Mount Pleasant Optimisation Project

State Significant Development Assessment SSD 10418

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Title: Mount Pleasant Optimisation Project (SSD 10418)

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Cover image: Existing Mount Pleasant Operation Infrastructure

Glossary

Abbreviation	Definition
AHD	Australian Height Datum
AIP	Aquifer Interference Policy
BAM	*Biodiversity Assessment Method*
BCA	Building Code of Australia
BC Act	*Biodiversity Conservation Act 2016*
BCD	Biodiversity & Conservation Division within the Department
CHPP	Coal Handling and Preparation Plant
CIV	Capital Investment Value
Council	Muswellbrook Shire Council
Crown Lands	Crown Lands Group within the Department
DAWE	Commonwealth Department of Agriculture, Water and the Environment
Department	Department of Planning and Environment
DPI	Department of Primary Industries
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental Planning Instrument
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
Heritage NSW	Heritage NSW within the Department
LEP	Local Environmental Plan
LGA	Local Government Area

Abbreviation	Definition
MEG	Mining, Exploration and Geoscience within Regional NSW
Minister	Minister for Planning
NPV	Net Present Value
NRAR	Natural Resources Access Regulator
RAPs	Registered Aboriginal Parties
SEARs	Secretary's Environmental Assessment Requirements
Secretary	Planning Secretary of the Department of Planning and Environment
SEPP	State Environmental Planning Policy
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
SSD	State Significant Development
TfNSW	Transport for NSW
VLAMP	*Voluntary Land Acquisition and Mitigation Policy*
VPA	Voluntary Planning Agreement

Executive Summary

Background

MACH Mount Pleasant Operations Pty Limited (MACH) owns and operates the Mount Pleasant Coal Mine (Mount Pleasant), an open cut coal mine located north-west of Muswellbrook in the Upper Hunter Valley.

Mount Pleasant was originally approved by the then Minister for Urban Affairs and Planning in December 1999, although mining operations only commenced in 2018.

The mine is approved to extract up to 10.5 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal, until 22 December 2026. Approved mining operations comprise four open cut pits, three out-of-pit waste rock emplacements, fines emplacement areas, and three final voids.

The mine includes a range of ancillary infrastructure, including a Coal Handling and Preparation Plant (CHPP), rail loop and spur, conveyor and load-out facilities to enable the transport of coal to the Port of Newcastle and domestic customers.

The Project

MACH is proposing to 'optimise' the existing Mount Pleasant mine to extract an additional 247 Mt of ROM coal, by deepening (by approximately 85 metres) and extending part of the open cut areas. Open cut mining operations would be rationalised into three pits, two out-of-pit emplacements, and a single final void. The project also involves increasing the mine's production rate to 21 Mtpa of ROM coal, and extending the mine life by 22 years, to December 2048.

The project involves some additional disturbance areas (referred to as the Additional Disturbance Area), but also involves relinquishment of an approved mining/disturbance area that would no longer be disturbed (referred to as the Relinquishment Area). Both the Additional Disturbance Area and Relinquishment Area cover approximately 500 hectares, resulting in no net change to the overall disturbance area. It also involves a change to the alignment of the approved Northern Link Road (two options proposed), and the removal of the Western Link Road.

Strategic Context

Local Context

Mount Pleasant is located in a longstanding coal mining precinct in the Upper Hunter Valley with the Bengalla mine located immediately to the south. Mount Pleasant is also located in proximity to urban areas, with Muswellbrook located approximately 3 kilometres to the south-east, and Aberdeen located 5 kilometres to the north. The mine is located in the Muswellbrook LGA.

Mining has commenced in the southern area of Mount Pleasant closest to Muswellbrook, and is gradually moving to the north and west, away from the town. The early years of mining are focusing on the development of the eastern out-of-pit emplacement, which will provide a visual and acoustic barrier between mining operations and the urban centres.

Agricultural land use in the area surrounding the mine is predominantly grazing, with higher value cropping undertaken on the alluvial flats adjacent to the Hunter River, located to the east and south-east of Mount Pleasant.

Energy Policy Context

The development of policies, guidelines and plans aimed at reducing carbon emissions has progressed rapidly in recent times. Within this space, the key plans include the *United Nations Framework Convention on Climate Change Paris Agreement 2015*, *Australia's Long-Term Emissions Reduction Plan*, the *Net Zero Plan Stage 1: 2020-2030 Implementation Update* and the NSW Government's *Strategic Statement on Coal Exploration and Mining in NSW*. These plans all describe the global phasing out of coal for electricity generation and outline an approach to transition to a low carbon future.

However, within these plans, there is also a strong focus on ensuring that regional communities which currently rely on the export coal industry are able to capitalise on the opportunities of the new energy economy in order to experience new sources of growth. The *Strategic Statement on Coal Exploration and Mining in NSW* also identifies that coal mining for export from NSW is expected to continue to have an important role to play in the short to medium term, as coal currently remains an important energy source all over the world, and NSW produces some of the world's highest quality coal.

Statutory Context

The Project is classified as State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). In accordance with the SRD SEPP and the *Environmental Planning and Assessment Act 1979* (EP&A Act), the Independent Planning Commission (the Commission) is the consent authority for the application, as more than 50 unique submissions in the form of objections were made in respect of the project.

The project has also been declared a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and is being assessed by the NSW Government in accordance with the Bilateral Agreement between the NSW and Commonwealth Governments.

On 9 September 2021, the Minister for Planning directed the Commission to hold a public hearing prior to its determination of the project. In making this direction, the Minister requested that the Commission pay particular attention to the Department's Assessment Report and recommended conditions of consent, key issues raised in public submissions during the public hearing and any other relevant information.

Engagement

The Department publicly exhibited the EIS for the project from 3 February 2021 until 17 March 2021. In response to the exhibition, the Department received 250 public submissions on the project, comprising 56% opposing, 42% supporting, and 2% in the form of comments. The Department also received advice on the project from 18 government agencies, including Muswellbrook Shire Council who commented on the project and the neighbouring Upper Hunter Shire Council who objected to the project in line with its *Position Statement Coal and Coal Seam Gas Activities*.

Submissions in support generally pointed to the employment and economic benefits of the project and the existing mine, as well as related social benefits for the region. Submissions objecting to the project raised a number of concerns, with the main issues including air quality, noise and related health impacts, as well as greenhouse gases (GHG) and climate change impacts, water resource impacts, visual and land use impacts, socio-economic impacts and biodiversity impacts.

Assessment

The Department considers that the key assessment issues relate to noise and air quality, greenhouse gas emissions, water resources and biodiversity.

Amenity Issues – Noise and Air Quality

Mount Pleasant is located on the outskirts of Muswellbrook in proximity to a large number of sensitive receivers. As such, noise, air quality and related health impacts are a key concern for the community.

There are a considerable number of receivers within the affectation area for the existing approved mine (both as a result of the impacts from the original project and subsequent modifications), including:

- 32 privately-owned residences or land predicted to be significantly affected (28 by noise, 2 by air quality, and 2 by both noise and air quality), all of which have voluntary acquisition rights under the existing consent; and
- 20 privately-owned residences predicted to be moderately affected (all by noise), all of which have voluntary mitigation rights under the existing consent.

MACH has proposed a number of mitigation measures to provide an overall reduction in noise and air quality impacts associated with the project, including staging the increase in production as mining moves away from Muswellbrook, designing the eastern emplacement to shield noise, construction of a noise barrier along the rail spur, and operational mitigation measures (e.g. relocation or shut down during adverse conditions).

With these measures, the overall noise and air quality impacts associated with the project are predicted to reduce, in general, compared to the approved project, noting however that there is an increase in the number of receivers now eligible for acquisition for air quality impacts (most of which already had acquisition rights for noise) given the reconfiguration of the project. Receivers predicted to be impacted by the project (including the existing mine) include:

- 16 privately-owned residences (on 12 properties) predicted to be significantly affected (2 by noise, 1 by air quality, and 13 by both noise and air quality);
- 14 privately-owned residences (on 12 properties) predicted to be moderately affected (all by noise).

All but 3 of these receivers already have voluntary mitigation or acquisition rights under the existing approval, one located to the north-east (a receiver which has been constructed since approval of the most recent approved mine modification) and two (on a single property) to the south-east of the project.

On balance, the Department and the EPA consider that the noise and air quality impacts of the project are acceptable, and that MACH has proposed all reasonable and feasible measures to reduce these impacts as far as practicable, including comprehensive proactive and reactive dust and noise monitoring and management systems. The Department considers that residual impacts can be appropriately minimised, mitigated, or at least compensated for.

Greenhouse Gases

The Department recognises that GHG emissions and climate change is a matter of interest to many members of the broader community, and was raised in many public submissions.

The assessment indicates that the majority (98%) of GHG emissions generated by the project comprise Scope 3 emissions that would arise from the downstream consumption of coal by end users. Under the Paris Agreement accounting rules and Australian legislation, Scope 3 emissions are not included in Project emission reporting, to avoid double counting.

Scope 1 and Scope 2 emissions associated with the project would have a relatively low emissions intensity compared to other coal mining projects, which reflects the relatively low strip ratios at the mine (i.e. less overburden required to be moved resulting in less truck movements and lower emissions) and the existing brownfields nature of the project, with significant existing mine infrastructure and established mining areas.

The project's emissions have been accounted for in the NSW GHG emissions projections in the NSW Government's Net Zero Plan.

The Department accepts that the project is consistent with the objectives of Australia's *Long-Term Emissions Reduction Plan* and the NSW Government's *Strategic Statement on Coal Exploration and Mining in NSW (2020)*, which recognise that in the short to medium term there will still be a strong global demand for thermal coal.

Water Resources

Water-related impacts of the project would be similar to the existing project. Groundwater inflows to the open cut pit would be in the range of the estimates for the approved mine, with relatively minor indirect take from the Hunter River alluvium (27 ML/year).

MACH already holds the required water licences for the predicted take from all water sources, apart from a minor amount from the Dart Brook alluvial water source (up to 13 ML/year), which would be able to be readily obtained.

One privately-owned groundwater bore may be impacted, although the bore accesses poor quality water and impacts on the bore would be similar to impacts from existing and historic mining operations.

Biodiversity

Although the project would result in additional biodiversity impacts associated with the Additional Disturbance Area, it would also result in the avoidance of clearing within the proposed Relinquishment Area, which in general contains better quality vegetation and habitat than the Additional Disturbance Area, which comprises largely fragmented and degraded vegetation.

The project would disturb up to approximately:

- 475 hectares of native vegetation in the Additional Disturbance Area, but avoid clearing of 485 hectares in the Relinquishment Area;
- 230 hectares of Box Gum Woodland CEEC[1] in the Additional Disturbance Area, but avoid clearing of 444 hectares of the CEEC in the Relinquishment Area; and
- 90 hectares of Central Hunter Grey Box Ironbark EEC[2]/CEEC in the Additional Disturbance Area, but avoid clearing of 25 hectares of the EEC/CEEC in the Relinquishment Area.

Further, the impacts associated with the Additional Disturbance Area have already been offset under Mount Pleasant's existing Commonwealth approval (EPBC 2011/5795), with the exception of the disturbance associated with the Northern Link Road realignment, which would disturb up to approximately 30 hectares.

[1] Critically endangered ecological community
[2] Endangered ecological community

MACH's existing offsets include some 12,875 hectares of land-based offsets in the region, as well as $2 million in funding towards recovery actions for the Regent Honeyeater and Swift Parrot, and $1 million in funding for high priority weed activities for the Box Gum Woodland CEEC.

MACH would provide an additional offset for the Northern Link Road disturbance (via retiring the applicable ecosystem and species credits). In addition, MACH would be required to demonstrate that the existing offset areas contain the requisite ecosystem and species credits required for the project and, if this cannot be demonstrated, additional offsets would be required.

Social and Economic

The social impacts of the project would be similar to those associated with the existing mine, including both positive and negative impacts, although the impacts would be extended for an additional 22 years. Negative social impacts would be focused on those people who reside close to the mine (through amenity impacts such as noise and dust), while positive impacts are experienced by the wider community (particularly by way of increased employment and economic opportunities).

Detailed cost benefit analysis, including estimated costs from all environmental externalities, indicates that the project would have a net benefit of $855 million (NPV) to the NSW economy. Sensitivity analysis using a range of variables (including changes to coal price, exchange rate, discount rate, taxes and carbon price and apportionment) indicates that the project would retain a net benefit to NSW under all modelled scenarios.

The project would also have major economic benefits for the local area and region, including:

- continued direct employment for an average of 600 people at the mine over the project life;
- approximately 450 direct/indirect FTE jobs in the Muswellbrook and Upper Hunter LGA's, 650 jobs/year in the wider Hunter Valley, and 440 jobs in NSW;
- direct capital investment of approximately $950 million in the project; and
- $1.4 billion (NPV) net contribution to gross state product.

MACH has also offered to enter into planning agreements with Muswellbrook Shire Council and Upper Hunter Shire Council to provide contributions towards community enhancement projects, with contributions of (indexed):

- $20 million to Muswellbrook Shire Council; and
- $6 million to Upper Hunter Shire Council.

Both Councils have agreed in principle to the proposed planning agreements.

Other Issues

The Department has considered other impacts of the project, including traffic and transport, blasting and vibration, land use and agriculture, visual impacts, Aboriginal and historical heritage impacts, and hazards.

The Department considers that these and other impacts have been minimised to the greatest extent practicable and that residual impacts can be appropriately managed and regulated through the recommended conditions.

Evaluation

The Department has undertaken a comprehensive assessment of the project in accordance with the relevant requirements of the EP&A Act, with a particular focus on issues raised in public submissions and government agency advice.

Overall, the Department considers that the site is well-suited for the project, as it is located in an existing mining lease and mining precinct, involves largely infill disturbance within and adjacent to existing disturbed areas, makes use of significant existing infrastructures, and represents a logical 'brownfields' extension of existing open cut mining at Mount Pleasant.

The Department acknowledges that the mine extension would lead to longer term impacts on receivers around the mine, notwithstanding that the number of significantly or moderately impacted receivers would reduce from 52 to 30 as a result of the mine design changes.

The Department also acknowledges community concerns about greenhouse gas emissions and costs associated with climate change, and has carefully considered the additional emissions over the life of the mine, including post mining, in the context of international, Commonwealth and State policy settings.

The Department has carefully weighed the impacts of the project against the significance of the identified coal resources and the socio-economic benefits associated with continued operation of Mount Pleasant until 2048.

The Department has recommended a comprehensive and precautionary suite of conditions to ensure that the project would comply with acceptable criteria and standards, that the impacts would be consistent with MACH's predictions, and that residual impacts would be effectively minimised, managed and/or at least compensated.

These include conditions requiring MACH to:

- acquire the properties predicted to be significantly affected by noise and or air quality, upon request from the landowner;
- provide additional mitigation measures on residences predicted to be significantly or moderately affected, upon request of the landowner;
- obtain all necessary water licences required for the project;
- offset the project's residual biodiversity impacts;
- minimise visual and lighting impacts, and prepare comprehensive rehabilitation strategies and plans;
- limit GHG emissions, and implement measures to continually reduce emissions;
- enter into planning agreements with Muswellbrook Shire Council and Upper Hunter Shire Councils; and
- prepare a comprehensive suite of management plans, and undertake annual reviews and periodic independent audits.

The recommended conditions have been provided to key NSW Government agencies and their comments taken into account. The Department considers that the conditions reflect current best practice for the regulation of open cut coal mining projects in NSW.

Subject to the recommended conditions, the Department considers that, on balance, the benefits of the project outweigh its costs, and that the project is approvable.

Contents

1 Introduction

1.1 Background

1. MACH Mount Pleasant Operations Pty Limited[3] (MACH) owns the Mount Pleasant Coal Mine (Mount Pleasant), an approved open cut coal mine located approximately 3 kilometres (km) north-west of Muswellbrook in the Upper Hunter Valley (see Figure 1).

2. MACH is proposing to extend the life of Mount Pleasant by optimising the existing open cut pits to mine deeper coal seams, requiring new ancillary infrastructure to be constructed and existing ancillary infrastructure to be relocated, augmented and upgraded.

Figure 1 | Project Location

[3] A joint venture between MACH Energy Australia Pty Limited and J.C.D. Australia Pty Limited.

1.2 Existing Operations

3. On 22 December 1999, the then Minister for Urban Affairs and Planning approved Mount Pleasant (DA 92/97) under the *Environmental Planning and Assessment Act 1979* (EP&A Act). MACH purchased the mine from Coal and Allied in 2016, and mining operations commenced in 2018.

4. Under the existing approval (as modified), MACH is authorised to:

   - extract up to 10.5 million tonnes per annum (Mtpa) of run-of-mine (ROM) per year until 22 December 2026;
   - develop and operate a range of ancillary infrastructure, including a Coal Handling and Preparation Plant (CHPP), rail loop and spur, conveyor and load-out facility connecting the mine to the Muswellbrook-Ulan Rail Line; and
   - transport product coal by rail to the Port of Newcastle 24 hours per day, 7 days per week, at a rate of up to 9 trains per day.

5. The approved mining operations comprise four open cut pits (North, South, Warkworth South and Piercefield Pits[4]), with operations currently being undertaken in South Pit (see **Figure 2**). The approval also allows three out-of-pit waste rock emplacements (Eastern, South West and North West Emplacements), as well as fines emplacement areas and a range of water management infrastructure.

6. The approval also provides for a number of road realignments and upgrades, including construction of a Northern Link Road and Western Link Road to replace local roads affected by the mining operations.

1.3 Interactions with Bengalla Mine

7. Mount Pleasant is located in close proximity to a number of established coal mining operations, including the Dartbrook underground mine (Dartbrook) immediately to the north, the Bengalla open cut mine (Bengalla) immediately to the south, the Mount Arthur and Mangoola open cut mines to the south and south-west, and the Muswellbrook open cut and underground mine to the east (see **Figure 1**).

8. Bengalla, located immediately to the south of Mount Pleasant, has approval to produce up to 15 Mtpa of ROM coal until 2039 under its consent (SSD 5170).

9. Some of Mount Pleasant's infrastructure, including the 'Stage 1 rail infrastructure' and some water management infrastructure, is located within the ultimate extent of the Bengalla open cut pit (see **Figure 2**).

10. To manage this interaction, the Mount Pleasant approval allows for relocation of the rail infrastructure to the north of Wybong Road (i.e. the 'Stage 2 rail infrastructure). MACH and the Bengalla Mining Company have entered into a co-operation agreement to provide for this relocation, as well as the ongoing management of relevant water infrastructure, some of which would remain on the Bengalla site (including the Controlled Release Dam to the west of the Stage 1 rail infrastructure).

[4] Piercefield Pit was a planned early development pit, ultimately subsumed by South Pit.

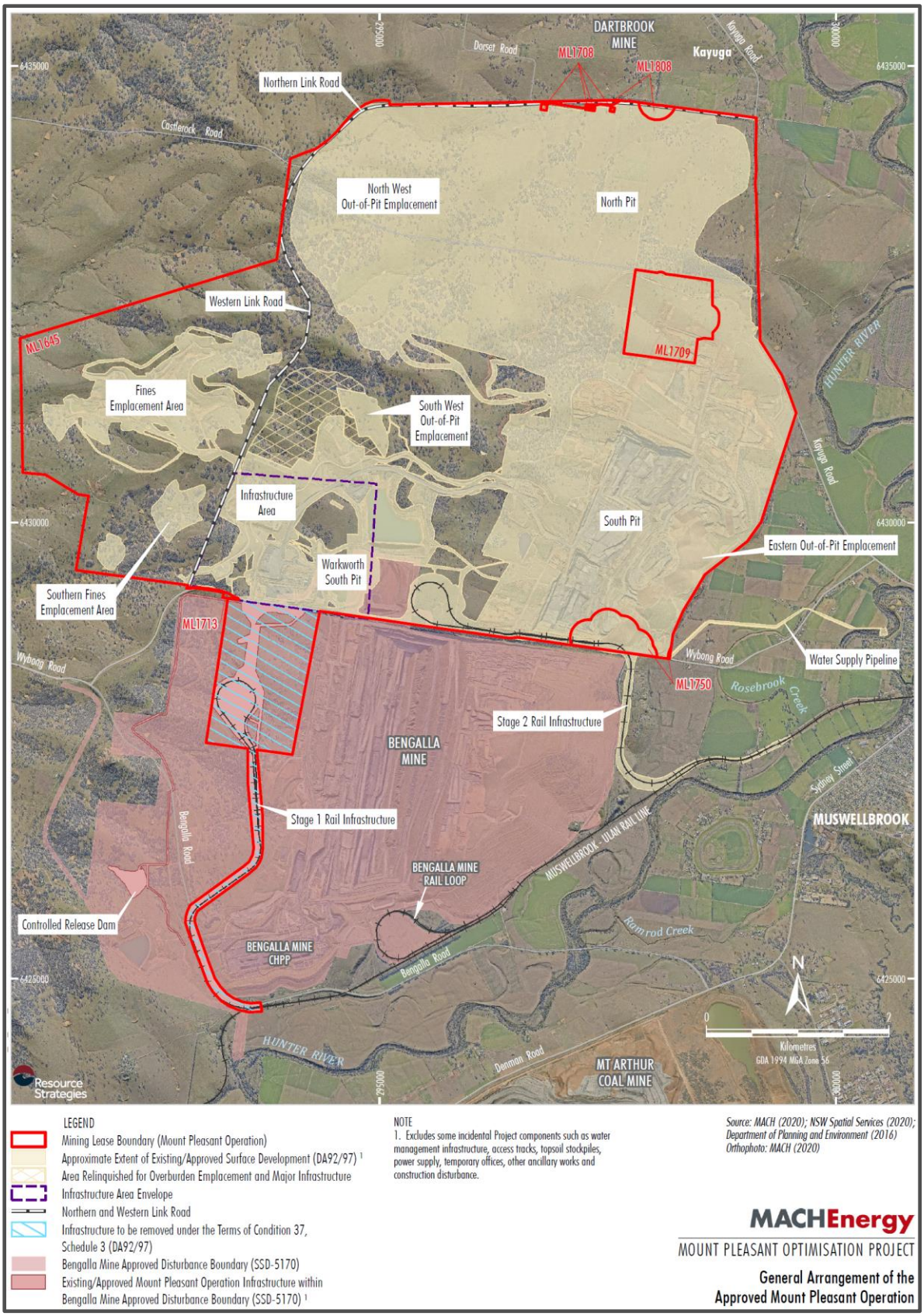

Figure 2 | Existing Layout

2 Project

2.1 Description of the Project

11. On 20 January 2021, MACH lodged a State significant development application (SSD 10418) for the Mount Pleasant Optimisation Project (the project) under divisions 4.1 and 4.7 of the EP&A Act.

12. The project involves the optimisation of the existing mine to extract an additional 247 Mt of ROM coal, by deepening part of the open cut mining area. It also involves increasing the mine's peak production rate to 21 Mtpa of ROM coal, and increasing the mine life by 22 years, to December 2048.

13. On 17 May 2022, MACH lodged a minor amendment application to reflect a part transfer of ML 1728 from Bengalla Mining Company Pty Limited to facilitate the construction and operation of water management infrastructure (see **Appendix F**).

14. The project is summarised in **Table 1** below and described in detail in the Environmental Impact Statement (EIS) (see **Appendix A**). Key elements of the project are shown on **Figures 3** to **5**.

Table 1 | Key Components of the Project

Aspect	Approved Project	Proposed Project
Life of mine	Until 22 December 2026	Until 22 December 2048 (additional 22 years)
Coal resource	Approx. 197 Mt ROM coal	Approx. 444 Mt ROM coal (increase of 247 Mt)
Mining areas	Open cut mining operations in four named pits – South, North, Warkworth South and Piercefield Pits[5]. Mining of the Wittingham Coal Measures down to the to the Edderton Seam in South Pit, and Vaux Seam in North Pit.	Open cut mining operations in three named Pits – South, Central and North Pits. Mining of the Wittingham Coal Measures down to the Edderton Seam (deepening North Pit by approx. 85m)
Disturbance area (approx.)	2,800 hectares	2,800 hectares. The project involves some additional disturbance areas (referred to herein as the 'Additional Disturbance Area'), as well as an approved mining/disturbance area that would no longer be disturbed (referred to as the 'Relinquishment Area'), which each total up to approx. 500 hectares, resulting in no net change to the overall disturbance area
Mining methods	Truck and excavator and dragline (dragline not envisaged before 2026)	No change (use of dragline subject to feasibility studies)
Extraction rates	Up to 10.5 Mtpa ROM coal	Up to 21 Mtpa ROM coal

[5] The Piercefield Pit is an early mining pit subsumed by South Pit.

Aspect	Approved Project	Proposed Project
Waste emplacements and rejects	• Waste rock emplacement in-pit and in 3 out-of-pit emplacements – Eastern, South-West and North-West Emplacements (elevations up to approx. 320 mAHD) • Coarse coal rejects co-disposed in waste rock emplacements, and fine rejects disposed in the Fines Emplacement Area	• Waste rock emplacement in-pit and in 2 out-of-pit emplacements – Eastern and South-West Emplacements (elevations up to approx. 360 mAHD) • Coarse and fine coal rejects managed as approved, with dewatered fines also co-disposed with coarse rejects (with dewatering infrastructure installed in the CHPP)
Coal processing	On-site Coal Handling and Preparation Plant (CHPP)	No change. Staged upgrades to CHPP to accommodate increased production rate
Water Management	• Mine water management system involving dams and pipelines • Water supply from pit inflows, catchment runoff, Fines Emplacement Area decant, Hunter River and the Bengalla and Dartbrook Mines • Surplus water discharged in accordance with Environment Protection Licence (EPL) and Hunter River Salinity Trading Scheme (HRSTS)	No significant change to broad system
Coal transport	• By rail via the rail spur and loop (Stage 1 and Stage 2 rail infrastructure), to the Muswellbrook-Ulan Rail Line and Main Northern Railway, and to the Port of Newcastle • Average of 3 laden trains a day • Maximum of 9 laden trains a day	• No change to coal transport method • Average of 6.5 laden trains a day • Maximum of 10 laden trains a day
Other Infrastructure	• Mine infrastructure area including: – CHPP; – stockpiles and conveyors; – administration and amenities buildings; – workshops and laydown areas; and – ancillary infrastructure	• Amendments and expansions to the mine infrastructure area including: – staged CHPP upgrades; – progressive expansion of administrative facilities and workshops; and – progressive development and/or relocation of some ancillary infrastructure
Operating hours	24 hours a day, 7 days a week.	No change
Workforce (approx.)	• Average of 330 full time equivalents (FTE) employees • Peak of 380 FTE employees • Peak construction workforce up to 350 people	• Average of 600 FTE employees • Peak of 830 FTE employees • Peak construction workforce up to 500 people
Capital investment	N/A	$950 million
Site Access and Road Upgrades	• Main site access via Wybong Road	• No change to main site access

Aspect	Approved Project	Proposed Project
	• Closure of affected local roads including parts of Castlerock Road Wybong Road • Construction of Northern Link Road and Western Link Road • Construction of Overton Road rail overpass and partial realignment for the Stage 2 rail infrastructure	• Closure of part of Castlerock Road. Closure of Wybong Road no longer proposed • Revised alignment of Northern Link Road, with two options evaluated (Option 1 preferred) • Construction of Western Link Road no longer proposed • Resurface Wybong Road from main site access road to Overton Road intersection in conjunction with Stage 2 rail infrastructure
Rehabilitation and final landform	• Final landform incorporates macro- and micro-relief to appear 'natural' when viewed from Muswellbrook • Two final voids associated with the North Pit and South Pit, and a third smaller void • Final land use mixture of pasture and forest for agriculture and biodiversity conservation	• Final landform incorporates further topographic relief • One final void • No change to final land use
Biodiversity offsets	• No offsets required under original NSW consent (project was approved prior to introduction of offset scheme) • However, offsets were provided under the Commonwealth EPBC Act approval (EPBC 2011/5795), including: - 12,875 ha land-based offsets; and - $1.8 million towards recovery actions for the Regent Honeyeater and Swift Parrot	• The Additional Disturbance Area has already been offset under Mount Pleasant's existing Commonwealth approval, with the exception of the disturbance associated with the Northern Link Road realignment (up to approx. 30 hectares) • MACH proposes to provide an offset for this area in accordance with the NSW Biodiversity Offsets Scheme

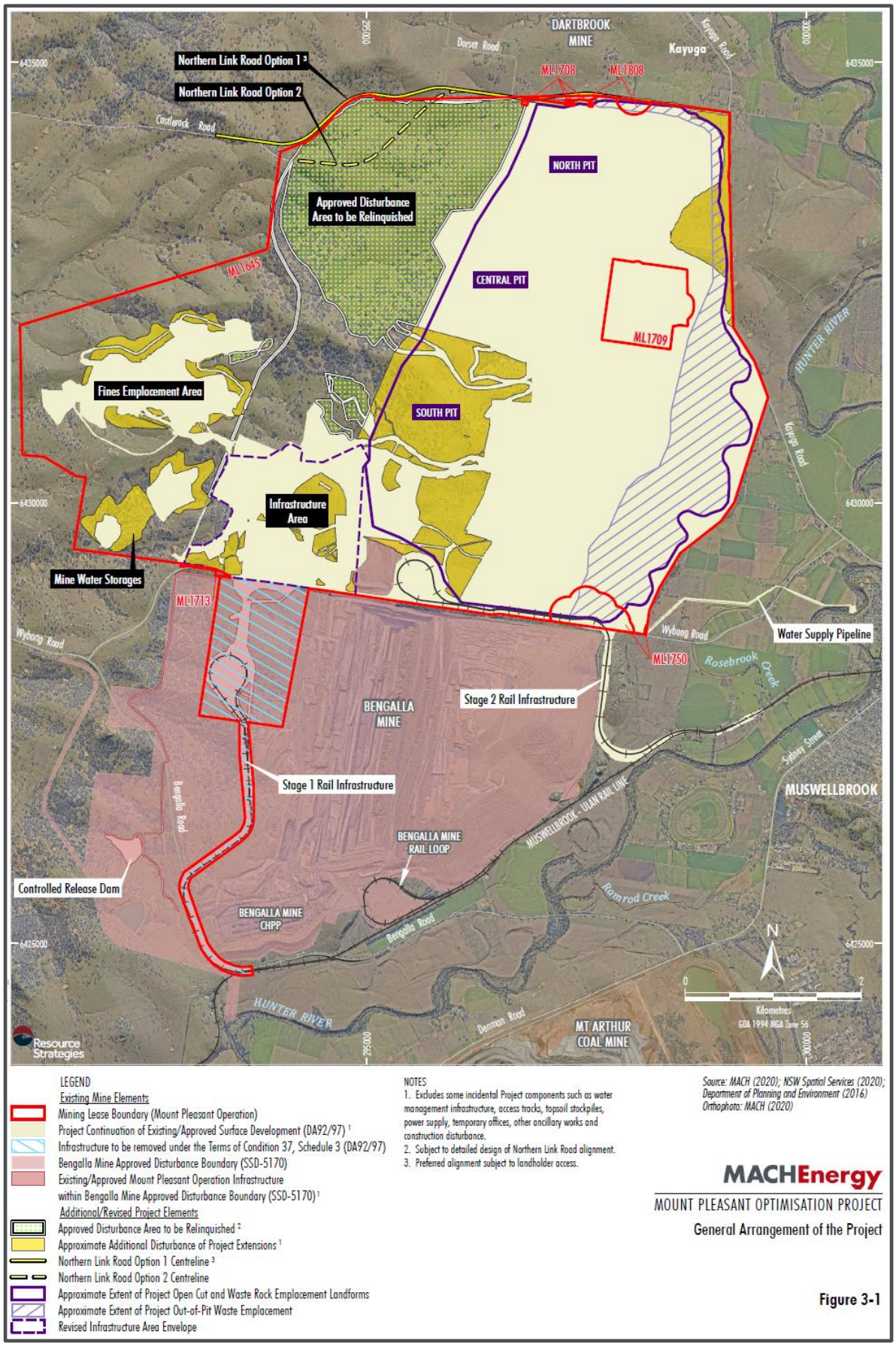

Figure 3 | Project Layout

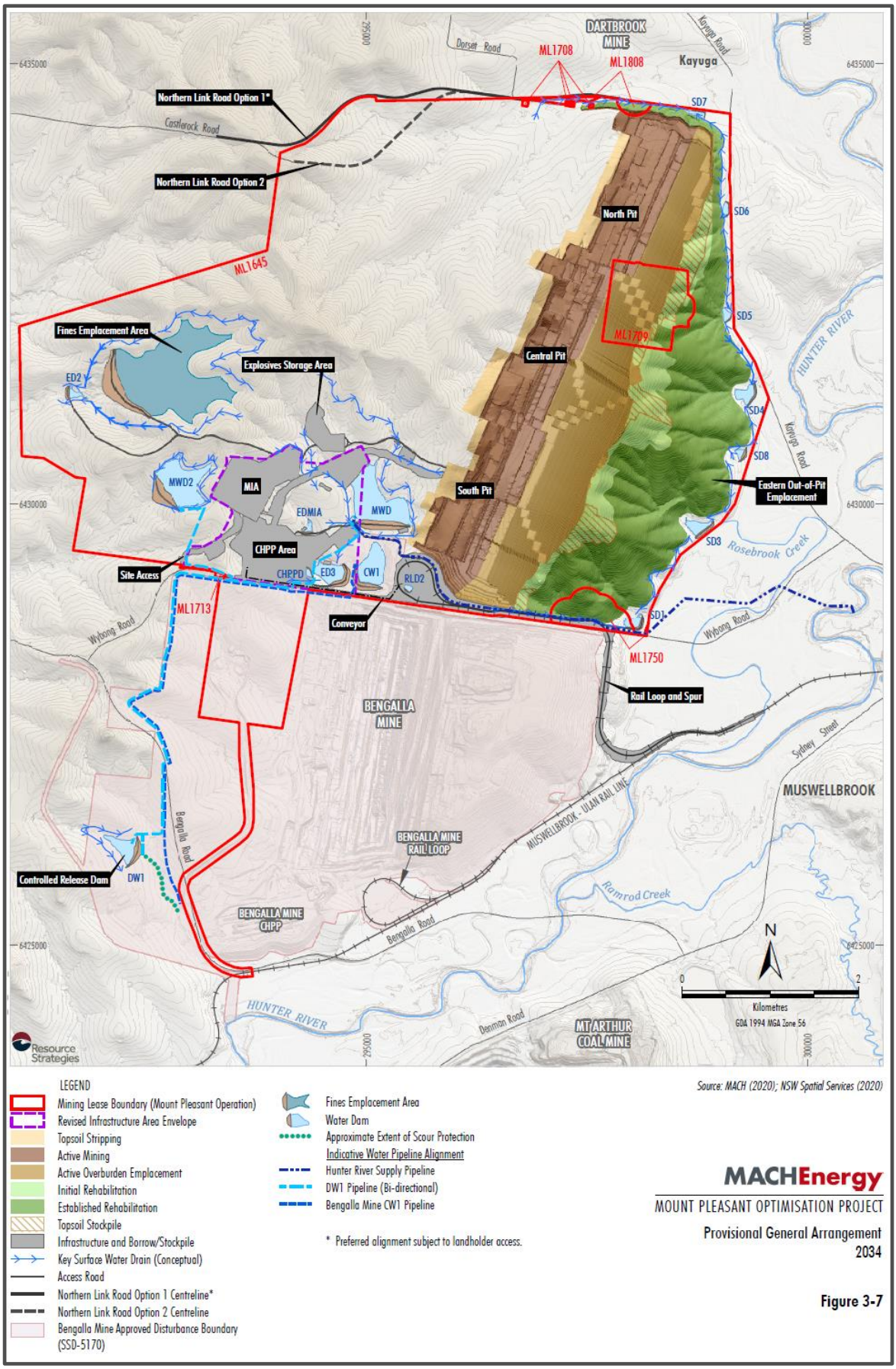

Figure 4 | Representative Mining Layout – Year 2034

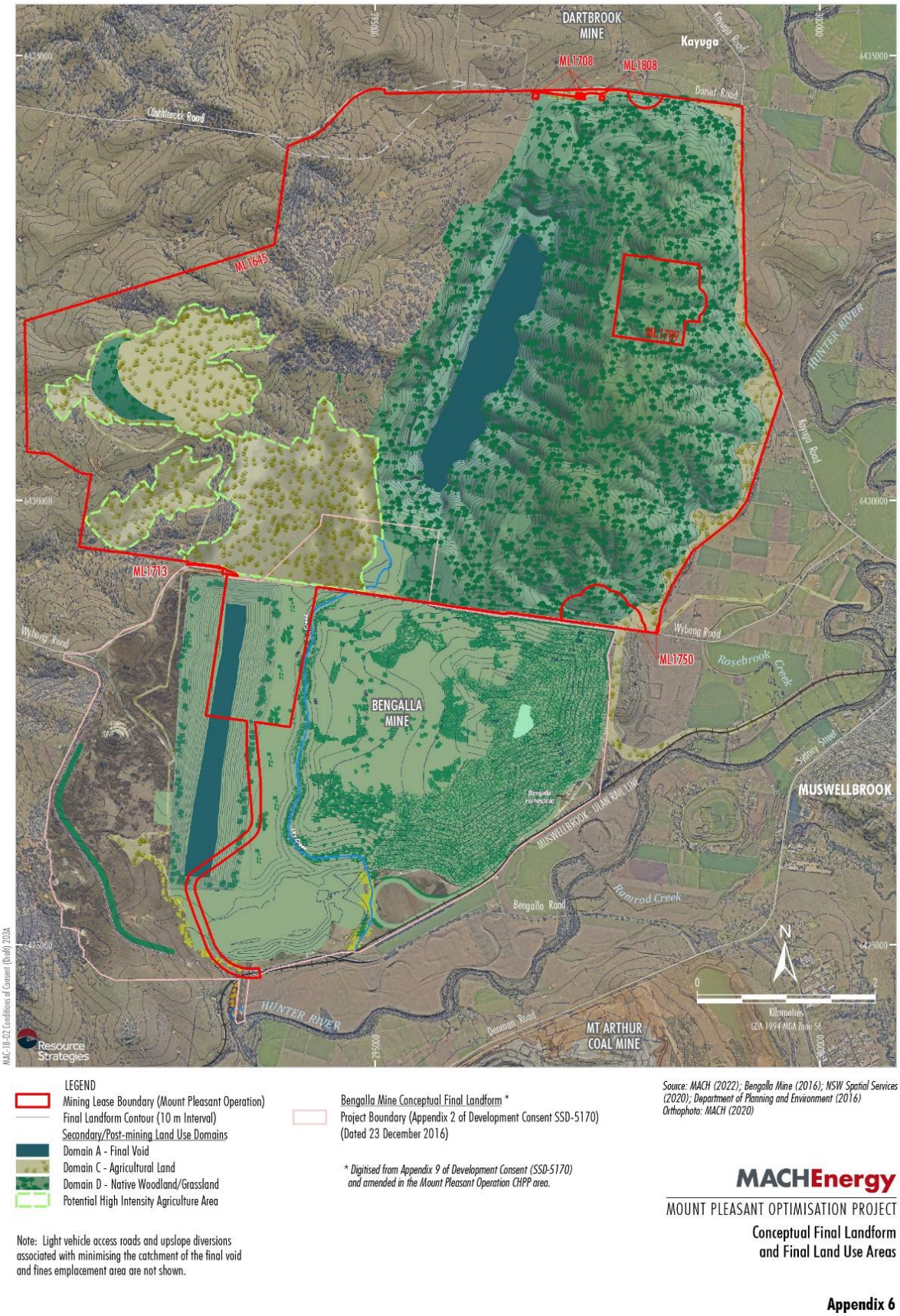

Figure 5 | Final Landform

3 Strategic context

3.1 Environment and Surrounding Land Use

15. Mount Pleasant is an established coal mine located in a longstanding coal mining precinct in the Upper Hunter Valley. A number of other existing coal mines are also located in the precinct, including the Bengalla, Dartbrook, Mt Arthur, Mangoola and Muswellbrook mines.

16. Although Mount Pleasant has been approved since 1999, the mine only commenced operations in 2018, after MACH acquired the mine from Coal & Allied. Coal & Allied had made a strategic corporate decision, influenced by various factors such as port capacity, to focus on development of its other coal mining assets in the Hunter Valley.

17. Delays in developing the mine were also related to protracted negotiations with Bengalla regarding the interaction of the Stage 1 rail and water infrastructure with Bengalla's mining operations. This has since been resolved with the proposed development of the Stage 2 rail infrastructure on the Mount Pleasant site (currently underway), and the associated removal of the Stage 1 infrastructure from the Bengalla site.

18. While located in an intensive mining precinct, Mount Pleasant is also located in proximity to urban areas, with Muswellbrook located 3 kilometres to the south-east, and the village of Aberdeen located 5 kilometres to the north.

19. Mining has commenced in the southern area of Mount Pleasant closest to Muswellbrook, and will gradually move to the north and west, away from the town.

20. To minimise impacts on the urban areas, the early years of mining are focusing on the development of the eastern face of the East out-of-pit emplacement, which when developed and rehabilitated, will provide a visual and acoustic barrier between mining operations and the urban centres.

21. The area immediately surrounding Mount Pleasant comprises a mix of mining, rural and rural-residential land uses. Mining companies own much of the land in proximity to the project area, with Dartbrook to the north, and Bengalla and Mt Arthur to the south. MACH also owns a number of rural properties immediately surrounding the mine (see **Figure 6**).

22. Privately-owned rural properties are located around the mine, generally to the west and east. Most of these are located on broad acre landholdings, although some rural-residential pockets are located to the north-east in Kayuga, and to the east and south-east around the Collins Lane, Wybong Road and Racecourse Road areas (see **Figure 6**).

23. Agricultural land use predominately comprises grazing, although higher value cropping land use is undertaken on the alluvial flats adjacent to the Hunter River, to the east and south-east of Mount Pleasant.

24. Mapped Biophysical Strategic Agricultural Land (BSAL) and Equine and Viticulture Critical Industry Cluster (CIC) land in the locality is generally concentrated around the Hunter River and other alluvial lands (see **Figure 7**). Some areas of mapped Equine CIC land are located within the project area, although none of this is operational for equine purposes.

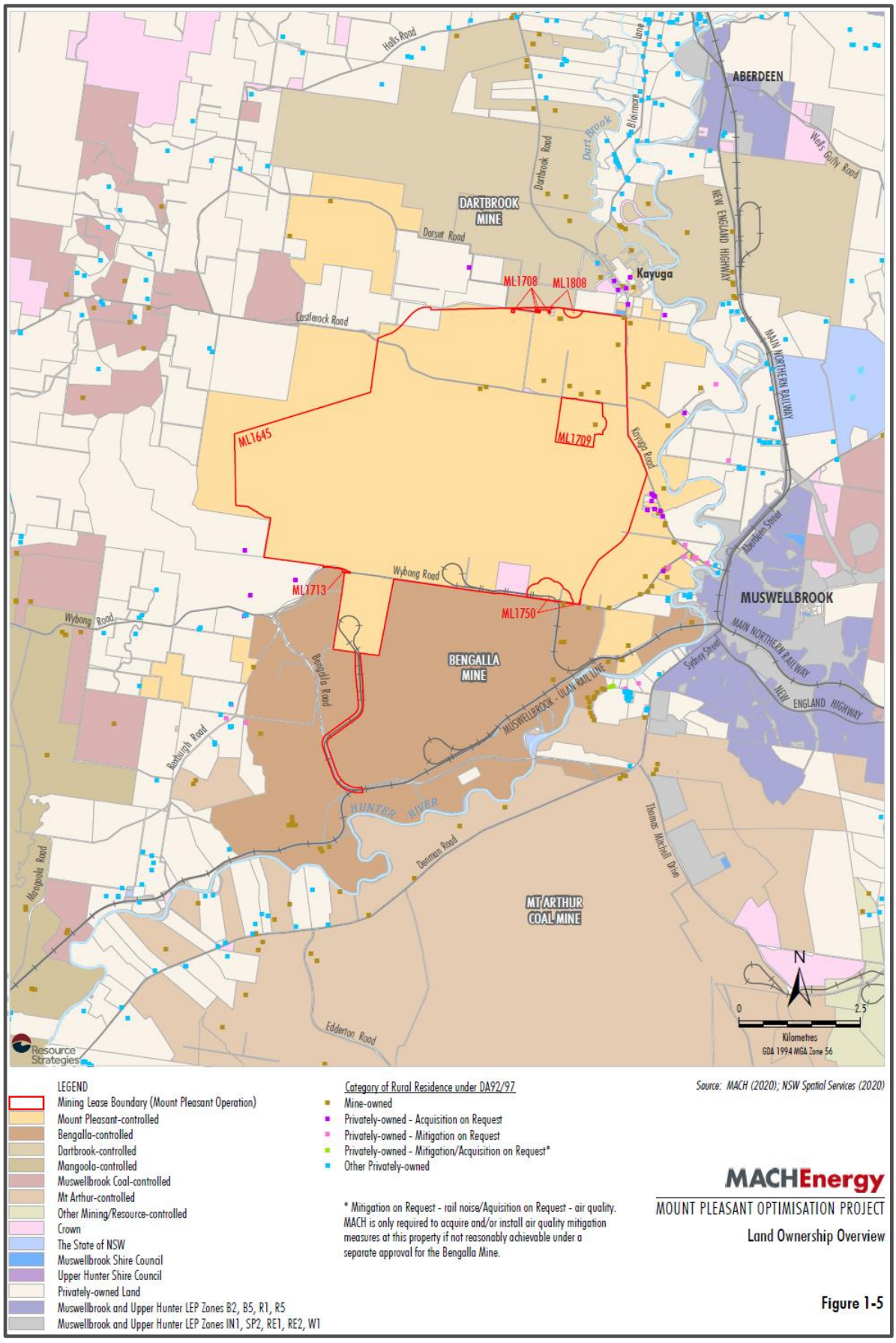

Figure 6 | Land Ownership

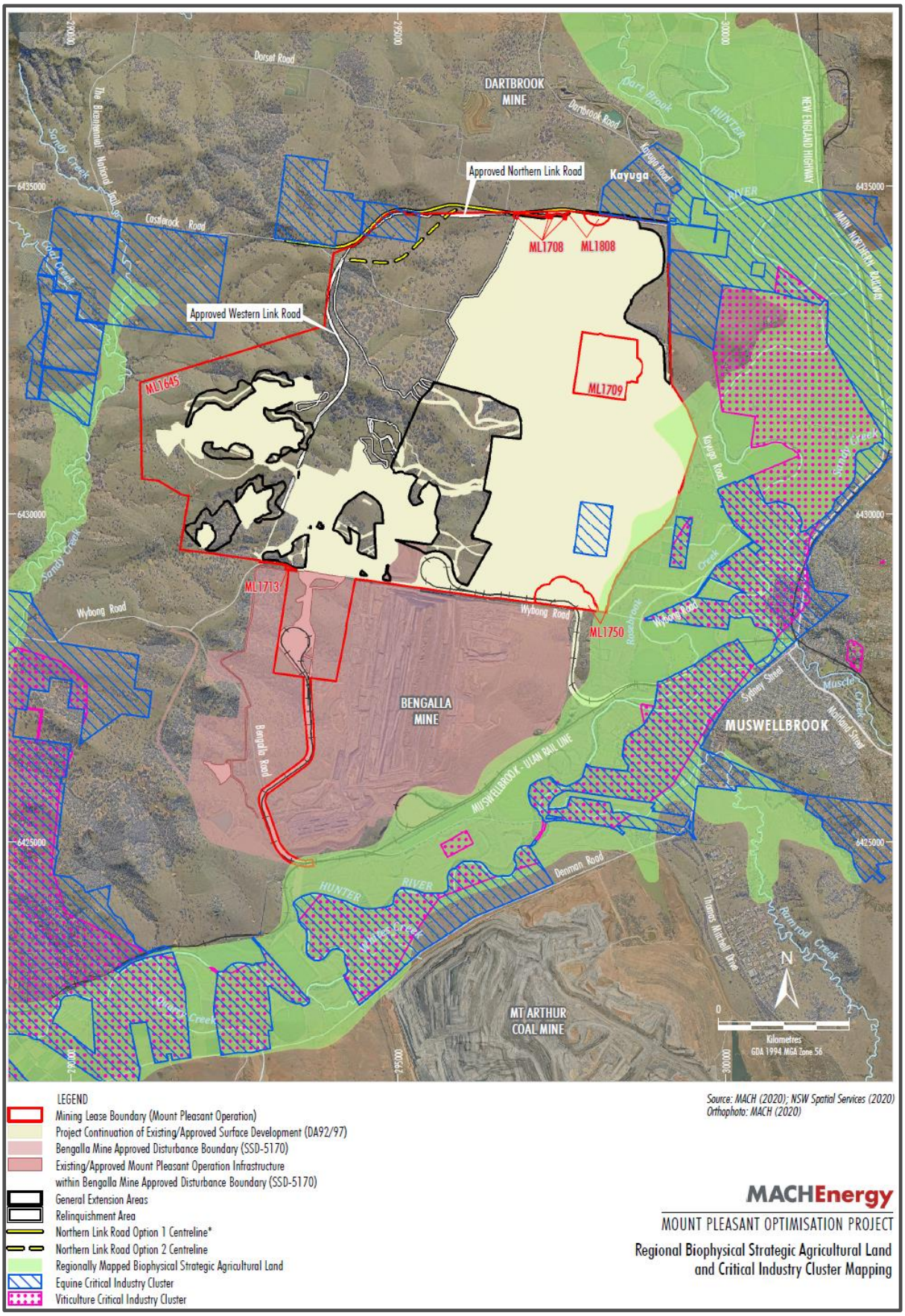

Figure 7 | Strategic Agricultural Land

25. A number of horse studs are located adjacent to the Hunter River to the south and south-east of Mount Pleasant (including the Rosebrook, Abbey, Balmoral, Edinglassie and Bengalla Studs), as well as Muswellbrook Race Club (see **Figure 8**).

26. There are no existing viticulture operations in proximity to the mine, with the closest (Ogilvie's View) located about 10 kilometres to the south.

27. Mount Pleasant is well serviced with regard to existing infrastructure, with the Muswellbrook-Ulan Rail Line located just over 1 kilometre to the south-east, and New England Highway about 2 kilometres to the east. The mine is accessed predominately via Wybong Road, which provides efficient access to the highway via Kayuga Road.

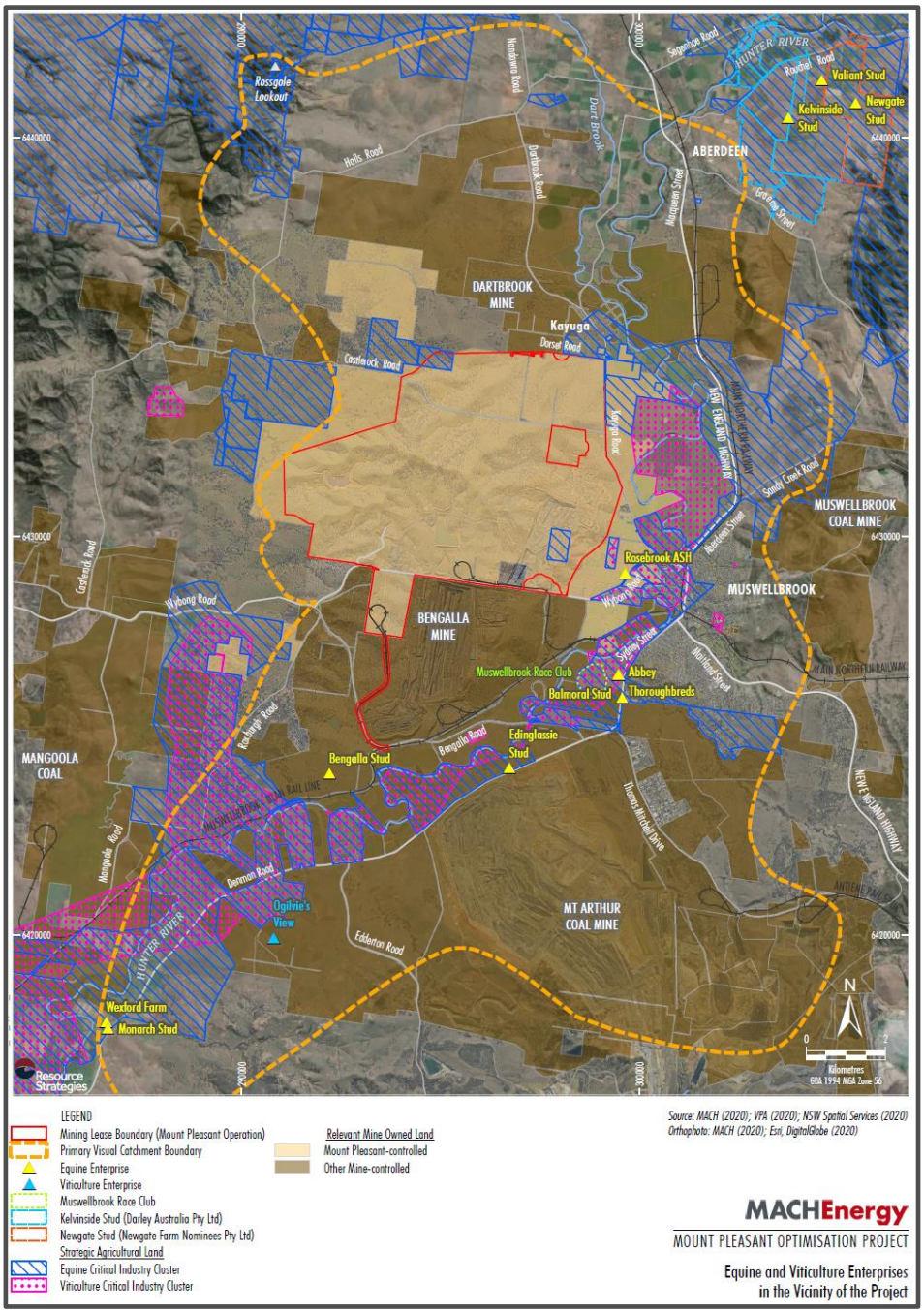

Figure 8 | Equine and Viticulture Operations

3.2 Policies, Guidelines and Plans

UNFCCC Paris Agreement 2015

28. Under the *United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement 2015* (Paris Agreement), each signatory must identify its own post-2020 climate actions to achieve a balance between anthropogenic emissions and removal by greenhouse gas (GHG) sinks. These actions are referred to as Nationally Determined Contributions (NDCs).

29. Australia's NDC adopts a target of net zero emissions by 2050 by committing to seven low emissions technology stretch goals. These include clean hydrogen production, ultra-low-cost solar, energy storage, low emissions steel production, low emissions aluminium production, carbon capture and storage and soil carbon measurements.

Australia's Long-Term Emissions Reduction Plan

30. The Commonwealth Government developed *Australia's Long-Term Emissions Reduction Plan* (the Emissions Reduction Plan) which includes a commitment to achieve net zero emissions by 2050.

31. Australia's long-term strategy and domestic actions are underpinned by an emissions monitoring and accountability systems. This includes *National Greenhouse and Energy Reporting Scheme* (NGERS) and the associated *Safeguard Mechanism* to which MACH is a participant.

32. As a participant of the NGERS, MACH would continue to undertake regular reviews of the technologies being used and abatement measures being implemented at its operations to continue to reduce emissions.

Net Zero Plan Stage 1: 2020-2023 Implementation Update

33. The NSW Government has released its *Net Zero Plan Stage 1: 2020-2030 Implementation Update* (the Net Zero Plan) which outlines the actions it proposes to take in order to help achieve the State's objective to deliver a 50% reduction in carbon emissions by 2030 compared to 2005 levels.

34. One initiative outlined in the Net Zero Plan of relevance to the Project is the Coal Innovation Program. The Coal Innovation Program recognises that the mining sector is one of NSW's biggest economic contributors and states that:

> *Mining will continue to be an important part of the economy into the future and it is important that the State's action on climate change does not undermine those businesses and the jobs and communities they support.*

35. The Coal Innovation Program is primarily focused on limiting fugitive emissions that come from coal mining, through the capture and combustion of these emissions to provide a new revenue streams to the mining sector.

36. Although MACH considers that pre-draining the coal seam is not currently considered to be practical or feasible, it states that the majority of the project fugitive emissions are expected to occur in the latter part of the project life.

37. As such, MACH has committed to periodically evaluate technological advancements in fugitive emission abatement technology in order implement additional reasonable and feasible fugitive greenhouse gas mitigation measures that may become available over the life of the project.

38. The Department's assessment on greenhouse gas emissions, including consideration of measures to reduce fugitive emissions is provided in **Section 6.3**.

Strategic Statement on Coal Exploration and Mining in NSW

39. On 24 June 2020, the NSW Government released its *Strategic Statement on Coal Exploration and Mining in NSW* (the Statement) which sets out its approach to transition to a low carbon future (consistent with Australia's commitments under the Paris Agreement), and how to manage the impact on coal-reliant communities.

40. The Statement identifies that there is a global transition away from fossil fuels to low carbon sources of energy in order to meet commitments made under the Paris Agreement. While this will ultimately lead to the global phasing out of coal for electricity generation (i.e. thermal coal), the Statement identifies that this is likely to take some decades to complete.

41. Despite this global trend for reduced reliance on fossil fuels, coal mining for export from NSW is expected to continue to have an important role to play in the short to medium term, as coal currently remains a critical energy source all over the world.

42. The Statement also recognises that the use of coal for the manufacturing of steel (i.e. metallurgical/coking coal) is likely to be sustained for a longer period as there are currently limited practical substitutes available.

43. The transition to new energy sources is recognised as a long-term economic change that will continue to reshape our regional communities, like those in the Upper Hunter, which currently rely on the export coal industry. As described in the Statement, these communities will be able to adapt, however they will need time to diversify their economies and develop new sources of employment.

44. To support the intentions of the Statement, the NSW Government has identified a proportion of the State's coal regions where mining is not supported and/or is prohibited, and areas considered for proactive release for coal exploration. The project is not located in any of these 'no-go' areas, rather it is located in an area where coal exploration and mining titles already exist.

Upper Hunter Strategic Regional Land Use Plan

45. The *Upper Hunter Strategic Regional Land Use Plan* (SRLUP) (September 2012) provides a framework for balancing strong economic growth with the protection of high value agricultural land within the Upper Hunter. The plan identifies key regional planning challenges including improving the balance between agricultural land uses and resource development proposals, focusing on achieving co-existence between mining, coal seam gas and agriculture.

46. In order to assist in achieving these outcomes, the NSW Government identified and mapped three categories of strategic agricultural land in the region. These include Biophysical Strategic Agricultural Land (BSAL), which is essentially the best farming land in the region, and the Equine and Viticulture Critical Industry Clusters (CICs), which represent a unique concentration of productive agricultural enterprises associated with two iconic agricultural industries in the Upper Hunter.

47. To ensure that potential impacts on these strategic agricultural lands are appropriately considered, any mining or coal seam gas proposals that occur on strategic agricultural land outside existing mining lease areas must be referred to the independent Mining and Petroleum Gateway Panel for a Gateway Certificate.

48. As the project involves mining operations within the existing Mount Pleasant mining lease areas, a Gateway Certificate is not required for the project.

49. As outlined on **Figure 7** above, there is some mapped BSAL and Equine CIC land within the mining lease area, however the project would not result in any change to the impacts on this land over and above the existing approved project, and the CIC land is not currently used for equine purposes. Further consideration of the impacts of the project on this land is provided in **Section 6.6**.

Hunter Regional Plan 2036

50. The Department's *Hunter Regional Plan 2036* (the Plan) sets out the strategic vision for the Hunter Region based on four key goals, which are to establish:

- a leading regional economy in Australia;
- a biodiversity-rich natural environment;
- thriving communities; and
- greater housing choice and jobs.

51. These goals are to be achieved by delivering on a range of directions and actions set out in the Plan.

52. In broad terms, the Plan's directions and actions aim to support new and established industries in the Hunter Valley and leverage their proximity to Asian markets. The directions recognise the strategic importance of the established coal mining industry and its infrastructure links to the export market via the Port of Newcastle, as well as recognising the important role that industries including renewable energy, agriculture, viticulture and equine operations play in delivering a diversified regional economy.

53. Importantly, the Plan emphasises the need to manage these different land uses in pursuit of complementary outcomes and attainment of the overriding goals of the Plan.

54. The Department's consideration of impact on surrounding land uses is provided in **Section 6**.

4 Statutory context

55. The Department's assessment of the project has given detailed consideration to a number of statutory requirements. These include the:

- objects found in section 1.3 of the EP&A Act; and
- the matters listed under section 4.15(1) of the EP&A Act, including applicable environmental planning instruments and regulations.

56. The Department has considered all of these matters in its assessment of the project and has provided a summary of this consideration below. Further consideration of the objects and other relevant provisions of the EP&A Act and environmental planning instruments is found in **Appendix G**.

4.1 State Significant Development

57. The proposed development is declared to be State significant development under section 4.36 of the EP&A Act as it triggers the criteria in clause 5 of Schedule 1 to *State Environmental Planning Policy (SEPP) (State and Regional Development) 2011* [6] (SRD SEPP), as it is development for the purpose of coal mining.

58. In accordance with section 4.5 of the EP&A Act and clause 8A(1) of the SRD SEPP, the Independent Planning Commission of NSW (the Commission) is the consent authority and must determine the application, as more than 50 unique public submissions in the nature of objection were received.

4.2 Permissibility

59. The project is located in the Muswellbrook LGA. Under the *Muswellbrook Local Environmental Plan 2009* (Muswellbrook LEP), land within the development application area is variously zoned:

- RU1 – Primary Production;
- E3 – Environmental Management;
- SP2 – Infrastructure; and
- W1 – Natural Waterways.

60. The majority of the mining lease area is zoned RU1, however considerable portions are zoned E3, as shown on **Figure 9**. The E3 zoned areas include large areas approved for mining under the existing consent.

[6] Although the SRD SEPP has been consolidated into the *State Environmental Planning Policy (Planning Systems) 2021*, the provisions of the SRD SEPP remain current.

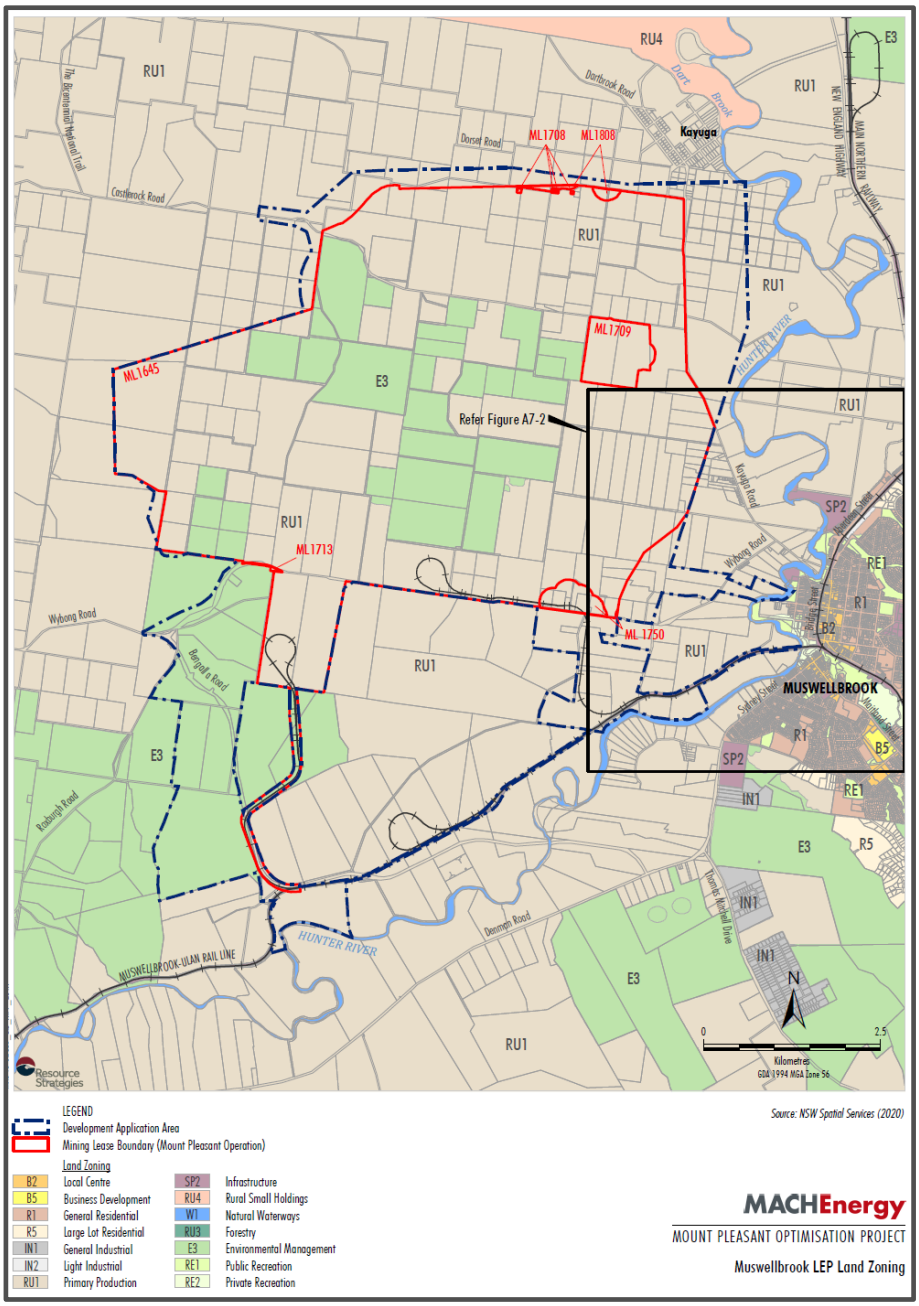

Figure 9 | Land Zoning

61. The SP2 and W1 zoned areas relate to minor parts of the development application area where the project's rail and water supply infrastructure meets the Muswellbrook-Ulan Rail Line and Hunter River, respectively. The project would not change the existing project-related infrastructure in these areas.

62. Under the Muswellbrook LEP, open cut mining is permissible with consent in the RU1 zone, but is prohibited in the E3, SP2 and W1 zones.

63. However, clause 7 of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*[7] (the Mining SEPP) provides that mining may be carried out with consent on any land where development for agriculture is permissible, or in any part of a waterway that is not within an environmental conservation zone.

64. Further, section 4.38(3) of the EP&A Act provides that development consent for State Significant Development may be granted despite the development being partly prohibited by an environmental planning instrument.

65. The Department considers that the project is permissible with consent within the E3, SP2 and W1 zoned parts of the development application area, as:

- agriculture is permissible in the E3 zone;
- development within the SP2 zoned area relates to rail infrastructure, which is permissible under the LEP; and
- development within the W1 zoned area relates to existing water supply infrastructure only. Whilst the W1 zone is not a defined environmental conservation zone, the zone objectives do identify conservation as a principal objective. Notwithstanding, this component of the project is permissible under section 4.38(3) of the EP&A Act.

4.3 Surrender of Development Consent

66. Section 4.63 of the EP&A Act (voluntary surrender of development consent) provides that if a development consent is surrendered as a condition of a new development consent and the new consent includes continuation of development that was authorised, then the consent authority:

- is not required to re-assess the likely impact of the continued development to the extent that it could have been carried out but for the surrender of the consent;
- is not required to re-determine whether to authorise that continued development under the new development consent (or the manner in which it is to be carried out); and
- may modify the manner in which that continued development is to be carried out for the purpose of the consolidation of the development consents applying to the land concerned.

67. If the project is approved, MACH would surrender the Mount Pleasant development consent (DA 92/97) and the mining operations on the site would be regulated under the new development consent.

68. MACH has assessed the total impact of the project in its EIS – that is the continued operation of the approved development together with the proposed expansions and changes associated with the project optimisation, including consideration of cumulative impacts.

69. The Department has recommended conditions that incorporate the relevant requirements of the approved project that are not being re-assessed, for example existing biodiversity offset obligations.

7 Although the Mining SEPP has been consolidated into the *State Environmental Planning Policy (Resources and Energy) 2021*, the provisions of the Mining SEPP remain current.

4.4 Mandatory Matters for Consideration

70. Under Section 4.40 of the EP&A Act, the Commission is required to evaluate the merits of the project against the relevant matters for consideration set out in Section 4.15 of the prior to making its determination. This includes:

- the provisions of any environmental planning instruments;
- the terms of the Applicant's offer to enter into planning agreements and whether it should impose a condition on the project;
- the likely impacts of the project, including the environmental impacts on both the natural and built environments, and social and economic impacts in the locality;
- the suitability of the site for the project; and
- the public interest, which includes considering the relevant objects of the EP&A Act and Ecologically Sustainable Development (ESD).

71. The Department has considered all of these matters in its assessment of the project and has provided a summary in this report. Further consideration has been provided in **Appendix G**.

4.5 Integrated & Other Approvals

72. Under Section 4.41 of the EP&A Act, a number of approvals are integrated into the State Significant Development assessment process, and consequently are not required to be separately obtained for the proposal. These include:

- permits for impacts on fisheries and habitat required under the *Fisheries Management Act 1994*;
- various approvals relating to heritage required under the *National Parks and Wildlife Act 1974* and the *Heritage Act 1997*; and
- certain water approvals under the *Water Management Act 2000*.

73. The Department has considered the matters covered by this legislation in consultation with the relevant agencies and has recommended conditions to mitigate and/or offset the potential impacts of the development on these matters.

74. Under Section 4.42 of the EP&A Act, a number of other approvals are required, but must be substantially consistent with any development consent for the project. These include:

- variations to the existing mining leases and any new mining leases under the *Mining Act 1992*;
- approvals for development within a Mine Subsidence District under the *Mine Subsidence Compensation Act 2017*;
- variations to the site's existing EPL under the *Protection of the Environment Operations Act 1997*; and
- consent for road works under section 138 of the *Roads Act 1993*.

75. The Department has consulted with the authorities responsible for granting these approvals during the assessment process. None of these authorities object to the approval of the project, subject to the imposition of suitable conditions (see **Section 5.3**).

4.6 Biodiversity Development Assessment Report

76. Section 1.7 of the EP&A Act provides that the operation of the EP&A Act is subject to the requirements of Part 7 of the *Biodiversity Conservation Act 2016* (BC Act). Section 7.9 of the BC Act requires that:

- an application for development consent for SSD is to be accompanied by a biodiversity development assessment report (BDAR) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values; and
- an EIS that accompanies any such application is to include the biodiversity assessment required by the environmental assessment requirements of the Planning Agency Head under the EP&A Act.

77. Section 7.14 of the BC Act requires the consent authority to take into consideration the likely impact of the proposed development on biodiversity values as assessed in the BDAR. Section 7.14 also enables the consent authority to grant a development consent subject to the requirement to retire biodiversity credits in accordance with the biodiversity offsets scheme established under the BC Act.

78. A BDAR for the project, prepared in accordance with the Biodiversity Assessment Method established under the BC Act is provided in **Appendix A. Section 6.5** provides a summary of the findings of the BDAR.

4.7 Commonwealth Approval

79. On 26 August 2020, a delegate of the Commonwealth Minister for the Environment determined that the proposed project is a 'controlled action' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The project was determined as being likely to have a significant impact on controlling provisions and matters protected under the EPBC Act, including:

- listed threatened species and communities; and
- a water resource in relation to large coal mining development.

80. In particular, the Commonwealth Department of Agriculture, Water and Environment (DAWE) considered the project may potentially result in a significant impact on:

- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland;
- Swift Parrot (*Lathamus discolor*);
- Regent Honeyeater (*Anthochaera phrygia*);
- Striped Legless Lizard (*Delpa impar*);
- Austral Toadflax (*Thesium australe*) (possibly);
- Slaty Red Gum (*Eucalyptus glaucina*) (possibly); and
- water resources.

81. The Commonwealth Government has accredited the State's environmental assessment processes under the EP&A Act, via a Bilateral Agreement between the Commonwealth and the NSW Governments. As part of its controlled action determination, DAWE advised that the assessment of the project would be undertaken by the NSW Government in accordance with the Bilateral Agreement. However, the Commonwealth's decision-maker maintains a separate approval role, which will be exercised following the Commission's determination of the development application.

82. The Department has assessed the potential impact of the project on the relevant MNES in accordance with the requirements of the Bilateral Agreement. This assessment is provided in **Appendix H** of this report and includes sufficient detail for the Commonwealth decision-maker to fully consider these impacts when determining whether to approve the controlled action.

83. The project was jointly referred by the Department and DAWE to the Commonwealth's Independent Expert Scientific Committee on Coal Seam Gas and Large Mining Development (IESC) for advice on surface and ground water impacts, as well as potential impacts on downstream watercourses and receiving environments. The IESC's advice and MACH's subsequent responses are provided in **Appendix D**.

84. Following the NSW determination of the development application, the matter will be referred to the DAWE for Commonwealth determination in accordance with the relevant provisions of the EPBC Act.

4.8 Independent Planning Commission

85. Under Section 2.9(1)(d) of the EP&A Act the Commission must hold a public hearing for any matter as requested by the Minister administering the provisions of the EP&A Act.

86. On 9 September 2021, the then Minister for Planning and Public Spaces finalised the following terms of reference requesting that the Commission:

- conduct a public hearing into the carrying out of the Mount Pleasant Optimisation Project (SSD 10418) as part of its determination of the development application for the project;
- make arrangements to conduct the public hearing as soon as practicable following receipt of the Department's assessment report and any recommended conditions of consent; and
- consider the information contained in the Department's assessment report, any recommended conditions of consent and other relevant documents, in carrying out the public hearing and as part of its determination of the project as the consent authority under the EP&A Act.

5 Engagement

5.1 Background

87. After accepting the EIS, the Department publicly exhibited the EIS on its website from 3 February 2021 until 17 March 2021.

88. The Department advertised the exhibition in the *Sydney Morning Herald*, *The Australian*, *Daily Telegraph* and the Hunter Valley and North Coast Town & Country Leader. The Department also notified:

- relevant State government agencies and Muswellbrook Shire Council;
- surrounding private landholders, including the RAPs; and
- relevant transport and infrastructure authorities in accordance with the Mining SEPP and the Infrastructure SEPP.

89. In undertaking these processes, the Department considers that its engagement process met the notification requirements of the EP&A Act and the relevant environmental planning instruments. The Department also considers that this process has fulfilled the State's obligation under the Bilateral Agreement with the Commonwealth Government.

5.2 Summary of submissions

90. During the exhibition period, the Department received a total of 250 public submissions, and advice/submissions from 18 government authorities.

91. No government agencies objected to the project, with the exception of the neighbouring Upper Hunter Shire Council, which has a general policy statement objecting to all coal mining and coal seam gas (CSG) projects in its LGA.

92. The public submissions included 223 from individuals and 27 from special interest groups. These submissions comprised:

- 106 (42%) submissions supporting the project;
- 140 (56%) submissions objecting to the project; and
- 4 (2%) submissions providing comments on the project.

93. The special interest groups that made submissions are listed in **Table 2** below.

94. The geographical distribution of public submissions is shown in **Figure 10**, with the majority of submissions from the larger townships in the area (i.e. Muswellbrook and Singleton) supporting the project, while submissions from smaller urban areas (e.g. Aberdeen and Kayuga), Scone and further afield generally objecting to the project.

95. A full copy of the public submissions and agency advice is provided in **Appendix B** and **Appendix E** respectively**.**

Table 2 | Special Interest Group Submissions (by Stance)

Support	Object	Comment
Aboriginal Community Development Fund, Aurizon, Blackrock Industries (x2), Fyfe Pty Ltd, Hunter Valley Coal Chain Coordinator, Park Pty Ltd, Pirtek, Muswellbrook Supply Solutions Group, Port of Newcastle, Thiess, WesTrac NSW	Australian Parents for Climate Action, Friends of the Upper Hunter Inc, Godolphin Australia Pty Ltd, Healthy Environment Group, Hunter Communities Network, Hunter Environment Lobby, Hunter Thoroughbred Breeders Association, Institute for Energy Economics and Financial Analysis, Lock the Gate Alliance, Newgate Operations Pty Ltd, People for Heritage Upper Hunter Inc, Ryde Gladesville Climate Change Action Group, Scone Equine Hospital, The Australia Institute, Yarraman Park Stud	Cowtime Investments Pty Ltd

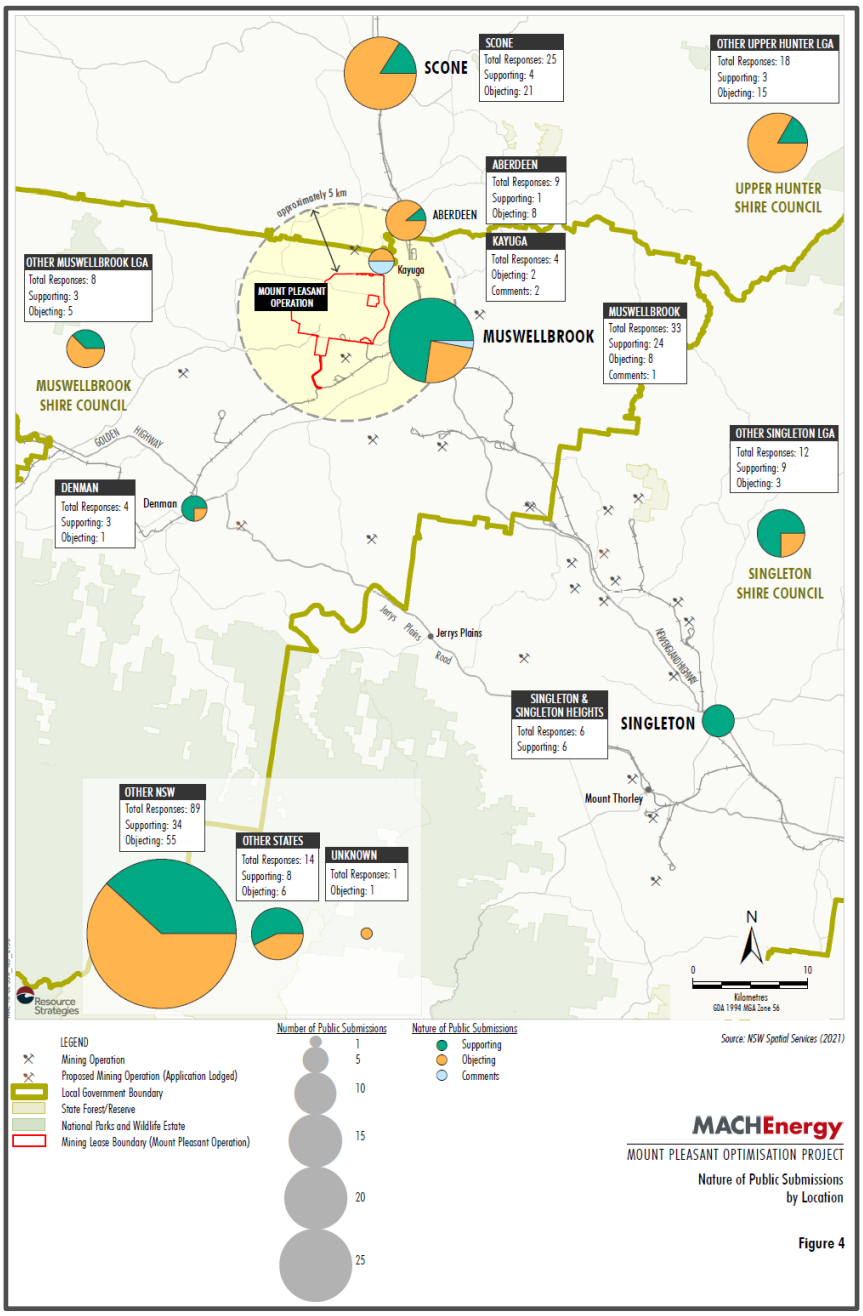

Figure 10 | Geographical Distribution of Public Submissions

5.3 Advice from government agencies/ utilities

96. Since the exhibition of the EIS and receipt of MACH's Submissions Report, the Department has consulted further with relevant public authorities to address issues raised in advices.

97. A summary of the issues raised by government agencies/ utilities in provided in **Table 3** below. Further detail on specific issues raised is provided in **Section 6**.

Table 3 | Agency advice on the Project

Agency/ Utility	Key Comments
Ausgrid	• Ausgrid did not raise any significant issues, and noted that any infrastructure relocation works would be required to be undertaken in accordance with applicable guidelines, and at MACH's cost.
Australian Rail Track Corporation (ARTC)	• ARTC did not raise any significant issues, but recommended that consideration be given to rail noise in accordance with the applicable guideline.
Biodiversity Conservation Division (BCD)	• BCD requested additional information on the biodiversity assessment, flooding and surface water discharges. Following provision of additional information, BCD confirmed that these issues could be appropriately addressed through consent conditions, if approved, and recommended conditions in this regard.
Climate and Atmospheric Science (CAS) Branch within the Environment, Energy and Science Division	• With the release of the *Net Zero Plan Stage 1: 2020-2030 Implementation Update*, the Department also sought advice from CAS to provide targeted advice on GHG emissions estimates, comparison to assumptions used in the 2030 reduction target and 2050 net zero target, and on any additional mitigation measures. • The Department has considered this advice and included recommendations to address concerns raised by CAS. • Potential impacts from GHG emissions are discussed further in **Section 6.3**.
Crown Lands Group within the Department **Subsidence Advisory NSW**	• Advised they had no comments on the project.
Department of Primary Industries (DPI)	• DPI noted that the majority of the project area has been used for agriculture for well over 100 years, and as such recommended that more land should be rehabilitated for agricultural land use, rather than biodiversity conservation. • DPI also questioned why the rehabilitation strategy proposes to rehabilitate land to Land Suitability Classes (LSC) 4 to 6, when the existing land is generally LSC 3 to 4. As such, DPI recommended that the strategy should have a stronger focus on rehabilitation to higher order LSCs (i.e. 3 to 4). • Further detail regarding impacts on agricultural land is provided in **Section 6.6**.
Dams Safety NSW	• Dams Safety NSW noted that the mining lease overlies 5 existing prescribed dams (3 at Mount Pleasant and 2 at Bengalla), and that MACH would be required to consult with it regarding impacts on the dams, should the project be approved.
Environment Protection Authority (EPA)	• The EPA requested additional information in relation to the air quality, noise and surface water assessments. • Given the project's proximity to Muswellbrook and other receivers, the EPA also requested further information on proactive and reactive measures and triggers for when and how they would be actioned. • The EPA was generally satisfied with MACH's response to this issue and the Department has recommended conditions reflecting EPA's advice.

Agency	Key Comments
Heritage NSW	• Heritage NSW noted that some (small) parts of the project area had not been surveyed in the Aboriginal Cultural Heritage Assessment (ACHA) for the project (due to access constraints and the COVID-19 pandemic). • Additional work (field-based and desktop) was undertaken by MACH, following which Heritage NSW confirmed that it is satisfied with the heritage assessment, subject to further field assessment prior to disturbance. • Heritage NSW also recommended MACH undertake additional test excavations and further assessment of potential scarred trees (located outside the project disturbance area), as part of the Aboriginal Cultural Heritage Management Plan.
Mining, Exploration and Geoscience	• Mining, Exploration and Geoscience (MEG) is satisfied with the mine design and method, and that the project would provide an appropriate return to the NSW Government, including some $1.7 billion in royalties ($580 million net present value). • MEG also noted that MACH already holds appropriate mining titles required for the project, and recommended that consideration be given to potential resource sterilisation for any land-based biodiversity offsets for the project.

Muswellbrook Shire Council (Council)	• Council raised a number of project-specific issues, as well as what it considers to be broader assessment issues (e.g. cumulative impacts, impact on water availability, and the need to plan for the impact of a declining coal industry on local communities).
	• Project-specific issues included:
	  ○ *Transport and access* – Council initially maintained that the Western Link Road should be constructed (as per the original approval), however following additional information from MACH it subsequently accepted that the road is not required (see **Section 6.6** for further detail).
	  ○ *Visual* – Council noted the increased height of the eastern emplacement, and that this would limit some views to high points in the landscape from locations in and around Muswellbrook (see **Section 6.6** for further detail).
	  ○ *Heritage* – Council recommended conditions to minimise blast-related impacts on headstones at Kayuga Cemetery (see **Section 6.6** for further detail).
	  ○ *Seismic activity* – Council considered that seismic activity has been increasing in the region, and that this should be managed as part of any approval (see **Section 6.6** for further detail).
	  ○ *Air quality* – Council considers that MACH should be required to limit the use of high dump sites at night to minimise nighttime dust emissions, and that MACH should contribute funding to health reporting and EPA air quality/meteorological monitoring in Muswellbrook (see **Section 6.3** for further detail).
	  ○ *Noise* – that consideration should be given to impacts associated with water pumping from the Hunter River (see **Section 6.2** for further detail).
	  ○ *Social* – Council noted that the LGA has a shortage of affordable housing, which is exacerbated by mining companies acquisition programs (see **Section 6.6** for further detail).
	  ○ *Rehabilitation and closure* – Council recommended consideration be given to reducing the size and steepness of the final void, and minimising surface water drainage into the void (see **Sections 6.4** and **6.6** for further detail).

NSW Health	• NSW Health noted that the mine is located in an area where air quality standards are often exceeded, and recommended that all reasonable and feasible measures are taken to minimise human exposure to particulate matter, even where the assessment criteria are met (see **Section 6.3** for further detail).

NSW Rural Fire Service (RFS)	• RFS recommended that MACH is required to develop a Fire Management Plan in consultation with RFS, and that habitable buildings are constructed to the appropriate bushfire attack level (BAL) in accordance with applicable standards.
NSW Heritage Council	• The NSW Heritage Council noted that no historical heritage items listed on the State Heritage Register are located within the project area, although there are a number of other sites of at least some heritage significance in the project area. • Based on additional information from MACH in the Submissions Report, the NSW Heritage Council confirmed that the archaeology within the site has been appropriately addressed. • Further detail regarding impacts on historic heritage provided in **Section 6.6**.
Resources Regulator	• The Resources Regulator requested additional information in relation to some aspects of the rehabilitation strategy, including: final land use, rehabilitation methodology and long term stability for the fines emplacement area; rehabilitation scheduling; further detail on rehabilitation objectives and final land uses; and detail on surface water structures. • MACH provided additional information on these matters in its Submissions Report, and the Resources Regulator subsequently confirmed that it has no further comments on the project.
Transport for NSW (TfNSW)	• TfNSW did not raise any significant issues, but recommended that MACH be required to transport construction workers to the site via shuttle bus (from Muswellbrook, Scone, Aberdeen and Singleton), as the traffic assessment was based on such a service (see **Section 6.6** for further detail).
Upper Hunter Shire Council (UHSC)	• UHSC objected to the project, in line with its broad position statement of opposing all coal and CSG projects in its LGA (N.B. the project is not located in the Upper Hunter LGA). UHSC objected on the grounds that the project would have 'intolerable' greenhouse gas (GHG) emissions, and 'unacceptable' impacts on Aberdeen, including visual and lighting, noise, and in particular, air quality impacts. • UHSC did note that it would welcome an offer to enter into a VPA with MACH to compensate for the likely increase in demand for local community services and infrastructure in the Upper Hunter Shire, should the project be approved.
Water Group within the Department (DPE Water)	• DPE Water recommended that MACH be required to obtain this additional licence prior to water take, and to ensure that it obtains sufficient high security water to address post-mining water take. • DPE Water also requested additional information in relation to cumulative impacts on groundwater dependent ecosystems (GDEs), groundwater drawdown on private bores, management of Potential Acid Forming (PAF) material, and some technical components of the groundwater model, including additional consideration of model sensitivity to hydraulic conductivities. • Further detail regarding impacts on water resources provided in **Section 6.4**.

5.4 Public submissions

Submissions in Support

98. Public submissions in support of the project generally pointed to the employment and economic benefits generated by Mount Pleasant and mining in the Upper Hunter, as well as related and flow-on social benefits for the region (see **Figure 11**).

99. These submissions also discussed the positive social impacts of the Project, noting MACH's support for local businesses and community organisations, including support for social programs, sponsorships, and ongoing support the local Aboriginal community. The social and economic impacts of the Project are discussed further in **Section 6.6**.

100. Many submissions also noted the high-quality rehabilitation work undertaken to date, and MACH's ongoing commitment to environmental management, and supported the efficient and sustainable extraction of resources.

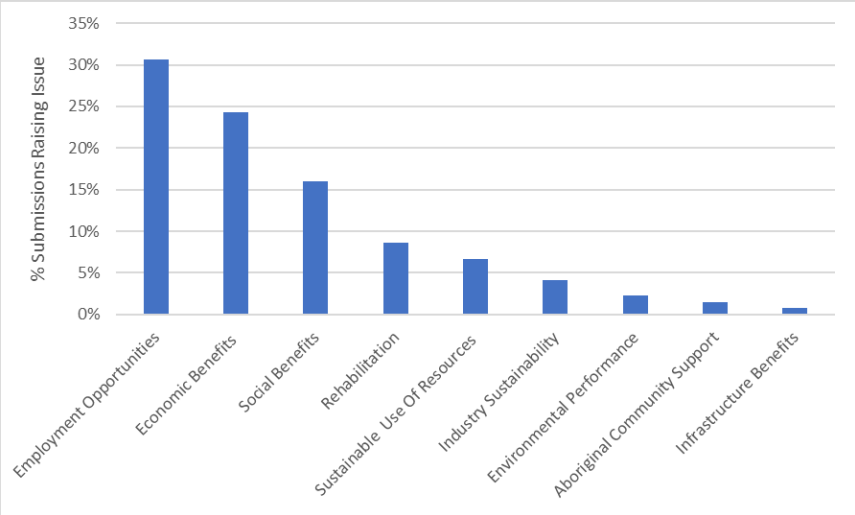

Figure 11 | Key Issues Raised in Supporting Submissions

Submissions in Objection

101. Public submissions objecting to the project cited a range of issues, with the key issues including air quality and related health and issues, including consideration of cumulative impacts to the air quality within the Hunter Valley (see **Figure 12**).

102. The Department has undertaken a detailed assessment of the air quality impacts of the Project in **Section 6.3**, including consideration of advice provided by an independent expert, and has integrated consideration of cumulative impacts into its assessment of the Project and development of recommended conditions in **Appendix I**.

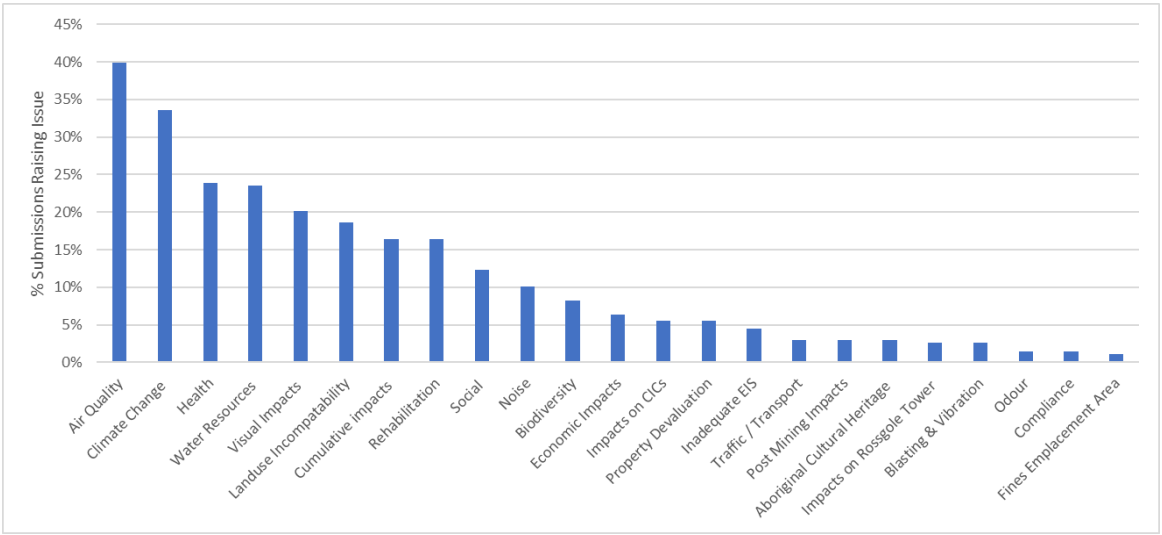

Figure 12 | Key Issues Raised in Objecting Submissions

103. A number of submissions also raised concerns about the project's impacts on the region's water resources (including the Hunter River), visual impacts (particularly associated with the eastern emplacement), incompatibility with surrounding land uses (including agriculture, Equine CICs and urban areas), noise impacts, and concerns regarding long-term cumulative impacts associated with the mining industry in the Hunter Valley.

104. A small number of submissions also raised a range of other issues, including biodiversity impacts, traffic and transport, Aboriginal cultural heritage, impacts on telecommunications towers, blast-related impacts, odour and MACH's environmental performance.

105. The Department has considered each of these and other issues in its assessment of the project. The Department's assessment is summarised in **Section 6**.

106. In addition to project specific concerns, approximately 35% of submissions in objection raised broader concerns with the mining industry, focused on the contribution of mining and coal fired power generation to greenhouse gas emissions and anthropogenic climate change. These submissions originated from various locations throughout the State (see **Figure 10**).

107. These submissions expressed broad objections to various NSW Government policies and land use planning decisions associated with the cumulative impacts of the mining industry in the Hunter Valley. Many of these submitters expressed concerns with anthropogenic climate change and advocated for a transition away from the use of fossil fuels in the NSW energy market. The Department's assessment of impacts associated with the project's Greenhouse Gas emissions is provided in **Section 6.3**.

108. One submission from a neighbouring dairy operation, Cowtime Investments, raised concerns that the existing Mount Pleasant mine has caused a decline in productivity, animal health, herd reproduction, pasture health and farm profitability via air quality and noise impacts, and is seeking acquisition rights, should the project be approved. The Department's consideration of this submission is provided in **Section 6.6**.

5.5 Submissions Report

109. On 5 July 2021, MACH submitted its Submissions Report responding to the issues raised in submissions. A copy of the Submissions Report is provided in **Appendix C.**

110. The Submissions Report did not include any material changes to the project to address issues raised in submissions. However, for simplicity, MACH has conservatively set the size of the Relinquishment Area at the smaller area (497 ha) of the two options presented in the EIS (related to the differing Northern Link Road options), and the Additional Disturbance Area at the larger size (500 ha). It also introduced staging into the Biodiversity Development Assessment Report (BDAR).

111. The Department referred the Submissions Report to applicable government authorities, and made it publicly available on the Department's website.

112. The Department also requested additional information from MACH on a number of matters following the Submissions Report, to assist in addressing residual issues raised by government authorities and the Department.

113. Additional advice received from government authorities is provided in **Appendix E**, and key additional responses from MACH are attached in **Appendix F**.

6 Assessment

6.1 Introduction

114. The project is a brownfield extension of an existing operating coal mine with the assessment supported by extensive environmental monitoring of the operating mine to inform predicted impacts and proposed mitigation measures.

115. As the increase in overall coal extraction is through targeting deeper coal seams, with overall no significant increase in surface disturbance (due to the Relinquishment Area) the overall impacts, including on noise, air, visual, biodiversity and heritage, are generally consistent with the impacts of the approved mine.

116. Despite this, the Department considers the key issues for the assessment include potential impacts on:

- noise and air quality (including greenhouse gas emissions), given the concerns of the community, particularly surrounding landowners, in relation to these issues (see **Section 5.4**);
- water resources, given the mining operations would progress deeper, potentially resulting in greater impacts to groundwater resources; and
- biodiversity, given the complexities of the project in consideration of the proposed relinquishment area.

6.2 Noise

Introduction

117. The Project has the potential to lead to increased noise impacts including from general vehicle/equipment noise, alarms, construction activities, blasting and use of the Stage 2 rail line. Potential noise impacts have been assessed to determine the level of impact relative to the existing operations.

118. The EIS includes a detailed noise assessment undertaken by Wilkinson Murray in accordance with applicable noise guidelines including the EPA's *Noise Policy for Industry*. The assessment was peer reviewed by Glenn Thomas from SLR.

119. The Mount Pleasant mine is located on the outskirts of Muswellbrook, in proximity to a large number of sensitive receivers. As such, noise has always been one of the key issues associated with the mine.

120. There are a considerable number of receivers in the noise affectation area for the approved mine, including:

- 30 privately-owned residences or land predicted to be significantly affected (i.e. >5dB exceedance of the noise criteria), which have voluntary acquisition rights under the consent;
- 20 privately-owned residences predicted to be moderately affected (i.e. 3-5 dB exceedance), which have voluntary mitigation rights under the consent; and
- 12 privately-owned rural residences predicted to have minor impacts (i.e. up to 1-2 dB exceedance).

121. MACH implements a range of mitigation measures to minimise noise emissions as far as reasonable and feasible at these and other receivers, including:

- acoustic attenuation of fixed plant and major mobile plant;
- a real time predictive noise management system, which uses meteorological data and noise monitoring to manage day-to-day operations and noise emissions;
- operating plant in less exposed areas during the more sensitive evening/night periods;
- restricting vegetation clearing to daytime periods only; and
- quackers used on mobile equipment rather than reversing beepers.

122. With the implementation of these and other measures, noise monitoring for the existing mine indicates that noise generally complies with the applicable criteria. In this regard, MACH has reported compliance with the applicable noise criteria in the most recent independent audit period (November 2017 to February 2020), and in monthly reports since this period, with the exception of a small number of elevated noise levels at monitoring stations to the east of the mine. However, subsequent investigations of these incidents indicated no exceedance of the relevant criteria at privately-owned receivers.

123. Notwithstanding, the mine does receive ongoing complaints in relation to noise, including approximately 184 complaints in the period from January 2018 to September 2020 (i.e. approximately 6 complaints per month). Most of these are from a small number of residents in the Collins Lane/ Kayuga Road area to the east of the mine, where residents have voluntary acquisition rights.

124. Many of these complaints occur during noise enhancing conditions, such as temperature inversions and winds. MACH has stated in its documentation that it investigates and publicly reports all complaints, and implements direct corrective actions to mitigate the noise levels, such as suspending or relocating dumping operations during such conditions.

Operational Noise

125. The noise assessment includes reassessment of Rating Background Levels (RBLs) for the receivers, which are used to derive the project specific noise criteria. The reassessment has resulted in an increase in the daytime noise criteria for the majority of receivers, although it has also resulted in a lowering of noise criteria at a significant number of receivers in the more sensitive evening and night time periods. This outcome is consistent with the approach in the *Noise Policy for Industry* which allows for higher noise limits to be set during the less sensitive day time period with a minimum day time noise level of 40 dB(A) set in the policy.

126. The assessment included 7 modelling scenarios representative of different mining stages and production rates. Mitigation measures to reduce noise include:

- staged increase in production, as mining moves away from Muswellbrook;
- design of the eastern emplacement to shield noise emissions;
- construction of a rail noise barrier along the southern side of the Stage 2 rail infrastructure spur; and
- operational adjustments during some mining stages, such as shutting down some equipment during adverse meteorological conditions or during sensitive time periods.

127. With these measures, the noise assessment indicates that operational noise levels at receivers associated with the project would reduce in general, compared to the approved project. Despite this the Department recognises that noise impacts would be extended for a further 22 years.

128. A summary of the affected privately-owned receivers under worst case operational and meteorological conditions is presented in the following table, along with the management approach under the Department's *Voluntary Land Acquisition and Mitigation Policy* (VLAMP). The affected receivers are shown on **Figure 13**.

Table 4 | Summary of Operational Noise Limit Exceedances

Noise Exceedance	Management Approach	Number of Receivers	Receivers
Significantly affected receivers (>5dB exceedance)	Acquisition	14	118, 120, 120c, 121, 136, 143a, 143b, 147, 153a, 154, 154b, 156a, 157a, 159
Moderately affected receivers (3-5dB exceedance)	Noise mitigation at receiver	14	20, 21, 35, 35b, 43, 43b, 47, 67, 74, 86a, 96, 102, 108, 140a
Negligibly affected receivers (1-2dB exceedance)	Noise mitigation at source	52	19, 77, 79, 82, 83, 84a, 86b, 112, 140c, 169, 171, 172, 172b, 172c, 180b, 181c, 189, 190, 191, 192, 193, 194, 195, 197, 202, 202b, 203, 203b, 203c, 207, 212, 212b, 213, 214, 215, 216, 216b, 217, 218, 219, 220, 221, 222, 223, 223b, 224, 225, 289, 210, 526, 547, 667a
Additionally affected land (>5dB exceedance on >25% of land)	Acquisition	1	143e
Total		**80 receivers - 65 properties (plus 1 land parcel)**	

129. As outlined in the table, there are 14 receivers (on 12 properties) that are predicted to be significantly affected by operational noise at some stage during the project, and a further 14 receivers (on 12 properties) that would be moderately affected. One further property is predicted to be significantly affected over more than 25% of the land area. A further 52 receivers are predicted to be negligibly affected (i.e. 1-2 dB exceedance) at some stage during the project.

130. Affected receivers are generally located in the rural-residential areas to the north-east, east and south-east of the mine on the western side of the New England Highway, as well as on rural properties around the mine.

131. All but 3 of the receivers predicted to be moderately or significantly affected (including the affected land parcel) already have voluntary mitigation or acquisition rights under the existing approval. These 3 receivers are located to the north-east (i.e. Receiver 154b [constructed since the most recent modification]) and south-east of Mount Pleasant (i.e. Receivers 35 and 35b).

132. A summary of the moderately and significantly affected receivers compared to the approved project is provided in the following table (which also includes air quality-affected receivers as discussed in **Section 6.3** below). Although the number of receivers affected by air quality increases, there is a significant decrease in the overall number of receivers being significantly affected by the project (from 32 down to 16), noting that the approved project currently has more significantly affected receivers than any other coal mine in the Hunter Valley.

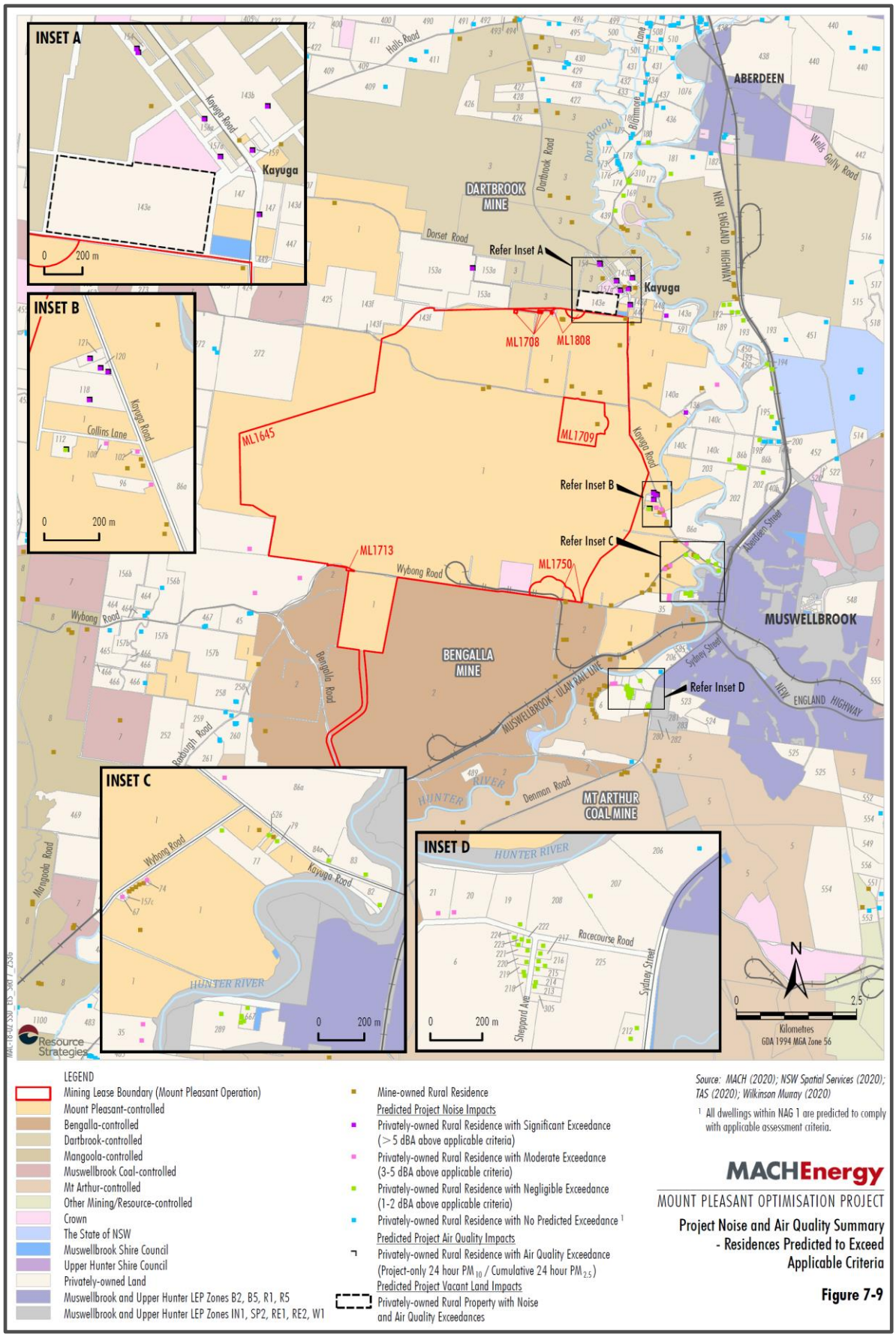

Figure 13 | Residences Predicted to Exceed Noise and Air Quality Criteria

133. As demonstrated in **Table 5**, the following 19 receivers, currently with acquisition rights under DA 92/97, would no longer continue to have these rights under SSD 10418:

- 8 receivers (23, 143c, 143d, 153b, 158, 447, 448 and 449) which are now either mine-owned or no longer have a dwelling present;
- 7 receivers (45, 47, 67, 96, 102, 108 and 112) which were granted acquisition rights for noise under either the original project or Mod 1 – these receivers would experience reduced noise impacts given alterations to the project design (e.g. removal of the Mod 1 conveyor and increased height of the eastern emplacement);
- 2 receivers (20 and 21) which were granted acquisition rights for air quality under Mod 3 – these receivers would experience reduced air quality impacts given the management measures proposed by MACH, noting that these receivers would gain mitigation rights for noise; and
- 2 receivers (43 and 43b) which were granted acquisition rights for noise under Mod 1 and air quality under Mod 3 – these receivers would also experience reduced impacts from the project, noting that they would gain mitigation rights for noise.

134. Importantly, these changes are not a result of changes in Government policy or criteria for acquisition rights, however are a direct result of predicted reduced impacts on these receivers.

Table 5 | Summary of Affected Receivers

Affectation Basis	Approved Project		Proposed Project	
	Receiver ID	No. Receivers	Receiver ID	No. Receivers
Significantly Affected – Acquisition Zone				
Noise and Air Quality	43, 43b	2	118, 120, 120c, 121, 143b, 143e[1], 147, 153a, 154, 154b, 156a, 157a, 159	13
Noise	23, 45, 47, 67, 96, 102, 108, 112, 118, 120, 120c, 121, 136, 143a, 143b, 143c, 143d, 143e[1],147, 153a, 153b, 156a, 157a, 158, 159, 447, 448, 449	28	136, 143a	2
Air Quality	20, 21	2	112	1
Total		**32**		**16**
Moderately Affected – Mitigation Zone				
Noise and Air Quality	-	-	-	-
Noise	19, 20, 21, 68, 74, 77, 79, 80a, 84a, 86a, 139, 140a, 140c, 154, 203, 207, 257, 258, 259, 526	20	20, 21, 35, 35b, 43, 43b, 47, 67, 74, 86a, 96, 102, 108, 140a	14
Air Quality	-	-	-	-
Total		**20**		**14**

[1] Vacant land parcel

135. As outlined above, the total number of moderately and significantly affected receivers would reduce considerably compared to the approved project based on changes to the project design, in particular removal of the coal conveyor (and associated infrastructure) approved as part of Mod 1, and the increased height of the eastern emplacement. The number of negligibly affected receivers would increase mainly as a result of previously moderately and significantly impacted receivers now moving into the negligible impact category. The Department notes that noise exceedances of 1 to 2 dB are generally not discernible by the human ear.

136. The operational noise assessment also indicates that noise emissions would comply with applicable criteria at other land uses (e.g. churches, schools, commercial premises, etc.).

137. Cumulative assessment indicates that no additional receivers would be affected with the combined emissions of the project and other mines (including Bengalla, Mount Arthur, Mangoola and Dartbrook), beyond those receivers predicted to be affected by project-specific noise emissions.

138. Following provision of additional information from MACH, the EPA confirmed that it accepts the noise assessment, and has provided recommended operational noise criteria.

139. The EPA did note that it assumes that the 30 receivers with noise-related acquisition rights and 20 receivers with mitigation rights under the existing consent would retain these rights under any consent for the project.

140. The Department acknowledges this point, but notes that the previous derivation of significantly and moderately affected receivers was based on former mine planning and noise assessment, which would no longer be relevant for the project (if approved). Some of the receivers have also been since acquired by MACH. As such, the Department does not believe that these legacy acquisition/mitigation rights should carry over to the project. Consequently, the Department's recommendation is that the derivation of acquisition/mitigation rights for the project is based on the contemporary noise assessment of the revised mine proposal. This approach is consistent with the VLAMP.

141. The Department is satisfied that MACH has implemented reasonable and feasible measures to reduce operational noise impacts as far as practicable, and that these measures would generally improve noise amenity in the surrounding area compared to the approved mine.

Low Frequency Noise

142. The EPA initially queried the assessment of low frequency noise in the EIS, but based on additional information from MACH, accepts that low frequency noise and other annoying noise characteristics is not a significant issue for the existing Mount Pleasant mine or the project.

143. Notwithstanding, the Department's recommended conditions require MACH to monitor and consider low frequency noise as part of its Noise Management Plan.

Construction Noise

144. Construction noise for the project has generally been considered as part of the operational noise assessment, and would be similar to the operational noise impacts, and managed under the operational noise limits.

145. Construction of some infrastructure, including the Northern Link Road, would be distinct from the operational noise emissions due to the location of the works, however these works are not predicted to result in significant noise impacts on any receivers that do not have acquisition rights for operational noise impacts.

Sleep Disturbance

146. The noise assessment indicates that one receiver (Receiver 156a) would experience a minor exceedance (1 decibel) of the applicable sleep disturbance screening criterion (i.e. 52dB L_{Amax}). This receiver is located in Kayuga to the north of the mine, and is also predicted to be significantly affected by operational noise associated with the project. It also already has acquisition rights under the existing approval.

147. The Department has recommended conditions requiring MACH to acquire this property and/or undertake additional noise mitigation at the residence, at the landowner's request.

148. Following advice from the EPA, the Department has also recommended conditions requiring MACH to comply with a sleep disturbance criteria of 45 dB $L_{A1(1min)}$ for all residences outside the noise affected area (apart from a small number where predictions are slightly above 45dB and have been assigned criteria accordingly), which is consistent with the noise criterion in the existing consent.

Rail Noise

149. Train movements associated with the project would increase from the approved average of 3 laden trains a day to 6.5 laden trains a day, although maximum movements would only increase from 9 laden trains a day to 10 laden trains a day.

150. With the proposed noise barrier along a considerable portion of the southern side of the approved Stage 2 rail infrastructure spur, the noise assessment indicates that rail noise on the spur (i.e. the non-network portion of the rail line) would generally comply with the applicable rail noise criteria (i.e. 40 dB L_{Aeq} at night), although 2 receivers near the rail spur in the Racecourse Road area (Receivers 20 and 21) would experience negligible exceedances of the criteria (i.e. 2 dB exceedance).

151. Both of these receivers are also predicted to be moderately affected by operational noise from the project, and would be entitled to voluntary mitigation measures at the receiver in accordance with the VLAMP. The Department considers that this measure would assist in mitigating rail noise at these receivers.

152. With regard to train movements on the wider public rail network, the noise assessment indicates that the project would increase rail noise on the network by up to 1.9 dB at night on the Muswellbrook-Ulan Rail Line and 0.7 dB on the Main Northern Rail Line, which complies with the 2 dB increase threshold under the *Rail Infrastructure Noise Guideline*.

153. The Department accepts that rail noise associated with the project is unlikely to result in significant impacts on receivers. To ensure that rail noise is minimised as far as reasonable and feasible, the Department has recommended conditions requiring MACH to ensure that only best practice locomotives and rolling stock are used by the project.

Road Noise

154. The noise assessment indicates that the project would cause road noise to exceed relevant road noise guideline criteria at 5 receivers (Receivers 43, 121, 156a, 159 and 526), however the incremental increase would be minor and within the threshold in the *Road Noise Policy* (i.e. up to 2 dB).

155. All of these receivers, with the exception of Receiver 526, are also predicted to be moderately or significantly affected by operational noise, and would therefore be entitled to mitigation and/or acquisition in accordance with the VLAMP.

Conclusion

156. The Department and the EPA considers that MACH has appropriately assessed the potential noise impacts associated with the project.

157. Based on this assessment, the Department acknowledges that MACH's operational and noise management planning (including the staged increase in production, removal of the coal conveyor approved as part of Mod 1, eastern emplacement design, rail noise barrier and operational adjustments) has achieved a reduction in noise impacts compared to the existing mine, despite the proposed increase in production.

158. The Department considers that the residual noise impacts of the project can be adequately minimised, managed or at least compensated. To ensure this occurs, the Department has recommended conditions requiring MACH to:

- acquire the properties predicted to be significantly affected, if requested by the landowner;
- undertake additional noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at residences which are predicted to be significantly or moderately affected, if requested by landowner;
- comply with contemporary operational noise limits;
- develop a comprehensive Noise Management Plan, including real-time noise monitoring and an active management system which includes an early warning alert system to identify and manage potential exceedances;
- independently investigate noise complaints and undertake applicable management measures; and
- communicate mining operations with the community, including publicly reporting all monitoring results, and effectively responding to enquiries and complaints.

6.3 Air Quality and Greenhouse Gas

Introduction

159. Open cut coal mining has the potential to lead to a decrease in air quality by increasing dust emissions which become airborne and lead to potential impacts on the health of nearby residents and the amenity of the local area. Potential impacts on air quality in the Hunter Valley is known to be a contentious issue with the nearby residents and has been raised in the vast majority of submissions regarding this project (see **Section 5.4**).

160. The key air quality issues for the project are associated with dust from general mining activities, fume from blasting activities and emissions of pollutants from machinery exhausts.

161. The EIS includes a detailed air quality assessment undertaken by Todoroski Air Sciences (TAS), which was peer reviewed by Katestone Environmental. It also includes a Greenhouse Gas (GHG) assessment undertaken by TAS and MACH.

162. The existing mine implements a number of air quality mitigation measures, including a comprehensive air quality management system which uses real-time monitoring and predictive meteorological forecasting to predict dust-generating conditions, and implement adaptive operational management measures to minimise the risk of air quality exceedances.

163. MACH is also trialling a LIDAR-based dust surveillance system and polymer dust suppressants. MACH's EPL also includes conditions requiring it to suspend some dust-generating activities in adverse conditions.

164. Air quality monitoring indicates that the existing mine generally complies with applicable criteria at receiver locations outside the mine's acquisition area. However, as with noise, the mine does receive semi-regular complaints in relation to air quality, with 46 complaints received between April 2017 and September 2020 (i.e. approximately one complaint per month). Many of these occurred during the drought and bushfire conditions in late 2019.

165. The air quality assessment included 6 modelling scenarios to represent worst-case air quality emissions at different mining stages and production.

166. The EPA initially requested additional information in relation to the air quality assessment methodology and approach, including details on the reactive management measures modelled, assessment of 24-hour cumulative impacts, post mining activities, and the status of receivers with acquisition rights. Following the provision of additional clarifying information, the EPA considers that the assessment is adequate for assessing the air quality impacts of the project.

167. Given the proximity of Mount Pleasant to Muswellbrook and surrounding sensitive receivers, and the air quality concerns raised in public submissions, the Department engaged Jane Barnett of Zephyr Environmental to undertake an independent peer review of the air quality assessment. The review is attached in **Appendix F**.

168. Ms Barnett also initially identified a number of information gaps and technical issues in MACH's air quality assessment. Following provision of additional information, Ms Barnett indicated that, although additional site-specific data could have been collected to further support some of the values relied upon in the modelling, she is satisfied that the findings and predictions of the air quality assessment are reasonable and fit for purpose.

Cumulative Annual Average Dust Impacts

169. As with the existing mine, the air quality assessment indicates that the project would exceed applicable criteria at some receivers.

170. A summary of the predicted exceedances of cumulative annual average air quality criteria is presented in **Table 6** below, and the affected receivers are shown on **Figure 14**.

171. As indicated in the table, 4 privately-owned receivers (on 3 properties) are predicted to exceed cumulative annual average air quality criteria. All of these receivers are located to the south (Receivers 487, 488a and 488b) or south-west (Receiver 43) of the mine, in close proximity to the Bengalla and/or Mount Arthur mines. All are predicted to be affected with or without the contribution from the project, and the contribution from the project is minor.

Table 6 | Summary of Cumulative Annual Average Dust Criteria Exceedances[1]

Dust Metric	Receiver	Cumulative Annual Average ($\mu g/m^3$)	Contribution from Project ($\mu g/m^3$)	Criteria ($\mu g/m^3$)
PM_{10}	43	64	1	25
	487	28	<1	
	488a	44	<1	
	488b	35	<1	
$PM_{2.5}$	43	8	<1	8
Total Suspended Particulates (TSP)	43	128	2	90
Dust Deposition	43	4.3 g/m^2/month	<1 g/m^2/month	4 g/m^2/month

[1] Worst case for all scenarios

Project-only 24-Hour Dust Impacts

172. A summary of the predicted exceedances of project only short-term (24-hour) PM_{10} air quality criteria is presented in **Table 7**, and representative worst-case dust contours are shown on **Figure 14**.

173. It is noted that no receivers are predicted to exceed the project only 24 hour $PM_{2.5}$ criteria.

174. As indicated in the table, 8 privately-owned receivers (on 7 properties) are predicted to exceed the 24-hour PM_{10} criteria at some stage during the project, and have therefore been afforded acquisition rights in accordance with the VLAMP. All of these receivers are located in the Kayuga and Dorset Road areas to the north of the mine.

175. All of these receivers are also predicted to be significantly affected by noise associated with the project, and most already have acquisition rights under the existing consent (see **Table 6**). The only exceptions are Receivers 154 and 154b, which have mitigation rights under the existing consent.

176. In addition to these receivers, one additional land parcel (Receiver 143e) is predicted to be affected over more than 25% of the land area. This property is also predicted to be significantly affected by noise associated with the project, and is also within the existing acquisition area for the mine.

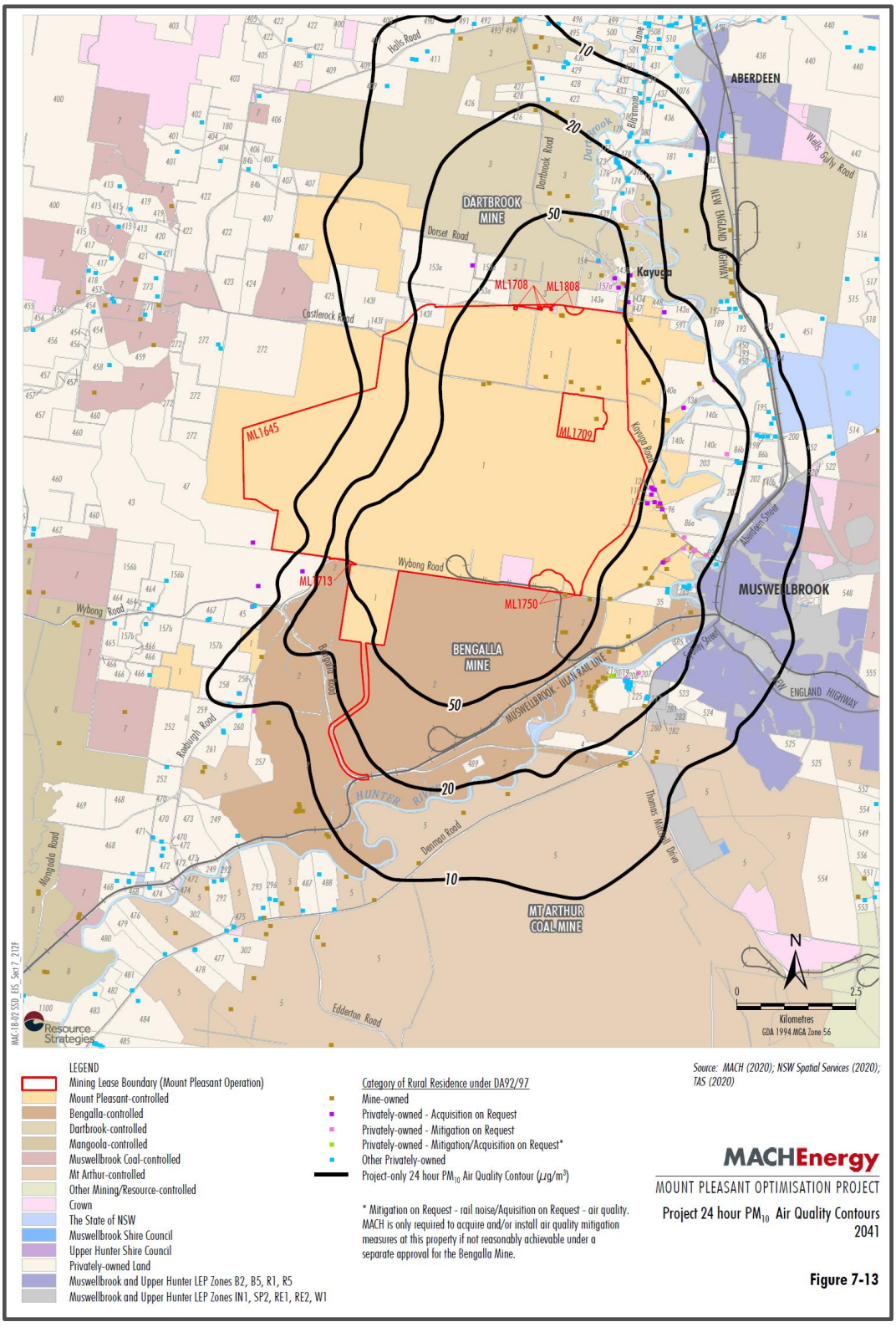

Figure 14 | Project 24 Hour PM_{10} Contours

Table 7 | Summary of Project-only 24 hour PM_{10} Dust Criteria Exceedances[1]

Receiver	Project-only 24 hour Average (µg/m³)	Number of days >50 µg/m³	Criteria (µg/m³)
143b	70	2	50
147	74	2	
153a	60	1	
154	100	19	
154b	100	19	
156a	104	12	
157a	97	10	
159	79	3	

[1] Worst case for all scenarios

Cumulative 24-hour Dust Impacts

177. Cumulative air quality impacts were raised in a large number of submissions on the project, and it is expected that these primarily relate to short-term (24 hour) impacts, when dry and/or dusty conditions result in exceedances of air quality goals on a regional basis over a day or number of days.

178. The quantitative assessment of short-term (24-hour) dust impacts is based on a project-only basis under the Department's *Voluntary Land Acquisition and Mitigation Policy*. Further, cumulative assessment of 24-hour particulate matter is problematic for a range of technical reasons (including the large variance in background 24-hour PM levels).

179. To assess cumulative 24-hour particulate impacts, the air quality assessment for the project includes a contemporaneous assessment to analyse the potential for additional exceedances of the maximum cumulative 24-hour average PM_{10} and $PM_{2.5}$ criteria.

180. The assessment indicates that, without the implementation of reactive management measures, additional exceedances are likely at a number of privately-owned receivers surrounding the mine.

181. However, with the continued implementation of reactive management measures, the assessment indicates that the project would not result in any additional days of exceedances of the 24-hour PM_{10} criteria, but may result in one additional day of exceedance of the $PM_{2.5}$ criteria at 5 receivers on 4 properties (Receivers 112, 118, 120, 120c and 121).

182. All of these receivers are within the acquisition area for noise impacts associated with the existing mine, and all except Receiver 112 are also predicted to be significantly affected by noise from the project (see **Table 6**). Regardless, these receivers have also been afforded acquisition rights for air quality in accordance with the VLAMP.

183. The reactive measures adopted in the assessment involved pausing mining activities in the open cut and overburden emplacement areas during conditions that could lead to exceedances. The air quality assessment assumed that CHPP-related activities would continue under adverse conditions, as well as emissions that cannot be paused (e.g. wind erosion of exposed areas).

184. In practice, MACH has committed to implement a range of proactive/reactive measures consistent with its real-time dust monitoring and management system, which includes various triggers for actions that are unique to each real-time monitor. When relevant meteorological conditions occur (i.e. source to receiver winds), and have the potential to result in exceedances, temporary operational measures are implemented such as relocating operations to less exposed areas, increasing watering rates, or progressively shutting down equipment.

185. Additional analysis provided by MACH indicates that these measures would be effective at mitigating short-term dust levels at receivers.

186. The EPA was generally satisfied with this additional analysis, but has recommended that MACH be required to undertake annual reviews of the proactive/reactive management measures, including detail on air quality monitoring, trigger levels and proactive/reactive actions undertaken, the frequency of such actions being implemented, an evaluation of their effectiveness, and recommendations for improvement. The Department agrees, and has recommended conditions in this regard.

Other Impacts

187. The air quality assessment indicates that particulate emissions would exceed criteria at some mine-owned receivers and non-inhabited residences, with impacts similar to those of the existing mine.

188. The assessment also includes consideration and modelling of other potential air quality impacts, including blast fume emissions, spontaneous combustion, and coal transport emissions.

189. The assessment indicates that emissions from these sources would comply with applicable criteria, subject to the continued implementation of standard best practice measures, such as good blast design.

Greenhouse Gas Emissions

190. All coal seams contain some level of gas as a consequence of how the coal is formed. These gases escape (i.e. become 'fugitive') during both open-cut and underground mining operations. However, open cut mines are typically shallower than underground mines generally resulting in lower fugitive emissions per unit of coal.

191. Fugitive emissions from mining are a significant component of GHG emissions and account for approximately 9-10% of NSW emissions. Emission of greenhouse gases, and the associated contribution to climate change was raised in the vast majority of submissions objecting to the Project (see **Section 5.4**).

192. GHG emissions are divided into three categories:

- Scope 1: emissions released to the atmosphere as a direct result of an activity;
- Scope 2: emissions released to the atmosphere from the indirect consumption of energy; and
- Scope 3: indirect emissions (other than Scope 2 emissions) generated in the wider economy, which occur as a consequence of the activities of a facility, but from sources not controlled by that facility.

193. GHG emissions associated with the project are summarised in **Table 8** below.

Table 8 | Direct and Indirect GHG Emissions[1]

Scope	Key GHG Source(s)	Estimated GHG Emissions (Mt CO_2-e)	
		Annual Average	Total
Scope 1	Mining and extraction related (e.g. diesel use, explosives, vegetation clearing, fugitive emissions)	0.54	13.9
Scope 2	Upstream electricity	0.08	2.17
Scope 3	Downstream emissions (e.g. transport of product coal, downstream coal use)	33.1	860
Total (excluding Scope 3)		**0.62**	**16.07**
Total (including Scope 3)		**33.72**	**876.07**

[1] As per updated GHG calculations dated 31 March 2022

194. The assessment indicates that 98% of the total GHG emissions generated as a consequence of the project are those associated with the downstream burning of product called (i.e. Scope 3 indirect emissions).

195. With regard to the direct emissions (Scopes 1 and 2), the assessment calculates that the emissions intensity of the project emissions is approximately 0.02 t CO_2-e per tonne of ROM coal. This is at the lower end of the scale compared to other open cut coal mining operations in NSW, which have emissions intensities of up to 0.061.

196. The lower emissions intensity of the project reflects the relatively low strip ratios at the mine, (i.e. less overburden required to be moved resulting in less truck movements and lower emissions) and the lower cost of production as a result of the existing infrastructure and established mining areas.

197. MACH also notes that the Scope 1 emissions are within the mine's current 'Safeguard Mechanism' baseline emissions value of approximately 0.664 Mt CO_2-e per year. The Safeguard Mechanism, established through the *National Greenhouse and Energy Reporting Act 2007* (NGER Act), establishes a baseline level of emissions for large facilities. If the Safeguard Mechanism baseline is exceeded, facilities are required to offset the exceedance amount by acquiring carbon credit units.

198. The project's Scope 1 and 2 GHG emissions represent approximately 0.1% of Australia's annual GHG emissions and 0.5% of NSW's annual GHG emissions, and the Scope 3 emissions represent a very small proportion (approximately 0.06%) of yearly global emissions.

199. The Climate and Atmospheric Science (CAS) Branch within the EES has also confirmed that the project has been accounted for in the NSW GHG emissions projections in the Department's *Net Zero Stage 1: 2020-2030 Implementation Update*. The projections used in CAS's net zero emissions modelling for the project are conservatively higher than MACH's projections.

200. Nonetheless, CAS did recommend that MACH be required to provide a more detailed consideration of Scope 1 and 2 GHG mitigation measures, particularly in regard to diesel consumption, fugitive methane emissions (including feasibility of methane pre-drainage and beneficial re-use), and the feasibility of purchasing offsets for emissions.

201. In this regard, the EIS was relatively light on detail of GHG mitigation measures, with MACH's proposed measures including:

- ensuring efficient diesel use, through:
  - optimising haul road design to minimise travel distances;
  - minimising material re-handling; and
  - maintaining the fleet in good order;
- reviewing and updating Scope 1 GHG mitigation measures; and
- investigating reasonable and feasible measures to reduce Scope 2 emissions (e.g. sourcing a portion of electricity from renewable sources).

202. MACH provided a detailed response to each of the questions raised by CAS, including a contemporary estimate of fugitive emissions based on the current Global Warming Potential of methane using site-specific data in accordance with the 'Method 2' approach described in the *Guidelines for the Implementation of NGER Method 2 and 3 for Open Cut Coal Mine Fugitive GHG Emissions Reporting.*

203. MACH also confirmed it would evaluate available feasible and reasonable mining technologies, with a particular focus on improving mining efficiency and environmental performance and proposes to introduce Ultra Class fleet items (i.e. larger fleet offering lower fuel consumption per unit) from approximately 2027, which would aim to improve mining efficiency, including some diesel consumption efficiency.

204. Further to the above, MACH confirmed that pre-draining the coal seam gas to reduce fugitive emissions is not considered to be practical or feasible given that:

- the existing gas content is relatively low due to shallow coal seams and/or depressurisation from existing mining;
- the low gas contents and low gas saturation would require high levels of advance depressurisation/dewatering and stimulation (including fracking) to stimulate sufficient gas liberation;
- these physical limitations would require many drainage wells to be developed, which would be very capital intensive and generate additional GHG emissions; and
- the low gas contents would result in a significant proportion of the in-situ gases remaining locked in the coal matrix, irrespective of the advance depressurisation and fracking.

205. Fugitive emissions are predicted to gradually increase over the life of the project as mining progresses deeper (and gas content increases), to a peak of around 0.5 Mt CO_2-e in the early 2040s, before reducing to relatively low levels by the end of mining.

206. As outlined in **Section 3**, the Department acknowledges that a global transition away from fossil fuels to low carbon energy sources to meet commitments under the Paris Agreement is required to meet the changes presented by climate change, and that this transition has begun.

207. However, in the short-medium term, demand for coal is likely to continue and the Department accepts that the project is consistent with the objectives of Australia's *Long-Term Emissions Reduction Plan* and the NSW Government's *Strategic Statement on Coal Exploration and Mining in NSW (2020)*.

208. Importantly, as detailed above, the Scope 1 and Scope 2 emissions associated with the project would have a relatively low emissions intensity compared to other coal mining projects and, importantly, these emissions have been accounted for in the NSW GHG emissions projections in the NSW Government's Net Zero Plan.

209. On balance, the Department considers that the residual GHG impacts of the project are acceptable, particularly as the project represents a continuation of existing mining activities, and would make use of considerable existing infrastructure.

210. To ensure that GHG emissions are minimised to the greatest extent practicable, the Department has recommended conditions requiring MACH to:

- limit GHG emissions to no greater than predicted in the EIS and subsequent additional information (see **Appendix F**), through strict Scope 1 and 2 performance measures; and
- regularly review new technologies and other options to further reduce Scope 1 and 2 GHG emissions, and implement these measures where reasonable and feasible to continually reduce GHG emissions over the duration of the project.

211. These measures would be undertaken in accordance with a detailed Air Quality and Greenhouse Gas Management Plan, prepared in consultation with CAS and the EPA.

Conclusion

212. The Department and the EPA both consider that MACH has appropriately assessed the potential air quality and GHG impacts associated with the project.

213. This assessment indicates that the Scope 1 and 2 GHG emissions associated with the project would comprise approximately 0.1% of Australia's NDC, and are relatively low compared to contemporary coal mining projects given the brownfields nature of the mine.

214. With regard to air quality, the assessment indicates that the applicable criteria may be exceeded at up to 13 receivers and one land parcel as a result of the project, including:

- 8 receivers (on 7 properties) in the Kayuga area predicted to exceed short term project-only PM_{10} criteria (Receivers 143b, 147, 153a, 154, 154b, 156a, 157a and 159);
- 1 land parcel in the Kayuga area predicted to exceed short term project-only PM_{10} criteria (Receiver 143e); and
- 5 receivers (on 4 properties) in the Collins Lane / Kayuga Road area predicted to exceed short term cumulative $PM_{2.5}$ criteria (Receivers 112, 118, 120, 120c and 121).

215. All of these receivers are already within the acquisition area for the existing mine, except for Receivers 154 and 154b which are within the mitigation area for noise impacts.

216. A further 4 receivers (on 3 properties) to the south of the mine are predicted to exceed cumulative annual average air quality criteria, although the project's contribution to these exceedances would be minor.

217. Notwithstanding any existing acquisition rights for noise, the Department has recommended conditions affording each of these 14 receivers acquisition rights for air quality.

218. Whilst the predicted residual air quality impacts are not insignificant, the Department recognises that they are similar to those of the approved mine, noting however that impacts would be extended due to operating for a longer period, and is satisfied that the impacts of the project can be adequately minimised, managed or at least compensated to achieve an acceptable level of environmental performance. To ensure this occurs, the Department has recommended conditions requiring MACH to:

- acquire the properties predicted to be significantly affected, if requested by the landowner;
- manage affected receivers (including mine-owned receivers) to minimise dust-related health risks, including providing mitigation measures, information and monitoring;
- comply with contemporary air quality criteria for all other receivers;
- limit Scope 1 and 2 GHG emissions to no greater than predicted in the EIS and subsequent additional information (see **Appendix F**), and undertake regular reviews to further reduce these emissions;
- implement all other reasonable and feasible measures to minimise air quality and GHG emissions;
- develop a comprehensive Air Quality and GHG Management Plan, including a real-time dust monitoring program and an active management system;
- undertake annual reviews of the active management system (as part of a broader Annual Review);
- independently investigate air quality complaints and undertake applicable management measures;
- respond effectively to enquiries or complaints; and
- publicly report on its environmental performance.

6.4 Water Resources

Introduction

219. Open cut coal mining has the potential to have significant impacts on both the groundwater and surface water environments of the wider locality. All mining operations have some level of impact on groundwater resources as the extraction of the coal seam leads to depressurisation and fracturing of the overlying strata, which can affect surrounding aquifers. Similarly, mining operations can lead to loss of surface water from overland flow and diversion of existing watercourses.

220. In addition to impacts on water quantity, mining can result in decreased quality of the surrounding groundwater and surface water resources through seepage of poor quality water into the groundwater systems and/or uncontrolled releases to the local watercourses.

221. The EIS includes a number of water resource assessments to evaluate the incremental and cumulative effects of the project, including a:

- groundwater assessment, undertaken by Australasian Groundwater & Environmental Consultants (AGE);
- peer review of the groundwater assessment, undertaken by Brian Barnett of Jacobs;
- surface water assessment, undertaken by Hydro Engineering & Consulting (HEC); and

- geochemistry assessment, undertaken by RGS Environmental.

222. DPE Water and the EPA initially requested some additional information on technical aspects of the groundwater and surface water assessments, respectively.

223. DPE Water requested additional consideration of the groundwater model sensitivity to hydraulic conductivity (including as a result of increased permeability due to blast-related effects), and further information in relation to impacts (including cumulative impacts) on groundwater dependent ecosystems (GDEs), drawdown at private bores, management and monitoring of Potential Acid Forming (PAF) material, and some technical details on the groundwater model.

224. The EPA requested further detail on the water balance, including consideration of drinking water and wastewater, and consideration of the frequency of surface water discharges from the site, and the risks and impacts associated with such discharges.

225. Following the provision of additional information in the Submissions Report, the agencies and the Department consider that the assessments have been prepared in accordance with applicable guidelines and standards, and are 'fit for purpose' to assess the water-related impacts of the project.

226. The Department also engaged Hugh Middlemis of HydroGeoLogic to undertake an independent peer review of MACH's groundwater assessment, as it relates to the post-mining final void. The review is attached in **Appendix F**.

227. Mr Middlemis' initial review agreed that the groundwater assessment was, in general, fit for purpose. However, he raised a number of technical issues with the model as well as issues around the water quality of the final void and MACH's characterisation of the final void as 'non-polluting', as well as what he believed to be a lack of consideration of options that involve filling the final void.

228. While the technical issues were resolved through additional information provided by MACH (including additional assessment dated 23 December 2021), Mr Middlemis recommended that ongoing investigation of matters to minimise water resource impacts associated with the final landform and final void should be undertaken as part of the mining, rehabilitation and environmental management plans for the project. These issues are considered below.

Catchment Context

229. The site is located in the Hunter River catchment, with the river located approximately 1 kilometre to the east of the project area (see **Figure 15**).

230. A number of ephemeral tributaries of local creeks, including Rosebrook Creek, Dry Creek and Sandy Creek are located within the site (see **Figure 16**). These drainage lines are affected by existing mining operations in the locality.

Groundwater Aquifer Context

231. There are two main aquifer systems in the vicinity of the project area (see **Figure 17**), including:

- alluvium associated with the Hunter River, Sandy Creek and Dart Brook; and
- Permian strata that hosts the coal measures.

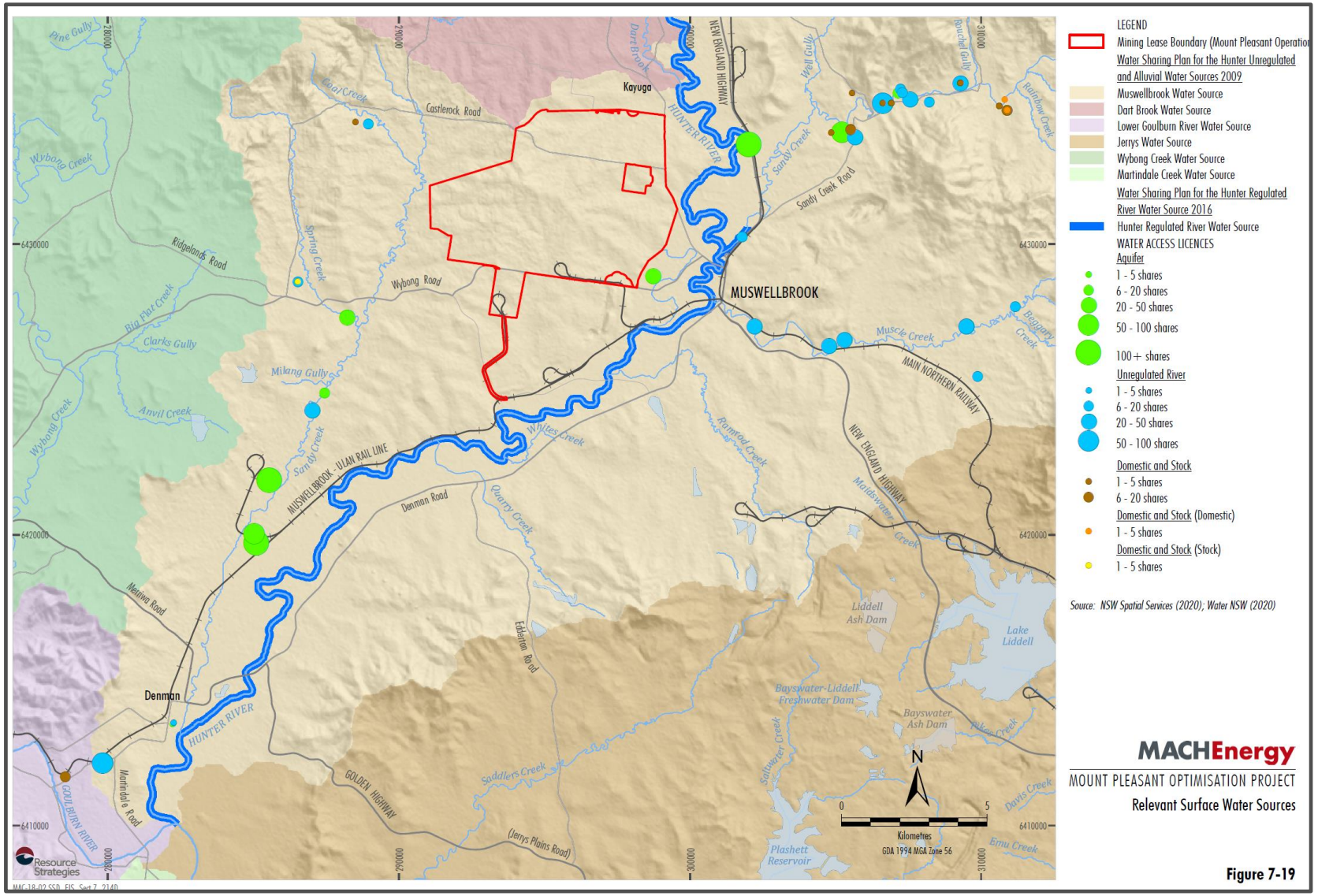

Figure 15 | Surface Water Sources

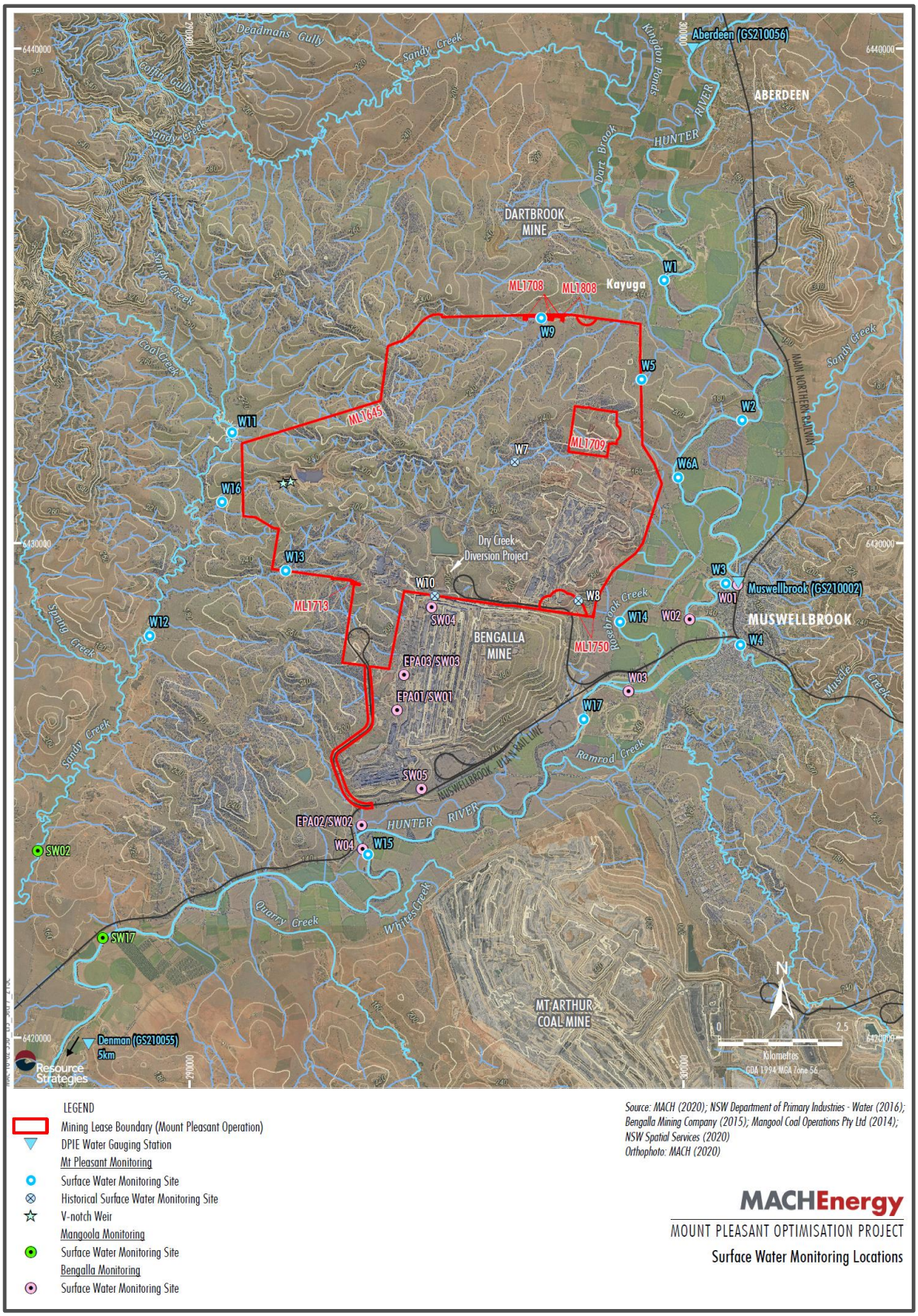

Figure 16 | Local Drainage

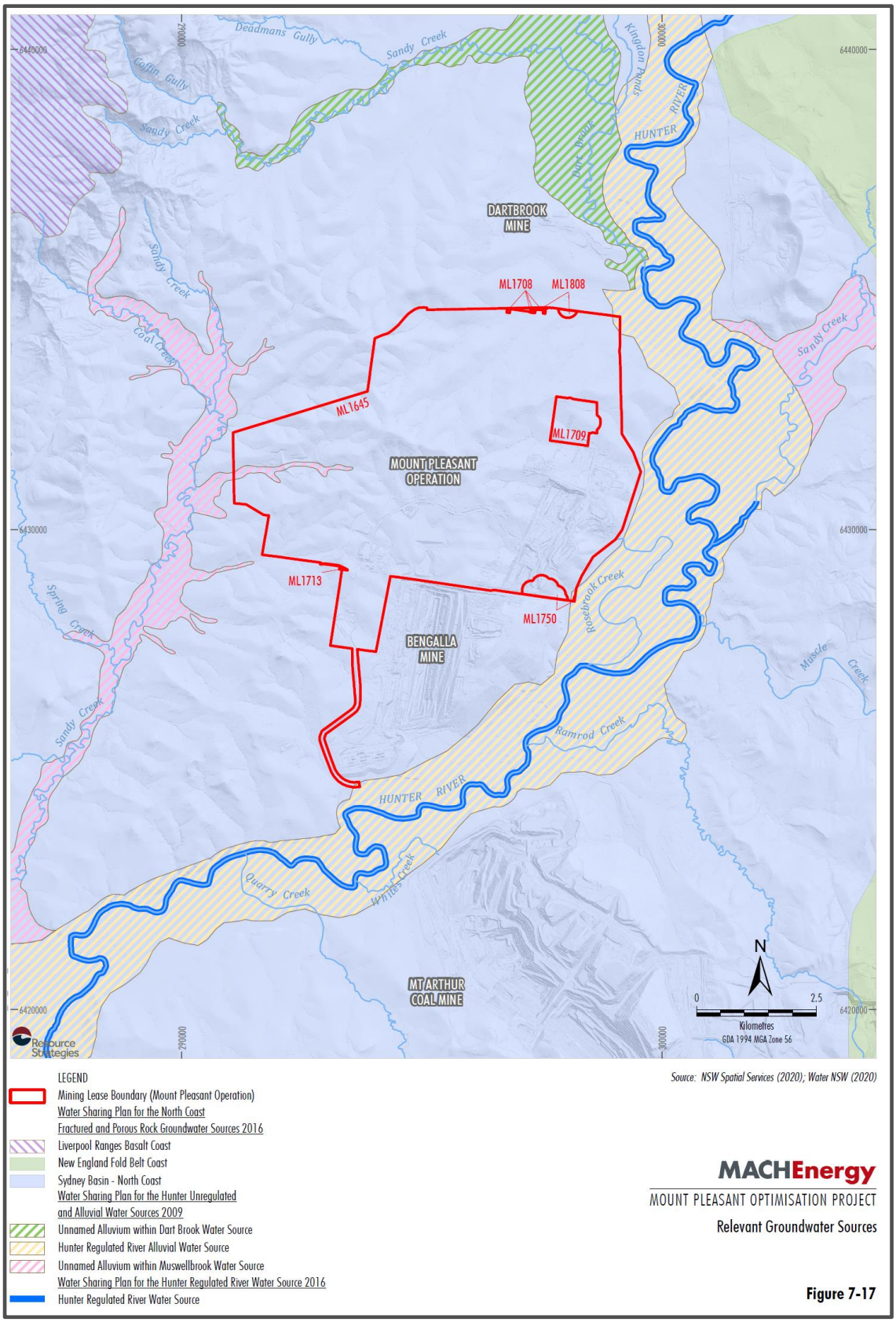

Figure 17 | Groundwater Sources

232. The alluvium is the more highly valued aquifer unit, with generally good water quality and yields (though this does vary). The alluvium associated with the Hunter River, including along Sandy Creek and Dart Brook, is classified as 'highly productive' in accordance with the *NSW Aquifer Interference Policy* (AIP).

233. The Permian groundwater system is mapped as a 'less productive' aquifer, with generally poor water quality and low yields that preclude significant beneficial use.

Surface Water Impacts

234. The project would increase the catchment area excised from the Hunter River during mining from 20.1 km^2 to 24.1 km^2, which equates to 0.55% of the total catchment area. This would result in a reduction in mean annual flows in the catchment of approximately 1,570 ML (0.55%), which is unlikely to be discernible.

235. Local catchments would have a greater area of catchment excised (i.e. Sandy Creek 5.3%, Rosebrook Creek 63%, and Dry Creek 20%), however the excised areas are similar to the approved project, and the catchments within the site are highly ephemeral and/or modified.

236. Catchment areas would be largely restored post mining, although there would be a small reduction in the Hunter River catchment associated with losses to the final void catchment (i.e. 525 ML, representing 0.18% of the mean annual flow at Muswellbrook). This is less than that predicted for the approved project (due to lower flows towards the final void). Baseflow losses are also predicted to be small, with a loss of 0.01% to the Hunter River during mining, and 0.02% after closure.

237. MACH proposes to continue to undertake controlled releases from the mine during heavy rainfall periods in accordance with the Hunter River Salinity Trading Scheme (HRSTS). The water assessment indicates that, on average, 66 ML/yr would be discharged to Rosebrook Creek (and 125 ML/yr based on the 95th percentile), and 469 ML/yr to the Hunter River (and 909 ML/yr based on the 95th percentile).

238. The assessment indicates that the releases can be undertaken in a manner that complies with the rules of the HRSTS, and the water quality objectives for the Hunter River.

239. Although the EPA states that MACH could have conducted assessment of additional measures to minimise the need for discharges to further reduce downstream water pollution risk, the EPA accepts the findings of the assessment, and acknowledges MACH's commitments to on-site water recycling.

240. As such, the EPA recommended conditions requiring MACH to revise the site water balance with the aim of minimising licenced extraction from the Hunter River and reducing discharges under the HRSTS. It also recommended conditions requiring MACH to prepare a water pollution impact assessment for discharges. The Department concurs and has recommended conditions in this regard.

Groundwater Impacts

241. The groundwater assessment predicts that groundwater inflows (from the Permian aquifer) to the mine would peak at approximately 303 ML/yr (in 2034/5). This is not significantly more than that currently predicted for the approved mine (i.e. 270 ML/yr in 2024/5), and is less than that originally predicted for the approved mine (i.e. 690 ML/yr). This reduction is due to improvements in modelling, and the desaturation caused by neighbouring mines since the original approval was granted.

242. There would be no direct water take from the alluvium, although indirect water take would occur as a result of induced drawdown. Indirect take from the alluvium would peak at 27 ML/yr in the Hunter River by the end of mining, 2 ML/yr in the Sandy Creek alluvium, and 6 ML/yr in the Dart Brook alluvium (see **Figure 18**). This indirect water take would continue to increase for some time after the end of mining (see **Table 9** below).

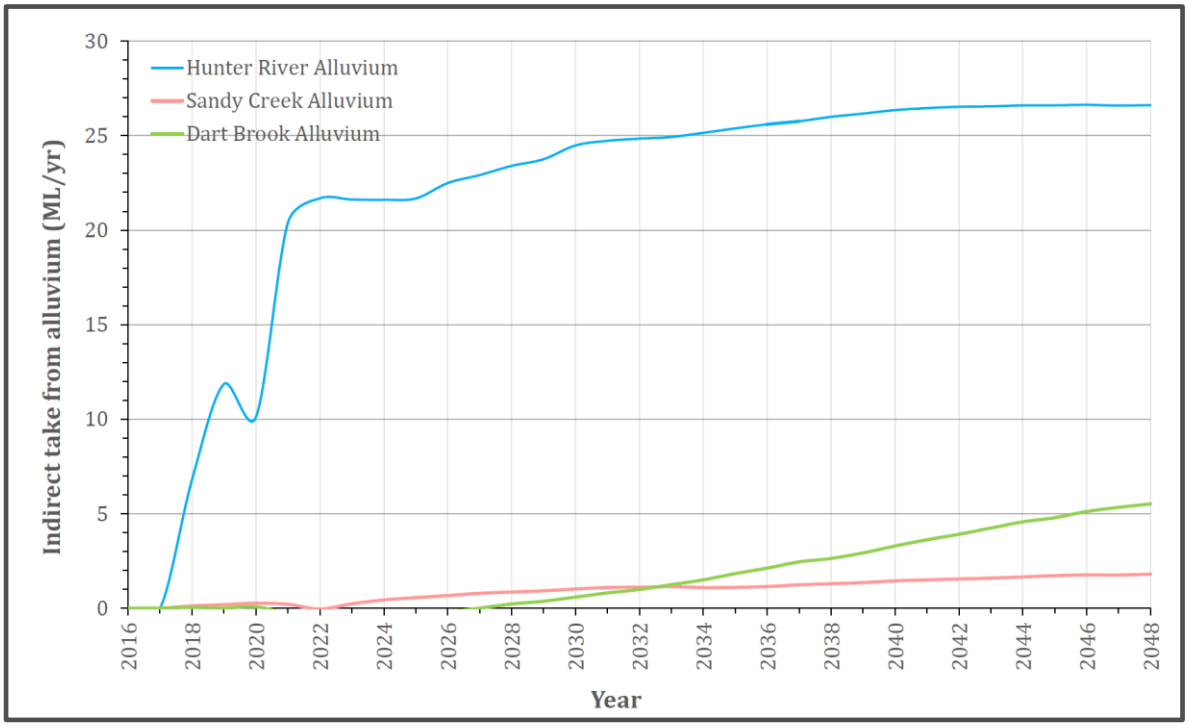

Figure 18 | Indirect Alluvium Groundwater Take

243. MACH already holds sufficient water licences to account for all water take as a result of the project, with the exception of a small amount (up to 13 ML/yr) from the Dart Brook water source. The water take and licencing requirements are summarised in **Table 9**.

Table 9 | Water Licencing Requirements

Water Sharing Plan	Water Source	Existing MACH Licences (units)	Water Take (ML/yr)	
			During Mining	Post Mining
Hunter Regulated River Water Source 2016	Hunter Regulated River (Management Zone 1A)	960 (high security) 2,937 (general security)	27	32
Hunter Unregulated and Alluvial Water Sources 2009	Hunter Regulated River Alluvial	285	27	34
	Muswellbrook	41	2	6
	Dart Brook	Nil	6	13
North Coast Fractured and Porous Rock Groundwater Sources 2016	Sydney Basin	730	247	44 (547 if spoil included)

244. Additional sensitivity modelling undertaken by MACH in the Submissions Report (as requested by DPE Water) indicates that the potential for increased permeability in the area surrounding the open cut due to blasting would have negligible impact on the predicted water take in the respective aquifers.

245. The Department consider that MACH would be able to readily obtain the relatively small additional required water licences in the Dart Brook water source, given the depth of the market in the water source (i.e. 30,000 units total), and the active trading history in the water source (e.g. 2,697 units were traded in 2019/20).

246. DPE Water is also satisfied with the predicted water take, but recommends that MACH be required to obtain the necessary additional water licences prior to water take. The Department concurs, and has recommended conditions in this regard.

247. The groundwater assessment does indicate that up to 6 privately-owned groundwater bores could exceed the AIP minimal impact considerations (i.e. more than 2 metres drawdown) due to the cumulative impacts on the project and neighbouring mines (see **Table 10**). However, two of these bores are already dry, and a further three are not currently in use and/or are monitoring bores. Only one bore ('Belgrave') is active and not dry, and is predicted to experience more than 2 metres of drawdown as a result of the project.

248. The Belgrave bore accesses the less productive Permian groundwater source, and has elevated salinity (EC has ranged from 5,000 µS/cm to 12,500 µS/cm). It has also been historically affected by the Dartbrook mine, and as such the project-related impacts are not expected to significantly impact the groundwater user.

249. Nonetheless, the Department has recommended conditions requiring MACH to provide compensatory water supplies to the affected groundwater users, at the request of the landowner.

Table 10 | Drawdown in Private Bores

Bore ID	Electrical Conductivity (µS/cm)	Max Drawdown (m)		Type
		All Mining	Project	
Belgrave	6,280	7.74	3.31	Well – stock and monitoring
CAS1-G	8.040	12.03	7.15	Bore – not in use
CAS2-G	13,045	13.8	3.44	Bore – monitoring – not in use
CAS3-G	Dry	15.94	3.43	Bore – not in use
CAS4-G	10,585	33.51	2.10	Bore – monitoring – not in use
JLON1	Dry	12.11	9.34	Well and bore – monitoring

Groundwater Dependent Ecosystems

250. Groundwater Dependent Ecosystems (GDEs) in the vicinity of the project area include:

- the aquatic environment of Hunter River (Type 2 aquatic GDE);
- approximately 3 hectares of Forest Redgum Grassy Open Forest to the west of the mining area, within the Relinquishment Area (Type 3 terrestrial GDE); and
- stygofauna collected from bores accessing the Hunter River alluvium.

251. The groundwater assessment indicates that the project is unlikely to adversely affect any of these GDEs, both during and after the mining operations. Nevertheless, the Department has recommended conditions requiring MACH to monitor and protect the GDEs surrounding the project.

Groundwater Quality

252. DPE Water did request additional information on the proposed management and monitoring of Potential Acid Forming (PAF) material, particularly in relation to emplacement of fines material.

253. MACH's analysis in the EIS included modelling of the potential seepage from the fines emplacement area and final landform (through particle tracking). The modelling found that long term seepage would primarily report to the project's final void (and the Bengalla final void), due to the hydraulic gradient (groundwater sink) caused by the voids. This hydraulic gradient would prevent any contaminants from migrating away from the mining area.

254. Mr Middlemis is satisfied that MACH's additional assessment reasonably demonstrates that there is no potential for groundwater flow away from the final void lake, and that any PAF material exposed in the final void wall/floor would be adequately managed to minimise adverse impacts.

255. In this regard, any PAF material encountered (predicted to be a small proportion) would be managed in a manner that is consistent with contemporary mining standards and MACH's approved Mining Operations Plan. PAF material encountered during mining would be blended to produce a non-acid forming (NAF) material and disposed of in overburden emplacements, with a minimum final cover of 10 metres of inert material overlying any PAF material. Any PAF material exposed in the floor of the final void would be covered with at least 5 metres of inert NAF material, excavated and co-disposed as PAF in the emplacements, or flooded with water to prevent oxidation.

Final Void and Landform

256. As with the existing mine, the final void would act as a long-term groundwater sink. The project would consolidate the three final voids from the approved mine into a single final void, although this single void would be considerably larger and deeper than the approved voids.

257. The groundwater assessment in the EIS indicated that the equilibrium water level in the final void lake would be approximately 90 metres AHD, which is more than 110 metres below the spill level of the void. Additional groundwater review following the EIS (dated 23 December 2021) indicates that this level could be more likely to be approximately 75 metres AHD, or some 125 metres below the spill level[8]. Consequently, there would be no risk of the water in the void spilling to the external environment.

258. As with other final voids in the region (and the approved mine), the void lake would gradually increase in salinity over time. The groundwater assessment originally estimated that salinity would rise to 70,000 µS/cm after about 1,000 years, although this estimate was reduced to 25,000 µS/cm in MACH's revised assessment. The saline water would be contained in the void, due to the hydraulic gradient towards the void.

259. Mr Middlemis recommended that some aspects associated with the final landform and final void should be further investigated as part of ongoing mining, rehabilitation and environmental management for the project, including:

- consideration of groundwater aspects associated with final landform options, in particular the 'no void' option;
- sensitivity analysis of the final lake water and salt balances; and
- post-mining void lake water quality for a full range of potential pollutants.

260. With regard to the sensitivity analysis and void lake water quality, Mr Middlemis acknowledges that there is no potential for flow of poor quality groundwater away from the final void (given the hydraulic gradient towards the void), but notes that there are other potential causal pathways for impacts (e.g. human physical contact, stock or wildlife contact) that should be appropriately managed.

261. With regard to the options that involve filling the final void, MACH has considered this as part of its detailed mine and rehabilitation planning and EIS. Its analysis found that filling the void would not be a reasonable or feasible option, as it would:

- cost approximately $1 billion in additional rehabilitation;

[8] The additional assessment indicates that this change would have negligible effect on the predicted groundwater drawdown or water licencing requirements for the project.

- cause additional environmental risks (including potential seepage of groundwater towards the Hunter River) and inefficiencies associated with rehandling emplaced material, coal rejects and PAF; and
- result in substantial delays to rehabilitation and final land use.

262. Filling the void could also result in an increased risk of seepage from the fines emplacement area migrating off-site.

263. Notwithstanding, MACH has incorporated some mitigation measures into the design of the final void, including:

- backfilling approximately 1.5 kilometres of the northern part of the void;
- reducing the depth of the void in areas and decreasing internal batter slopes and the highwall angle; and
- applying geomorphic design concepts to the landform draining into the void.

264. The Department accepts that complete backfilling of the void is not a viable option, and may result in adverse environmental consequences (including seepage of contaminants off-site). The Department also acknowledges that MACH has implemented measures to reduce the long term impacts of the void.

265. Nevertheless, the Department has recommended conditions requiring MACH to minimise the size and catchment of the final void as far as practicable, to minimise any ongoing environmental impacts associated with the void and final landform, to comply with a number of best practice rehabilitation objectives, to prepare a detailed rehabilitation strategy and rehabilitation plan, and to implement comprehensive surface water and groundwater monitoring programs.

Conclusion

266. The Department, DPE Water and the EPA other agencies consider that the project can be managed such that it would not result in a significant impact to surface water and groundwater resources, subject to implementation of best practice mitigation measures.

267. To ensure that these measures are implemented appropriately, and to minimise impacts to water resources and water users, the Department has recommended conditions requiring MACH to:

- ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations on site to match its available water supply;
- ensure that all necessary water licences are obtained prior to water take occurring to account for any water take from mining activities;
- discharge water from the site only in accordance with the EPL and the HRSTS;
- provide compensatory water supplies to any private landowner whose water supply is adversely affected by the project;
- comply with a range of water management performance objectives and rehabilitation objectives, including designing and maintaining overburden emplacements to prevent migration of potentially acid forming materials;
- prepare and implement a comprehensive Water Management Plan including a:
  - water balance;

- surface water management plan and monitoring program;
- groundwater management plan and monitoring program;
- program to regularly (every 3 years) validate the water balance and groundwater model; and
- protocol for minimising cumulative water-related impacts; and

- comply with a number of best practice rehabilitation objectives, and prepare and implement a detailed rehabilitation strategy and rehabilitation plan, including measures to minimise impacts associated with the final void.

6.5 Biodiversity

Introduction

268. Extensions to coal mining operations almost always require the clearing of native vegetation in order to access the proposed operational footprint. This project is no exception and includes the clearance of native vegetation and associated impacts to biodiversity, including the potential for impacts to threatened flora and fauna species and communities.

269. However, as part of the project, MACH would also relinquish approval to disturb an area of up to approximately 500 hectares (referred to as the 'Relinquishment Area'), resulting in no significant net change to the overall disturbance area.

270. The EIS includes a BDAR prepared by Hunter Eco in accordance with the *Biodiversity Conservation Act 2016* (BC Act) and *Biodiversity Assessment Method* (BAM). It also included an aquatic ecology assessment, undertaken by Bio-Analysis.

271. The BDAR included biodiversity surveys of the proposed Additional Disturbance Area, as well as consideration of the biodiversity values in the Relinquishment Area.

272. BCD initially requested additional information on some aspects of the BDAR, including further detail on the survey effort for some species, detail on Matters of National Environmental Significance (MNES) under the EPBC Act, and clarification of some technical aspects of the BDAR. It also raised issues regarding biodiversity offsets for the project.

273. MACH provided responses to BCD's requests, including a revised BDAR, in the Submissions Report, and has also provided additional information (see **Appendices C** and **F**). BCD subsequently confirmed that its comments on biodiversity issues have been satisfactorily addressed.

274. The Department and BCD both consider that the BDAR has been prepared in accordance with relevant guidelines and policies, and is adequate for assessing the biodiversity impacts of the project.

Existing Environment

275. The majority of the Additional Disturbance Area is cleared and has been used for broad acre agricultural purposes for well over 100 years. In addition to open grazing land, there are also some areas of fragmented woodland.

276. The revised BDAR identified 8 Plant Community Types (PCTs) in and around the Additional Disturbance Area, with several in both woodland and grassland form (see **Table 11** and **Figure 19**).

277. Despite the predominately cleared nature of the Additional Disturbance Area, about half of it classifies as one of two endangered or critically endangered ecological communities (EECs/CEECs) listed under the BC Act, namely:

- Box Gum Woodland CEEC[9]; and
- Central Hunter Grey Box Ironbark Woodland EEC[10].

278. The Box Gum Woodland CEEC is also listed as a CEEC under the EPBC Act[11], and the Grey Box Ironbark Woodland comprises part of another CEEC listed under the EPBC Act[12].

279. One threatened flora species was recorded in the project area, namely Tiger Orchid (*Cymbidium canaliculatum*), which forms part of the Hunter Catchment Endangered Population under the BC Act. Two 'species credit' fauna species were recorded, namely Striped Legless Lizard (*Delmar impar*) and Squirrel Glider (*Petaurus norfolcensis*).

280. The threatened flora and fauna species recordings are largely outside the Additional Disturbance Area (see **Figure 20**). A number of other threatened fauna species listed under the BC Act and/or EPBC Act have been recorded of have the potential to be located in the project area, and have been considered as 'ecosystem credit species' as part of the BDAR.

Avoidance and Mitigation Measures

281. MACH has considered avoidance and mitigation measures as part of the project, with the Additional Disturbance Area largely contiguous with the existing approved disturbance areas. As such, the Additional Disturbance Area largely comprises fragmented and degraded vegetation areas.

282. Other key avoidance and mitigation measures include maximising use of existing infrastructure, placing proposed infrastructure in approved disturbance areas, optimising the use of the existing fines emplacement area, and establishing large areas of woodland in rehabilitation.

283. In addition, and importantly, the project would forgo clearing and disturbance in the 'Relinquishment Area', which is approved for disturbance under the existing approval. The Relinquishment Area is of similar size to the Additional Disturbance Area, and as discussed below contains some good quality vegetation. MACH has considered the biodiversity value of the Relinquishment Area in its assessment of the project.

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9 BC Act listed as 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

10 BC Act listed as Central Hunter Grey Box - Ironbark Woodland in the NSW North Coast and Sydney Basin Bioregions

11 EPBC Act listed as White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC

12 EPBC Act listed as Central Hunter Valley Eucalypt Forest and Woodland CEEC

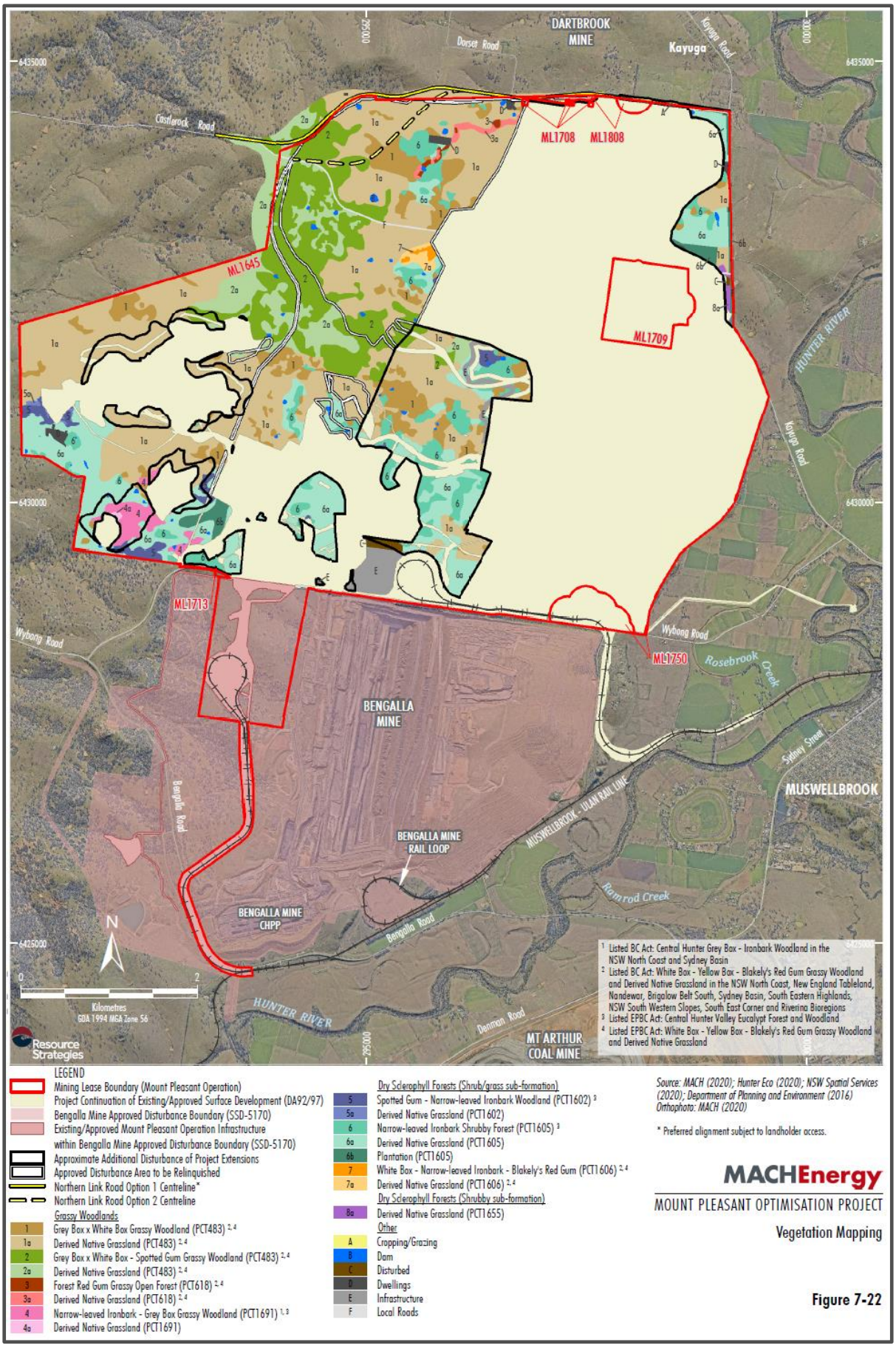

Figure 19 | Vegetation Types

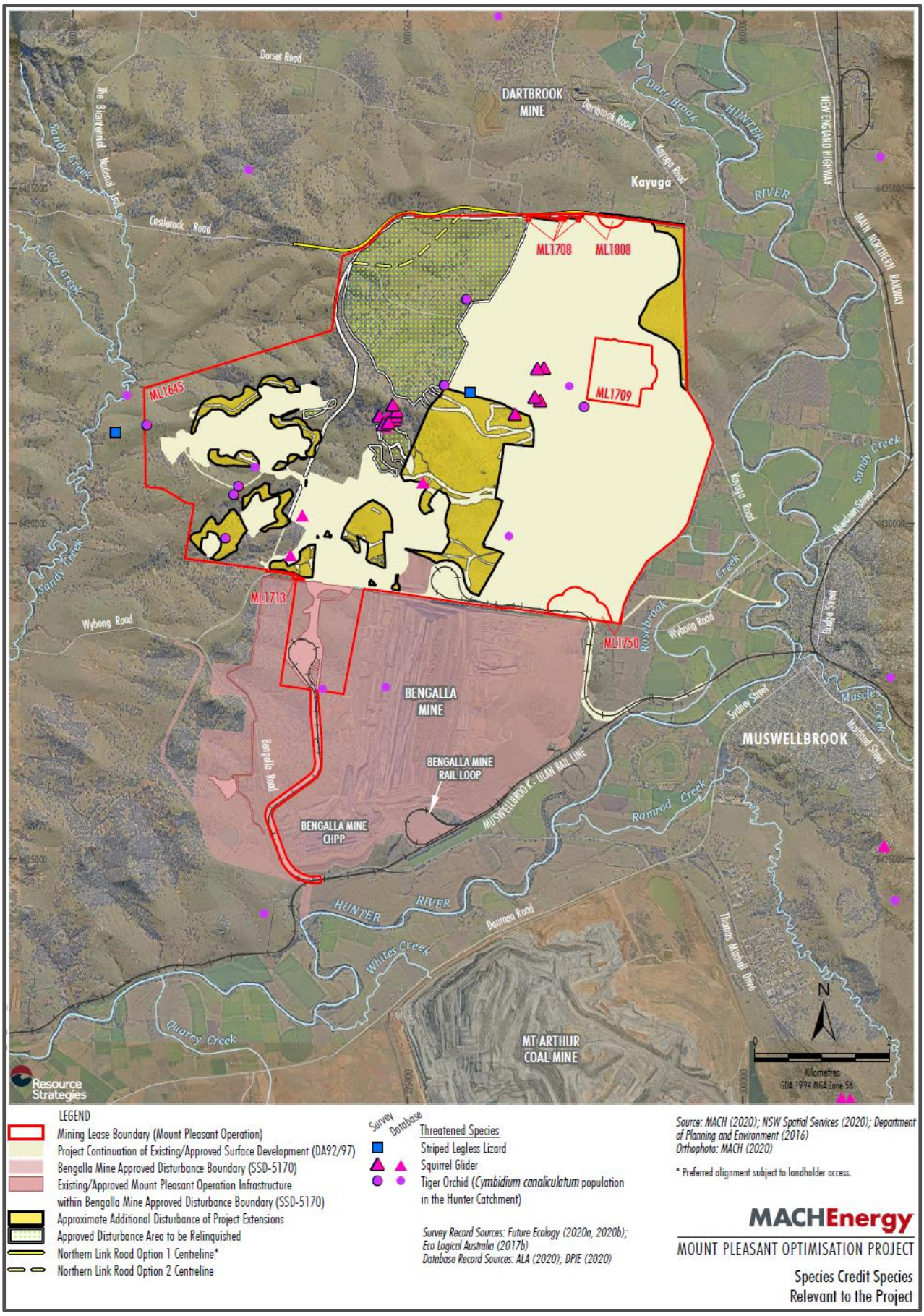

Figure 20 | Species Credit Species

Predicted Biodiversity Impacts

284. Depending on the Northern Link Road option chosen, the project would disturb up to approximately 475 hectares of native vegetation in the Additional Disturbance Area, including approximately 161 hectares of woodland and up to 314 hectares of derived native grassland (DNG).

285. The Relinquishment Area would avoid clearing of 485 hectares of native vegetation that is approved to be cleared, including 193.5 hectares of native woodland and 291.5 hectares of DNG. The Relinquishment Area also includes 11.5 hectares of cleared/disturbed land (i.e. total area 496.5 hectares).

286. The Additional Disturbance Area contains up to 230.3 hectares of Box Gum Woodland CEEC (for Road Option 1, or 226.4 hectares for Option 2), and 89.9 hectares of Central Hunter Grey Box Ironbark Woodland EEC/CEEC (including BC Act and EPBC Act variants).

287. The Relinquishment Area contains 443.7 hectares of Box Gum Woodland CEEC, and 24.6 hectares of Central Hunter Grey Box Ironbark Woodland EEC/CEEC.

288. The biodiversity impacts of the project on each plant community type (for both Northern Link Road options), and the ecosystem credits generated in accordance with the BAM, are summarised in **Table 11**. **Table 12** provides a summary of the impacts on the species credit species.

289. As illustrated in the tables, the Relinquishment Area generates significantly more ecosystem and species credits than the Additional Disturbance Area, which indicates that the project would result in a net biodiversity benefit. That is, the biodiversity values gained from avoidance of clearing in the Relinquishment Area considerably outweigh the biodiversity values lost from clearing in the Additional Disturbance Area.

290. This can also be said for most of the individual Plant Community Types, including those that make up the Box Gum Woodland CEEC, which generates significantly more credits in Relinquishment Area (11,116 credits) than the Additional Disturbance Area (2,872 credits for Option 1, or 2,794 credits for Option 2). However, the Central Hunter Grey Box Ironbark Woodland EEC/CEEC is less represented in the Relinquishment Area (705 credits for the EPBC Act variants, with no occurrence of the BC Act variant) than in the Additional Disturbance Area (combined total of 2,186 credits for both BC and EPBC Act variants).

Table 11 | Vegetation Impacts and Ecosystem Credits

Zone	PCT	Vegetation Community	Area of Impact (ha)		Ecosystem Credits		Relinquishment Area Credits
			Option 1	Option 2	Option 1	Option 2	
1	483	Grey Box x White Box Grassy Woodland[1,3]	44.9	47.1	2,242	2,329	1,935
1a	483 DNG	Derived Native Grassland[1,3]	158.4	158.6	0	0	2,504
2	483 SG	Grey Box x White Box – Spotted Gum Grassy Woodland[1,3]	13.3	11.2	565	400	5,913
2a	483 SG DNG	Derived Native Grassland[1,3]	11	6.9	0	2	381
3	618	Forest Red Gum Grassy Open Forest[1,3]	0.2	0.2	10	10	123
3a	618 DNG	Derived Native Grassland[1,3]	0	0	0	0	122
4	1691	Narrow-leaved Ironbark – Grey Box Grassy Woodland[2,4]	16.3	16.3	427	427	0
4a	1691 DNG	Derived Native Grassland	0.9	0.9	0	0	0
5	1602	Spotted Gum – Narrow-leaved Ironbark Woodland[4]	7	7	172	172	9
6	1605	Narrow-leaved Ironbark Shrubby Forest[4]	66.6	66.6	1,587	1,587	696
6a	1605 DNG	Derived Native Grassland	139.5	139.4	0	0	140
6b	1605 P	Plantation	11.6	11.5	295	294	0
7	1606	White Box – Narrow-leaved Ironbark – Blakely's Red Gum[1,3]	0.6	0.6	19	19	61

Zone	PCT	Vegetation Community	Area of Impact (ha)		Ecosystem Credits		Relinquishment Area Credits
			Option 1	Option 2	Option 1	Option 2	
7a	1606 DNG	Derived Native Grassland[1,3]	1.9	1.8	36	34	77
8a	1655 DNG	Derived Native Grassland	2.5	2.5	0	0	0
Total Woodland			**160.5**	**160.5**			
Total Derived Native Grassland			**314.2**	**310.1**			
Total Native Vegetation/Credits			**474.7**	**470.6**	**5,353**	**5,247**	**11,961**
Other Land (cropping, dam, disturbed, infrastructure, etc.)			**29.6**	**27.2**			
Total Area			**505.5**	**486**			

Note: Refer to Table 25 of the revised BDAR (provided in the Submissions Report) for a full breakdown of the ecosystem credits required for each individual assessment area.

1 Box Gum Woodland CEEC under BC Act

2 Central Hunter Grey Box Ironbark Woodland EEC under BC Act

3 Box Gum Woodland CEEC under EPBC Act

4 Central Hunter Valley Eucalypt Forest and Woodland CEEC under EPBC Act

Table 12 | Threatened Flora and Fauna and Species Credits

Common Name	Scientific Name	Area of Impact (ha)		Species Credits		Relinquishment Area Credits
		Option 1	Option 2	Option 1	Option 2	
Tiger Orchid	*Cymbidium canaliculatum*	1 (individual)	1 (individual)	2	2	4
Striped Legless Lizard	*Delmar impar*	474.5	470.6	4,705	4,637	7,303
Squirrel Glider	*Petaurus norfolcensis*	217.1	215.6	4,675	4,601	7,679

Note: Refer to Table 26 of the revised BDAR (provided in the Submissions Report) for a full breakdown of the species credits required for each individual assessment area.

Aquatic Biodiversity

291. No threatened fish species listed under the *Fisheries Management Act 1994* (FM Act) were recorded in the project area, although two have the potential to occur downstream, namely the Southern Purple-spotted Gudgeon (species) and the Darling River Hardyhead (population).

292. No high-priority groundwater dependent ecosystems (GDEs) are located in the vicinity of the project area, although three ecosystems with some reliance on groundwater are located in the area, including:

- approximately 3 hectares of Forest Red Gum Grassy Open Forest, located in the Relinquishment Area;
- the Hunter River; and
- stygofauna in the Hunter River alluvium.

293. As outlined in **Section 6.4**, groundwater assessment indicates that the project is unlikely to result in any significant impacts to these GDEs

Impacts on Matters of National Environmental Significance (MNES)

294. The Department has reviewed the project's impacts on MNES, in consultation with BCD and in accordance with the requirements of the Bilateral Agreement between the NSW and Commonwealth Governments. The conclusions of this assessment are provided in **Appendix H**, and a summary of the biodiversity-related impacts is provided below.

295. It is noted that the Bilateral Agreement endorses the BAM and NSW Biodiversity Offsets Scheme, including the Biodiversity Conservation Fund (BCF). As such, the biodiversity impacts of the project on MNES can be assessed and offset as part of the NSW offsets scheme.

296. In this regard, most of the Additional Disturbance Area has already been assessed and offset from a Commonwealth perspective under Mount Pleasant's existing EPBC Act approval (EPBC 2011/5795), noting that EPBC 2011/5795 was varied in June 2020 to reflect the more contemporary disturbance boundary and Relinquishment Area. The only area of additional vegetation disturbance that was not considered as part of the existing EPBC Act approval is the revised alignment of the Northern Link Road (see **Figure 21**). This area is referred to as the Action Area.

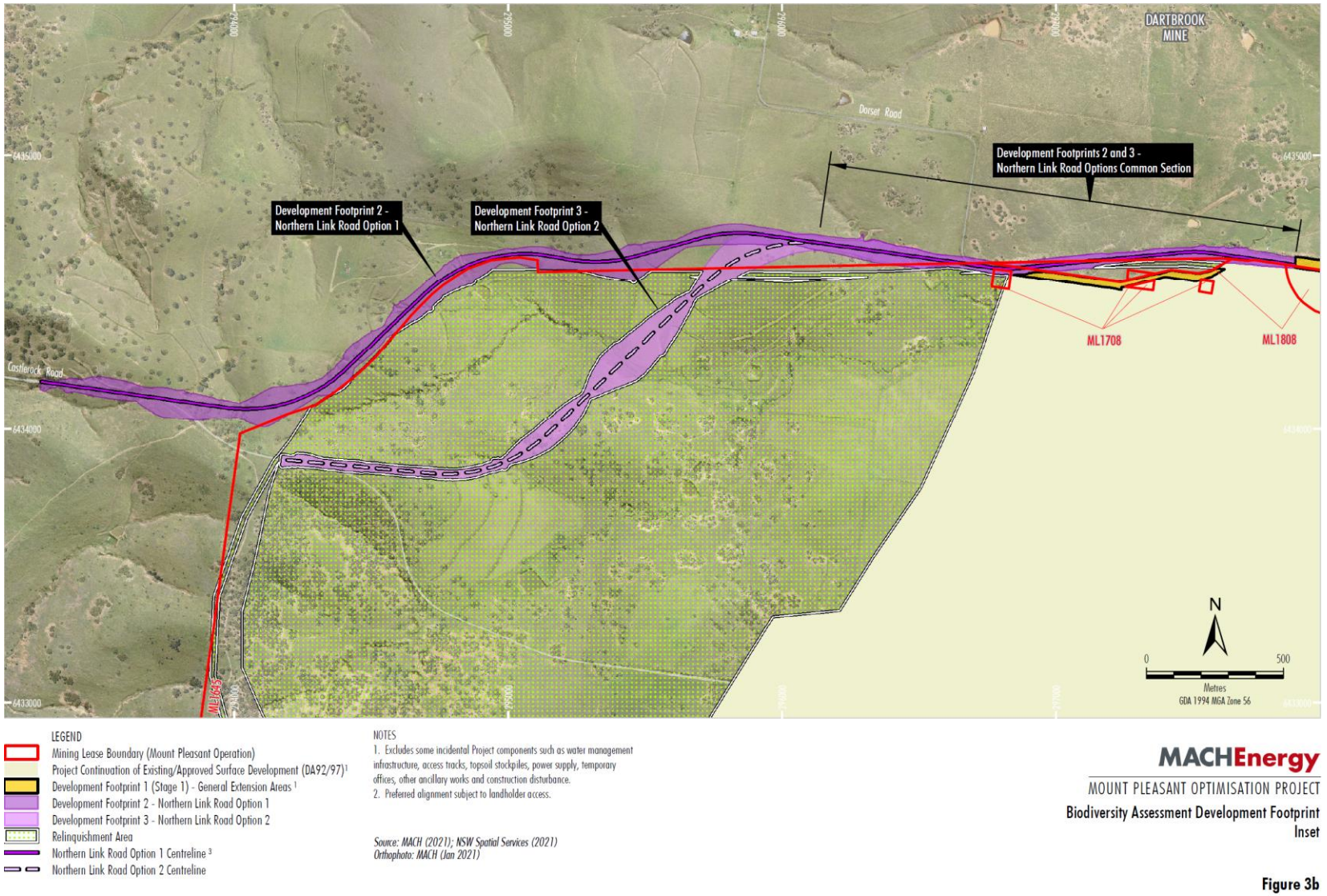

Figure 21 | Commonwealth Action Area

297. Part of the original road alignment approved under EPBC 2011/5795 would no longer be constructed, comprising approximately 14.4 hectares. This area is referred to as the Western Link Road Relinquishment Area.

298. The revised BDAR found that the Action has the potential to impact the following threatened ecological communities and fauna species listed under the EPBC Act:

- Box Gum Woodland CEEC;
- Striped Legless Lizard;
- Swift Parrot*;
- Regent Honeyeater*;
- Spotted-tailed Quoll*;
- Koala*; and
- Grey-headed Flying Fox*.

299. The species marked with an asterisk have not been recorded in the Action Area, and/or no breeding/core habitat would be impacted. Under the BAM, impacts on these species have been considered as part of the ecosystem credit requirements for the Action.

300. DAWE initially considered (based on the information in MACH's EPBC Act Referral) that an additional two threatened species – Austral Toadflax (*Thesium australe*) and Slaty Red Gum (*Eucalyptus glaucina*) – had some possibility of being affected by the project. However, these species have not been identified in or near the Action Area, despite targeted surveys.

301. As outlined in **Section 2.1**, two options are being considered for the relocation of the western section of the Northern Link Road. Option 1 would disturb approximately 31.9 hectares of land, while Option 2 would disturb 25.9 hectares.

302. A summary of the ecosystem credits generated by impacts on the Box Gum Woodland CEEC, and species credits generated by impacts on the Striped Legless Lizard, are summarised in the following table (see **Table 13**). The table also outlines the credits generated by the avoided clearing in the Western Link Road Relinquishment Area.

Table 13 | Commonwealth Ecosystem and Species Credits

Species/Community	Disturbance Area (ha)			Credits		
	Northern Link Road		Western Link Road Relinquishment Area	Northern Link Road		Western Link Road Relinquishment Area
	Option 1	Option 2		Option 1	Option 2	
Ecosystem Credits						
Box Gum Woodland CEEC	26.4	22.5	13.4	307	229	382
Species Credits						
Striped Legless Lizard	27.4	23.3	N/A	293	225	N/A

303. As outlined in the table, the Western Link Road Relinquishment Area generates a greater number of ecosystem credits than the Northern Link Road options, which indicates that the Action would result in a net biodiversity benefit, as the forgone clearing in the Relinquishment Area has greater higher value Box Gum Woodland than the proposed additional disturbance areas.

304. The Western Link Road Relinquishment Area does not contain any Striped Legless Lizard habitat, although the wider Relinquishment Area does contain considerable habitat for this species (see **Table 12**).

Mitigation Measures and Biodiversity Offset Strategy

305. MACH is proposing to implement a number of standard best practice measures to avoid or minimise the biodiversity impacts of the project, such as:

- minimising and delineating disturbance areas;
- pre-clearance surveys;
- reuse of habitat resources (such as tree hollows);
- relocation of the affected Tiger Orchid;
- weed and pest management; and
- comprehensive rehabilitation planning.

306. With regard to offsetting of residual impacts, the development consent for Mount Pleasant (DA 92/97) was granted in 1999, prior to the implementation of biodiversity offsetting policies in NSW. However, offsetting policies had been established by the time the Commonwealth approval was granted in 2012 (EPBC 2011/5795).

307. In accordance with the Commonwealth approval, large offsets have been established for Mount Pleasant, comprising some 12,875 hectares of offsets on three properties - the Merriwa West, Merriwa East and Namoi properties (see **Figure 22**). The offsets are managed by MACH in accordance with an Offsets Management Plan.

308. As outlined in the preceding section and shown on **Figure 22**, the Commonwealth approval already covers most of the vegetation disturbance in the Additional Disturbance Area, and the offsets have been designed to compensate for this disturbance. The only area not covered by the existing Commonwealth approval is the disturbance associated with the revised Northern Link Road.

309. Under the Commonwealth approval, MACH is required to secure the offsets via a conservation covenant, which MACH is currently finalising with DAWE (see further discussion below).

310. Under the Commonwealth approval, MACH is also required to provide $2 million in funding over the life of the project towards recovery actions for the Regent Honeyeater and Swift Parrot. To date, MACH has provided $1.8 million of this funding. MACH is also providing $1 million in funding for high priority weed activities for the Box-Gum Woodland CEEC.

311. MACH is proposing to provide an additional offset for the Northern Link Road disturbance (via retiring the applicable ecosystem and species credits), but does not propose an additional offset for the remainder of the Additional Disturbance Area, for the following key reasons:

- biodiversity offsets for the area have already been established under EPBC 2011/5795;

- the Relinquishment Area generates substantially more credits than the Additional Disturbance Area, including like-for-like credits for most PCTs; and
- the avoided clearing in the Relinquishment Area would reduce impacts on a larger and more contiguous area of CEEC than impacted by the project.

312. The Department and BCD accept this rationale, in principle. Requiring additional offsets for the main Additional Disturbance Area would essentially mean that the disturbance area would be offset twice.

313. However, the Department does believe that MACH should be required to demonstrate that the existing offset areas contain the requisite ecosystem and species credits required for the Additional Disturbance Area, and to secure these offsets via a Biodiversity Stewardship Agreement (BSA) or other approved mechanism under the Biodiversity Offsets Scheme in accordance with the BC Act.

314. If MACH is not able to demonstrate that the offset area contains these credits, then additional offset measures would be required.

315. The Department has also recommended conditions requiring MACH to obtain and retire the requisite ecosystem and species credits associated with the Northern Link Road realignment, that has not already been offset under the Commonwealth approval.

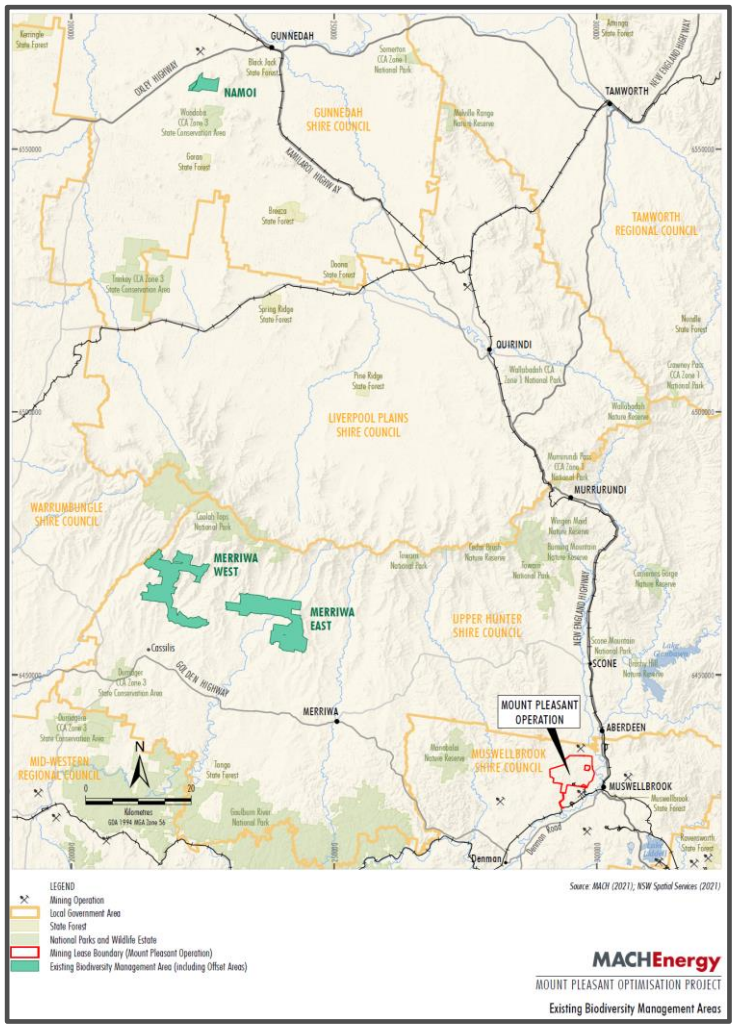

Figure 22 | Existing Offset Areas

Conclusion

316. Subject to the implementation of the recommended conditions, the Department considers that the project would avoid, minimise and mitigate impacts on threatened species and communities, including MNES, to the greatest extent practicable. The Department also considers that the residual biodiversity impacts of the project can be appropriately offset in accordance with the Biodiversity Offsets Scheme.

317. To this end, the Department has recommended conditions requiring MACH to:

- demonstrate that the existing offset areas (under EPBC 2011/5795) contain the requisite ecosystem and species credits for the Additional Disturbance Area;
- obtain and retire the necessary ecosystem and species credits for the Action Area (i.e. the additional disturbance associated with the Northern Link Road), and for any credits associated with the Additional Disturbance Area that are not covered by the existing offset areas;
- prepare and implement a comprehensive Biodiversity Management Plan, including measures for protecting flora and fauna outside the disturbance areas, and managing clearing within the disturbance areas; and
- monitor and manage impacts on GDEs and stygofauna, as part of the Water Management Plan.

6.6 Other issues

318. The Department considers that the other impacts associated with the project can be effectively managed and/or are minor in nature. Consideration of these issues is summarised in **Table 14** below.

Table 14 | Other Issues

Issue	Findings	Recommend Conditions
Blasting and Vibration	• The approved mine is permitted to undertake a maximum of 1 blast a day and 5 blasts a week averaged over a calendar year. Blasts are undertaken between 9am and 5pm Monday to Saturday. • The approved mine generally complies with applicable blast and vibration criteria, but does receive blast-related complaints from the community (some 64 complaints between 2018 and September 2020). • The proposal would increase blast frequency to up to 2 blasts a day and 8 blasts a week averaged over a calendar year, with blasting hours similar to the approved mine. • Blast modelling indicates that, at the proposed maximum instantaneous charge (MIC) of 1,600kg, blasts would exceed applicable blast criteria (overpressure and/or vibration) at a number of sensitive receivers. • To address these potential exceedances, MACH would reduce the MIC when blasting within:	• The Department has recommended conditions requiring MACH to: ○ manage blasting operations to comply with all relevant criteria at private properties, public infrastructure and heritage items; ○ limit blast frequency and hours; ○ keep the public notified and up-to-date regarding blasting operations, and facilitate feedback and complaint management; ○ provide for structural property inspections and investigations on request; ○ repair any structural damage to buildings or infrastructure caused by the project; ○ implement measures to protect heritage items from damage (in

Issue	Findings	Recommend Conditions
	○ 2,260 metres of residences; ○ 330 metres of some public infrastructure (including Ausgrid's 66kV electricity transmission line to the east); and ○ 1,010 metres of historic heritage sites. • No significant impacts are predicted at Aboriginal cultural heritage sites or on livestock. • Muswellbrook Shire Council made comments about potential blast-related impacts on Kayuga Cemetery (particularly headstones), and regional seismic activity. The Department considers that impacts on the Cemetery (a heritage item) are unlikely given the separation distance (some 1.5km) and given appropriate mitigation and monitoring measures. MACH also provided information indicating that seismic activity in the Hunter is not dissimilar to other parts of Eastern Australia. • With the implementation of appropriate site rules and other standard best practice blast management measures, the Department considers that the project can be managed such that blasts would meet applicable amenity and structural damage blast criteria at all sensitive receiver locations. Blast amenity issues should gradually lessen in general as mining operations move away from Muswellbrook.	accordance with the Heritage Management Plan); ○ manage blasting operations to avoid flyrock-related safety risks; and ○ update and implement a comprehensive Blast Management Plan, including a detailed monitoring program.
Traffic and Transport	• MACH is proposing to realign part of the Northern Link Road to improve the safety of its intersection with Castlerock Road. Two options have been evaluated in the EIS, with Option 1 being MACH's preferred option (see **Figure 3**). The revised alignment would be designed and constructed in consultation with, and to the satisfaction of, Muswellbrook Shire Council. • MACH no longer proposes to close Wybong Road to access underlying coal reserves, and as such, MACH no longer proposes to construct the Western Link Road. • The EIS includes a detailed road transport assessment to assess the impacts of the project and proposed road network changes on road transport. The assessment, undertaken by TTPP, included traffic modelling and a road safety audit. The assessment included consideration of project-related traffic as well as cumulative traffic associated with other resource projects and background traffic growth in the region. • The traffic modelling found that operation of the key roads and intersections would continue to remain satisfactory with the project, with adequate mid-block capacity on roads and good levels of service and acceptable delays at intersections. • The only exception is at the intersection of Thomas Mitchell Drive and Denman Road, which is already required to be upgraded as part of the consent for the Mount Arthur coal mine (and due to be completed by 2026).	• The Department has also recommended conditions requiring MACH to: ○ construct the Northern Link Road prior to the closure of the eastern portion of Castlerock Road, to the satisfaction of Council; ○ construct the Overton Road rail overpass prior to commissioning of the Stage 2 rail infrastructure, to the satisfaction of Council; ○ transport workers associated with main construction activities via shuttle bus; and ○ update and maintain its road maintenance agreement with Council.

Issue	Findings	Recommend Conditions

	• The road safety audit did not identify any significant road safety concerns along the project access routes that might adversely affect road safety.
	• TfNSW did not raise any significant concerns in relation to the project, however it recommended that construction workers be required to be transported to site via shuttle bus, as the traffic assessment was based on this assumption. The Department has recommended conditions in this regard.
	• Muswellbrook Shire Council did not identify a preference for the Northern Link Road option. However, Council did recommend that, prior to the closure of the eastern end of Castlerock Road and reconstruction of Dorset Road, that MACH be required to:
	  ○ undertake a safety audit for the length of Castlerock Road;
	  ○ investigate and implement strategies to limit project-related use of Castlerock Road; and
	  ○ continue to require project-related traffic to use Bengalla Link Road and Wybong Road for access.
	• The Department has incorporated these requirements into its recommended conditions.
	• With these measures, the Department considers that the project is unlikely to result in any significant impacts on the local and regional road network.	

Land Use	• The EIS includes an Agricultural and Land Resources Assessment, as well as a range of other studies (e.g. noise, air quality and water) to assess the impacts of the project on other land uses in the locality and region.
	• There is no mapped Biophysical Strategic Agricultural Land (BSAL) or Agricultural Critical Industry Cluster (CIC) land within the project additional disturbance areas. However, there is a parcel of Equine CIC land within the project Relinquishment Area, and the Northern Link Road Option 1 passes through this parcel. As this CIC parcel is within the Relinquishment Area, the project would provide a net decrease in impact on this CIC land, and no significant impacts on the CIC are expected.
	• There is mapped BSAL and CIC land in the area surrounding Mount Pleasant, particularly focused around the Hunter River to the east, and areas further to the west, north and south. Environmental assessment indicates that the project is unlikely to result in any significant direct or indirect impacts on this land or existing land uses.
	• Land within the project Additional Disturbance Area has a Land and Soil Capability (LSC) Class of 3 and 4 (generally suited to grazing), and agricultural impact assessment indicates that the total foregone agricultural loss
		• The Department has recommended conditions requiring MACH to:
		  ○ re-establish agricultural land areas as shown on the final landform plan (see **Figure 5**);
		  ○ implement reasonable and feasible measures to rehabilitate agricultural land areas to LSC Class 3 and 4; and
		  ○ maintain the agricultural productivity and production of non-operational project-related land.

Issue	Findings	Recommend Conditions
	associated with the project would be relatively low at approximately $22.8 million in net present value (NPV) terms. • One submission from a neighbouring dairy operation, Cowtime Investments, raised concerns that the existing Mount Pleasant mine has caused a decline in productivity, animal health, herd reproduction, pasture health and farm profitability via air quality and noise impacts, and is seeking acquisition rights, should the project be approved. • The Department undertook a targeted investigation into these concerns, including attending a site visit at the dairy farm to discuss the concerns with the family directly. Following its site visit, the Department sought additional information from MACH, including information regarding commercial agreements between the two parties to assist in informing its assessment. • Following review of the information provided by both parties, the Department considers that there is limited evidence to support the assertion that the existing operations are impacting productivity at the farm, and even if there were minor impacts, these would be adequately offset by the terms of the existing contractual arrangements between the two parties. • These agreements include significantly reduced rental rates over 590 ha of land currently leased from MACH for the dairy operations (approximately 68% of the overall land utilised by the dairy), and access to a significant amount of MACH's licenced Hunter River water allocations. Without these arrangements in place, the Department considers that productivity at the farm would be significantly less than current production levels. • DPI-Agriculture initially recommended that consideration be given to re-establishment of more agricultural land in the final landform for the mine, and that rehabilitation focuses on re-establishment of LSC Class 3 and 4 land. The Department accepts that MACH should focus on re-establishing equivalent LSC Class land as far as practicable, but accepts that the proposed final landform/land use presents a reasonable balance between woodland rehabilitation to meet biodiversity commitments, and agriculture. • The Department considers that the project is unlikely to have any significant direct impacts on agriculture and other land uses in the locality, and that indirect impacts can be appropriately managed.	
Visual Impacts	• The key visual impact associated with Mount Pleasant is the integrated waste rock emplacement on the eastern side of the mine.	• The Department has recommended conditions requiring MACH to:

Issue	Findings	Recommend Conditions
	• Whilst this emplacement assists in mitigating noise and other impacts in Muswellbrook by providing a buffer between the mine and residences, it will be highly visible during its construction from receivers to the north, east and south, including in parts of Muswellbrook and Aberdeen. • Once constructed and rehabilitated, the emplacement will provide a screen to mining operations, with visual impacts gradually reducing over time. • The approved emplacements have elevations up to approximately 320 metres AHD, and the project seeks to increase the height of the eastern emplacement by approximately 40 metres to 360 metres AHD. However, the increased emplacement size would also avoid the need for construction of two approved emplacements (i.e. the south-west and north-west emplacements). • The project has introduced additional micro-relief and varying topography in the emplacement to provide a more natural-looking final landform, and an accelerated progressive rehabilitation for the emplacement. • Visual assessment indicates that the project and revised emplacement would have similar visual impacts as the approved mine, with the increased height not significantly discernible to most receivers. • Muswellbrook and Upper Hunter Councils raised some concerns about visual impacts, but Muswellbrook Council does support the more natural-looking landform. • The Department accepts that visual impacts would be generally similar to the approved mine, and that whilst the eastern emplacement would result in significant visual impacts on a number of receivers, these impacts would reduce over time with the rehabilitation of landforms, in particular the integrated waste rock emplacement.	○ rehabilitate the integrated waste rock emplacement as soon as practicable, and comply with a number of other rehabilitation objectives; ○ implement all reasonable and feasible measures to minimise off-site visual and lighting impacts; ○ ensure outdoor lights do not shine above the horizontal and complies with applicable standards; ○ undertake additional visual mitigation measures at significantly affected properties, at the landowners request; and ○ update and maintain the mine's Visual Impact Management Plan to minimise visual impacts, including strategies for off-site screen plantings (amongst other things).
Social	• The social impacts of the project are essentially a continuation of the existing social impacts associated with the approved mine, including both positive and negative impacts. • Negative social impacts are generally focused on those people who reside close to the mine (through amenity impacts such as noise and dust), while positive impacts are experienced by a wider geographic spread of residents (particularly by way of increased employment and economic opportunities). • The project would provide increased (and continued) direct employment at the mine, increasing (by 450) to a peak of 830 full time personnel, with an average of approximately 600 personnel. • Social assessment indicates that the project would continue to have similar social impacts as the existing mine, including impacts on way of life	• The Department has a recommended a range of conditions to manage the amenity impacts of the Project. These conditions are discussed throughout **Sections 6.2** and **6.3**. • The Department's recommended conditions also require MACH to: ○ enter into VPAs with Muswellbrook Shire Council and Upper Hunter Shire Council, in accordance with MACH's offers to the Councils; ○ maintain a Community Consultative Committee; ○ establish and implement a complaints handling protocol;

Issue	Findings	Recommend Conditions

	(including population, housing, health and wellbeing, community services and facilities and recreation), and culture and community cohesion, with no significant adverse impacts anticipated.
	• MACH proposes to continue to implement a number of measures to mitigate negative social impacts, including stakeholder engagement, working with industry groups, targeting local employment and training, and supporting Aboriginal stakeholder groups.
	• In addition, MACH has negotiated a voluntary planning agreement with Muswellbrook Shire Council, which essentially continues the existing agreement for the mine (as escalated). The agreement comprises approximately $20 million (in present terms) in contributions over the life of the project, including:
	  ○ $604,079 per year to community enhancement projects;
	  ○ up to $277,863 per year towards local roads maintenance;
	  ○ up to $24,169 year towards employment by Council of an Environmental Officer; and
	  ○ employing 4 local apprentices per year
	• Whilst the project is not located in the Upper Hunter Shire, MACH has also agreed to enter into a VPA with Upper Hunter Shire Council (UHSC) to provide contributions towards community infrastructure and services. The VPA offer, which Council has accepted, would comprise contributions totalling approximately $6 million (in present terms) over the life of the project, including:
	  ○ $250,000 per year into a Community Enhancement Fund to benefit the community of Aberdeen; and
	  ○ $25,000 per year towards employment of a part time Aboriginal Community Liaison Officer by Council.
	• Muswellbrook Council also commented on the potential for the increased eastern emplacement height to affect telecommunications reception (from Rossgole Tower). MACH has committed to making-good any adverse impacts on telecommunications infrastructure, should any adverse impacts occur as a result of the project.
		○ ensure public access to project-related information including approvals, monitoring results, annual reviews and audit reports; and
		○ monitor and make-good any impacts on telecommunications infrastructure caused as result of the project.

Aboriginal Cultural Heritage	• The Aboriginal Cultural Heritage Assessment (ACHA) for the project involved consultation with 88 Registered Aboriginal Parties (RAPs), and drew upon detailed assessment and salvage operations undertaken for the approved project. MACH also undertook further desktop analysis of small areas that were not able to be surveyed for access reasons, in response to requests from Heritage NSW. • The assessment identified some 1,736 tangible Aboriginal sites within the project area, including 1,723 artefact scatters and isolated finds, 12 scarred trees, and 1 spiritual place.	• The Department has recommended conditions requiring MACH to prepare and implement a detailed Aboriginal Cultural Heritage Management Plan in consultation with Aboriginal stakeholders, including provisions for: ○ establishing alternative conservation areas (Areas B and C) or other conservation measures within 12 months of project commencement;

Issue	Findings	Recommend Conditions
	• Of these, 1,512 sites would experience the same (or potentially decreased) impacts relative to the approved operations, noting there are more known heritage sites located within the Relinquishment Area than within the proposed additional disturbance area. • 810 of the known sites have already been salvaged under the current approval, and a large number of extant sites are subject to existing Aboriginal Heritage Impact Permits (AHIPs). These existing AHIPs cover the majority of the project additional disturbance area (see **Figure 23**). • One artefact scatter is assessed as being of high archaeological significance, and 6 sites (2 artefact scatters and 4 scarred trees) are assessed as being of moderate-high significance. The high significance site and 4 of the moderate-high significance sites are located within areas covered by existing AHIPs. • In total, a similar number of sites would experience increased impacts as a result of the project, as those that would experience decreased impacts. • The ACHA concludes that the additional impacts of the project on Aboriginal heritage would be relatively low in the local context, and very low in the regional context, with no significant cumulative impacts expected. With the proposed mitigation measures, this impact is considered to be minor. • With regard to mitigation, the existing approved mine provides for the establishment of an Aboriginal heritage conservation area (Area A, 329 ha), and two provisional conservation areas (Area B, 150 ha; and Area C, 235 ha). • MACH proposes to maintain Area A, but to continue to seek alternative areas or measures for Areas B and C to address land use conflicts with these provisional areas (i.e. the areas are located outside the project area, or are in proximity to disturbance areas and adjacent mining areas). The alternative areas would seek to provide equivalent Aboriginal heritage value, and would be determined in consultation with Aboriginal stakeholders. • Heritage NSW is generally satisfied with the assessment and proposed mitigation measures, subject to undertaking further test excavations and analysis of scarred trees as the project progresses. • The Department considers that Aboriginal heritage-related impacts of the project would be similar to those of the approved mine, and can be appropriately managed.	○ protecting Aboriginal sites outside the project disturbance area; ○ salvaging and managing Aboriginal sites within the project disturbance area; ○ undertaking further archaeological investigations (of the areas that were subject to desktop analysis), test excavations and analysis of scarred trees; ○ ongoing archaeological research; ○ maintaining reasonable access to Aboriginal stakeholders; and ○ managing the discovery of additional Aboriginal site and human remains.
Historic Heritage	• The heritage assessment identified 14 places of local heritage significance in the area surrounding the mine, and 2 places of State heritage significance, namely Kayuga Bridge and Kayuga Cemetery. Neither of these State heritage significance items would be impacted by the project, subject to management of indirect blasting	• The Department has recommended conditions requiring MACH to prepare and implement a detailed Historic Heritage Management Plan, including provisions for: ○ archival recording and archaeological investigations for impacted heritage sites;

Issue	Findings	Recommend Conditions
	impacts (as outlined above, blast impacts on these items are not expected). • Seven local heritage significance items would be affected by the project, although all are within the disturbance area for the approved mine. One additional local significance site, the Broomfield homestead, is close to the disturbance area and may be impacted by the project. • The Heritage Council initially requested consideration of a number of matters, including the historical research relied upon, the heritage potential of some items located outside the additional disturbance area (including wells and a former hut, mill and dairy), potential child burials, potential State significance of three sites (Negoa Estate, Rosebrook and Overdene), blast impacts, conservation management planning, impacts on the Muswellbrook-Jerry's Plains Landscape Conservation Area, and the value of the proposed interpretive strategy. • MACH provided a range of additional information in relation to these and other heritage matters. Based on this information, the Heritage Council confirmed that the archaeology within the site has been appropriately addressed overall. • The Heritage Council recommended conditions requiring MACH to undertake archaeological salvage investigations in accordance with an Archaeological Research Design and Excavation Methodology, and to prepare an unexpected finds protocol. • The Department considers that historic heritage-related impacts of the project would be similar to those of the approved mine, and can be appropriately managed.	○ preparation of CMPs for Rosebrook and Negoa, and compliance with the existing CMP for Overdene (all located on land owned by MACH outside the project area); ○ protecting heritage items outside the disturbance area, including from blast-related impacts; ○ avoiding project-related use of the (timber) Kayuga Bridge; ○ undertaking additional archaeological investigation of sites anecdotally reported to contain human burials; ○ preparation of interpretation where warranted; and ○ management of unexpected finds.
Economics	• The EIS includes a detailed economics assessment which includes a cost-benefit analysis to evaluate the net benefit/cost of the project to NSW, and input-output modelling to assess flow-on effects in the region. • The cost-benefit analysis, which includes estimated costs from all environmental externalities, indicates that the project would have a net benefit of $855 million to the NSW economy in net present value (NPV) terms. The benefits include royalties of $684 million and company tax of $172 million. • Sensitivity analysis indicates that the project would have a net positive benefit under a range of variables, including changes to: ○ the discount rate (4% and 10% used in addition to the 7% base case); ○ coal prices and exchange rates (coal prices would need to drop by 48% over the life of the mine to result in a net zero benefit); and ○ royalty payments and company tax rates. • The assessment indicates that the project would have a range of economic benefits for the local area and region, including approximately:	• As outlined above, the Department has recommended conditions requiring MACH to enter into VPAs with Muswellbrook Council and Upper Hunter Shire Council to provide contributions towards local infrastructure and services.

Issue	Findings	Recommend Conditions
	○ 447 direct and indirect FTE jobs in the SA3 region (Muswellbrook and Upper Hunter LGAs), 643 FTE jobs in the wider Hunter Valley region, and 444 FTE jobs in NSW; ○ $140 million (NPV) in incremental disposable income in the SA3 region, $189 million in the wider Hunter Valley and $276 million in NSW; and ○ $1.4 billion (NPV) in incremental direct value added benefits in NSW. • MEG considers that the project's benefits represent an appropriate return to NSW, and an effective use of the State's resources. • The Department requested MACH to undertake additional analysis of GHG-related aspects of the cost-benefit analysis, including additional sensitivity analysis for a range of carbon prices, and consideration of attributing all externality costs associated with Scope 1 and 2 GHG emissions to: ○ NSW (as required by the Commission in recent contemporary mining projects); and ○ Australia (noting that the Commonwealth Government is responsible for Nationally Determined Contributions). • Whilst MACH maintains that attributing all Scope 1 and 2 costs to NSW is not consistent with the applicable economic assessment guidelines, it provided additional analysis indicating that the project would still have a net benefit to NSW under such scenarios. • These calculations were again refined by MACH in consideration of the revised GHG emission calculations (see **Section 6.3**), confirming that the project would result in a net benefit to NSW of around $577 million should the costs of GHG emissions be calculated as a share of Australia's population (see **Appendix F**). • The Department considers that the project would have considerable economic benefits for the region and NSW. Further, as the project represents a brownfields extension to an existing mine, the project would make use of existing infrastructure established for the mine.	
Hazards	• The EIS includes assessment of hazards and risks associated with the project, including dangerous goods storage, bushfire, declared dams and geotechnical risk, and spontaneous combustion. • The assessments indicate that these and other hazards would not present significant risk, subject to continued implementation of standard best practice risk management measures. • RFS recommended that habitable buildings are constructed in accordance with appropriate bushfire attack level (BAL) standards, and that MACH prepares a Fire Management Plan for the project in consultation with RFS.	• The Department has recommended conditions requiring MACH to ensure the development is suitably equipped to respond to fires, and assist the RFS and emergency services if there is a fire in the vicinity of the site.

Issue	Findings	Recommend Conditions
	• The Dam Safety NSW noted that it would be required to be consulted regarding works in proximity to prescribed dams, as per regulatory requirements. • The Department considers that hazards associated with the project can be effectively managed.	

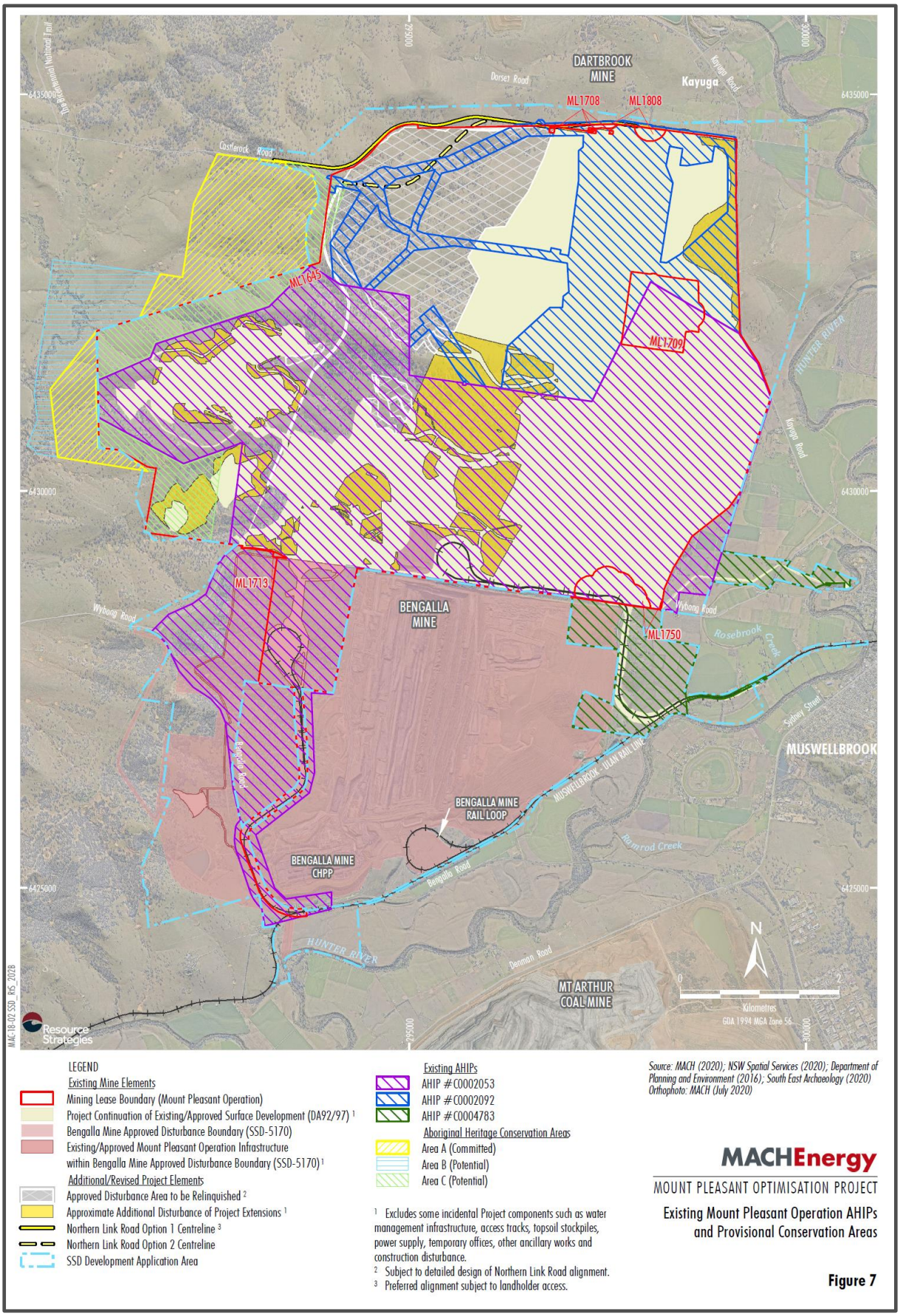

Figure 23 | Existing AHIPs and Aboriginal Heritage Conservation Areas

7 Evaluation

319. The Department has assessed MACH's development application, EIS, Submissions Report and additional information provided and has carefully considered:

- submissions received from members of the community and special interest groups;
- advice received from State and local Government agencies; and
- advice provided by the IESC and the Department's independent experts.

320. The Department has also considered the objectives of the EP&A Act, including the ESD principles, and relevant considerations under section 4.15(1) of the EP&A Act. The Department has given consideration to MACH's evaluation of the project's merits against applicable statutory and strategic planning requirements.

321. Mount Pleasant is located on the outskirts of Muswellbrook, and the information provided in the EIS, public submissions and agency advice highlight that the key issues associated with the project are related to air quality and noise impacts (and related health impacts) on Muswellbrook and its surrounds.

322. Submitters are also concerned about the greenhouse gas (GHG) and climate change impacts associated with continued coal use, as well as impacts on water resources and visual impacts.

323. That said, submissions in objection (56%) to the project were fairly balanced with submissions in support (42%), with those submissions in support highlighting the employment opportunities, economic benefits and social benefits that the mine brings to the Upper Hunter and wider region.

324. With regard to air quality and noise impacts, there are a considerable number of receivers in the affectation area for the existing approved mine, including:

- 32 privately-owned residences or land predicted to be significantly affected (28 by noise, 2 by air quality, and 2 by both noise and air quality). These receivers have voluntary acquisition rights under the existing consent; and
- 20 privately-owned residences predicted to be moderately affected (all by noise). These receivers have voluntary mitigation rights under the consent.

325. MACH has proposed a number of mitigation measures to reduce noise and air quality impacts associated with the project, including staging the increase in production as mining moves away from Muswellbrook, designing the eastern emplacement to shield noise, construction of a noise barrier along the rail spur, and operational mitigation measures (e.g. relocation or shut down during adverse conditions).

326. With these measures, the noise and air quality impacts associated with the project are predicted to reduce, in general, compared to the approved project. Receivers predicted to be impacted by the project (including the existing mine) include:

- 16 privately-owned residences (on 12 properties) predicted to be significantly affected (2 by noise, 1 by air quality, and 13 by both noise and air quality);
- 14 privately-owned residences (on 12 properties) predicted to be moderately affected (all by noise).

327. Most of these receivers are already in the affectation zone for the existing mine.

328. Water-related impacts of the project would be similar to the existing project, as would biodiversity impacts. The biodiversity impacts associated with the additional disturbance would be offset by the avoidance of clearing in the proposed relinquishment area.

329. The project would increase the height of the eastern emplacement between the mine and Muswellbrook from the approved 320 mAHD to 360 mAHD. However, the increased emplacement size would avoid the need for two approved emplacements, and MACH has introduced additional micro-relief to provide a more natural-looking final landform.

330. The project would also consolidate the three approved final voids into a single final void, although this single final void would be considerably larger and deeper than the approved void.

331. The Department recognises that GHG emissions and climate change is a matter of interest to many members of the broader community, and was raised in many public submissions.

332. The assessment indicates that the majority (98%) of GHG emissions generated by the project comprise Scope 3 emissions that would arise from the downstream consumption of coal by end users.

333. Scope 1 and Scope 2 emissions associated with the project would have a relatively low emissions intensity compared to other coal mining projects, which reflects the relatively low strip ratios at the mine, and the existing brownfields nature of the project, with significant existing mine infrastructure and established mining areas.

334. The project's emissions have been accounted for in the NSW GHG emissions projections in the Department's Net Zero Plan.

335. The Department also accepts that the project is consistent with the objectives of Australia's *Long-Term Emissions Reduction Plan* and the NSW Government's *Strategic Statement on Coal Exploration and Mining in NSW (2020)*, which recognise that in the short to medium term there will still be a strong global demand for thermal coal to satisfy society's basic power generation needs.

336. The Department also recognises that the project would provide significant social and economic benefits for the Upper Hunter and wider region, including:

- continued direct employment at the mine for an average of 600 people, and up to 830 people;
- approximately 450 direct/indirect jobs in the Upper Hunter, and 650 in the wider Hunter region;
- $1.4 billion (NPV) net contribution to gross state product;
- $20 million (indexed) in contributions to Muswellbrook Shire Council, and $6 million (indexed) to Upper Hunter Shire Council, towards community enhancement projects.

337. The Department has recommended a comprehensive and precautionary suite of conditions to ensure that the project would comply with acceptable criteria and standards, that the impacts would be consistent with MACH's predictions, and that residual impacts would be effectively minimised, managed and/or compensated.

338. These include conditions requiring MACH to:

- acquire the properties predicted to be significantly affected by noise and or air quality, upon request from the landowner;

- provide additional mitigation measures on residences predicted to be significantly or moderately affected, upon request of the landowner;
- obtain all necessary water licences required for the project;
- offset the project's residual biodiversity impacts;
- minimise visual and lighting impacts, and prepare comprehensive rehabilitation strategies and plans;
- limit GHG emissions, and implement measures to continually reduce emissions;
- enter into planning agreements with Muswellbrook Shire Council and Upper Hunter Shire Councils to provide substantial contributions towards community projects; and
- prepare a comprehensive suite of management plans, and undertake annual reviews and periodic independent audits.

339. The recommended conditions have been provided to key NSW Government agencies and their comments taken into account. The Department considers that the conditions reflect current best practice for the regulation of open cut coal mining projects in NSW.

340. Subject to the recommended conditions, the Department considers that, on balance, the benefits of the project outweigh its costs, and that the project is approvable.

341. This assessment report is hereby presented to the Commission to determine the application. Recommended conditions of approval are included in **Appendix I**.

Prepared by:

Joe Fittell
Team Leader
Resource Assessments

Recommended by:

31/5/2022

Stephen O'Donoghue
Director
Resource Assessments

31/5/2022

Clay Preshaw
Executive Director
Energy, Resources and Industry

Appendices

Appendix A – Environmental Impact Statement

Refer to “EIS” folder on the Department’s website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mount-pleasant-optimisation-project

Appendix B – Submissions

Refer to “Submissions” folder on the Department’s website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mount-pleasant-optimisation-project

Appendix C – Response to Submissions

Refer to “Response to Submissions” folder on the Department’s website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mount-pleasant-optimisation-project

Appendix D – IESC Advice and MACH’s Response

Refer to “IESC” folder on the Department’s website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mount-pleasant-optimisation-project

Appendix E – Agency Advice on Assessment

Refer to “Agency Advice” folder on the Department’s website at:

https://www.planningportal.nsw.gov.au/major-projects/projects/mount-pleasant-optimisation-project

Agency	Type of Advice	Date of Advice	Link
Ausgrid	Advice on EIS	3 March 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-13365457%2120210315T042428.644%20GMT
Australian Rail Track Corporation	Advice on EIS	16 March 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-13365457%2120210317T014509.485%20GMT
Biodiversity Conservation Division	Advice on EIS	23 March 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-13879506%2120210325T050722.370%20GMT
	Advice on Submissions Report	23 July 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-23588033%2120210723T065526.872%20GMT
	Advice on Supplementary Submissions Report	6 October 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-28043458%2120211005T224907.802%20GMT
	Final Advice on Project	22 April 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220426T234049.231%20GMT
	Commonwealth Bilateral Assessment	26 April 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220426T234049.705%20GMT
Climate and Atmospheric Science Branch	Advice on GHG Assessment	10 December 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-33918228%2120211220T000439.148%20GMT
Crown Lands Group	Advice on EIS	17 March 2021	https://www.planningportal.nsw.gov.au/major-projects/projects/mount-pleasant-optimisation-project
Dams Safety NSW	Advice on EIS	1 March 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-13365457%2120210315T030128.335%20GMT
DPE Water	Advice on EIS	12 March 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-13883739%2120210312T042658.571%20GMT
	Advice on Submissions Report	15 July 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-23588037%2120210715T061316.861%20GMT
	Advice on Supplementary Submissions Report	29 September 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-28043456%2120210929T034751.381%20GMT

Agency	Type of Advice	Date of Advice	Link
Department of Primary Industries	Advice on EIS	25 February 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-13365457%2120210315T044655.739%20GMT
EPA	Advice on EIS	17 March 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-13879507%2120210317T074538.359%20GMT
	Advice on Submissions Report	26 July 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-23588034%2120210726T065937.044%20GMT
	Advice on Supplementary Submissions Report	15 October 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-28043707%2120211015T044433.039%20GMT
Heritage Council of NSW	Advice on EIS	5 March 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-13883734%2120210305T053547.799%20GMT
	Advice on RTS	16 July 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-23588039%2120210716T074846.795%20GMT
Heritage NSW	Advice on EIS	26 February 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-13883735%2120210226T042354.044%20GMT
	Advice on Submissions Report	9 August 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-23588038%2120210809T062035.099%20GMT
	Advice on Supplementary Submissions Report	30 September 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-28043459%2120210930T060131.522%20GMT
MEG	Advice on EIS	25 February 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-13883737%2120210225T015230.722%20GMT
	Advice on Submissions Report	14 July 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-23588036%2120210714T032646.071%20GMT
Muswellbrook Shire Council	Advice on EIS	22 March 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-13883733%2120210322T055047.884%20GMT
	Advice on Submissions Report	26 July 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-23588041%2120210726T061438.297%20GMT
NSW Health	Advice on EIS	12 March 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-13883738%2120210321T225201.894%20GMT
NSW Rural Fire Service	Advice on EIS	24 February 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-13365457%2120210315T043957.904%20GMT

Agency	Type of Advice	Date of Advice	Link
Resources Regulator	Advice on EIS	25 February 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-13879509%2120210225T043342.975%20GMT
	Advice on Submissions Report	15 July 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-23589826%2120210715T061112.571%20GMT
Subsidence Advisory NSW	Advice on EIS	17 March 2021	https://www.planningportal.nsw.gov.au/major-projects/projects/mount-pleasant-optimisation-project
Transport for NSW	Advice on EIS	23 February 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-13883736%2120210223T052644.739%20GMT
	Advice on Submissions Report	15 July 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-23589827%2120210715T054252.222%20GMT
Upper Hunter Shire Council	Advice on EIS	17 March 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SUB-16221274%2120210316T233945.206%20GMT

Appendix F – Additional Information

Refer to “Additional Information” folder on the Department’s website at:

https://www.planningportal.nsw.gov.au/major-projects/projects/mount-pleasant-optimisation-project

Subject Matter	Type of Information	Date	Link
Amendment Application	Request to Amend DA	17 May 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220516T224705.186%20GMT
	Approval of Amendment Application	17 May 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220517T080823.995%20GMT
Voluntary Planning Agreements	DPE Request	5 July 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-23576744%2120210705T013632.829%20GMT
	MACH Response	17 August 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-23576744%2120210817T032137.133%20GMT
Additional information regarding noise, blasting, employment, Rossgole tower, traffic, heritage and final void	DPE Request	27 August 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-25678079%2120210827T014410.248%20GMT
	MACH Response	22 September 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-25678079%2120210922T042955.847%20GMT
Residual issues from Submissions Report (refer to Appendix E)	DPE Request	12 August 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-25649480%2120210812T063440.395%20GMT
	MACH Response	9 September 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-25649480%2120210910T053708.724%20GMT
	MACH Response to DPE Water final advice (dated 29 September 2021)	18 March 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220321T231605.836%20GMT
Information request regarding mining methodology and use of draglines	DPE Request	29 September 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-29065211%2120210929T061651.557%20GMT
	MACH Response	28 October 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-29065211%2120211028T061054.285%20GMT

Subject Matter	Type of Information	Date	Link
Air quality assessment peer review	Air Quality Peer Review	11 October 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-29993097%2120211013T055929.611%20GMT
	MACH Response	23 December 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-29993097%2120211223T024838.352%20GMT
	Residual Comments from Expert	4 February 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220221T011051.017%20GMT
	MACH Response	24 March 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220329T002722.609%20GMT
	Final Comments from Expert	31 March 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220404T233407.629%20GMT
Rehabilitation and mine closure peer review	Rehabilitation and Mine Closure Peer Review	7 October 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-29993097%2120211013T055929.936%20GMT
	MACH Response	23 December 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-29993097%2120211223T024838.668%20GMT
	Final Comments from Expert	8 February 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220221T010805.621%20GMT
	MACH Final Response	18 March 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220321T233758.143%20GMT
Economic assessment	DPIE Request	24 December 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-33034761%2120211224T041852.978%20GMT
	MACH Response	27 January 2021	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-33034761%2120220202T001940.152%20GMT
	Revisions to CBA to reflect update GHG emissions	16 May 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-10418%2120220518T005014.978%20GMT
Greenhouse gas assessment	Response to CAS Advice (dated 10 December 2021)	31 March 2022	https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-33918228%2120220331T072811.751%20GMT

Appendix G – Statutory Considerations

The Department's assessment of the Project has given detailed consideration to a number of statutory requirements (see **Section 4** and **Section 6**). These include:

- the objects found in section 1.3 of the EP&A Act; and
- the matters listed under section 4.15(1) of the Act, including applicable environmental planning instruments and regulations.

A summary of these considerations is provided below. Reference should also be made to Sections 5, 8 and Attachments 6 and 7 of the EIS, where MACH has also considered applicable legislation and environmental planning instruments in detail.

G.1 Objects of the EP&A Act

Table G1 | Consideration of the proposal against the relevant objects of the EP&A Act

Objects of the EP&A Act	Consideration
(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources, *(c) to promote the orderly and economic use and development of land,*	• The Project involves a permissible land use on the subject land; • the coal resource has been determined to be significant from a State and regional perspective; • the coal resource is located within existing coal exploration and mining lease areas, in a region that is dominated by coal mining operations; • the Project can be largely carried out using existing mine site and transport infrastructure; and • the Project would provide considerable socio-economic benefits.
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment	• The proposal can be carried out in a manner that is consistent with the principles of ESD, which have been considered through the Project EIS and the Department's assessment (see **Section 4** and Appendix G.2) which has sought to integrate all significant environmental, social and economic considerations.
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	• the Project has been designed to minimise potential environmental impacts where practicable, including consideration of alternative mine design, use of existing infrastructure to minimise the clearance required; • MACH would offset residual biodiversity impacts in accordance with the NSW and Commonwealth Government Policy; • the Project is able to be undertaken in a manner that would maintain or improve the biodiversity values of the region in the medium to long-term; and • both the *precautionary principle* and the *conservation of biological diversity and ecological integrity* has been applied in the assessment to avoid serious or irreversible damage to the environment wherever possible.

Objects of the EP&A Act	Consideration
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	• The Department has assessed the likely impacts of the Project on Aboriginal cultural heritage and historic heritage. These matters are discussed further in **Section 6.6**.
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	• The Department has notified and consulted with the affected Council and other NSW government authorities over the Project and carefully considered all responses in its assessment.
(j) to provide increased opportunity for community participation in environmental planning and assessment.	• The Department publicly exhibited the proposal and requested community submissions which were all reviewed, considered and responded to by MACH.

G.2 Ecologically Sustainable Development

The EP&A Act adopts the definition of ecologically sustainable development (ESD) found in the *Protection of the Environment Administration Act 1991,* as follows:

> *"ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:*
>
> *(a) the precautionary principle;*
>
> *(b) inter-generational equity;*
>
> *(c) conservation of biological diversity and ecological integrity; and*
>
> (d) *improved valuation, pricing and incentive mechanisms."*

The Department has considered the principles and programs of ESD, as follows:

Precautionary Principle

The Department has assessed the Project's threats of serious or irreversible environmental damage using reasonable worst case scenarios, and considers that there is sufficient scientific certainty to enable the decision maker to weigh up the impacts of the Project and determine the development application. The Department has considered all the available information presented and consulted closely with independent experts and key Government agencies to obtain advice on various aspects of the Project.

While it is recognised the Project would result in a number of impacts of varying significance, the key matters that could cause serious or irreversible environmental damage relate to unmitigated impacts on air quality, biodiversity values (including threatened species and EECs), impacts on water resources and impacts to items of heritage significance.

The EIS and Department's assessment have identified management and mitigation measures to address potential environmental impacts, and include commitments and requirements to implement monitoring, auditing and reporting mechanisms.

Overall, the Department has assessed these matters in detail (see **Section 6**) and considers that the recommended risk-based conditions and performance measures would provide appropriate protection for the environment and minimise the potential for any serious or irreversible environmental damage.

Intergenerational Equity

Intergenerational equity has been addressed through maximising efficiency and coal resource recovery and developing environmental management measures which are aimed at ensuring the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

The Department acknowledges that coal and other fossil fuel combustion is a contributor to climate change, which has the potential to impact future generations. However, the Department also recognises that there remains a clear need to develop coal deposits to meet society's basic energy requirements for the foreseeable future. The proposal includes measures to mitigate potential GHGE's from the operation of the Project, which would be recommended as a requirement of the Project's operating conditions and detailed in an Air Quality and Greenhouse Gas Management Plan.

The Department's assessment of direct energy use and associated GHGE's (i.e. Scope 1, Scope 2 and Scope 3 emissions) has found that these emissions would be low and comprise a very small contribution towards climate change at both the national and global scale (see **Section 6.3**).

The Department considers that the socio-economic benefits and downstream energy generated by the Project would benefit future generations, particularly through the provision of national and international energy needs in the short to medium term.

Conservation of Biological Diversity and Ecological Integrity

The Project's potential impacts on biodiversity have been outlined in the Department's assessment of the Project (**Section 6.5**). The Department considers that the conservation of biological diversity and ecological integrity has been applied through avoiding and minimising biodiversity impacts. The Department considers that the Project's potential impacts would be reasonably mitigated and/or offset to enable the long-term biodiversity outcomes to be achieved for the region.

Improved Valuation, Pricing and Incentive Mechanisms

Valuation and pricing of resource has been considered through economic, social and cost-benefit analyses which have been completed as part of the EIS. The cost benefit analyses sought to weigh up the Project's costs and benefits based on its full range of environmental, social and economic impacts. The Department has carefully considered the costs and economic benefits of the Project and support the conclusion that it would deliver a significant net benefit to the local region and the State of NSW.

The Department has also recommended performance-based conditions, where possible, to provide incentive to MACH to achieve environmental outcomes and objectives in the most cost-effective way.

G.3 Environmental Planning Instruments

Under Section 4.15 of the EP&A Act, the consent authority is required to consider, amongst other things, the provisions of the relevant EPI's, including any exhibited draft EPI[13]. Section 4 of the PIR provides a summary of the Department's consideration of the relevant EPI's and notes MACH's consideration of applicable provisions of relevant EPIs in its EIS. Further consideration is provided in the Department's assessment (see **Section 6**) and below.

[13] Note that due to the effect of clause 11 of the SRD SEPP, development control plans do not apply to SSD.

Muswellbrook Local Environmental Plan 2009

The Project disturbance area is located in the Muswellbrook local government area. Land within the development application area is variously zoned:

- RU1 – Primary Production;
- E3 – Environmental Management;
- SP2 – Infrastructure; and
- W1 – Natural Waterways.

Under the Muswellbrook LEP, open cut mining is permissible with consent in the RU1 zone, but is prohibited in the E3, SP2 and W1 zones.

SEPP No. 33 – Hazardous and Offensive Development

The Department acknowledges that mining operations at Mount Pleasant entail storage and use of hazardous substances, including Class 1 explosive materials. However, having consideration to the dangerous goods licences and management measures in place at the mine, the Department considers the Project does not meet the definition of a potentially hazardous industry under SEPP 33.

While the Project could be characterised as a potentially offensive industry without the employment of appropriate mitigation measures, suitable mitigation measures have been incorporated into the design of the Project to ensure that it would meet relevant standards and be compatible with the existing or likely future use of the land surrounding the Project.

With the proposed measures in place, the Project is not considered to be potentially hazardous or offensive. Importantly, the Department considers that the Project would not increase risks to public safety relative to the existing operations and would not alter the consequences or likelihood of a hazardous event on the site. Consequently, the Project is considered to be consistent with the aims, objectives and requirements of SEPP 33.

SEPP No. 44 – Koala Habitat Protection

A new *SEPP (Koala Habitat Protection) 2019* SEPP commenced on 30 November 2020, replacing the previous SEPP 44. However, clause 15 of the new SEPP provides that *'a development application made, but not finally determined, before the commencement of this Policy in relation to land to which this Policy applies must be determined as if this Policy had not commenced.'* Consequently, the provisions of SEPP 44 continue to apply to the Project.

The Biodiversity Development Assessment Report concluded that the Project would not impact any areas of core Koala habitat, as defined under SEPP 44 given there is no resident population of koalas within the Project footprint and there have not been any recorded sightings of koalas within the Project Area.

SEPP 44 aims to conserve and manage Koala habitat to reverse the current trend of Koala population decline. In this respect, the Department undertook detailed consideration of impacts of the Project on Koala populations, including the recovery of populations in the longer term (see **Section 6.5**).

Overall, the Department considers that the Project is generally consistent with the aims, objectives and requirements of SEPP 44.

SEPP No. 55 – Remediation of Land

As with all mining projects, some minor areas of the existing Mount Pleasant Mine would require management for the presence of hydrocarbons prior to mine closure (i.e. areas surrounding fuel storages). Nevertheless, the Department considers that these matters would not constitute a significant or persistent contamination of the site and could be easily managed and/or remediated under the existing or updated conditions of consent and/or the EPL for the site. Accordingly, the Department is satisfied that the proposed Project could continue to be appropriately managed and remediated (if necessary) to ensure it is suitable for its existing or future use.

Overall, the Department considers that there is limited risk of any material contamination of the land subject to the application and that the Project is generally consistent with the aims, objectives, and provisions of SEPP 55.

SEPP (State and Regional Development) 2011

The proposed development is declared to be State significant development under Division 4.7 of the EP&A Act as it is 'development for the purposes of coal mining and mining related works', as specified in clause 5 of Schedule 1 to *State Environmental Planning Policy (State and Regional Development) 2011.*

In accordance with Section 4.5(a) of the EP&A Act and clause 8A of the SSD SEPP, the Independent Planning Commission is the consent authority for the proposal as there were more than 50 unique objections to the Project.

SEPP (Infrastructure) 2007

The Infrastructure SEPP requires the consent authority to notify relevant public authorities about developments that may affect public infrastructure or public land. The Department notified Muswellbrook Council, Transport for NSW, and Crown Lands about the proposed Project.

The Department has consulted with public authorities and considered the matters raised in its assessment of the Project (see **Section 6**). Where appropriate, the Department has also developed conditions of consent to address the recommendations and advice of these public authorities. The Department considers that such conditions would provide appropriate protection for public infrastructure. As such, the Department considers that the requirements of the Infrastructure SEPP have been satisfied.

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

Clause 7(1)(b) of the Mining SEPP identifies that mining is permissible with consent on any land where development for the purposes of agriculture or industry may be carried out (with or without development consent). Consequently, the proposed development is permissible with consent under the Mining SEPP, and the Commission may determine the application.

In addition, Part 3 of the Mining SEPP lists a number of matters that a consent authority must consider before determining an application for consent to undertake development for the purposes of mining. The Department has considered these matters in its assessment of the proposed Project and has included a brief summary of these considerations below.

Non-discretionary development standards for mining (clause 12AB)

Clause 12AB identifies non-discretionary development standards for the purposes of section 4.15(2) of the EP&A Act in relation to the carrying out of development for the purposes of mining. Table A7-1 in the EIS's Attachment 7 sets out MACH's consideration of the applicable standards and whether or not the Project meets them.

The Department agrees with the conclusions provided in this assessment.

Compatibility with other land uses (clause 12)

The Department's assessment has considered the potential impacts of the Project on adjacent land uses in the area. In addition, it has considered the potential impacts on downstream water users and potential noise, air quality, transport and visual impacts at nearby private residences. This assessment has been undertaken in consideration of the public benefits of the Project, surrounding land uses and measures to avoid, mitigate or minimise any land use incompatibility.

Overall, the Department considers that with the implementation of the recommended conditions, including performance measures and adaptive management, the Project could be managed to minimise any potential land use conflicts and meet the aims, objectives, and provisions of clause 12.

Voluntary Land Acquisition and Mitigation Policy (VLAMP) (clause 12A)

The Department's assessment has considered the *NSW Government's Voluntary Land Acquisition and Mitigation Policy (December 2018)*. With the implementation of proposed management measures, the noise and air quality impacts associated with the project are predicted to reduce, in general, compared to the approved project. Receivers predicted to be impacted by the project (including the existing mine) include:

- 16 privately-owned residences (on 12 properties) predicted to be significantly affected (2 by noise, 1 by air quality, and 13 by both noise and air quality);
- 14 privately-owned residences (on 12 properties) predicted to be moderately affected (all by noise).

Most of these receivers are already in the affectation zone for the existing mine.

In summary, the Department considers that the Project could be managed to minimise amenity impacts at surrounding private properties and that appropriate landowner rights could be offered through any recommended conditions of consent.

Compatibility with mining, petroleum and extractive industries (clause 13)

Attachment 7 of the EIS provides a detailed description any potential interaction between the project and the existing and proposed uses of land in the vicinity of the development which concludes that the Project would be consistent with the requirements of Clause 13.

The Department agrees with the conclusions provided in this assessment and considers that the Project has been designed in a manner that is compatible with, and would not adversely affect, adjacent current or future mining-related activities.

Natural resource management and environmental management (clause 14)

The Department has recommended a number of conditions aimed at ensuring that the Project is undertaken in an environmentally responsible manner, including but not limited to, conditions in relation to water resources, threatened species and biodiversity and greenhouse gas emissions.

Resource recovery (clause 15)

The Department has considered resource recovery in its assessment of the Project and considers that the Project can be carried out in an efficient manner that optimises resource recovery within environmental constraints.

The Department has recommended conditions requiring MACH to implement reasonable and feasible measures to minimise waste and maximise the salvage and re-use of resources within the disturbance area (including water, soil and vegetative resources).

Transport (clause 16)

The Department notes that the off-site transport of coal would primarily involve the haulage of product coal on trains to the Port of Newcastle for export. The Department has consulted with the applicable roads authorities in relation to the Project and taken these submissions into consideration in its assessment of the Project.

Rehabilitation (clause 17)

Clause 17 outlines particular requirements relating to consideration of whether any consent granted should be subject to conditions aimed at ensuring rehabilitation of land disturbed by mining and, in particular, whether conditions should require preparation of a rehabilitation management plan, appropriate treatment of waste, remediation of soil contamination and the avoidance of public safety risks.

MACH has provided a Rehabilitation and Mine Closure Addendum for the site in Attachment 8 of the EIS. The strategy seeks to maximise the benefits that rehabilitation can provide to the creation, recreation and enhancement of biodiversity linkages in the landscape.

The Department has considered the final landform proposed by MACH and considers that the proposed final landforms and rehabilitation plans could be achieved to meet contemporary best practice in the NSW mining industry, and has recommended a comprehensive suite of conditions relating to rehabilitation of land disturbed by the Project.

Summary of Mining SEPP

Based on its assessment of the Project, the Department considers that it can be managed in a manner that is generally consistent with the aims, objectives and provisions of the Mining SEPP.

Appendix H – Matters of National Environmental Significance

H.1. Controlled Action

On 26 August 2020, a delegate of the Commonwealth Minister for the Environment determined that the Mount Pleasant Optimisation Project (the project) is a 'controlled action' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The project was determined as being likely to have a significant impact on controlling provisions and matters protected under the EPBC Act, including:

- listed threatened species and communities; and
- a water resource in relation to large coal mining development.

Consequently, the potential impacts on controlling provisions under the EPBC Act have been assessed under Part 4 of the EP&A Act.

The Commonwealth Government has accredited the State's environmental assessment processes under the EP&A Act, via a Bilateral Agreement between the Commonwealth and the NSW Governments. As part of its controlled action determination, the Commonwealth Department of Agriculture, Water and the Environment (DAWE) advised that the assessment of the project would be undertaken by the NSW Government in accordance with the Bilateral Agreement. However, the Commonwealth's decision-maker maintains a separate approval role, which will be exercised following the Independent Planning Commission's (the Commission's) determination of the development application.

The Department provides the following additional information for the Commonwealth Minister to take into account when deciding whether or not to approve the project under the EPBC Act.

The Department's assessment has been prepared based on the information contained in:

- the Applicant's (Mount Pleasant's) Environmental Impact Statement (EIS) for the project, particularly Appendices C, D, E, and F (see **Appendix A**);
- Mount Pleasant's revised BDAR in the Submissions Report (see **Appendix C**);
- advice provided by the Commonwealth's Independent Expert Scientific Committee on Coal Seam Gas and Large Mining Development (IESC) (see **Appendix D**);
- Mount Pleasant's Response to the IESC (see **Appendix D**);
- supplementary information provided by Mount Pleasant during the assessment process (see **Appendix F**);
- advice provided by the Water Group and the BCD within the Department (see **Appendix B** and **E**); and
- advice provided by the Commonwealth Department of Agriculture, Water and the Environment (DAWE).

This Appendix is supplementary to, and should be read in conjunction with, the main volume of the Department's Assessment Report which includes the Department's consideration of impacts on surface water, groundwater and listed threatened species and communities in **Section 6.4** and **Section 6.5**, respectively.

H.2 Scope of the Action

With regard to biodiversity assessment under the EPBC Act, most of the Additional Disturbance Area for the project has already been assessed and offset under Mount Pleasant's existing EPBC Act approval (EPBC 2011/5795). The only area of additional vegetation disturbance that was not considered as part of the existing EPBC Act approval is the revised alignment of the Northern Link Road (see **Figure H1**). This area is referred to in Mount Pleasant's EIS as the Action Area.

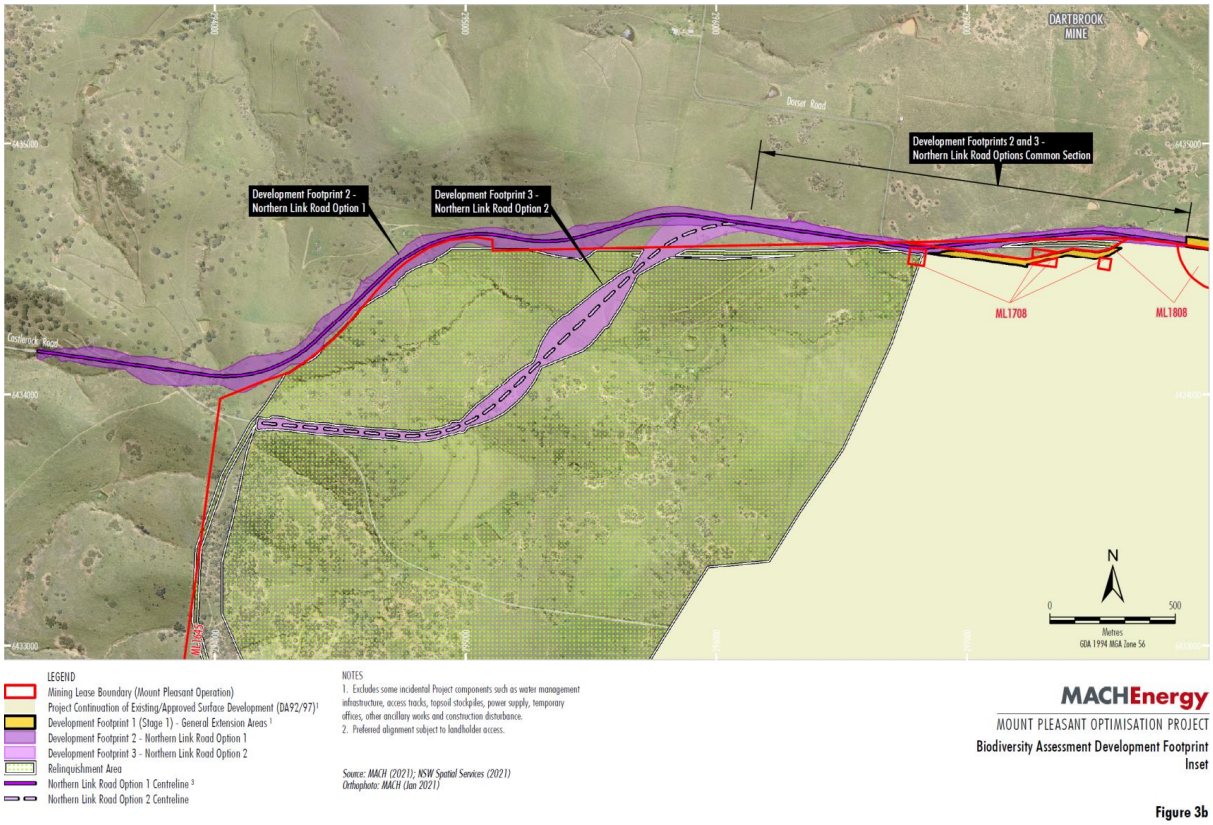

Figure H1 | Commonwealth Action Area

As outlined in the EIS and the Department's Assessment Report, two options are being considered for the relocation of the western section of the Northern Link Road. Option 1 would disturb approximately 31.9 hectares of land, including 26.4 hectares with MNES values. Option 2 would disturb 25.9 hectares of land, including 22.5 hectares with MNES values.

Part of the original road alignment approved under EPBC 2011/5795 would no longer be constructed, comprising approximately 14.4 hectares. This area is referred to as the Western Link Road Relinquishment Area (see **Figure H1**).

H.3 Impacts to Listed Threatened Species and Communities

The project's direct impacts on EPBC-listed threatened species and communities are summarised in **Table H1** below.

In addition to proposed clearing and associated loss and/or fragmentation of habitat, the project has the potential to result in indirect impacts on the threatened species and communities outlined in **Table H1**. Potential indirect impacts include dust and noise generation, erosion and sedimentation, lighting impacts and increased risk of bushfire and pest and weed infestation.

MACH has proposed a range of management strategies to minimise the severity of these impacts. These strategies are discussed in **Section H.4**.

Table H1 | Summary of likely impacts on threatened species listed under the EPBC Act

Ecological Feature	EPBC Listing Status	Direct Disturbance of Potential Habitat (Ha)	Significant Impact Predicted*	Comments
Box-Gum Woodland Critically Endangered Ecological Community	Critically Endangered	Option 1 – 26.4 Option 2 – 22.5	Yes	Relevant Ecosystem credits – PCTs 483, 618 and 1606
Striped Legless Lizard (*Delma Impar)*	Vulnerable	Option 1 – 27.4 Option 2 – 23.3	Yes	Potential habitat within the Subject land occurs throughout all PCTs
Grey-headed Flying-fox (*Pteropus poliocephalus*)	Vulnerable	5.9	No	Potential foraging habitat within the Subject land occurs within woodland forms of PCTs 1605, 1606 and 1691, as well as PCT 483 in which it was recorded
Regent Honeyeater (Anthochaera Phrygia)	Critically Endangered	0	No	The Regent Honeyeater is an ecosystem credit species
Swift Parrot (*Lathamus discolor*)	Critically Endangered	0	No	Relevant Ecosystem credits – PCTs 1603 and 1604
Spotted-tailed Quoll (*Dasyurus maculatus maculatus*)	Endangered	0	No	The Spotted-tailed Quoll is an ecosystem credit species
Koala (*Phascolarctos cinereus*)	Vulnerable	0	No	The Koala is an ecosystem credit species

* see bilateral assessment prepared by BCD in **Appendix E**.

Box-Gum Woodland Critically Endangered Ecological Community

Northern Link Road Option 1 (Development Footprint 2) would clear approximately 20.8 ha of derived native grassland and 5.6 ha of woodland (total of 26.4 ha). Northern Link Road Option 2 (Development Footprint 3) would clear approximately 16.8 ha of derived native grassland and 5.7 ha of woodland (total of 22.5 ha) (Revised BDAR Table 31).

MACH has committed to a number of measures to avoid and minimise clearance. Those measures that have specifically avoided clearance of Box-Gum Woodland CEEC listed under the EPBC Act include that the greater part of the road has been placed in derived native grassland which is of poor quality as indicated by Vegetation Integrity scores of between 14.4 and 15.2.

The clearance would occur in the short-term for construction of the road. In the long-term, the surface disturbance areas associated with the development of the Northern Link Road would be progressively rehabilitated, where not within the relocated public road corridor (see **Section H.5**).

Based on the information available in the EPBC Act Referral, DAWE considered (in the input into the SEARs) that the Action would be likely to have a significant impact on the Box-Gum Woodland CEEC, and Mount Pleasant has committed to offsetting the impacts on the Box-Gum Woodland CEEC in accordance with the NSW Biodiversity Offsets Scheme.

The Department's recommended conditions require Mount Pleasant to obtain and retire the required ecosystem credits for the CEEC, to rehabilitate the project disturbance areas, and to prepare a comprehensive Biodiversity Management Plan, which must include a focus on the regeneration, enhancement and re-establishment of the EECs impacted by the project.

Striped Legless Lizard (Delma Impar)

This species was not recorded within the Action Area during targeted surveys undertaken in 2018 and 2019 by Future Ecology (2020), however it was recorded approximately 3 km to the south-east and 6 km to the south-west. A single individual was recorded at each location, with one under a cow pat (dung) and the other under a lightly imbedded rock.

MACH's revised BDAR conservatively considered that the Action is likely to have a significant impact on the vulnerable Striped Legless Lizard in the short to medium-term in consideration of the EPBC Act referral guidelines (DSEWPaC 2011) and Matters of National Environmental Significance: Significant impact guidelines 1.1 (DotE 2013). This conclusion is made considering that the local population of the Striped Legless Lizard in the Action Area represents a range extension for the species and therefore could be considered an important population (as defined by DotE 2013).

MACH has committed to a number of measures to avoid and minimise impacts based on best practice mitigation measures as outlined in the referral guidelines (DSEWPaC 2011). See **Section H.5**).

The Department's recommended conditions require Mount Pleasant to obtain and retire the required species credits for the Striped Legless Lizard, and to prepare a comprehensive Biodiversity Management Plan, including provisions for pre-clearance surveys and salvage of habitat resources.

Grey-headed Flying-fox (Pteropus poliocephalus)

This species was recorded at eight locations within the mining licence and surrounds during targeted surveys undertaken in 2018 and 2019 by Future Ecology (2020). The Grey-headed Flying-fox is considered to be a single, mobile population distributed across eastern and southern Australia (DAWE 2021c). Nationally important camps are those that have contained ≥10,000 Grey-headed Flying-foxes in more than one year in the last 10 years or have been occupied by more than 2,500 Grey-headed Flying-foxes permanently or seasonally every year for the last 10 years (DAWE 2021c).

No breeding camps are known to occur within the Action Area or immediate surrounds (DAWE 2021b) and none were found during recent daytime searches and habitat assessments, therefore important camps or populations are absent from the Action Area.

The project would result in the direct clearance of 5.9 ha (for either road option) of potential foraging habitat for the Grey-headed Flying-fox. If the potential foraging habitat in the Action Area is removed, it is likely to be of little consequence to the Grey-headed Flying-fox given the occurrence of similar potential habitat in the surrounding landscape and the lack of breeding habitat in the Action Area.

With the avoidance and mitigation measures, the project would not interfere with any of the recovery objectives or actions outlined in the National Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus* (DAWE 2021c). As such, BCD concluded that the project would be unlikely to interfere substantially with the recovery of the Grey-headed Flying-fox and an offset would not be required (see **Appendix E**).

Regent Honeyeater (Anthochaera phrygia)

This species was not recorded within the Action Area or surrounds during targeted searches undertaken in 2018 and 2019 by Future Ecology (2020), nor has it been recorded by any previous surveys in the Action Area or surrounds (ERM 1997; Cumberland Ecology 2006, 2009a, 2010; ELA 2017a, 2017b). The closest database record is approximately 9 km to the south of the Action Area.

No known or potential breeding habitat for the Regent Honeyeater occurs in the Action Area and DPIE (2021a) do not recognise the location as a Mapped Important Area. The revised road alignment options would result in the clearance of approximately 5.9 ha (for either option) of potential foraging habitat for this species. If the potential foraging habitat in the Action Area is removed, it is likely to be of little consequence to the Regent Honeyeater given the occurrence of similar potential habitat in the surrounding landscape and absence of breeding habitat.

Based on information available in the EPBC Act Referral, DAWE considered (in the input into the SEARs) that the Action would be likely to have a significant impact on the Regent Honeyeater. The BCD considers that the project would not have a material adverse impact on the Regent Honeyeater as this species has not been recorded in the Action Area, no breeding habitat for this species is present and DPIE (2021a) does not recognise the subject land as important habitat for this species (negating the need for species credits) (see **Appendix E**).

To be conservative and consistent with the DAWE input into the SEARs, the revised BDAR assesses the Regent Honeyeater as if the Action could significantly impact the species. This species is classified as an ecosystem credit species in the BioNet Threatened Biodiversity Data Collection (DPIE 2021b) given DPIE (2021a) do not recognise the location as a Mapped Important Area.

The impacts on the Regent Honeyeater would be offset in accordance with the NSW Biodiversity Offsets Scheme and would result in the retirement of the required number and class of ecosystem credits by MACH.

Swift Parrot (Lathamus discolor)

The Swift Parrot was not recorded during recent surveys undertaken by Future Ecology (2020), nor has it been recorded by any previous surveys in the Action Area or surrounds (ERM 1997; Cumberland Ecology 2006, 2009a, 2010; ELA 2017a, 2017b). d).

It is unlikely that the woodland within the revised road alignment options is used by the Swift Parrot given that the species has not been recorded recently or previously in the Action Area or surrounds (ERM 1997; Cumberland Ecology 2006, 2009a, 2010; ELA 2017a, 2017b). DPIE (2021a) do not recognise the location as a Mapped Important Area for the Swift Parrot.

The project would result in the direct clearance of potential foraging habitat for the Swift Parrot. If the potential foraging habitat in the Action Area is removed, it is likely to be of little consequence to the Swift Parrot given the occurrence of similar potential habitat in the surrounding landscape and the lack of records in the immediate region.

Based on the information available in the EPBC Act Referral, DAWE considered (in the input into the SEARs) that the Action would be likely to have a significant impact on the Swift Parrot. The BCD considers that the project would not have a material adverse impact on the Swift Parrot as this species has not been recorded in the Action Area, no breeding habitat for this species is present (is it breeds in Tasmania), and DPIE (2021a) do not recognise the Subject land as important habitat for this species (negating the need for species credits) (see **Appendix E**).

This species is classified as an ecosystem credit species in the BioNet Threatened Biodiversity Data Collection (DPIE 2021b) given DPIE (2021a) do not recognise the location as a Mapped Important Area (Table 10). The impacts on the Swift Parrot would be offset in accordance with the NSW Biodiversity Offsets Scheme and would result in the retirement of the required number and class of ecosystem credits by MACH.

Spotted-tailed Quoll (*Dasyurus maculatus maculatus*)

The Spotted-tailed Quoll was not recorded within the Action Area or surrounds during targeted surveys by Future Ecology (2020). There is a single database record within existing/approved surface development from June 2006 with a 10,000 m accuracy (DPIE 2020a).

Northern Link Road Option 1 (Development Footprint 2) is the currently preferred option as it skirts the mine licence boundary and would have a disturbance area of approximately 27.4 ha of native vegetation. Option 2 is the less preferred option and would have a disturbance area of approximately 23.3 ha of native vegetation.

The Spotted-tailed Quoll potential habitat adjacent to the Action Area is mostly located in an agricultural grazing property and as such is subject to a number of existing recognised threats, namely, livestock grazing, habitat fragmentation, weeds and lack of fire (DAWE 2021e). The project would be unlikely to indirectly impact the Spotted-tailed Quoll (were it to use the woodland potential habitat adjacent to the Action Area) as potential impacts would be managed through a number of mitigation measures proposed by MACH (see **Section H.5**).

Spotted-tailed Quoll are susceptible to vehicle strike (DELWP 2016; DAWE 2021e). The revised Northern Link Road is not likely to pose a significant incremental risk to Spotted-tailed Quoll as the road already comprises a component of the approved Mount Pleasant Operation. The project would not interfere with any of the recovery objectives or actions outlined in the National Recovery Plan for the Spotted-tailed Quoll (DELWP 2016). As such, the project would be unlikely to interfere with the recovery of the Spotted-tailed Quoll.

Potential habitat for this species is widespread. The BCD considers that the Action is not likely to have a significant impact on the Spotted-tailed Quoll in consideration of the Matters of National Environmental Significance: Significant impact guidelines 1.1 (DotE 2013) (see **Appendix E**). This species is classified as an ecosystem credit species in the BioNet Threatened Biodiversity Data Collection (DPIE 2021b) and as such has been included in the ecosystem credit calculations for the Action.

Koala (*Phascolarctos cinereus*)

The Koala was not recorded within the Action Area or surrounds during targeted call-playback, spotlighting and camera trapping surveys, scat searches and habitat assessments undertaken in 2018 and 2019 by Future Ecology (2020). This species has not been recorded by any previous surveys in the Action Area or surrounds (ERM 1997; Cumberland Ecology 2006, 2009a, 2010; ELA 2017, 2017b).

Database records show the Koala has previously been recorded approximately 9 km (and further) to the southeast of the Action area (DPIE 2020a).

Of the vegetation types that occur within the Action Area, PCTs 483 SG, 618, 1602, 1605, 1606 and 1691 in their woodland forms are recognised as potential habitat for the Koala (DPIE 2021b; Hunter Eco 2021; Future Ecology 2020). Approximately 5.2 ha (Northern Link Road Option 1 [Development Footprint 2]) or 3.1 ha (Northern Link Road Option 2 [Development Footprint 3]) of potential habitat (plus scattered paddock trees within associated derived native grassland forms that may potentially be used by the Koala) would be cleared for the Action. No habitat critical to the survival of the Koala would be cleared.

The BCD considers that the Koala is unlikely to be adversely or significantly impacted by the Action, considering the EPBC Act referral guidelines for the vulnerable koala (DotE 2014) (see **Appendix E**), given that:

- no habitat critical to the survival of the Koala would be cleared; and
- the Action is not likely to interfere substantially with the recovery of the Koala through the introduction or exacerbation of key threats in areas of habitat critical to the survival of the Koala.

Mount Pleasant has committed to a number of management and mitigation measures as outlined in **Section H.5**).

H.4 Impacts to Water Resources

A detailed assessment of the project's potential impacts on water resources is provided in **Section 6.4** of the Department's Assessment Report.

The Department's assessment has considered predicted impacts on groundwater and surface water resources, including impacts on GDEs, water users and downstream environments, having regard to expert advice provided by the IESC, DPE Water and the EPA.

The Department, DPE Water and other agencies are satisfied that the project can be managed such that it would not result in a significant impact to surface water and groundwater resources, subject to implementation of best practice mitigation measures.

To ensure that these measures are implemented appropriately, and to minimise impacts to water resources and water users, the Department has recommended conditions requiring MACH to:

- ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations on site to match its available water supply;
- ensure that all necessary water licences are obtained prior to commencement of mining to account for any water take from mining activities;
- discharge water from the site only in accordance with the EPL and the HRSTS;
- provide compensatory water supplies to any private landowner whose water supply is adversely affected by the project;
- comply with a range of water management performance objectives and rehabilitation objectives;
- prepare and implement a comprehensive Water Management Plan for the project including a:
  - water balance;
  - surface water management plan and monitoring program;

- groundwater management plan and monitoring program;
- program to regularly (every 3 years) validate the water balance and groundwater model; and
- protocol for minimising cumulative water-related impacts.

H.5 Demonstration of 'Avoid, Mitigate, Offset' for Matters of National Environmental Significance (MNES)

Avoidance of Biodiversity Impacts

MACH advises that where practical, the project (inclusive of the Action under the EPBC Act) has been located and designed to avoid and minimise impacts on biodiversity values, including native vegetation and potentially occurring threatened species. The revised Northern Link Road alignment would remain a public road managed by Muswellbrook Shire Council.

The following section provides information on the mitigation measures to manage the relevant impacts for the following MNES:

- Box-Gum Woodland CEEC;
- Striped Legless Lizard; and
- other applicable threatened fauna species listed under the EPBC Act.

Mitigation and Management of Indirect Biodiversity Impacts

MACH has committed to a number of measures aimed at minimising the residual biodiversity impacts of the project. These include:

- Vegetation clearance protocol;
- Mine site rehabilitation and revegetation;
- Salvage and re-use of material for habitat enhancement within mine site rehabilitation (no rocky habitat would be removed for the project);
- Feral animal management;
- Weed management; and
- Bushfire management.

The Department's recommended conditions would also require MACH to:

- prepare and implement a comprehensive Biodiversity Management Plan;
- monitor and manage impacts on GDEs and stygofauna, as part of the Water Management Plan;
- comply with a number of rehabilitation objectives;
- prepare and implement a comprehensive Rehabilitation Strategy and Rehabilitation Management Plan.

Biodiversity Offset Strategy

The Department's recommended conditions require MACH to implement its Biodiversity Offset Strategy, as described in the EIS and revised BDAR, which accounts for the residual impacts of the project that cannot be addressed through the proposed avoidance and mitigation measures, as outlined in **Table H2.**

Table H2 | Summary of biodiversity credit requirements for MNES

Credit Type		Credits Required (Option1)	Credits Required (Option 2)
Ecosystem Credit			
483 – Grey Box x White Box – Spotted Gum Grassy Woodland		254	178
618 – Forest Red Gum Grassy Open Forest		5	5
1606 – Derived Native Grassland		48	46
	Subtotal	**307**	**229**
Species Credits			
Striped Legless Lizard (*Delma Impar*)		293	225

MACH proposes to retire the required credits in accordance with the Biodiversity Assessment Method, using one or a combination of offsetting mechanisms available under the Biodiversity Offset Scheme, including the establishment of a Biodiversity Stewardship Site(s) or payment into the Biodiversity Conservation Fund (BCF). Credits relating to MNES would be retired on a like-for-like basis.

The Department accepts that all offset methods proposed are in accordance with the BAM and are considered 'like for like' in accordance with the *NSW Biodiversity Offset Policy for Major Projects* and the EPBC Act *Environmental Offset Policy*.

Avoidance, Mitigation and Offsetting of Impacts on Water Resources

The Department's recommended conditions require Mount Pleasant to obtain appropriate water access licences for the water predicted to be used for the project, and to comply with a number of strict water performance measures, including ensuring that the project has negligible impacts on alluvial aquifers, and minimises water use.

The recommended conditions also require the development of detailed Water Management Plans, including surface and groundwater monitoring programs and Trigger Action Response Plans to manage risks during mining operations.

The recommended conditions also provide a mechanism for remediation of unexpected impacts on water resources. In the event that these impacts cannot be suitably remediated, the recommended conditions would require MACH to provide a proportionate offset, in consultation with relevant Government agencies.

H.6 Requirements for Decisions About Threatened Species and Endangered Ecological Communities

In accordance with section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of a subsection of either section 18 or section 18A of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Commonwealth Minister must not act inconsistently with certain international environmental obligations, Recovery Plans or Threat Abatement Plans. The Commonwealth Minister must also have regard to relevant approved Conservation Advice.

H.6.1 Australia's International Obligations

Australia's obligations under the *Convention on Biological Diversity* (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

The recommendations of this report are not inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (as has been undertaken for this proposal) to avoid and minimise adverse impacts on biological diversity.

The Department's recommended conditions require avoidance, mitigation and management measures for listed threatened species and communities and all information related to the proposed action is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity.

Australia's obligations under the *Convention on Conservation of Nature in the South Pacific* (Apia Convention) include encouraging the creation of protected areas which together with existing protected areas will safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations and regions. Additional obligations include using best endeavours to protect fauna and flora (special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction. The Apia Convention was suspended on 13 September 2006. Nonetheless, Australia's obligations under the Convention have been taken into consideration. The recommended approvals are not inconsistent with the Convention which generally aims to promote the conservation of biodiversity.

The *Convention on International Trade in Endangered Species of Wild Flora and Fauna* (CITES) is an international agreement between governments which seeks to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The recommended approvals are not inconsistent with CITES as the proposed action does not involve international trade in specimens of wild animals and plants.

H.6.2 Recovery Plans and Approved Conservation Advices

The Department has undertaken a detailed and comprehensive assessment of the potential impacts of the project on listed threatened species and communities under the NSW *Biodiversity Conservation Act 2016* (BC Act) and the EPBC Act. The Department has taken into consideration approved Conservation Advice and Recovery Plans for the species and communities which may be impacted by the Project.

Conservation Advice

The following Conservation Advice is relevant to the proposed action:

- *Conservation Advice Delma impar* Striped Legless Lizard (TSSC 2016)
- *Conservation Advice Lathamus discolor Swift Parrot* (May 2016);
- *Conservation Advice Anthochaera phrygia Regent Honeyeater* (July 2015);
- *Approved Conservation Advice for Phascolarctos cinereus (combined populations in Queensland, New South Wales and the Australian Capital Territory)* (May 2012).

There is no approved Conservation Advice in respect of Box Gum Woodland CEEC listed under the EPBC Act, Spotted-tailed Quoll, or Grey-headed Flying-fox.

The Department has considered relevant Conservation Advice in its assessment of the project, particularly in respect to Striped Legless Lizard which has the potential to be significantly impacted by the project.

The key threats to MNES species include landscape fragmentation, introduction of weeds, predation (particularly by feral cats and foxes), removal of fallen timber and bush rock, habitat degradation by livestock and altered fire regimes.

The Department's recommended conditions would require MACH to:

- engage a suitably qualified person to undertake pre-clearance surveys and relocate threatened fauna encountered during surface disturbance;
- minimise indirect 'edge effects' on vegetation adjacent to disturbance areas;
- manage weeds and feral pests in accordance with a comprehensive Biodiversity Management Plan;
- maximise the salvage of fallen timber and tree hollows from disturbance areas to improve habitat integrity in biodiversity offset areas;
- manage spontaneous combustion risks and develop and implement a Bushfire Management Plan;
- progressively rehabilitate the project; and
- offset the residual impacts of the project in accordance with the BAM and Biodiversity Offsets Scheme.

The Department considers that the project can be carried out in a manner that is consistent with relevant Conservation Advice for impacted MNES.

Recovery Plans

The following Recovery Plans are relevant to the proposed action:

- *National Recovery Plan for the Striped Legless Lizard (Delma impar)*
- *National Recovery Plan for the Swift Parrot (Lathamus discolor);*
- *National Recovery Plan for the Regent Honeyeater (Anthochaera phrygia);*
- *National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland;*
- *National Recovery Plan for the Grey-headed Flying-fox (Pteropus poliocephalus); and*

- *National Recovery Plan for the Spotted-tailed Quoll (Dasyurus maculatus).*

The key objectives of the relevant Recovery Plans include:

- preventing a further decline in the Swift Parrot population and achieving a demonstrable sustained improvement in the quality and quantity of habitat;
- reversing the long-term population trend of decline and increase the number of Regent Honeyeaters to a level where there is a viable, wild breeding population even in poor breeding years; and
- enhancing the condition of Regent Honeyeater habitat to maximise survival and reproductive success and provide refugia during periods of extreme environmental fluctuation;
- reducing the rate of decline of the Spotted-tailed Quoll, and ensure that viable populations remain throughout its current range in eastern Australia; and
- improving the national population trends, and identify, protect and increase key foraging and roosting habitat for the Grey-headed Flying Fox.

MACH has committed to offset the impacts of the project on MNES on a like-for-like basis in accordance with the BAM and the Biodiversity Offsets Scheme.

The Department's recommended conditions would also require MACH to manage indirect impacts on MNES, including predation by feral pests and altered fire regimes, under a detailed Biodiversity Management Plan.

On this basis, the Department considers that the project can be carried out in a manner that is consistent with the key objectives of the relevant National Recovery Plans.

H.6.3 Threat Abatement Plans (TAPs)

The Department has considered the Threat Abatement Plans (TAPs) relevant to the project under the EPBC Act. These TAPs are available at http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved. The TAPs which are relevant to the project are as follows:

- *Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (in relation to the Box Gum Woodland CEEC).*
- *Threat Abatement Plan for competition and land degradation by rabbits* (in relation to the Striped Legless Lizard and Regent Honeyeater).
- *Threat abatement plan for predation by feral cats* (in relation to the Striped Legless Lizard, Swift Parrot and Spotted-tailed Quoll).
- *Threat abatement plan for predation by the European red fox* (in relation to the Striped Legless Lizard and Spotted-tailed Quoll).

The project has the potential to:

- facilitate the spread, or lead to a higher abundance of cats and foxes (and other unmanaged or feral fauna) through the clearance and modification of habitat; and
- increase the amount of disturbed and modified habitats, which rabbits tend to colonise, and lead to an increase in rabbit populations.

The Department has included measures for the control of feral animals under the recommended Biodiversity Management Plan for the project, including specific requirements for MACH to consider the actions identified in relevant TAPs. With these measures in place, the Department considers that the action can be carried out in a manner which is compatible with the relevant TAPs.

H.7 Additional EPBC Act Considerations

Table H3 contains a range of further mandatory considerations to be taken into account and factors to have regard to under the provisions of the EPBC Act.

Table H3 | Additional Considerations for the Commonwealth Minister under the EPBC Act

EPBC Act Section	Consideration	Conclusion
Mandatory considerations		
136(1)(b)	Social and economic matters are discussed in the EIS and **Section 6.6** of this Report.	The Department considers that the proposed development would result in a range of benefits for the local and regional economies and would allow for the continued and valuable production of coal from the region.
Factors to be taken into account		
136(2)(a)	Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taken into account, in particular in: • long and short-term economic, environmental, social and equity considerations relevant to this decision; • conditions that restrict environmental impacts, impose monitoring and adaptive management requirements and reduce uncertainty concerning the potential impacts of the Project; • conditions requiring the Project to be operated in a sustainable way that protects the environment for future generations and conserves MNES; • advice provided within this report which reflects the importance of conserving biological diversity and ecological integrity in relation to the controlling provisions for this Project; and • mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms that promote a financial cost to the applicant to mitigate the environmental impacts of the Project.	The Department considers that, subject to the recommended conditions of consent, the project could be undertaken in a manner that is consistent with the principles of ESD.
136(2)(e)	Other information on the relevant impacts of the action.	The Department considers that all information relevant to the impacts of the project has been taken into account.

EPBC Act Section	Consideration	Conclusion
136(2)(fa)	Advice was sought from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC)	The Department has reviewed the advice and recommendations of the IESC, and considered MACH's response (see **Appendix D**) to these matters in **Section 6.4**
Factors to have regard to		
176(5)	Bioregional Plans	The Commonwealth Government released its bioregional assessment package for the Northern Sydney Basin - Hunter Subregion in May 2018. The Department notes that the project area is not within the Bioregional Assessment area. The Department also notes that a more contemporary and detailed assessment of the project's potential impacts on water resources and biodiversity has been provided in the EIS. The Department considers that these assessments are more likely to provide an accurate prediction of cumulative environmental impacts of the Project than any regional-scale assessment tool.
Considerations on deciding conditions		
134(4)	Must consider: • information provided by the person proposing to undertake the action or by the designated applicant of the action; and • desirability of ensuring as far as practicable that the condition is a cost-effective means for the Commonwealth and the person taking the action to achieve the object of the condition.	Documents provided by MACH are provided at **Appendices A**, **C** and **F** of this report. • The Department considers that the recommended conditions of consent in **Appendix I** are a practicable and cost-effective means to achieve their purposes. • These conditions have been prepared following careful considerations of material provided by MACH and following consultation with NSW Government Agencies and DAWE.

H.8 Conclusions on Controlling Provisions

H.8.1 Threatened Species and Communities (sections 18 and 18A of the EPBC Act)

The information provided to date identifies that the project has the potential to result in significant impacts on the Box-Gum Woodland CEEC, Striped Legless Lizard, Regent Honeyeater, Swift Parrot, Spotted-tailed Quoll, Koala and Grey-headed Flying-fox. However the bilateral assessment conducted by the BCD (see **Appendix E**) concluded that, with the exception of the Box-Gum Woodland CEEC and Striped Legless Lizard, significant impacts to these threatened species are unlikely to arise.

The Department considers that the impacts of the proposed action on threatened species and communities would be acceptable, subject to the avoidance, mitigation, offsetting and management measures described in MACH's environmental assessment documents, and the requirements of the Department's recommended conditions of consent (see **Appendix I**).

MACH has committed to offset the impacts of the project on threatened species and communities, as outlined in **Table H2**, in accordance with the requirements of the NSW *Biodiversity Offsets Scheme*.

The recommended conditions provide flexibility for MACH to use one or more of the mechanisms available under the Biodiversity Offsets Scheme, provided that all credits relating to MNES are retired on a like-for-like basis.

MACH would be required to retire all of the credits required for the project prior to commencing mining operations in the Action area, or other timeframe agreed by the Planning Secretary. This timing reflects the need to retire relevant biodiversity offset credits prior to disturbance, but also allows for flexibility in the commencement of limited construction activities where the Planning Secretary is satisfied that sufficient credits have been retired for these works (e.g. through payment into the BCF), while a Biodiversity Stewardship Agreement is being entered into for the land based offsets.

The Department has also recommended a condition requiring MACH to prepare a detailed Biodiversity Management Plan. This plan would describe the measures to be implemented to:

- avoid and minimise impacts to threatened species and communities;
- regenerate, enhance and re-establish Box-Gum Woodland CEEC;
- re-establish habit and foraging resources for the Swift Parrot and Regent Honeyeater; and
- control feral pests in accordance with the relevant TAPs.

The Department recommends that the Commonwealth Minister require MACH to implement the State's conditions, where they relate to the management of impacts on threatened species and communities listed under the EPBC Act.

H.8.2 Water Resources (sections 24D and 24E of the EPBC Act)

The project was jointly referred by the Department and DAWE to the IESC, requesting advice on potential surface water and groundwater impacts, including potential impacts on GDEs, downstream water users and receiving environments. The IESC's advice is included in **Appendix D**.

The Department has considered the IESC's advice and MACH's response in its assessment of the project and in its recommended conditions (see **Appendix I**).

H.9 Other Protected Matters

DAWE has determined that other matters under the EPBC Act are not controlling provisions with respect to the proposed action. These include listed World Heritage places, National Heritage places, migratory species, Ramsar wetlands, the Commonwealth marine environment, Commonwealth land, Commonwealth actions, nuclear actions, the Great Barrier Reef Marine Park and Commonwealth Heritage places located overseas.

H.10 Conclusions

Threatened species and communities (Sections 18 and 18A of the EPBC Act)

For the reasons set out in **Section 6.5** and this Appendix, the Department recommends that the impacts of the action would be acceptable, subject to the avoidance and mitigation measures described in MACH's EIS (see **Appendix A**) and Submissions Report (see **Appendix C**), and the Department's recommended conditions of consent (see **Appendix I**).

A water resource, in relation to coal seam gas development and large coal mining development (Sections 24D and 24E of the EPBC Act)

For the reasons set out in **Section 6.4** and this Appendix, the Department recommends that the impacts of the action on a water resource, in relation large coal mining development would be acceptable, subject to the avoidance and mitigation measures described in MACH's EIS (see **Appendix A**), Submissions Report (see **Appendix C**) and additional supporting information (see **Appendix F**), and the Department's recommended conditions of consent (see **Appendix I**).

Appendix I – Recommended Instrument of Consent for SSD 10418

Refer to "Recommendation" folder on the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/projects/mount-pleasant-optimisation-project