscape Function Analysis (LFA) (Tongway and Hindley, 2004) and rapid visual assessments. Monitoring will inform the need for corrective actions (outlined in Section 10) where required.

8.4.1 Landscape Function Analysis

To undertake the LFA methodology, permanent transects will be established in rehabilitation areas and in relevant undisturbed areas to provide analogue/reference sites.

Using the LFA methodology, the soil landscape of rehabilitation areas will be analysed to determine whether the areas are trending toward a self-sustaining trajectory. Vegetation monitoring will also be undertaken on the woodland rehabilitation areas. This monitoring will assess woody species density, species richness and canopy cover to determine the available nutrients, soil stability and water infiltration available to rehabilitation areas.

Utilising the LFA method, scientifically robust data is provided on the rehabilitation sites, which when compared to the data collected from analogue sites, accurately reflects if the site is on a self-sustaining trajectory. The interpretation of this data will enable the development of land management recommendations to address those sites having lower LFA rankings.

8.4.2 Rapid Visual Assessment

In addition, annual[1] rapid visual assessments will be undertaken on all existing and recently completed rehabilitation areas on-site. This annual inspection will be undertaken by a visual monitoring technique. Visual monitoring is a field based rapid assessment tool that provides a quantitative assessment to various landscape contributors including:

- vegetation components (overstorey, understorey and ground cover where applicable);
- presence of exotic weed and feral animal species;
- surface stability and erosion issues;
- presence of available microhabitat; and
- disturbance factors (including unauthorised access, rubbish and physical disturbance such as fire or vandalism).

Each of these subcomponents is awarded a score to generate an overall result for each site. This allows comparison between different sites and over time. It also allows the identification of areas requiring remediation as indicated by low scores.

[1] Monitoring may be undertaken at an alternative frequency if a suitably qualified and experienced person considers that annual monitoring is not required for a particular area of rehabilitation. For example, very early or advanced rehabilitation may not progress sufficiently on an annual basis to warrant annual formal monitoring.

8.4.3 Research

As part of the Rehabilitation Management Plan, MACH Energy will undertake research trials at the MPO. These research trials will focus on research and management practices that are designed to understand or enhance the woodland communities established across the rehabilitated landscape. MACH Energy proposes to build on industry research results to re-establish or improve woodland in rehabilitated areas. The outcomes of the rehabilitation trials will be used to refine the rehabilitation program at the MPO.

8.5 VEGETATION CLEARANCE PROTOCOL

Monitoring of the VCP will involve annual review of the vegetation clearance methods and results of implementing the vegetation clearance protocol to identify potential improvements.

8.6 TIGER ORCHID RELOCATION

8.6.1 Tiger Orchid Monitoring Program

Monitoring of relocated Tiger Orchid will involve three monthly inspections for the first 12 months to check that the orchids are in good health. Monitoring should occur during spring and autumn and the frequency will be increased if identified as needed by the suitably qualified and licensed ecologist/fauna specialist during the monitoring event (Narla Environmental, 2022).

The following aspects are documented to monitor the effectiveness of translocation:

- Tiger Orchid reference number;
- date and personnel undertaking monitoring;
- photos of condition;
- health of plant; and
- attachment to tree.

Weather conditions over the previous 12 months will also be recorded.

The outcomes of the Tiger Orchid translocation and monitoring activities will continue to be reported in the MPO Annual Review (Section 12.1).

8.6.2 Post-translocation Management Actions

The results of the monitoring will include any recommendations to improve the condition of the translocated Tiger Orchid to ensure the ongoing health and viability. Table 10 outlines the specific performance indicators that may indicate the need for remedial action.

Table 10
Tiger Orchid Post-translocation Management Actions

Management Aspect	Performance Criteria	Potential risks/triggers	Corrective actions to consider
Translocated Tiger Orchid health	All translocated individual(s) have stable health.	Browning, loss of foliage or other damage to individual(s). Evidence of sunburn, windburn, or other unsuitable environmental conditions. Translocation activities may cause soil disturbance which could lead to an increase in weed invasion.	• Reposition translocated individual(s) with a better aspect with less exposure. • Relocate translocated individual(s) to a more suitable host tree. • Consider/install wind and shade barriers. • Implement weed management and monitor weed infestation on/around host trees.
Translocated Tiger Orchid attachment	All translocated individual(s) are located securely on host tree.	Roots become dislodged from translocated section of original host tree. Section of original host tree attached to new host tree is unsecure. Translocated individual(s) have fallen off.	• Re-secure roots to translocated section of original host tree. • Reinforce attachment mechanism between section of original host tree and new host tree. • Reattach individual(s) to host tree using most secure means.
Translocated Tiger Orchid protection	All translocated individual(s) are protected from grazing, trampling or insect attack.	Damage to individual(s) continues to occur. Missing individual(s) / decline in numbers.	• Assess / install appropriate fencing to exclude cattle and people. • Reposition translocated individual(s) higher within host tree. • Consider use of pesticide application. • Review monitoring protocol.

8.7 SPEED LIMITS

Consistent with MACH Energy policy, speed limits will be imposed on all vehicles using the mine roads and tracks. Speed limit signage will be inspected annually as well as opportunistically.

8.8 BUSHFIRE PREVENTION AND CONTROL MEASURES

Visual inspections will be undertaken to identify all bushfire hazards and monitor fuel loads at six monthly intervals.

8.9 SUMMARY OF MONITORING

A summary of the biodiversity monitoring at the MPO, detailed in Sections 8.1 to 8.4, including required frequency, is outlined in Table 11.The Environmental Superintendent is responsible for coordinating the following monitoring and control measures. Section 9 details the biodiversity related performance indicators and completion criteria to assess the performance at the MPO. Where any non-compliance with the criteria and/or performance measures occurs, MACH Energy will employ contingency measures and adaptive management principles detailed in Section 10 to ensure the effectiveness of the mitigation measures.

Table 11
Summary of Biodiversity Monitoring

Monitoring	Parameter	Frequency[1]
Weed monitoring (Section 8.1)	• Routine visual inspections across the MPO area.	• Bi-annually / ad-hoc.
	• Visual follow-up inspections where weed control measures have been undertaken.	
	• Regular visual inspections for weeds on topsoil stockpiles.	• Ongoing.
	• During pre-clearance surveys.	
Pest monitoring (Section 8.2)	• Routine monitoring of pest activity across the MPO area.	• Bi-annually / ad-hoc.
	• Follow up inspections on areas subject to pest control measures.	
	• During pre-clearance surveys.	• Ongoing.
Monitoring of access (Section 8.3)	• Inspections of all fencing and signage.	• Annually.
Monitoring of rehabilitation areas (Section 8.4)	• Rehabilitation monitoring incorporating LFA monitoring and rapid visual assessment.	• Annually.
Monitoring of pasture encroachment (Section 7.1)	• Review of species selection within areas designated for pasture species (i.e. consider the potential for species to encroach on rehabilitation areas). • Pasture species mix developed in consultation with agronomist. • Seasonal weed and stock management. • Significant fencing is in place to strategically manage areas.	• Seasonally (summer and spring) / ad-hoc
Monitoring of vegetation clearance protocol (Section 8.5)	• Review of the vegetation clearance methods and results.	• Annually.
Monitoring of Tiger Orchid relocation (Section 8.6)	• Visual inspection of relocated Tiger Orchid.	• Three monthly inspections for the first 12 months. Inspections will occur in spring and autumn.

Table 11 (Continued)
Summary of Biodiversity Monitoring

Monitoring	Parameter	Frequency[1]
Monitoring of speed limits (Section 8.7)	• Monitoring of vehicle speeds on site and signage.	• Ongoing.
Monitoring of bushfire prevention and control (Section 8.8)	• Visual inspection to identify all bushfire hazards and monitor fuel loads.	• Ongoing.

[1] Note that the monitoring frequencies lists the *minimum* required monitoring to be undertaken by MACH Energy. Environmental monitoring personnel and MPO mine workers/contractors undertake frequent opportunistic monitoring of MPO areas (and rehabilitation areas) and report findings to the Environmental Superintendent accordingly.

9 PERFORMANCE AND COMPLETION CRITERIA

The following biodiversity related performance indicators and completion criteria identified by Hunter Eco (2021b) will be used to judge the performance of the MPO.

Table 12
Performance and Completion Criteria

Mitigation Measure	Performance Criteria	Method	Completion Criteria
Vegetation Clearance Protocol	Areas to be cleared and/or retained are clearly delineated and mapped. No adjacent vegetation outside of delineated areas is cleared. Clearance boundaries will be clearly marked on the ground for the clearing extents to eliminate the risk of accidental over-clearing.	Clearance authorisation process with final signoff for the areas to be cleared by the Environmental Superintendent or delegate. All staff involved in vegetation clearance works to be made aware of clearing limits. Pre-clearance fauna surveys.	Ongoing for the life of the Project.
	Minimise injury/mortality to threatened native fauna (i.e. *Delma vescolineata*).	Targeted pre-clearance inspections undertaken in accordance with Section 7.9.1. Habitat investigation by a suitably qualified and licensed ecologist/fauna specialist (Section 7.9.2). Employ specific management measures outlined in Section 7.9.3.	No injury/mortality to threatened fauna species. Contingency measures are in Table 13.
	Minimise injury/mortality to non-threatened native fauna.	Pre-clearance inspections undertaken in accordance with Section 4.3. Timing considerations factored into vegetation clearance works (Section 4.3.1)	No injury/mortality to non-threatened fauna species. Contingency measures are in Table 13.
Rehabilitation and Revegetation	Revegetation of cleared areas.	Revegetation using natural regeneration or seed collected from felled trees. Tubestock planting is undertaken where practical and feasible.	Revegetation of cleared areas.
Tiger Orchid Relocation	Disturbance modified to avoid Tiger Orchid if possible. Otherwise relocation of Tiger Orchid attempted.	Orchid salvaged prior to disturbance and relocated to proximal, suitable habitats in non-disturbance areas.	Loss of Tiger Orchid avoided.

Table 12 (Continued)
Performance and Completion Criteria

Mitigation Measure	Performance Criteria	Method	Completion Criteria
Weed Management	Number of infestations of identified weed species equal to or less than baseline dataset. Percent cover for identified weed species equal to or less than baseline dataset. Weeds identified during monitoring have been controlled.	Survey at existing infestation locations. Control of high threat weeds using ecologically appropriate methods for the target weed.	Ongoing for the life of the Project.
Animal Pest Management	Animal pest identified during monitoring have been controlled.	Use of baiting, trapping, mustering or shooting as appropriate to manage animal pest species.	Ongoing for the life of the Project.
Speed Limits	Limited vehicle access and limited fauna strikes due to vehicle speed.	Enforcement of speed limits.	Ongoing for the life of the Project.
Bushfire Prevention and Control Measures	No incidence of unplanned bushfire. Any outbreak of fire is contained.	Comply with relevant Australian Standards. Undertake fuel reduction burns as required. Implementation of appropriate firefighting equipment.	Ongoing for the life of the Project.

Source: Hunter Eco (2021a)

10 CONTINGENCY MEASURES

10.1 POTENTIAL CONTINGENCY MEASURES

Part D, Condition D5(f) of Development Consent SSD 10418 requires contingency measures to manage any unpredicted biodiversity impacts and their consequences as quickly as possible.

The key potential risks to the completion of rehabilitation at the MPO and contingency strategies in the event of unexpected variations or impacts to rehabilitation outcomes are presented in the RMP. The following section is therefore largely focusses on contingency measures that relate to other biodiversity matters.

A list of the key biodiversity mitigation measures and associated potential contingency measures (corrective actions) to be implemented if MACH Energy identifies the performance criteria are not being met is provided in Table 13.

Table 13
Potential Biodiversity Contingency Measures

Mitigation Measure	Performance Criteria	Potential Risk	Contingency Measure
Vegetation Clearance Protocol	Areas to be cleared and/or retained are clearly delineated and mapped. No adjacent vegetation outside of delineated areas is cleared.	Incidental clearing.	• collect any salvageable habitat feature materials (e.g. logs) from incidental cleared area; and • review and amend VCP procedures and GDP.
		High abundance of threatened fauna (or flora) species is identified on-site that is not listed for targeted pre-clearance surveys.	• update VCP to accommodate the survey for and management of additional identified threatened fauna or flora species.
		New threatened species listed or additional guidance on the management of a threatened fauna (or flora) species of relevance to the site is published by the NSW or Commonwealth Governments.	• review additional species management guidance material; • update VCP to accommodate the revised guidance for the management of this species, if such revision is practical; and • adjust any applicable species relocation methodology as required.
		Injury/mortality (to threatened or non-threatened native fauna).	• Record as an 'event' and investigate basic and root causes; • Implement corrective and preventative measures based on event investigation; • Contact relevant veterinary services or WIRES (if required); and • If required, review the VCP.
Rehabilitation and Revegetation	Revegetation of cleared areas.	Establishment of target rehabilitation PCT is not successful.	• Refer to the RMP for a detailed description of potential contingency measures for addressing on-site rehabilitation risks.
Tiger Orchid Relocation	Disturbance modified to avoid Tiger Orchid if possible. Otherwise relocation of Tiger Orchid attempted.	Relocation of Tiger Orchid individual is not successful.	• Adjust any applicable relocation methodology as required to increase the probability of successful relocation.

Table 13 (Continued)
Potential Biodiversity Contingency Measures

Mitigation Measure	Performance Criteria	Potential Risk	Contingency Measure
Weed Management	Number of infestations of identified weed species equal to or less than baseline dataset. Percent cover for identified weed species equal to or less than baseline dataset. Weeds identified during monitoring have been controlled.	Weed invasion – perennial and annual grasses, perennial herbs, annual and biennial herbs and woody weeds.	• review additional strategies to control target weed species; • increase the frequency of weed control and monitoring; and • re-evaluate any applicable grazing strategies.
Animal Pest Management	Animal pest identified during monitoring have been controlled	Sustained increase in feral animal numbers despite control measures	• review additional strategies to control target feral animals; and • increase the frequency of feral animal control and monitoring.
Speed Limits	Limited vehicle access and limited fauna strikes due to vehicle speed	High recorded occurrence of Vehicle-fauna collisions	• improve training of all staff and contractors in awareness; and • review signage displayed in areas deemed to be at higher risk of collision (e.g. roads bordering woodland areas).
Bushfire Prevention and Control Measures	No incidence of unplanned bushfire Any outbreak of fire is contained	Failure to control an on-site fire that results in habitat destruction	• improve training of all staff and contractors in bushfire awareness; and • review bushfire management measures and make revisions as necessary to fuel reduction burns, firefighting equipment or training as required.

Biodiversity contingency measures would not necessarily be limited to those listed in Table 12. MACH Energy will implement any preferred biodiversity contingency measures that are suitable to address a relevant unpredicted impact.

In the event that a mitigation measure has not been met or a performance indicator is considered to have been exceeded MACH Energy will apply adaptive management outlined in Section 10.2.

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 9 and 10.1.

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 (where relevant) and submit a report to the DPE (now DPHI) describing these options and preferred remediation measures; and
- implement remediation measures as directed by the Planning Secretary.

11 ROLES AND RESPONSIBILITIES

The Environmental Superintendent is primarily responsible for implementing the suite of environmental management plans across the MPO, with assistance provided by the Managing Director and Department Managers/Supervisors.

A combination of MACH Energy employees and mining contractor staff are responsible for environmental management at the MPO. The roles and responsibilities of members of the site, including the environmental management team, are provided in MACH Energy's EMS.

It is the responsibility of MACH Energy to employ people that are appropriately trained, competent and have an appropriate level of experience and understanding to undertake their work in a manner that minimises impacts on the environment and community. In addition, a component of the site-specific induction is to promote and provide all employees and contractors with general environmental awareness training. In accordance with Part A, Condition A33 of Development Consent SSD 10418, MACH Energy will ensure that any of its employees or contractors are made aware of, and are instructed to comply with, the conditions of Development Consent SSD 10418 relevant to activities they carry out in respect of the development. A description of training requirements is provided in MACH Energy's EMS.

The roles and responsibilities of MACH Energy personnel in implementing, reviewing and undertaking monitoring for this BioMP are outlined in Table 14 below.

Table 14
BioMP Responsibilities

Position	Responsibilities
General Manager Operations	• Take overall leadership and responsibility for compliance with environmental approvals. • Provide adequate resourcing (personnel and financial) to enable full implementation of the BioMP.
Environmental Superintendent	• Report any land related incidents in accordance with legal requirements. • Identify land management risks and budget for sufficient resources to effectively manage those risks. • Effectively implement and approve the GDP procedure. • Effectively implement and oversee any pre-clearance survey. • Provide training to all employees and contractors in environmental awareness, legal responsibilities and land management methods. • Restrict access to rehabilitation areas where necessary. • Oversee communication of conditions of approval to relevant site personnel and contractors. • Participate in site planning sessions so that adequate time is scheduled to implement pre-clearance surveys and the VCP. • Coordinate progressive site rehabilitation as final landforms become available. • Coordinate weed and pest control monitoring and control measures. • Coordinate native seed collection. • Oversee monitoring of rehabilitation areas. • Evaluate results of monitoring programs and where appropriate implement changes to management measures and controls. • Oversee implementation of the BioMP and regulatory reporting in relation to the BioMP. • Coordinate relevant reviews and revisions of the BioMP. • Engage a suitably qualified ecologist/fauna specialist during the GDP process if extensive pre-clearance survey data indicate any environmentally sensitive feature(s) are within the disturbance footprint.

Table 14 (Continued)
BioMP Responsibilities

Position	Responsibilities
Environmental Advisor	• Provide support to Environmental Superintendent responsibilities.
Mine Manager / Construction Manager	• Ensure provisions of the BioMP are adhered to during mining and construction activities. • Ensure the GDP process, pre-clearance surveys and VCP are adhered to in accordance with this BioMP, prior to mining or construction activities.
Project Manager	• Complete the GDP forms and seek approval from the Environmental Superintendent/Project Ecologist prior to disturbance. • Delineate areas to be cleared/disturbed. • Comply with all requirements of the GDP process. • Comply with VCP procedure and GDP process. • Implement fauna habitat salvage strategies. • Implement topsoil management strategies.
Project Ecologist (i.e. a suitably qualified ecologist/fauna specialist)	• Undertake pre-clearing inspection and activities, including significant weed mapping. • Inform GDP process and provide recommendations (if engaged). • Effectively implement and oversee any pre-clearance survey. • Undertake all commitments related to vegetation clearing. • Inform and implement rehabilitation of designated areas, including producing monitoring reports. • Inform and undertake fauna habitat salvage strategies. • Inform and undertake relocation of any fauna or flora.
All Employees	• Comply with all requirements of the GDP process. • Adhere to GDP conditions. • Comply with all requirements of the BioMP.

12 REVIEW AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE

12.1 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 previous calendar year).

In relation to biodiversity, the MPO Annual Review will:

- describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;
- include a comprehensive review of the BioMP monitoring results 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;
  - monitoring results of the previous years; and
  - relevant environmental assessment predictions;
- identify any BioMP-related non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
- describe what BioMP-related management measures were undertaken during the past year;
- provide a summary of the management of vegetation and fauna at each stage of the VCP in the reporting period;
- provide a list of threatened species recorded during the implementation of the VCP in the reporting period;
- provide a summary of the current conservation status of *Delma vescolineata,* and the results of any surveys on-site or on adjoining MACH-owned land that have identified the occurrence of this species;
- provide a summary of the outcomes of the Tiger Orchid translocation and monitoring activities (Section 8.6.1);
- provide an overview of the results of the implementation of the VCP, including location and inventory of material salvaged for habitat enhancement in the reporting period;
- identify any trends in the BioMP monitoring data over the life of the MPO; and
- describe what BioMP-related measures will be implemented over the next year to improve the environmental performance of the MPO.

The MPO Annual Review will be made publicly available on the MACH Energy website (https://machenergyaustralia.com.au/) in accordance with Part D, Condition D17 of Development Consent SSD 10418 and Development Consent DA 92/97 (prior to its surrender).

As discussed in Section 7.9, once the result of the *Delma vescolineata* habitat investigation is available, MACH Energy will include the findings in the subsequent MPO Annual Review, which will be provided to BCD.

Additionally, as discussed in Section 4.3.1, MACH Energy will consider scheduling construction works to occur outside of breeding and torpor seasons. If clearing is required to occur during breeding and/or torpor seasons, a written assessment by the Project Ecologist to justify clearing activities (i.e. no impact to breeding or torpor habitat) will be recorded and provided in the subsequent MPO Annual Review.

12.2 BIODIVERSITY MANAGEMENT PLAN REVISION

Development Consent SSD 10418

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

- an incident report (Part D, Condition D9 or D10 of Development Consent SSD 10418);
- an MPO Annual Review (Part D, Condition D11 of Development Consent SSD 10418);
- an Independent Environmental Audit (IEA) (Part D, Condition D13 of Development Consent SSD 10418);
- any modification to the conditions of Development Consent SSD 10418; and
- a 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 six weeks of conducting any review, MACH Energy will advise the Planning Secretary of the DPE (now DPHI) of the outcomes of the review and submit 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 BioMP for the approval of the Planning Secretary at any time and may also submit any revision to this BioMP 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 BioMP 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.

Copies of the 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 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.*

Development Consent DA 92/97

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

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

Within 4 weeks of conducting any such review, the Planning Secretary of the DPE (now DPHI) will be advised of the outcomes of the review and any revised documents submitted to the Planning Secretary for approval.

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

If agreed with the Planning Secretary of the DPE (now DPHI), a revision to this BioMP 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 BioMP will be made publicly available on the MACH Energy website (https://machenergyaustralia.com.au/), 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).

12.3 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).

13 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).

13.1 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 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.

13.2 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.

13.3 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. 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 13.1, 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 12.1).

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 12.3) 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).

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)[2];
- 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 (Appendix D).

13.4 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.

[2] 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.

14 REFERENCES

Commonwealth of Australia (2017) *Australian Weeds Strategy 2017 – 2027.* Invasive Plants and Animal Committee. Department of Agriculture and Water Resources.

Commander, L.E., Coates, D., Broadhurst, L., Offord, C.A., Markinson, R.O. and Matthes, M. (2018) *Guidelines for the translocation of threatened plants in Australia. Third Edition. Australian Network for Plant Conservation, Canberra*

Department of the Environment, Water Heritage and the Arts (2008) *Threat Abatement Plan for Predation by the European Red Fox*.

Department of Environment and Climate Change (2008) *Managing Urban Stormwater: Soils and Construction Volume 2 Mines and Quarries.*

Department of Environment, Climate Change and Water (2023) *National Recovery Plan – White Box – Yellow Box -Blakely's Red Gum Grassy Woodland and Derived Native Grassland.*

Department of Climate Change, Energy, the Environment and Water (2024) *Delma vescolineata (Hunter Valley delma) Conservation Advice.*

Department of Environment and Energy (2016) *Threat Abatement Plan for Competition and Land Degradation by Rabbits.*

Department of Planning and Environment (2022) *Threatened Reptiles Biodiversity Assessment Method Survey Guide.*

Department of the Environment (2015) *Threat Abatement Plan for Predation by Feral Cats.*

EMGA Mitchell McLennan (2010) *Mount Pleasant Project Modification Environmental Assessment Report.* Prepared for Coal & Allied Operations Pty Ltd.

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

Future Ecology (2020) *Mount Pleasant optimisation Project Baseline Survey Report*.

Glencore (2018) *Mangoola Open Cut Translocation Management Plan*.

Greening Australia (2022) *Guidelines and Code of Practice.* Available at – https://www.greeningaustralia.org.au/wp-content/uploads/2017/11/FLORABANK-GUIDELINES_Model-code-of-practice.pdf.

GT Environmental (2020) *Mount Pleasant Optimisation Project – Soil Resource Assessment.*

Hunter Eco (2021a) *Mount Pleasant Optimisation Project Baseline Flora Report.*

Hunter Eco (2021b) *Mount Pleasant Optimisation Project Biodiversity Development Assessment Report.*

Hunter Eco (2018) *Mt Pleasant Vegetation Mapping of the State Significant Development Area*.

Hunter Local Land Services (2017) *Hunter Regional Strategic Weed Management Plan 2017 – 2022.*

Huxtable, C.H.A, Koen, T.B. and Waterhouse D. (2005) *Establishment of native and exotic grasses on mine overburden and topsoil in the Hunter Valley, New South Wales.* The Rangeland Journal 27, 73-88.

Isbell (2002) *The Australian Soil Classification.*

MACH Energy Australia Pty Ltd (2021) *Mount Pleasant Optimisation Project Environmental Impact Statement*.

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.*

Mahony, S. V, Cutajar, T., & Rowley, J. J. L. (2022) *A new species of Delma Gray 1831 (Squamata: Pygopodidae) from the Hunter Valley and Liverpool Plains of New South Wales*. *Zootaxa*, 5162(5), 541–556. https://doi.org/10.11646/zootaxa.5162.5.5

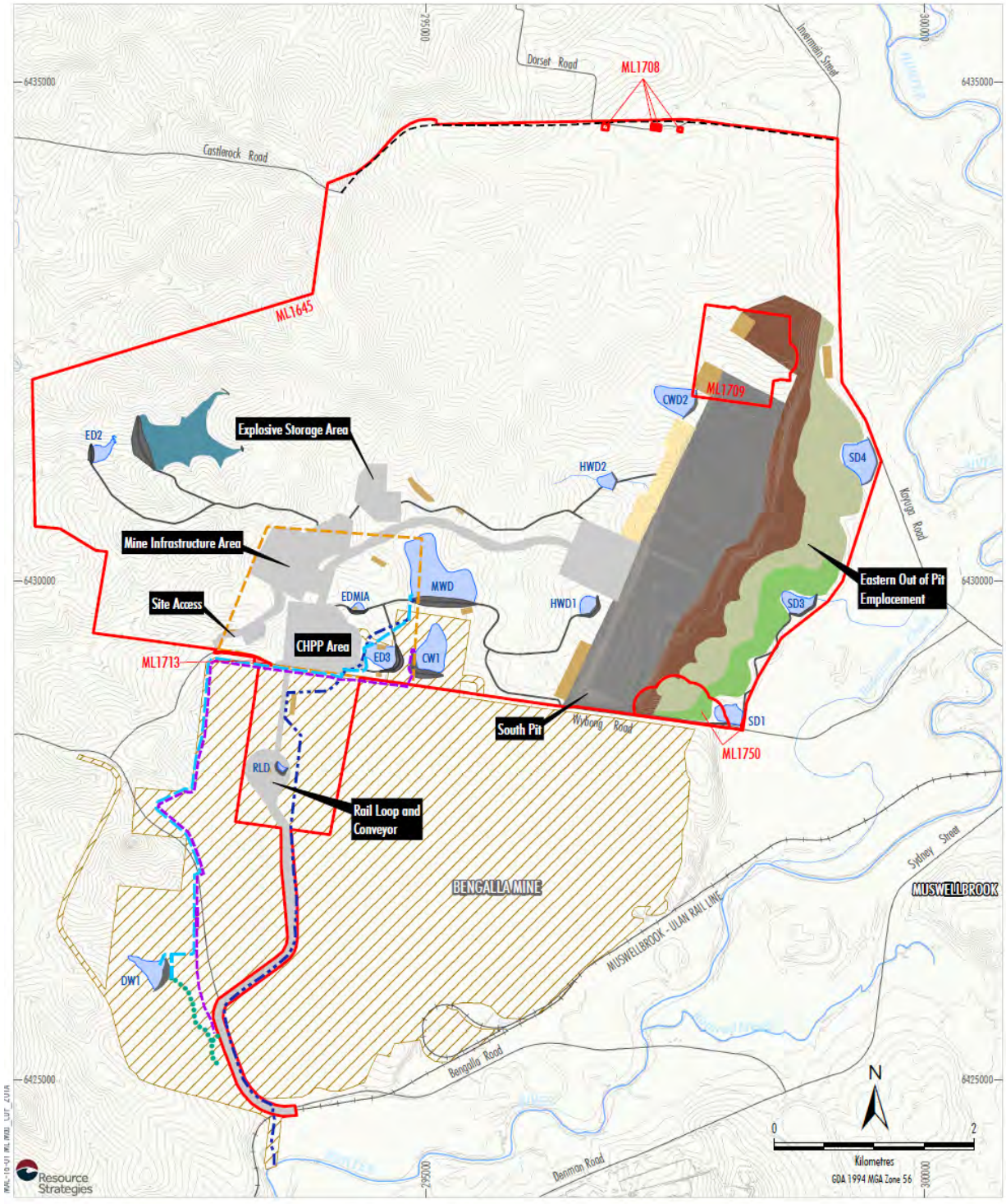
Narla Environmental (2022) *Tiger Orchid (Cymbidium canaliculatum) Monitoring Report – Mount Pleasant Operation, April 2022.*

Tongway and Hindlay (2004) *Landscape Function Analysis: Procedures for monitoring and assessing landscapes with special reference to mine sites and rangelands.* CSIRO Sustainable ecosystems, Canberra, Australian Capital Territory.

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

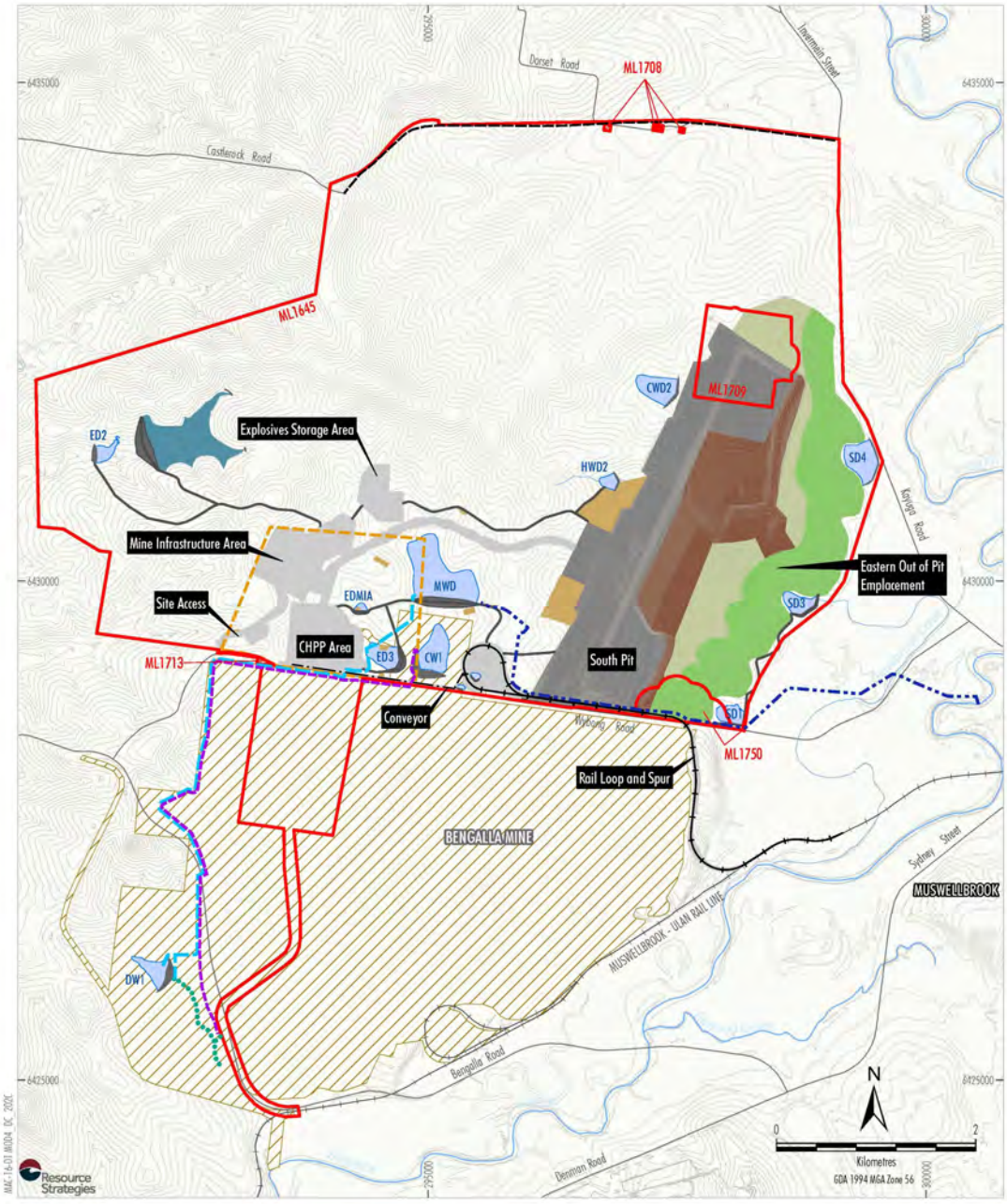


FIGURE 3 - APPROVED SURFACE DISTURBANCE PLAN

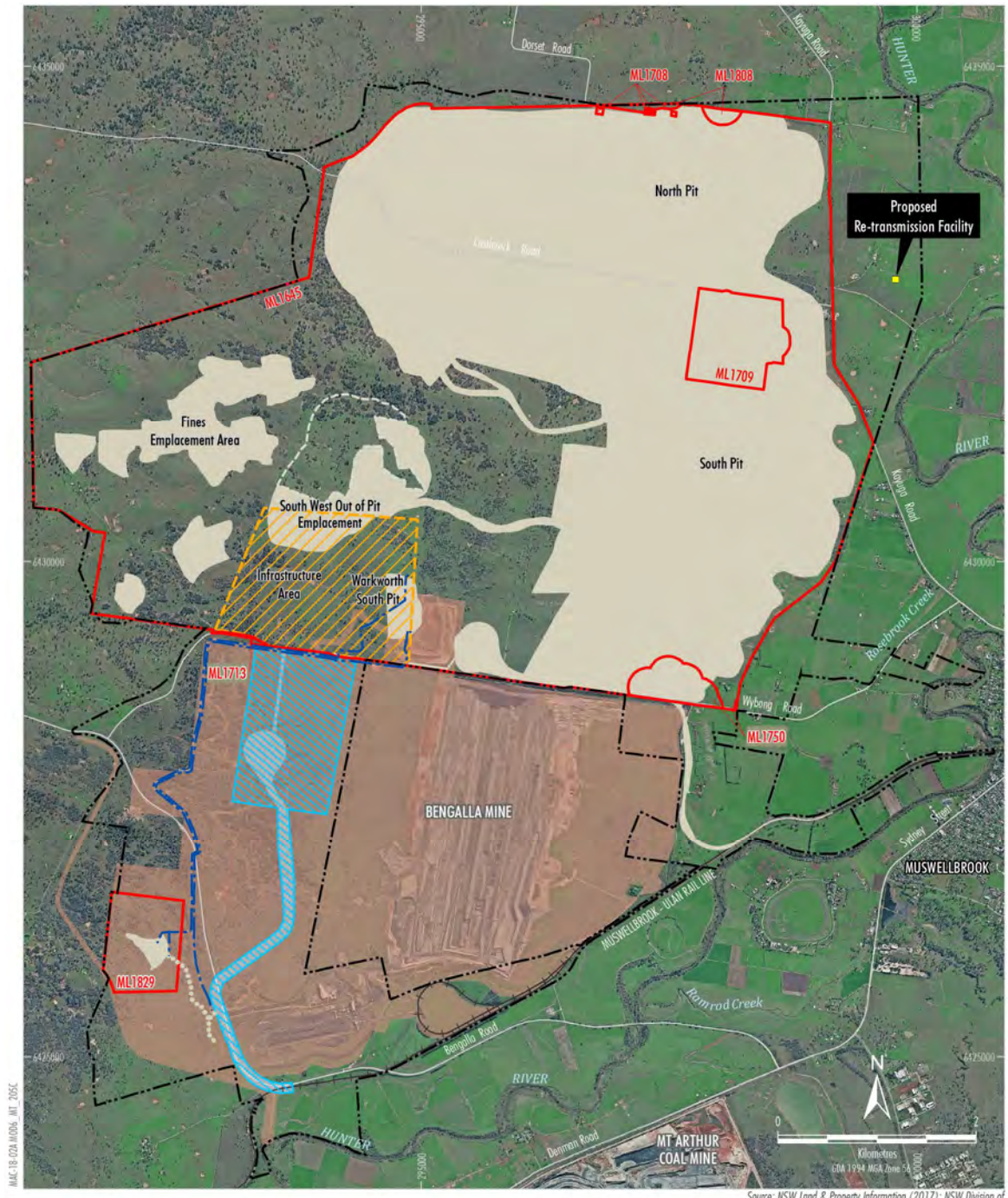
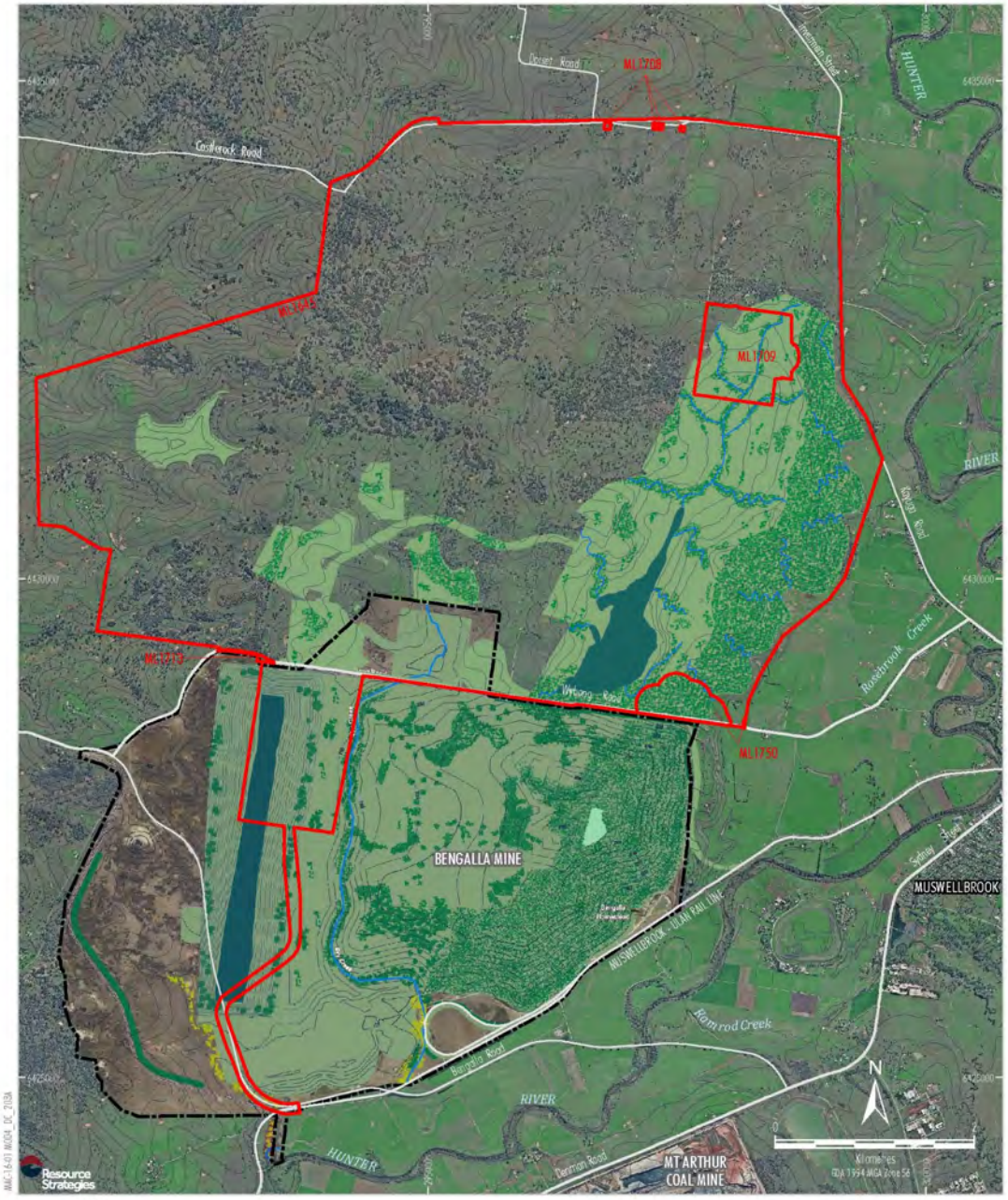


FIGURE 4 - CONCEPTUAL FINAL LANDFORM



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

ENDORSEMENT OF DR COLIN DRISCOLL

Department of Planning and Environment

Our ref: SSD-10418-PA-1

Mariah Lane
Environmental Advisor
Mach Energy Australia Pty Ltd
PO Box 407
Newcastle, NSW,2300

17/05/2023

Subject: Endorsement of Suitably Qualified and Experience Specialists for Mount Pleasant Optimisation Project

Dear Ms. Lane

I refer to your request for the Planning Secretary's endorsement of suitably qualified and experienced specialists to prepare management plans for the Mount Pleasant Optimisation Project (SSD-10418) and Mount Pleasant Coal Mine DA (92/97 until its surrender).

The Department has reviewed the nominations and information you have provided and is satisfied that the following specialists are suitably qualified and experienced. Accordingly, I can advise that the Planning Secretary approves/endorses the appointment of the following specialists:

- Dr Colin Driscoll of Hunter Eco for preparation of the Biodiversity Management Plan
- Chloe Annandale of Landroc for preparation of the Rehabilitation Strategy
- John Wassermann of RWDI for the preparation of the Blast Management Plan and Noise Management Plan
- Jamie Reeves of Niche Environment and Heritage for the preparation of the Aboriginal Cultural Heritage Management Plan
- Aleks Todoroski of Aleks Air Sciences for the preparation of the Air Quality and Greenhouse Gas Management Plan
- Dr Andrew Sneddon of Extent for the preparation of the Historic Heritage Management Plan
- Penny Dalton of TTPP for the preparation of the Traffic Management Plan
- Camilla West of ATC Williams and Bryce McKay of AGEC for the preparation of the Water Management Plan

If you wish to discuss the matter further, please contact Wayne Jones on (02) 6575 3406.

Yours sincerely

Stephen O'Donoghue
Director
Resource Assessments
As nominee of the Planning Secretary

ATTACHMENT 3

MOUNT PLEASANT OPERATION GROUND DISTURBANCE PERMIT

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GROUND DISTURBANCE PERMIT

Permit to be completed with reference to Ground Disturbance Permit Procedure ME-EMS-PRO-02

Permit Criteria

This permit must be completed for all surface disturbance work including slashing, fencing, tree clearing, removal of topsoil, demolition and access to rehabilitation areas

Part 1 – Task Details *(to be completed by the person requesting the permit)*

Site	Mount Pleasant Operation	Permit ID Number:	**MPO-GDP-**
Company Name:		Date:	
Permit Holder:		Plan provided?	☐Yes ☐No

Note

A plan must be provided, unless otherwise agreed to with the Environmental Superintendent (or Delegate), which includes the entire area to be disturbed, access areas and park-up areas, for approval of this permit. Where applicable erosion and sediment control, and stockpile and rehabilitation information must also be included. A change in the conditions of this Permit may require a reassessment of this Permit.

Proposed start date		Expected duration:	(weeks)
Job location:			

Job description:

☐ Slashing ☐ Vegetation clearing ☐ Topsoil removal ☐ Demolition ☐ Other

Details of activities: *Include summary of task, reason, purpose, size of disturbance (ha), boundaries and the expected duration, including rehabilitation*

Is demarcation or pegging of the work area required? *(Demarcation is mandatory except for routine slashing)*	☐No	☐Yes -	Entire area is to be clearly demarcated Demarcation to be confirmed by pre-clearing survey *- Part 9 to be completed*
Is the task area within approval boundaries? *(Where demarcation of an external approval boundary is required it must be performed by a qualified surveyor – Part 10 to be completed)*	☐No	☐Yes -	Describe below how boundaries are identified?
Is the specific task permitted under any existing approvals?	☐No	☐Yes -	If no, additional approval required, discuss with the Environmental Superintendent.
Will infrastructure be removed or decommissioned as part of this Permit? *Includes fences, powerlines, pipelines, cables and similar, houses, yards etc.*	☐No	☐Yes -	List affected infrastructure in consultation with Land and Property Superintendent.
Will topsoil and/or vegetation be removed, relocated or stockpiled as part of this Permit?	☐No	☐Yes -	Pre-disturbance survey required – *Part 5 and 6 to be completed.* Clearing & Stockpiles required – *Part 7 to be completed*
Are water courses located within or near work area? *Includes designated water courses, creeks, tributaries or drainage lines*	☐No	☐Yes -	Erosion and sediment control required Details must be included on plan For designated water courses, additional approval is required – consult with Environmental Superintendent
Is erosion and sediment control required for this task?	☐No	☐Yes -	Erosion and sediment control required – *Part 3 to be completed*
Will the works impact on any statutory environmental points? *Includes potential impacts on air quality monitoring equipment and discharge points etc.*	☐No	☐Yes -	Include details in comments below

Is drilling or excavation required as part of this task?	☐No	☐Yes -	Additional permits maybe required – discuss requirements with Environmental Superintendent, including liaison with Survey Team and Dial Before You Dig.
Is the disturbance to be conducted on land owned by the operation?	☐No	☐Yes -	If No, seek guidance from the Environmental Superintendent to confirm if further approvals are required.
Are access tracks required to the area and included in this disturbance permit?	☐No	☐Yes -	Include details in comments below

Part 2a – Land and Property Superintendent (or Delegate) Infrastructure Disturbance *(mandatory for all permits)*

Will any infrastructure be removed as part of this permit? Including fences, powerlines, pipelines, cables and similar, houses, yards etc. If yes, undertaken relevant management and mitigation measures to ensure no impact to land and property.

Date	Time	Contact number (mobile)	Name (printed)	Signature

Part 2b – Environmental Superintendent (or Delegate) Work Area Visit *(mandatory for all permits)*

Environmental Superintendent (or Delegate) – Initial inspection
I have physically visited the proposed disturbance work area and I am aware of the scope and requirements of the proposed work.

Date	Time	Contact number (mobile)	Name (printed)	Signature

Part 3 – Erosion and Sediment Control *(to be completed by the person requesting the permit)* ☐ Required ☐ Not Required

Only applicable if Erosion and Sediment control is required from Part 1, to be completed by the Permit Holder

Note

All erosion and sediment plan requirements must be completed prior to any disturbance activity commencing

Erosion and sediment plan	☐ Not Required ☐ Required – *all elements below must be completed* Sediment and erosion control plans attached Scale map of affected areas and details included on site plan
Sediment dam(s)	☐ Not Required ☐ Required – *all elements below must be completed*

Sediment dam calculations

Area (ha) (Total catchment area)	*Setting zone vol (m^3)*	*Sediment storage vol (m^3)*	*Total basin vol (m^3)*	*Flocculant (if required)*

Controls *List all required controls to manage erosion and sediment for permit approval. Specific Permit Conditions must be listed in Part 8*	

Part 4 – Community Interaction *(to be completed by the Environmental Superintendent or Delegate in consultation with External Relations Manager)*			
Is the proposed area within 2 km of sensitive receivers?	☐No – go to Part 5	☐Yes -	List details and include on final plan
Does any member of the public need to be contacted?	☐No	☐Yes -	List contact details
Are there any additional requirements from public contact?	☐No	☐Yes -	List Specific Permit Conditions in Part 8
Controls *Details of any procedures, operating hour limits or contact information. Specific Permit Conditions must be listed in Part 8.*			

Part 5 – Cultural/European Heritage *(to be completed by the Environmental Superintendent or Delegate)*		
If any response is unknown, complete required level of due diligence to enable a response.		
Has a Cultural Heritage/European clearance been obtained within the proposed disturbance area?	☐Yes	Verify location on plan and provide details, list any controls below
	☐No	Conduct due diligence of proposed disturbance area
Are Cultural/European Heritage sites located within the disturbance area, including access tracks?	☐Yes	Identify all known European or Cultural Heritage sites on plan, list any controls below
	☐No	Verify against existing site data
Controls *List all required controls to manage Cultural/European heritage for Permit approval. Specific Permit Conditions must be listed in Part 8.*		

Part 6 – Ecology *(to be completed by the Environmental Superintendent or Delegate)*		
If any response is unknown, complete required level of due diligence to enable a response.		
Is any significant flora or fauna located in the area to be disturbed?	☐Yes	List controls below
	☐No	No further action required?
Are any sensitive wildlife habitats located in the area to be disturbed?	☐Yes	List controls below
	☐No	No further action required?
Are there any site specific ecology requirements for the area to be disturbed? *Includes tree or habitat clearing restrictions etc. Wildlife spotter / catcher required*	☐Yes	List controls below
	☐No	No further action required?
Controls *List all required controls to manage ecology for permit approval. Specific Permit Conditions must be listed in Part 8.*		

Part 7 – Clearing and Stockpiles *(to be completed by the person requesting the permit)* ☐ Required ☐ Not Required		
Is vegetation to be cleared and/or topsoil to be stripped?	☐Yes	Complete relevant section(s) below
	☐No	This part not applicable, go to Part 8
Topsoil management *(only applicable if stripping topsoil)*		
Is topsoil strip depth known?	☐Yes	Enter strip depth: 100-300 millimetres
	☐No	Confirm strip depth with Environmental Superintendent
Can topsoil be directly placed on rehabilitation areas?	☐Yes	Include location details on plan and Specific Permit Requirements in Part 8
	☐No	

Part 7 – Clearing and Stockpiles *(continued)*		
Topsoil stockpiles *(only applicable if stockpiling topsoil)*		
Maximum topsoil stockpile height permitted:	Maximum Height:	Metres(<3metres)
Is the topsoil stockpile(s) location included on the plan?	☐Yes	Confirm correct location details on plan
	☐No	Update plan to include details
Is stockpile drainage adequate?	☐Yes	Environmental Superintendent to confirm erosion and sediment plan
	☐No	Update erosion and sediment plan to include topsoil stockpile
Are there site specific conditions / requirements for topsoil stockpiles?	☐Yes	Update Specific Permit Conditions in Part 8
	☐No	No further action
Vegetation management *(only applicable if clearing vegetation)*		
Can vegetation be directly placed on rehabilitation areas?	☐Yes	Include location details on plan and Specific Permit Requirements in Part 8
	☐No	Complete vegetation stockpile sub-section below
Vegetation stockpiles *(only applicable if stockpiling vegetation)*		
Maximum vegetation stockpile height permitted:	Maximum Height:	Metres(<3metres)
Is the vegetation stockpile(s) location included on the plan?	☐Yes	Confirm correct location details on plan
	☐No	Update plan to include details
Is stockpile drainage adequate?	☐Yes	Environmental Superintendent to confirm erosion and sediment plan
	☐No	Update erosion and sediment plan to include vegetation stockpile
Are there site specific conditions / requirements for vegetation stockpiles?	☐Yes	Update Specific Permit Conditions in Part 8
	☐No	No further action
Controls *List all required stockpile controls for permit approval. Specific Permit Conditions must be listed in Part 8.*		

Part 8 – Specific Permit Conditions *(to be completed by the Environmental Superintendent)*	
1.	All disturbance must remain within the GDP application area, no disturbance or machinery is to be outside the peg/survey line. If GDP markers have been removed/knocked over, supervisor must be notified and area must be re-surveyed and markers re-instated before disturbance proceeds.
2.	Dust shall be kept to a minimum in accordance with the Air Quality Management Plan.
3.	Should archaeological sites be discovered, works are to stop immediately and MACH Energy notified.
4.	Works to be undertaken in progressive manner and disturbance minimised where practical.
5.	Erosion and sediment controls to be installed prior to stripping of topsoil/disturbance. All controls to be installed and maintained in accordance with Blue Book principles and in accordance with ESCP outlined in GDP.
6.	
7.	
8.	
9.	
10.	

Part 9 – Survey (Boundary Check) Signoff *(to be completed by the person requesting the permit)*

Approval Boundaries Check: ☐

Survey Inspection

The proposed disturbance area is within approved disturbance limits and has been clearly demarcated, relevant to the tasks, and clearly identifies required boundaries to meet the requirements of this permit.
A survey has been completed, for the requirements detailed above and confirmed that demarcation and construction of controls identified in Part 3 have been constructed to design.

Date	*Time*	*Contact number (mobile)*	*Name (must be qualified surveyor)*	*Signature*

Part 10 – Permit Approval

Environmental Superintendent (or Delegate) Approval

I have reviewed the contents of this Permit and confirm that all information, where applicable, is correct and has been completed to site requirements.
I have inspected the work area and pre-disturbance controls and all pre-disturbance activities, where applicable, have been completed to the Permit requirements.
The Permit Issuer is aware of the approved scope, all Part 8 – Specific Permit Conditions and any other aspects for completion of work related to this Permit
I Authorise approval of this Permit to the defined scope, and additional conditions listed in Part 8 – Specific Permit

Pre-Clearance inspection completed including the following:	☐ Erosion and sediment controls (not confirmed by survey) are installed ☐ Habitat trees have been identified and any controls specified are in place ☐ Area is adequately demarcated ☐ Access to the site is adequate and where applicable covered by the permit ☐ Any site specific controls (where identified) have been installed
Comments:	Refer to Part 8 for comments.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Caution

No further on the ground works can proceed until Part 10 is completed. All pre-disturbance controls must be in place.

Permit Holder

I am authorised to perform the role of Permit Holder for this Permit.
I have read and understood the contents and conditions of this permit and any related procedures, and I agree to abide by these requirements. I have communicated the requirements of this permit to those working under the approval of this permit.
Any proposed change to the scope or conditions of this permit will be discussed with the Environmental Superintendent (or Delegate) first. I will comply with all requirements, including reporting requirements.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Part 11 – Attachments *(to be completed by the person requesting the permit)*

All attached documents, directly related to this Permit, are to be listed below. These will include a risk assessment and an Erosion and Sediment Control Plan at a minimum.

Date	*Reference number*	*Title*

Part 12 – Task Monitoring and Inspections *(includes Permit Holder, Environmental Superintendent etc.)*

Record of planned and unplanned task monitoring and inspections

Date	*Time*	*Name (printed)*	*Signature*	*Comments*

Part 13 – Worker Sign-on – Review and Re-sign Weekly

Date	*Time*	*Name (printed)*	*Signature*	*Comments*

Part 14 – Amendments *(completed by the Permit Holder and Environmental Superintendent (or Delegate), if required)*	☐ Required	☐ Not Required

Amendment:	☐ Updated job description and site plan, including expected duration ☐ Update survey of work area, if required ☐ Confirm area within approval boundaries ☐ Update DBYD, if required ☐ Update erosion and sediment control works, if required ☐ Confirm no impact to community ☐ Confirm no impact to cultural or European heritage ☐ Confirm no impact to ecology ☐ Complete site visit, if required ☐ Confirm updated topsoil and/or vegetation clearing and stockpiles, if required
Comments *Including additional specific permit conditions.*	

Environmental Superintendent (or Delegate) Amendment Assessment				
An assessment of the amendment/s has been completed, as per the above checklist. Additional works outlined in the amendment/s can now be completed.				
Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Permit Holder Amendment Assessment				
An assessment of the amendment/s has been completed, as per the above checklist. Additional works outlined in the amendment/s can now be completed.				
Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Part 15 – Post-Disturbance Assessment *(completed by the Permit Holder and Environmental Superintendent (or Delegate) on permit completion/cancellation, if required)*	☐ Required	☐ Not Required

Post-Disturbance Assessment completed including:	☐ All rubbish removed from work area(s) ☐ All pegs and flagging tape removed ☐ All plant and equipment removed from the work area(s) ☐ Erosion and sediment controls completed to plan ☐ All rehabilitation work completed to requirements *(including access tracks)* ☐ Landholder satisfied with rehab works *(where applicable)* ☐ Stockpiles constructed to requirements *(where applicable)* ☐ Site plan updated to reflect any changes *(stockpiles, dams etc. where applicable)* ☐ Has clearing been completed in accordance with the permit? ☐ Has survey completed an "as constructed pick up"?
Comments *Instructions or requirements relevant to post-disturbance inspections.*	

Environmental Superintendent (or Delegate) Post Disturbance Assessment

A post-disturbance assessment has been completed for the area of disturbance authorised by this Permit. All works have been inspected, as noted above, and have been completed to site requirements. This Permit can now be completed/cancelled.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Permit Holder Post Disturbance Assessment

A post-disturbance assessment has been completed for the area of disturbance authorised by this permit. All works have been inspected, as noted above, and have been completed to site requirements. This permit can now be completed/cancelled.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Part 16 – Permit Completion / Cancellation *(all signatures required)*	
☐ Permit Complete	☐ Permit Cancelled *(comments required)*

The task activities authorised by this permit are complete, or no longer required. All required inspections have been completed
No further work is permitted under the authority of this permit

Comments *Cancellation must include reasons.*	

Environmental Superintendent (or Delegate)

All Environmental aspects of this permit have been completed (including cancelled) to site requirements.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Permit Holder

All work has been completed (or cancelled) to satisfy the requirements of this permit.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

ATTACHMENT 4

APPENDIX 2 OF DEVELOPMENT CONSENT SSD 10418

APPENDIX 2 DEVELOPMENT LAYOUT PLANS

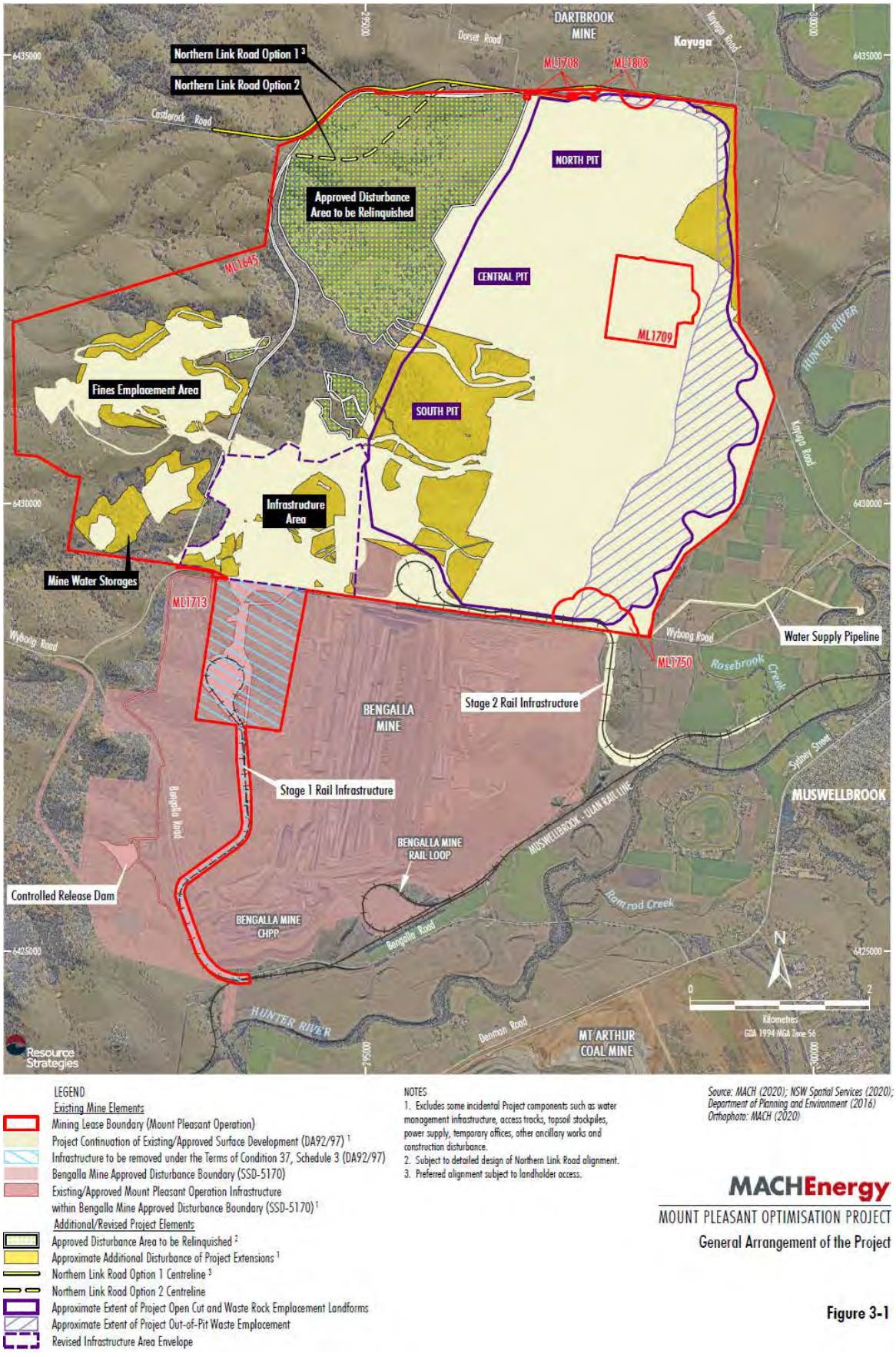


Figure 1: General Project Arrangement

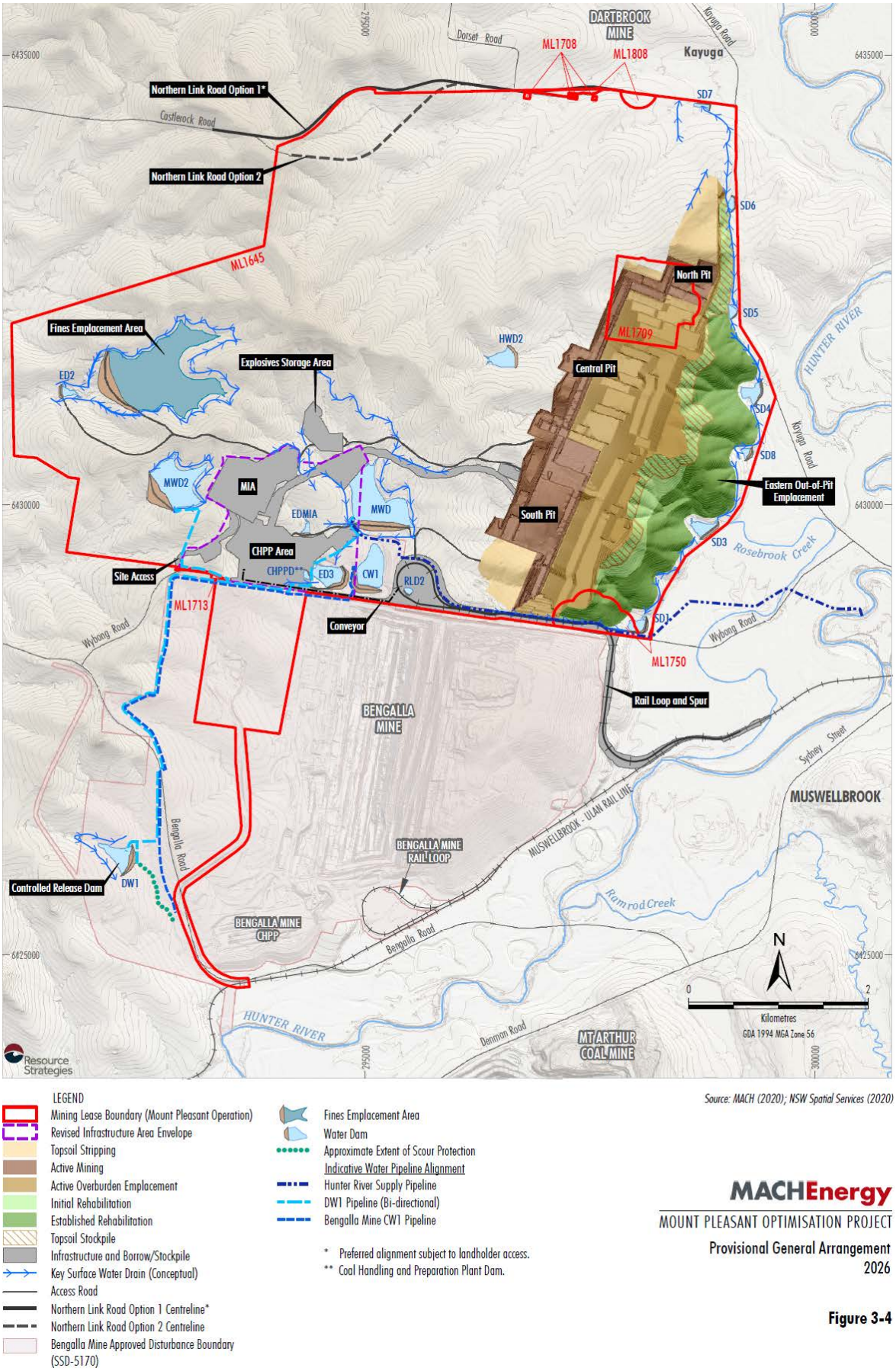
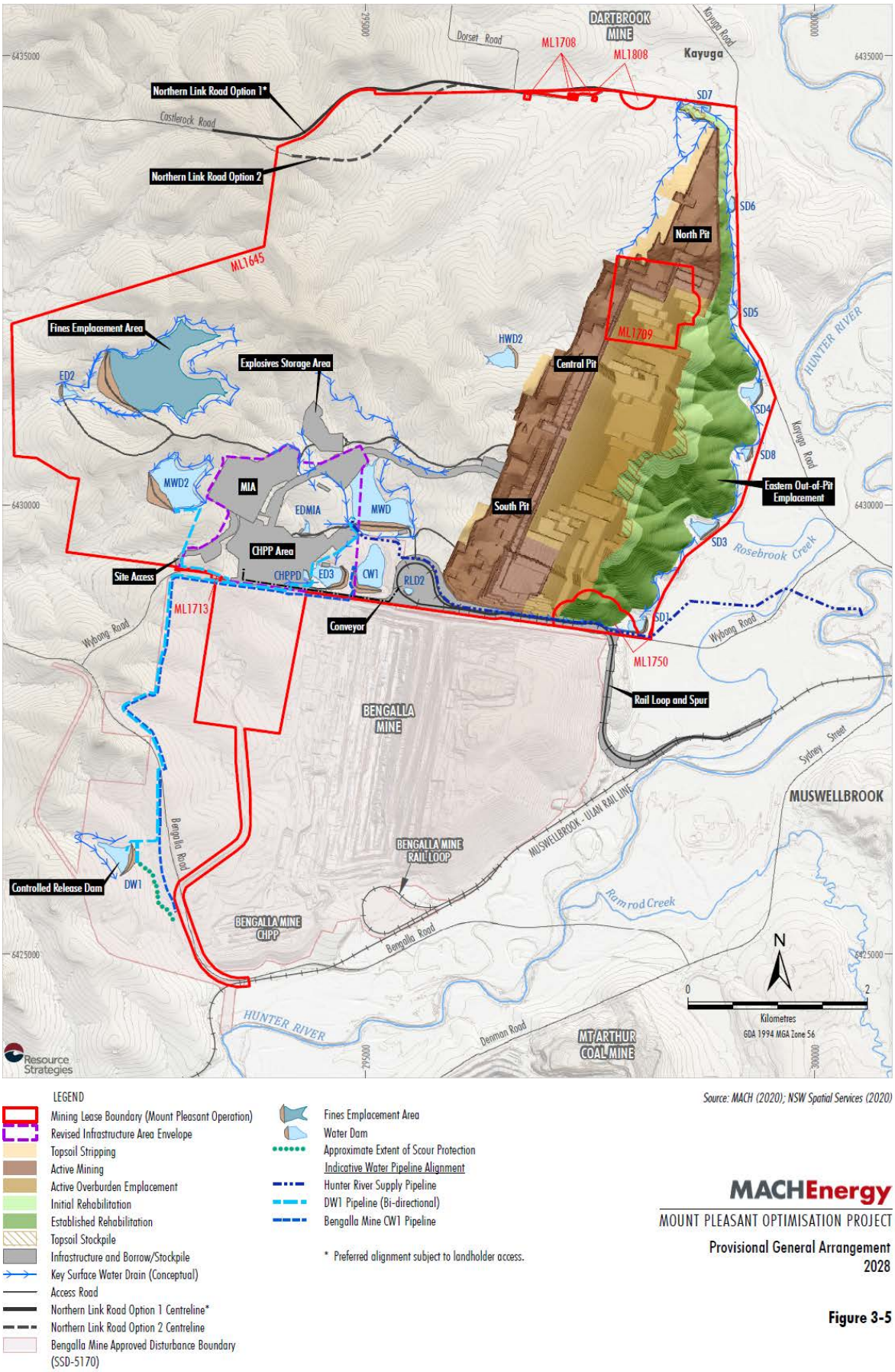


Figure 2: General Project Arrangement – 2026



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* Preferred alignment subject to landholder access.

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

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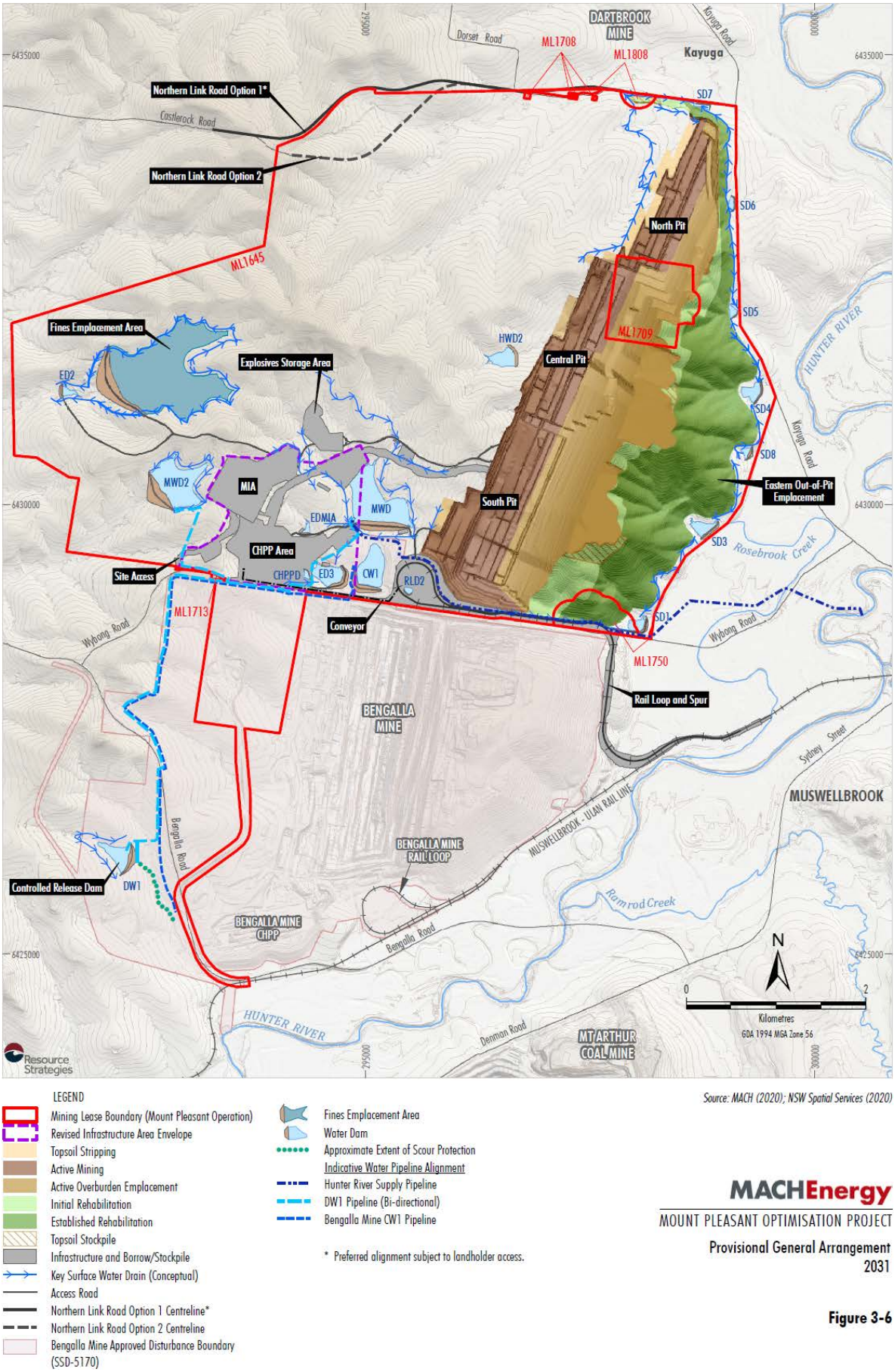
MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2028

Figure 3-5

Figure 3: General Project Arrangement – 2028



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* Preferred alignment subject to landholder access.

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

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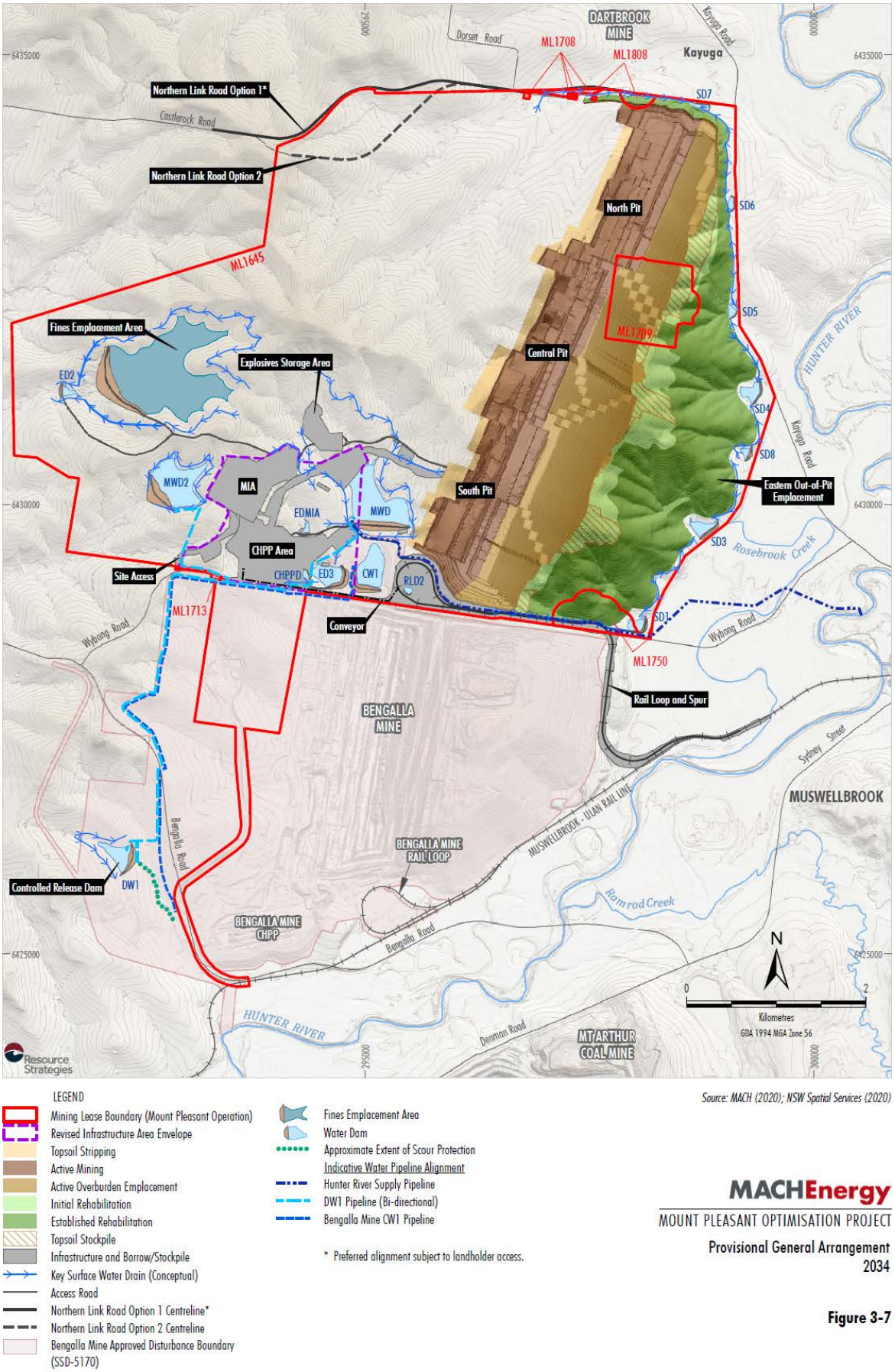
MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2031

Figure 3-6

Figure 4: General Project Arrangement - 2031



LEGEND

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* Preferred alignment subject to landholder access.

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

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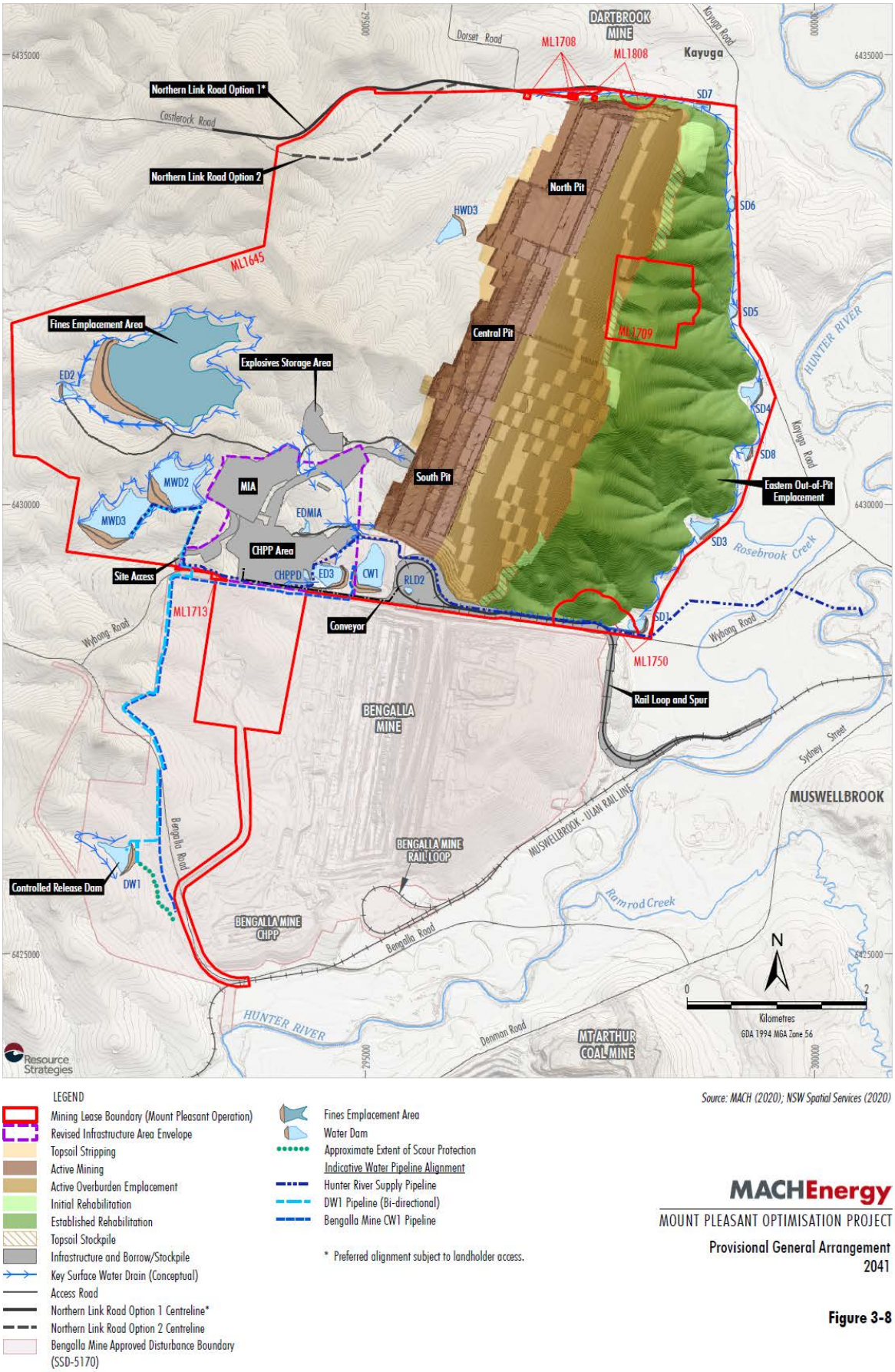
MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2034

Figure 3-7

Figure 5: General Project Arrangement - 2034



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* Preferred alignment subject to landholder access.

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

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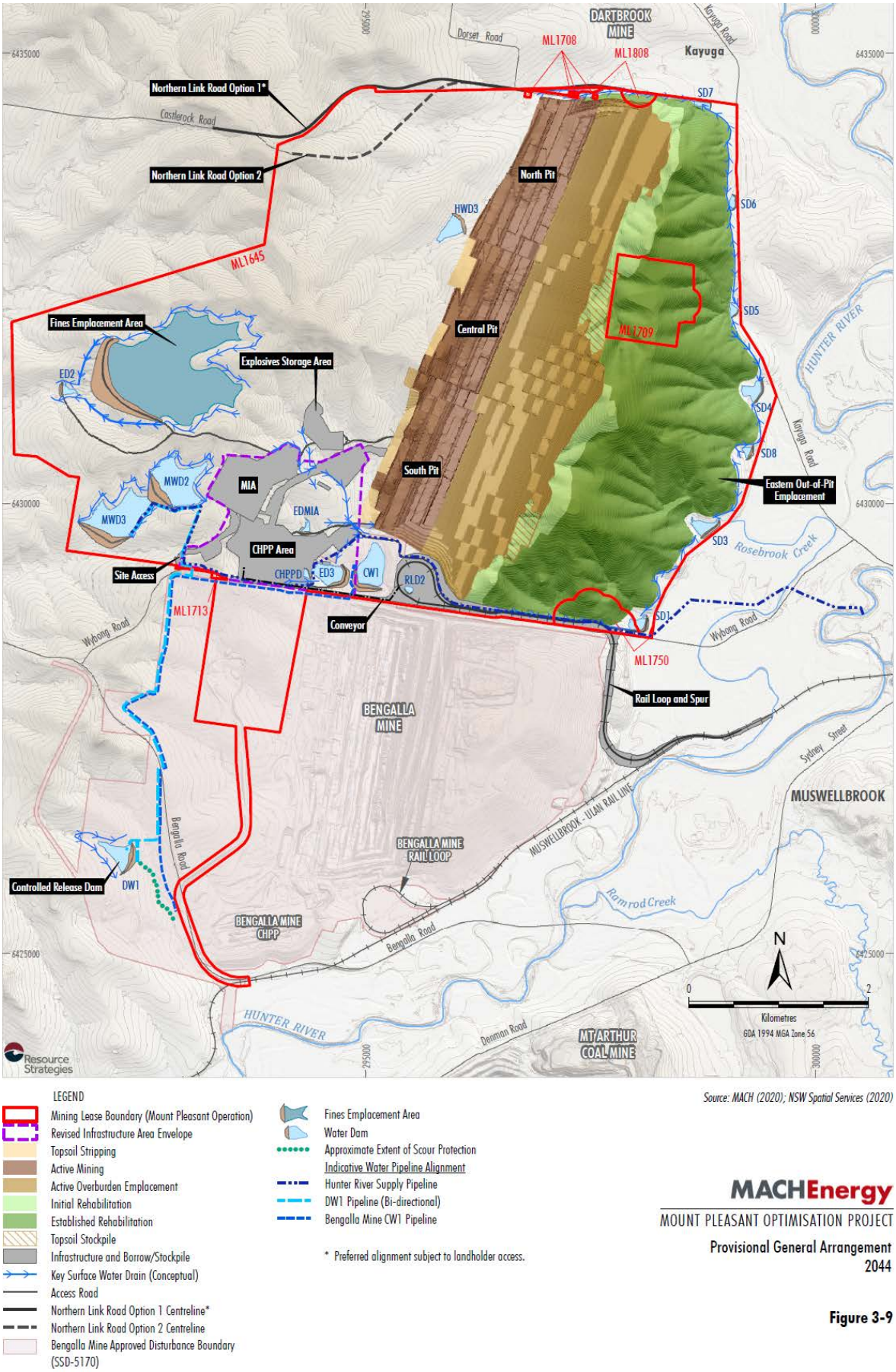
MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2041

Figure 3-8

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)

MACHEnergy

MOUNT PLEASANT OPTIMISATION PROJECT

Provisional General Arrangement 2044

Figure 3-9

Figure 7: General Project Arrangement - 2044

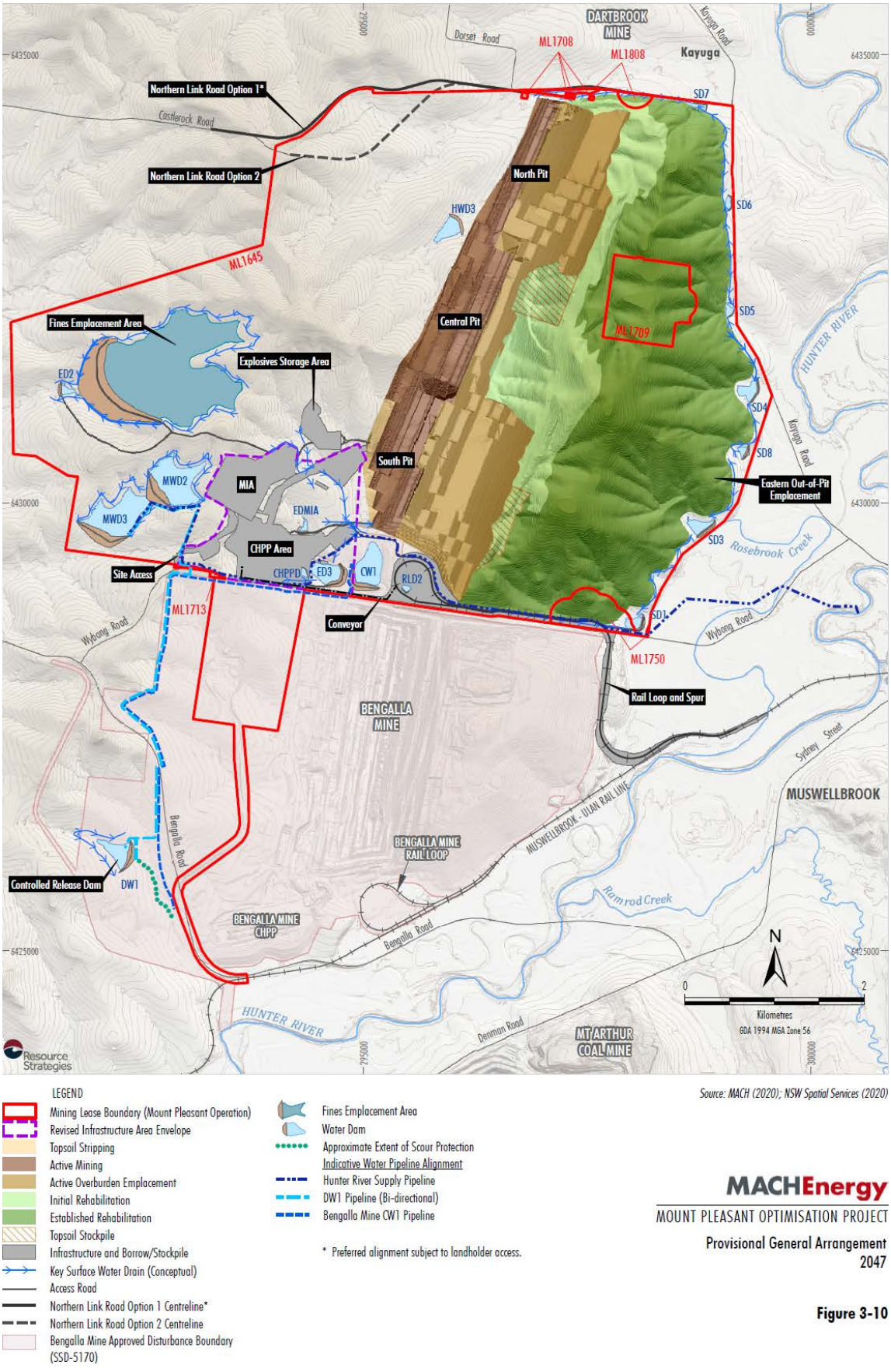


Figure 8: General Project Arrangement – 2047

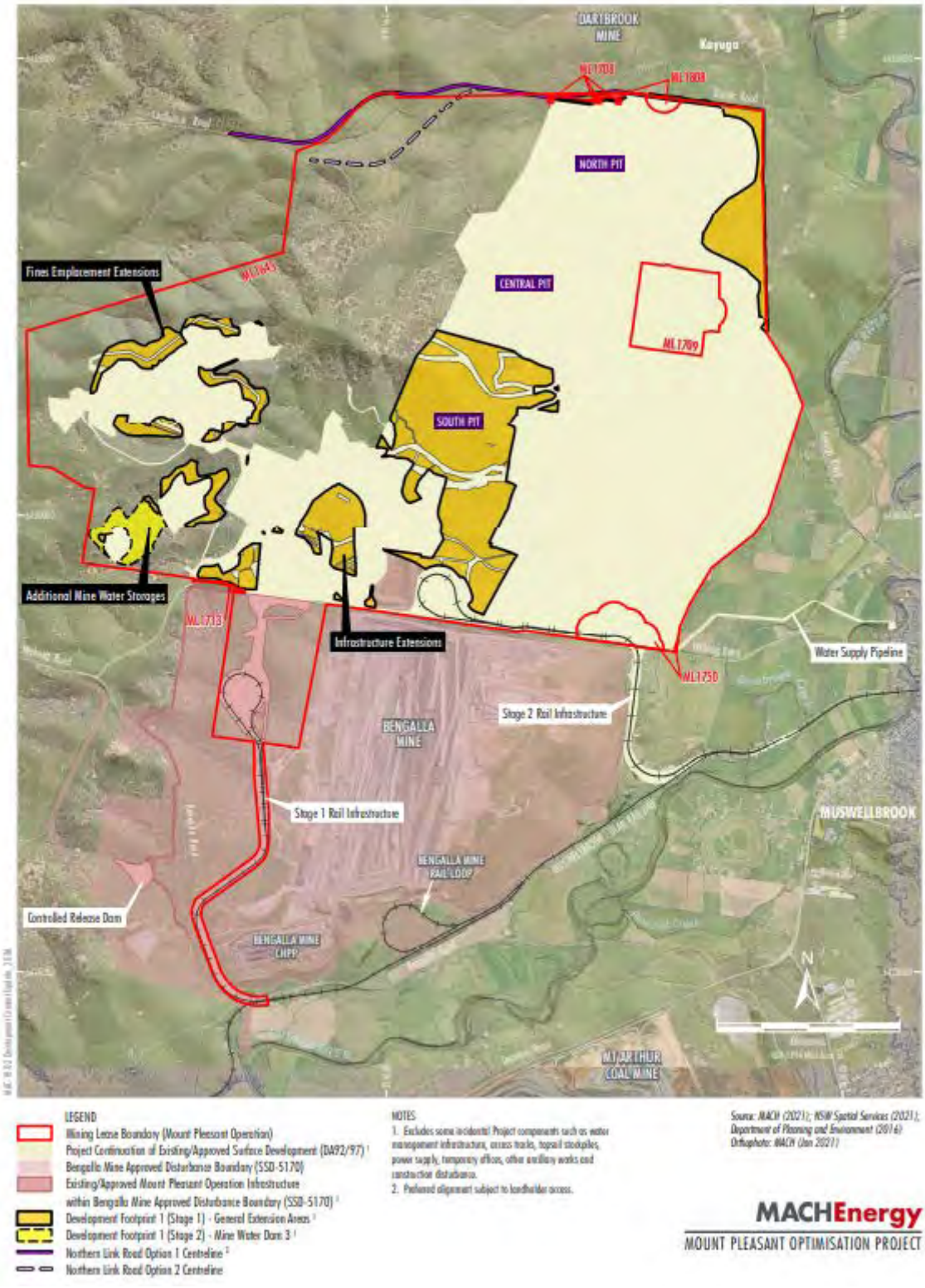


Figure 9: Staging of Project Disturbance Areas

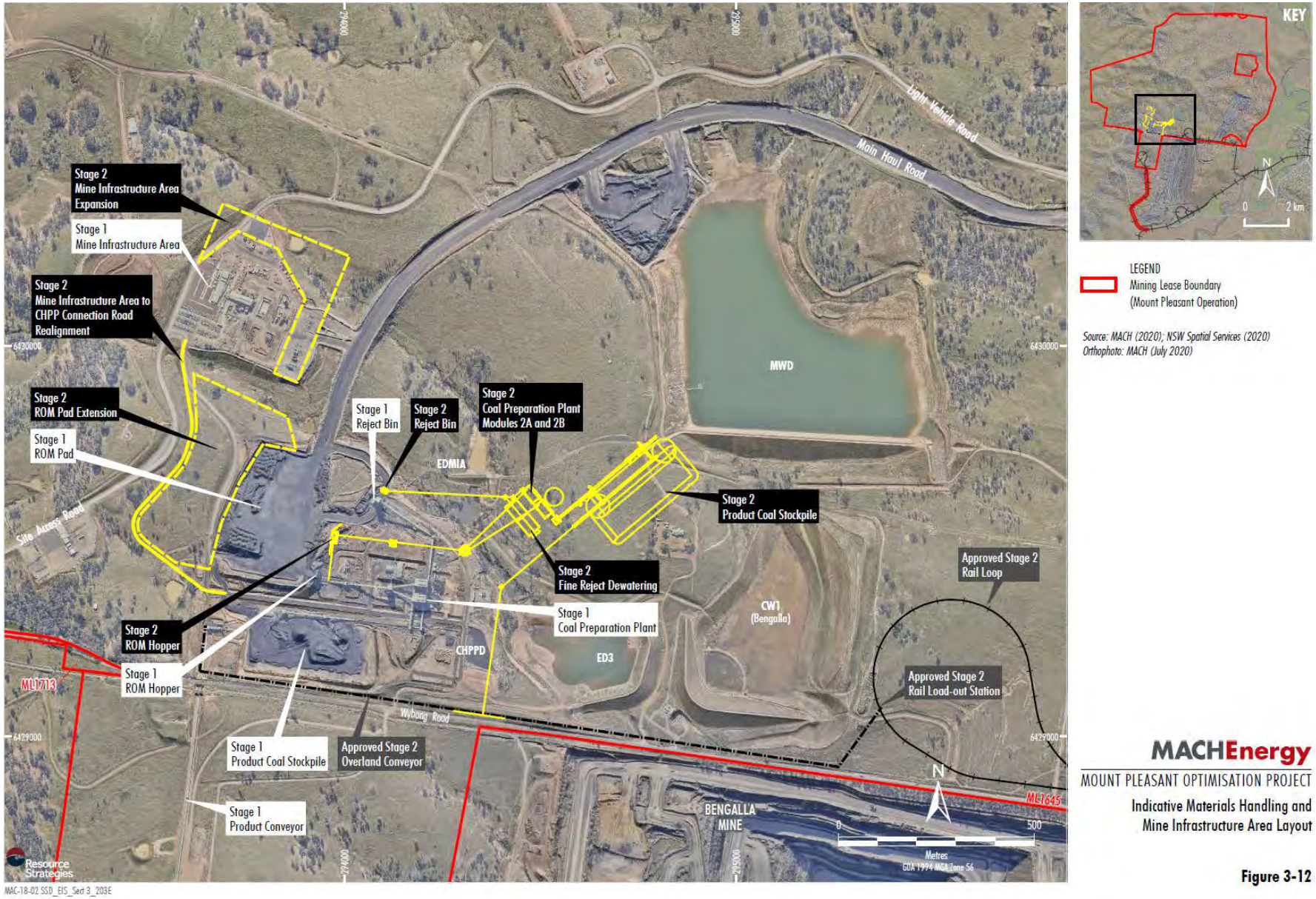


Figure 10: Indicative Mine Infrastructure Area Layout

APPENDIX A

CONSULTEE FEEDBACK – KEY CORRESPONDENCE

Department of Planning, Housing and Infrastructure

Our ref:

SSD-10418-PA-3

Mariah Lane
Environmental Advisor
Mach Energy Australia Pty Ltd
PO Box 407
Newcastle, NSW, 2300

25/10/2024

Mount Pleasant Optimisation Project - Biodiversity Management Plan

Dear Miss. Lane

Reference is made to your post approval matter, SSD-10418-PA-3, Biodiversity Management Plan, submitted as required by Schedule 2, Condition B63 of Mount Pleasant Optimisation Project as modified (the consent) to the NSW Department of Planning, Housing and Infrastructure (NSW Planning) on 6 September 2022.

NSW Planning has reviewed Biodiversity Management Plan and considers more information is required to satisfy the condition of consent. Under the provisions of Schedule 2, Condition B63(a) of the consent, I, as nominee of the Planning Secretary, request that an amended Biodiversity Management Plan be submitted as a response to this request for information (RFI-77278718) addressing the below points by 8 November 2024 (or as otherwise agreed by the Planning Secretary).

Should you wish to discuss the matter further, please contact Charissa Pillay, (Senior Planner) on 02 9995 5944 or charissa.pillay@planning.nsw.gov.au

Yours sincerely

W Jones

Wayne Jones
Team Leader - Post Approval
Resource Assessments

As nominee of the Planning Secretary

Department of Planning and Environment

Your ref: SSD-10418
Our ref: DOC23/589966-2

Christian Lauritzen
MACH Energy Australia Pty Ltd

By email: chris.lauritzen@machenergyaustralia.com.au

Dear Christian

Mount Pleasant Optimisation Project - MPO - Biodiversity Management Plan (SSD 10418)

I refer to your Major Projects Portal request on 3 July 2023 seeking advice in relation to the Biodiversity Management Plan (BMP) post approval requirement B63 of NSW Development Consent SSD-10418 Mount Pleasant Optimisation Project.

The Biodiversity Conservation Division (BCD) of the Department of Planning and Environment (DPE) has reviewed revision 02 *Mount Pleasant Operation- Biodiversity Management Plan* prepared by MACH Energy Australia Pty Ltd. BCD's recommendations are provided in **Attachment A**. If you have any further questions about this issue, please contact Giorginna Xu, Senior Conservation Planning Officer on 4927 3185 or at huntercentralcoast@environment.nsw.gov.au

Yours sincerely

Joe Thompson
Director Hunter Central Coast Branch
Biodiversity and Conservation Division

7/8/23

Enclosure: Attachments A and B

BCD's recommendations

AGL - SSD 8889679 - Biodiversity Management Plan

1. **Error! Reference source not found.** BCD's recommendations to the BMP to ensure Development Consent Conditions are satisfied

Condition	Requirement	MACH Energy response or reference	BCD recommendations
B63	The Applicant must prepare a Biodiversity Management Plan to the satisfaction of the Planning Secretary. This plan must: a) Be submitted for approval prior to the commencement of development under this consent	Section 1.1.2	No further action required.
	b) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary	Section 1, Attachment 2	No further action required.
	c) be prepared in consultation with BCD	Section 1.1.2	No further action required.
	d) describe the vegetation clearance protocol to avoid accidental clearance in vegetation to be retained,	Section 4	A Project Manager is not considered suitably qualified to identify environmentally sensitive features. Section 4.2.1 should be amended to state that the Ground Disturbance Permit will be completed by the Project Ecologist.

	including the relinquishment area		
	e) describe how a mixture of pasture and woodland would be established in the final land use to minimise long-term impacts to vegetation and habitat	Section 7.1	Section 7.1 of the BMP should be amended to describe methodology to avoid or minimise pasture encroachment within areas designated for native vegetation, including timing, frequency and who is responsible.
	f) describe measures to establish 66.6 ha of PCT 1605 and 7 ha of PCT 1602 as part of the rehabilitation program, consistent with the Rehabilitation Management Plan referred to in condition B92	Section 7.1	Section 7.1 of the BMP states *Subject to seed and seedling supply availability and suitability, flora species to be used in rehabilitation would aim to include those typical of the Box-Gum Woodland Critically Endangered Ecological Community (CEEC).* Section 7.1 should be amended to include the following: • Methodology to source seed and seedling supply to establish PCT 1605 and PCT 1602 • Specific detail of what species would be planted if locally occurring flora cannot be sourced • The potential impact if alternative species are planted.
	g) describe the measures to be implemented within the approved disturbance areas to i. minimize the amount of clearing	Section 4	The BMP should include measures to minimise clearing within approved disturbance areas. Section 4 should be amended to describe measures to be implemented.
	ii. minimize impacts of ground disturbance on fauna and fauna habitat resources, including undertaking pre-clearance surveys	Section 4.2.	The BMP includes minimal measures to minimise impact on fauna. Section 4 of the BMP should be amended to include the following: • Section 4.2.2 of the BMP states grassland and exotic pasture will be excluded from a pre-clearance survey. *Delma vescolineata* occurs within these habitats. Therefore, the BMP should be amended to include grassland and exotic pasture for pre-clearance surveys.

			• Pre-clearance surveys are required to be conducted by a qualified and experienced person. Section 4.2.2 should be amended to state pre-clearance surveys will be conducted by an ecologist with demonstrated relevant experience. • Provide detailed pre-clearance methodology specific to target threatened species known or predicted likely to occur on site. Additional information is required for *Delma vescolineata* - BCD recommends pre-clearance surveys and relocation methodology is written in consultation with the accountable officer or an expert for this species. • Provide scheduling for construction to occur outside breeding and torpor seasons. If clearing is required to occur during breeding and/or torpor seasons, a written assessment by the Project Ecologist to justify clearing activities (i.e. no impact to breeding or torpor habitat) must be recorded and provided to BCD prior to works. • Provide a detailed unexpected finds protocol • Outline a protocol for local wildlife groups to be contacted at least seven (7) days prior to clearing to determine if they are able to manage injured animals. If they are not, alternative arrangements should be made. • Protocol for tree clearing not to occur during temperatures of 35°C or higher • Active nests should not be disturbed during works. Section 4.3.3 should be amended to state if nests are active, a buffer zone will be created and the area will be avoided and retained until fledglings have left the nest. • Clearing should occur in a staged process with non-habitat trees to be removed first in the presence of a qualified and licensed ecologist. • A microbat management plan should be included as an appendix to the BMP. Mitigation measures should include the erection of suitable supplementary habitat for microbats such as installation of microbat boxes prior to clearing.

	iii. provide for the reuse of trees containing features with the potential to provide significant habitat for nesting threatened birds, hollow-dwelling and/or arboreal mammals	Section 4.2.3	A tree clearing report should be provided to BCD after clearing works are completed. The report should confirm the final area cleared, the identity of vegetation removed, and a count of hollow-bearing trees felled. The report should also include inventory of habitat features salvaged and stockpiled/relocated.
	iv. maximise the relocation of the Tiger Orchid (*Cymbidium canaliculatum*) recorded; and	Section 4.3.5	Section 4.3.5 of the BMP should be amended to include detailed translocation methodology. Translocation methodology should be prepared in consultation with BCD's accountable officer or an expert for this species. The BMP should include a program to monitor and report on the effectiveness of the individuals becoming established. The program should include: • Specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measure. • Details to report the effectiveness of translocation. • Details to investigate and implement ways to improve the translocation over time. • A protocol for managing and reporting any incidents, non-compliances and exceedances of the impact/performance assessment criteria.
	v. manage the provenance, collection and propagation of seed	Sections 4.3.6, 5.1.1	Section 4.3.6 refers to the Rehabilitation Strategy and RMP prepared under the Development Consent SSD 10418 Conditions B89 and B92. Condition B63 (g) (v) requires the BMP to describe measures to manage the provenance, collection and propagation of seed. As such, section 4.3.6 of the BMP should be amended to include the detailed seed collection process and species selection referenced.

	h) describe the measures to be implemented on the site to: i. control weeds, including measures to avoid and mitigate the spread of aggressive tussock grasses (e.g. Coolatai Grass, Jaragua Grass, and African Love Grass) along with priority and environmental weeds	Section 7.2.1	Amend section 7.2.1 of the BMP to provide the following detail: • Who is responsible for ensuring weed control measures and hygiene protocol are adhered to • Timing and frequency of weed control • Chemical spraying should not occur within or adjacent to waterbodies, watercourses or stormwater systems. In these areas, the chemical should be applied manually.
	ii. control feral pests with consideration of actions identified in relevant threat abatement plans	Section 7.2.2	Amend section 7.2.2 of the BMP to provide the following detail: • Who is responsible for undertaking pest control and ensuring pest control protocol are adhered to • Timing and frequency of pest control
	iii. limit vehicle speed;	Section 7.6	No further action required.
	iv. manage bushfire hazards	Section 7.7	No further action required.
	v. avoid impacts to the variant of PCT 483 with Spotted Gum in the canopy mapped within the relinquishment area; and	Section 6	Section 6 should be amended to state that consultation with BCD will occur prior to construction within the variant of PCT 483 with Spotted Gum within the relinquishment area so that BCD can review potential impacts to the canopy.
	vi. manage potential impacts to *Delma vescolineata*, if it is listed as a threatened species under the BC Act and/or EPBC Act in consideration of	Section 7.9	Amend section 7.9 of the BMP to provide the following detail: • Provide detailed pre-clearance methodology specific to target threatened species known or predicted likely to occur on site. Additional information is required for *Delma vescolineata* - BCD recommends pre-clearance surveys

	any relevant Commonwealth Conservation Advice, Recovery Plan and Threat Abatement Plans;		and relocation methodology is developed in consultation with the accountable officer or an expert for this species. • Section 7.9 of the BMP states that mine site rehabilitation and revegetation will be implemented on site to manage impacts. The following additional information should be included: o flora species to be planted o rehabilitation methodology specific to *Delma vescolineata* o evidence of consultation with the accountable officer or expert for this species approving proposed methodology. • Locations and inventory of salvaged and re-used material for habitat enhancement should be included in annual reporting • Feral animal management methodology and how methodology has been selected to avoid adverse impacts to *Delma vescolineata* • Weed management methodology and how methodology has been selected to avoid adverse impacts to *Delma vescolineata.* • The BMP should include a program to monitor and report on the effectiveness of the mitigation measures. The program should include: o specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measure o details to report the effectiveness of any management measures o details to investigate and implement ways to improve the mitigation measures over time

			o a protocol for managing and reporting any incidents, non-compliances and exceedances of the impact/performance assessment criteria
	i) investigate and identify habitat that supports populations in the wild of Delma vescolineata, and identify, and where relevant, implement measures to remove threats to that population	Section 7.9	More detail around this methodology should be provided in Section 7.9 of the BMP. The results of these investigations should be included in annual reporting and this should be provided to BCD.
	j) demonstrate how development under this consent will be carried out in a manner that avoids or minimises to the greatest extent practicable any serious or irreversible damage to the survival of Delma vescolineata	Section 7.9	Amend the BMP as above.
	k) describe how potential conflicts with Aboriginal heritage values will be addressed	Section 2.1.4	BCD is no longer the relevant agency for Aboriginal cultural heritage matters. Any enquiries, assessments, requests for comment or matters relating to Aboriginal cultural heritage should now be sent to heritagemailbox@environment.nsw.gov.au
	l) include a seasonally-based program to monitor and report on: i. priority and environmental weeds, vertebrate pests and rehabilitation; and	Section 8 and 12	Amend section 8 of the BMP to include the following: • Identify who is responsible for routine inspections. • Specific timing and frequency. • Details to report the effectiveness of any management measures. • Details to investigate and implement ways to improve the mitigation measures over time. Additional information is required to understand what research trials are proposed.

	ii. the effectiveness of the above measures, progress against the detailed performance indicators and completion criteria, and identify improvements that could be implemented to improve biodiversity outcomes; and	Section 9	Section 9 should be amended to include methods for developing measures to improve biodiversity for the life of the project.
	a) include details of who would be responsible for monitoring, reviewing, and implementing the plan.	Section 11	Environment Superintendent and Project Manager are not considered suitably qualified persons to inform and undertake the below activities. Section 11 should be amended to state a Project Ecologist is responsible for the following activities: • Undertake pre-clearing inspection and activities, including significant weed mapping • Undertake all commitments related to vegetation clearing • Inform and implement rehabilitation of designated areas, including producing monitoring reports • Inform and undertake fauna habitat salvage strategies • Inform and undertake relocation of any fauna or flora.

Enquiries
Please ask for Theresa Folpp
Direct 02 6549 3700
Our reference Mount Pleasant Continuation (172153)

10 November 2023

Mariah Lane
Environmental Advisor
MACH Energy

Dear Ms Lane

Mount Pleasant Optimisation – Comments on Draft Biodiversity Management Plan

Reference is made to the letter titled *'Mount Pleasant Operation – Biodiversity Management Plan'* dated 03 July 2023, requesting feedback on the Draft Biodiversity Management Plan (BioMP) for the Mount Pleasant Optimisation Project (SSD 10418).

It is noted that MACH Energy Pty Ltd (MACH Energy) has not yet made a formal decision as to the date of commencement of development under SSD 10418. However, work associated with updating the management plans to address SSD 10418 has commenced.

Council staff appreciate the opportunity to comment on the BioMP and its submission is as follows:

1. Section 6 of the BioMP describes the strategies to manage remnant vegetation onsite which includes weed, pest and erosion control; stock control and restricted access.

   It is noted that MACH Energy have not proposed any land treatments to enhance biodiversity values within the disturbance boundary and wider project boundary on land not proposed for mining e.g Relinquished Areas. These areas are significant in size (over 500ha) and as shown in Figures 3 – 6 of the BMP, contain listed Plant Community Types, threatened species and potential groundwater dependent ecosystems.

   While disturbance for the mine is offset under State and Federal legislation, the land-based offsets are not located within the Muswellbrook Local Government Area (LGA) and so they may not adequately address the direct ecological consequences experienced within this region. As a result, Staff strongly encourage MACH Energy to consider undertaking land treatment initiatives within the entire Project Boundary, not just on the areas proposed for disturbance and subsequent rehabilitation.

   Examples of land treatments could include measures such as reestablishment of vegetation e.g additional plantings, habitat restoration, improvements to wildlife corridors, improvements to soil health, or conservation grazing, similar to the principles undertaken on the offset sites.

   By doing so, MACH Energy would be committing to addressing the environmental disturbances occurring directly in our community, aligning with the principles of responsible environmental stewardship.

   Incorporating local land treatments will help preserve the ecological balance in our LGA and also foster a positive relationship between MACH Energy and the Muswellbrook community. We believe that taking these actions to mitigate

disturbances in proximity to the mine's operations will demonstrate MACH Energy's commitment to minimizing the environmental footprint and maintaining the well-being of the local environment and its inhabitants.

2. Staff are satisfied with all other aspects proposed.

Council staff appreciates the opportunity to comment and would be pleased to provide additional information if requested. Should you need to discuss the above, please contact the undersigned on 02 6549 3700 or email council@muswellbrook.nsw.gov.au.

Yours faithfully

Theresa Folpp
Development Compliance Officer

APPENDIX B

BIODIVERSITY RELATED CONDITIONS – DEVELOPMENT CONSENT SSD 10418

<table>
<tr><th>MPO Development Consent SSD 10418 Part B</th><th>Section where addressed in this BioMP document</th></tr>
<tr><td>

BIODIVERSITY

Biodiversity Credits Required

B55. The Applicant must retire the biodiversity credits specified in Table 7, unless otherwise agreed by the Planning Secretary in consultation with BCD. The retirement of credits must be carried out in consultation with BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act.

Table 7: *Biodiversity credit requirements – Project excluding Northern Link Road*

Credit Type	***Credits Required Stage 1***	***Credits Required Stage 2***	***Total***
Ecosystem Credits			
483 – Grey Box x White Box Grassy Woodland	*2,225*	*0*	*2,225*
483 – Grey Box x White Box – Spotted Gum Grassy Woodland	*328*	*0*	*328*
618 – Forest Red Gum Grassy Open Forest	*5*	*0*	*5*
1691 – Narrow-leaved Ironbark – Grey Box Grassy Woodland	*22*	*405*	*427*
1602 – Spotted Gum – Narrow-leaved Ironbark Woodland	*152*	*20*	*172*
1605 – Narrow-leaved Ironbark Shrubby Forest	*1,587*	*2*	*1,587*
1605 – Plantation	*289*	*2*	*289*
1606 – White Box – Narrow-leaved Ironbark – Blakely's Red Gum	*3*	*2*	*3*
1606 – Derived Native Grassland	*4*	*0*	*4*
Total	***4,615***	***425***	***5,040***
Species Credits			
Cymbidium canaliculatum	*0*	*2*	*2*
Squirrel Glider (Petaurus norfolcensis)	*4,357*	*50*	*4,407*

Staged Retirement

B56. Prior to disturbance within the Development Footprint 1 (Stage 1) (as shown on Figure 9 in Appendix 2) the Applicant must retire the Stage 1 credits as specified in Table 7.

B57. Prior to disturbance within the Development Footprint 1 (Stage 2) (as shown on Figure 9 in Appendix 2) the Applicant must retire the Stage 2 credits as specified in Table 7.

B58. With the agreement of the Planning Secretary, the Applicant may adjust the staging of surface disturbance and the associated credit retirements in Table 7. Except in accordance with condition B59, the relevant credits must be retired, prior to the commencement of the associated surface disturbance.

B59. The Applicant may carry over surplus retired credits to satisfy the credit requirements of a later stage. This may occur, for example, where approved clearing for an earlier stage was not undertaken, but the impact has already been offset.

</td><td>

Section 7.11

Section 7.11.1

Section 7.11.1

Section 7.11.1

Section 7.11.1

</td></tr>
</table>

MPO Development Consent SSD 10418 Part B	Section where addressed in this BioMP document
B60. With the agreement of the Planning Secretary in consultation with BCD, biodiversity credits associated with any undisturbed areas agreed under condition B59 as not to be subject to any surface disturbance may be removed from the total credit obligations in Table 7 (subject to recalculation and possible reduction).	Section 7.11.1
Biodiversity Credits Required – Northern Link Road	
B61. Prior to the commencement of construction of the Northern link Road the Applicant must retire the biodiversity credits specified in Table 8, unless otherwise agreed by the Planning Secretary in consultation with BCD. The retirement of credits must be carried out in consultation with BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act.	Section 7.11.2

Table 8: *Biodiversity credit requirement – Northern Link Road*

Credit Type	Credits Required	
	Option 1	Option 2
Ecosystem Credits		
PCT 483 – Grey Box x White Box Grassy Woodland	*17*	*104*
PCT 483 – Grey Box x White Box – Spotted Gum Grassy Woodland	*237*	*72*
PCT 483 – Spotted Gum Derived Native Grassland	*0*	*2*
PCT 618 – Forest Red Gum Grassy Open Forest	*5*	*5*
PCT 1605 – Plantation	*6*	*5*
PCT 1606 – White Box – Narrow-leaved Ironbark – Blakely's Red Gum	*16*	*16*
PCT 1606 – Derived Native Grassland	*32*	*30*
Total	***313***	***234***
Species Credits		
Squirrel Glider (Petaurus norfolcensis)	*268*	*194*

**Credits relevant to EPBC 2020/8735*

Biodiversity Credits Required – Delma vescolineata	
B62. If the Legless Lizard, Delma vescolineata, is listed as a threatened species under the BC Act and/or EPBC Act during the life of this consent, or otherwise agreed by the Planning Secretary, the Applicant must retire the applicable biodiversity credits (consistent with the applicable Biodiversity Risk Weighting as per the relevant row in Table 9) within 2 years of the species being listed as a threatened species under the BC Act and/or EPBC Act. *The retirement of credits must be carried out in consultation with the Planning Secretary and BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act, including the application of Ancillary Rules: Biodiversity conservation actions that may be relevant to Delma vescolineata published under clause 6.5 of the Biodiversity Conservation Regulation 2017.*	Section 7.9.4

Table 9*: Biodiversity credit requirements – Delma vescolineata*

Biodiversity Risk Weighting	Credits Required Stage 1	Credits Required Stage 2	Northern Link Road Option 1	Northern Link Road Option 2
1.5	*4,060*	*352*	*293*	*225*
2	*5,413*	*469*	*391*	*300*
3	*8,120*	*704*	*586*	*450*