NSW GOVERNMENT

Mount Pleasant Coal Mine

Section 75W Modification Assessment (DA 92/97 MOD 4)

November 2018

Cover photo

Train drives through Quirindi, NSW.

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Contents

1. Introduction

MACH Energy Australia Pty Ltd (MACH) owns the Mount Pleasant Coal Mine (Mount Pleasant), an approved open cut coal mine located approximately 4 kilometres (km) north-west of Muswellbrook in the Upper Hunter Valley (see **Figure 1**).

Figure 1 | Site location

Mount Pleasant is located in close proximity to a number of established coal mining operations, including the Dartbrook Underground Mine, located to the north of the site, the Bengalla Coal Mine (Bengalla) located to the south, and the Mount Arthur Mining Complex, to the south-west (see **Figure 1**).

1.1 Approval History

The Mount Pleasant development was approved by the then Minister for Urban Affairs and Planning on 22 December 1999 under DA 92/97. The development consent permitted the:

- establishment of an open cut mine;
- extraction of up to 10.5 million tonnes of run-of-mine coal per year until 2020;
- establishment of ancillary infrastructure, including a rail loop and loading facility; and
- transportation of product coal to the Port of Newcastle, via the Muswellbrook to Ulan rail line.

The development consent has been modified on three occasions. An overview of previous modifications is provided in **Table 1** below. The approved site layout (as modified) is shown in **Figure 2**.

Table 1 | Summary of Modifications

Mod No.	Summary of Modifications	Approval Authority	Approval Date
MOD 1	• addition of a service and conveyor corridor, allowing coal to be transported to Bengalla Mine for rail loading and transport, as an alternative to the approved rail loop*; and • relocation of mine infrastructure.	Department	19 September 2011
MOD 2	• relocation of the South Pit Haul Road	Department	29 March 2017
MOD 3	• extension of approved mine life until 22 December 2026; • minor changes to mining methods; • sourcing water from the Bengalla and Dartbrook mines to reduce reliance on the Hunter River; • extension of the Eastern Overburden Emplacement Area (OEA); and • relinquishing the northern portion of the South West OEA.	Independent Planning Commission	24 August 2018

* *Note:* The conveyor service corridor option was not pursued. On 20 January 2017, MACH advised the Department of its intention to proceed with the rail loop as originally approved.

1.2 Interactions with Bengalla

Bengalla is an open cut coal mine owned and operated by the Bengalla Mining Company Pty Ltd (BMC). Mining operations initially commenced at the site in 1998. In 2015, the Secretary, as delegate for the Minister of Planning, granted development consent for the expansion and continuation of mining operations at Bengalla until 2039 (SSD 5170).

The former owners of Mount Pleasant, Coal and Allied Operations Pty Ltd (Coal & Allied), also previously owned a 40 percent stake in Bengalla. As a result, Mount Pleasant and Bengalla have had historical, mutually beneficial interactions.

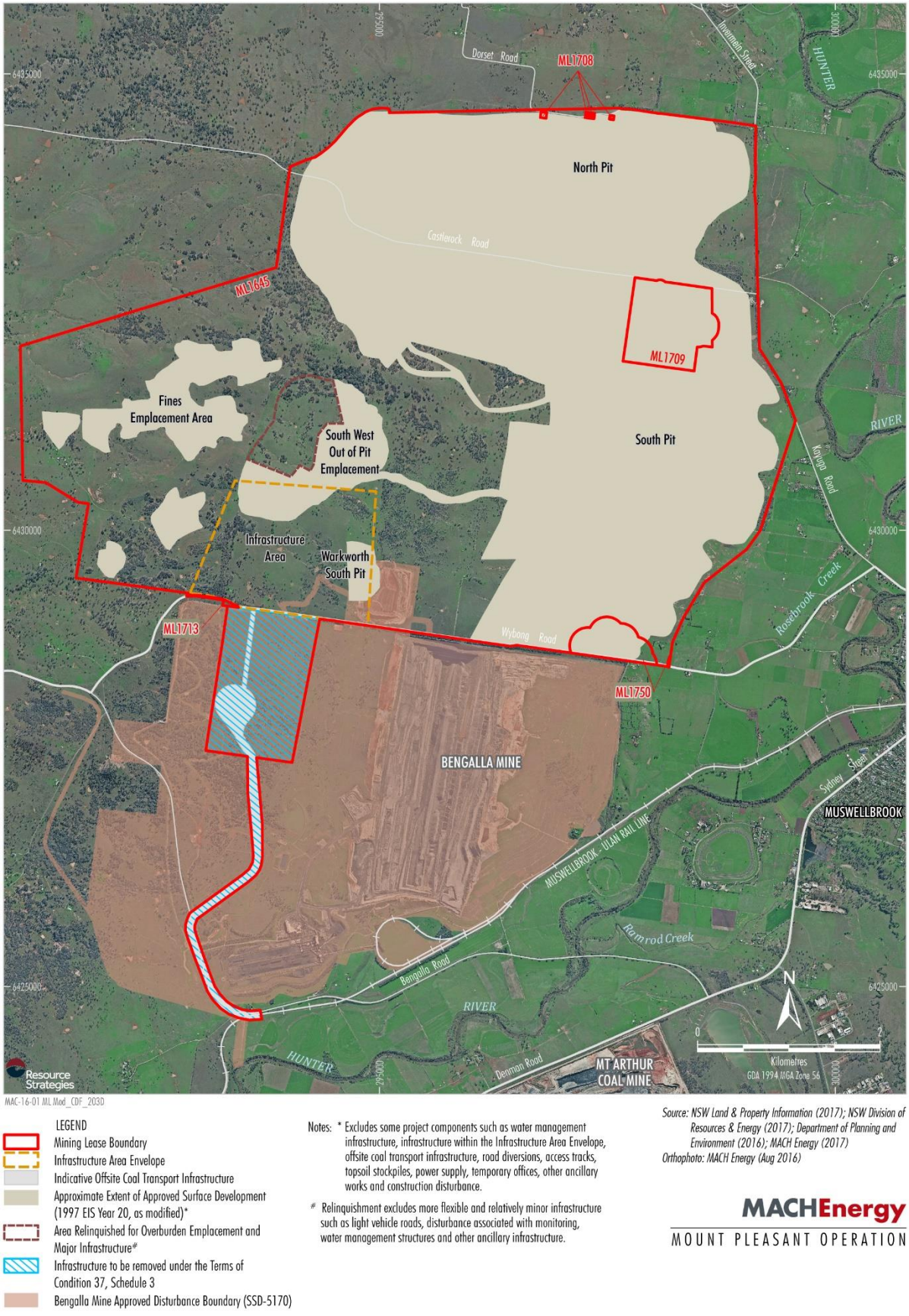

Figure 2 | Approved site layout

Most significantly, the approved Mount Pleasant rail infrastructure is located within the Bengalla development consent boundary, to the west of the existing open cut pit. The infrastructure is contained within the Mount

Pleasant mining lease area (ML 1645), which extends to the south of Wybong Road, and overlaps with Bengalla's approved extension area under SSD 5170 (see **Figure 2**).

Since 2011, the Mount Pleasant and Bengalla mines have been subject to a Master Cooperation Agreement (MCA), which seeks to manage interactions between the two operations. The MCA allows BMC to demand the relocation of the Mount Pleasant rail infrastructure if and when Bengalla operations progress into the western portion of the site. On 7 July 2016, Coal & Allied entered into a Deed of Undertaking with the Minister for Resources, Industry and Energy to comply with its obligations under the MCA with respect to the relocation of the Mount Pleasant rail infrastructure.

In 2015, Coal & Allied sold its stake in Bengalla. The following year, Coal & Allied sold Mount Pleasant to MACH. As a result of these ownership changes, a conflict emerged between the two operations. Following the commencement of construction of the rail infrastructure in early 2017, BMC sought an order in the Land and Environment Court (LEC) to restrain MACH from carrying out further works.

On 22 September 2017, MACH lodged a modification application (MOD 4) under section 75W of the *Environmental Planning and Assessment Act* 1979 (EP&A Act). MOD 4 seeks to relocate the approved rail infrastructure outside Bengalla's development consent boundary, and is the subject of this assessment.

On 24 April 2018, the two parties signed a new Deed of Agreement, requiring MACH to take all necessary measures to ensure that its infrastructure corridor does not interfere with future mining operations at Bengalla. In parallel, MACH entered into an amended Deed of Undertaking with the Minister for Resources, which requires MACH to relocate its existing infrastructure by 31 October 2022. The LEC proceedings were subsequently discontinued.

MOD 3 was determined on 24 August 2018. As part of its determination, the Independent Planning Commission updated the conditions of 92/97 to reflect the amended Deed of Undertaking. Condition 37 of Schedule 3 now requires MACH to:

- remove all infrastructure from the previously approved rail and service corridor;
- make all reasonable efforts to transfer the portion of ML 1645 south of Wybong Road to BMC; and
- release all easements associated with the rail and service corridor,

by no later than 31 October 2022.

Coal production is expected to commence at Mount Pleasant in late 2018. Given the time required to secure an alternate rail spur route, obtain the necessary approvals, and construct the new rail infrastructure, the new agreements permit MACH to use its constructed rail infrastructure on an interim basis, provided that it is decommissioned and removed by the agreed deadline.

2. Proposed Modification

In order to fulfil its obligations under the amended Deed of Undertaking, MACH is seeking to construct new rail facilities to the south-east of Mount Pleasant. MOD 4 involves:

- constructing new product coal transport infrastructure, including a rail spur, rail loop, coal conveyor and rail loading facility;
- constructing new water supply infrastructure, including a water pipeline, pump station and associated electricity supply; and
- demolishing and removing redundant rail and water supply infrastructure within the Bengalla development consent boundary.

The location of the proposed infrastructure is shown in **Figure 3**. A detailed description of the modification is provided in the Environmental Assessment (EA, see **Appendix A**).

The proposed rail loop and loading facility would be located within the approved Mount Pleasant disturbance area, to the east of the Coal Handling and Processing Plant (CHPP). A new rail spur, approximately 5 km in length, would connect the rail loop to the existing Muswellbrook to Ulan rail line. This spur would run adjacent to the eastern boundary of Bengalla, down slope onto the Hunter River flood plain. The spur design would incorporate a series of bridge openings and culverts, in order to maintain the flow of flood water.

The modification would require a slight reduction to the extent of the South Pit, in order to maintain a 50 metre (m) buffer between the pit and the new rail spur. The construction of the rail spur would also require some associated road works, including the construction of two new overpasses and a minor road realignment. These works are discussed further in **Section 5.6**.

The new water supply pipeline would be approximately 6.4 km long, extending from the south-east boundary of Mount Pleasant to the bank of the Hunter River. Approximately 3.4 km of the pipeline would be constructed above ground, with a series of concrete pipe supports. The above-ground section of the pipeline would be wholly contained within the existing Mount Pleasant mining lease areas. The remaining section of pipeline, falling within the Hunter River flood plain, would be buried underground. MACH also proposes to establish an ancillary pump station and 22 kilovolt electricity transmission line. The precise location of the pipe inlet and pump station would be subject to detailed design.

The proposed modification would disturb an area of approximately 50 hectares (ha) of land which is primarily mine-owned (either by MACH or BMC) or controlled by the Australian Rail Track Corporation (ARTC). However, a portion of the proposed water pipeline would pass through privately-owned land.

Construction of the new infrastructure is expected to take approximately 12 months. Demolition of the redundant infrastructure within the Bengalla development consent boundary would take a further six months. Construction is expected to commence in late 2019 or early 2020.

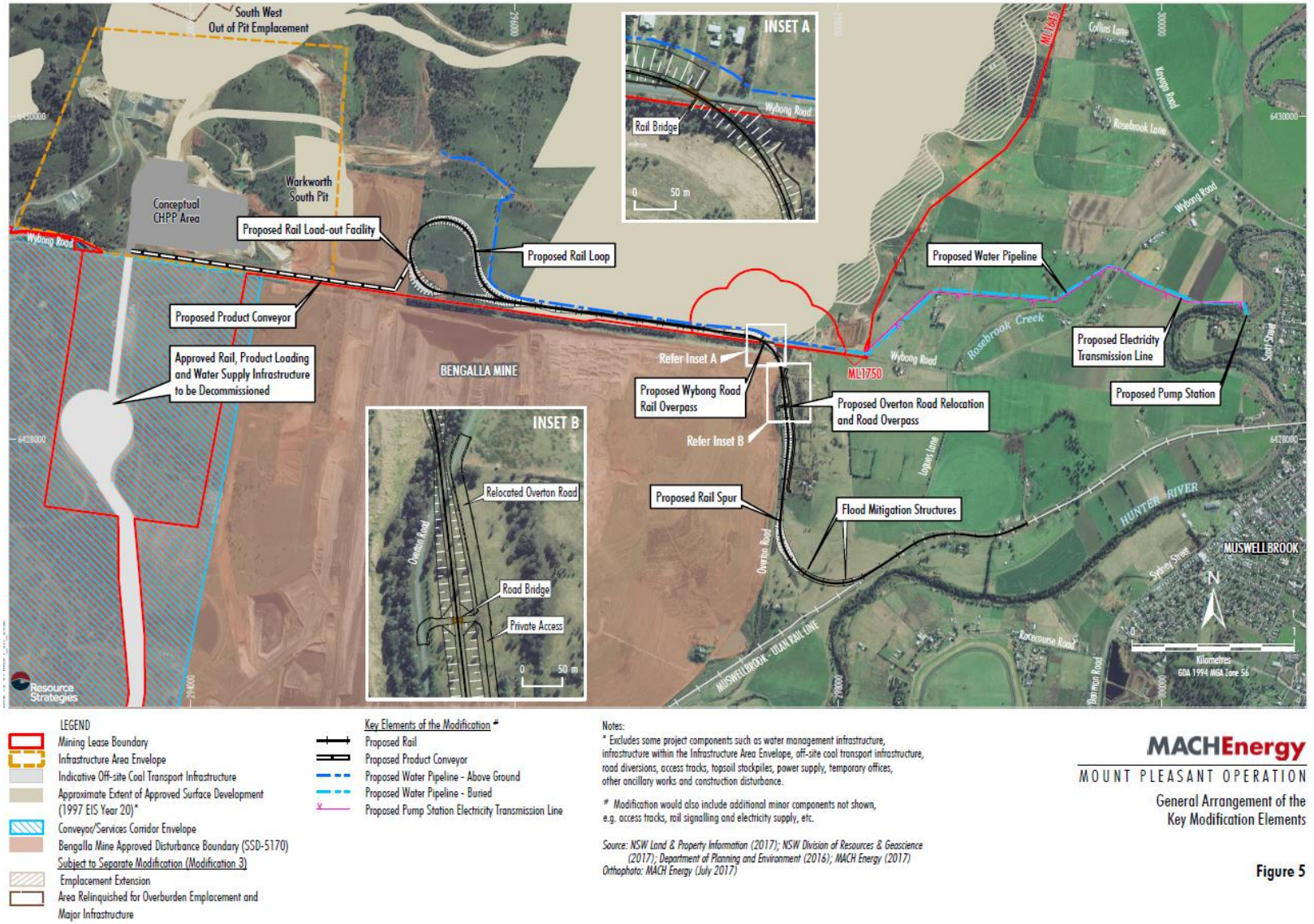

Figure 3 | Proposed site layout

No changes are proposed with respect to the number of daily train movements, or approved haulage times. MACH is currently permitted to dispatch an average of three, or a maximum of nine, laden trains per day. Rail loading and transportation is permitted 24 hours per day, 7 days per week.

3. Statutory Context

3.1 Scope of Modification

DA 92/97 was granted under Part 4 of the EP&A Act. The project is a transitional Part 3A project under Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017*. The power to modify transitional Part 3A projects under section 75W of the EP&A Act as in force immediately before its repeal on 1 October 2011 is being wound up. However, as the request for this modification was made before the 'cut-off date' of 1 March 2018, the provisions of Schedule 2 (clause 3) continue to apply. Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated Regulations, and the Minister (or his delegate) may approve or disapprove the carrying out of the project under section 75W of the EP&A Act.

The proposed modification would not change the nature or scale of operations at Mount Pleasant. The modification would simply allow the relocation of the mine's approved infrastructure, as required under condition 37 of Schedule 3. The Department is therefore satisfied that the modification is within the scope of section 75W, and may be determined accordingly.

3.2 Consent Authority

The Minister for Planning is the approval authority for the application. However, the Executive Director, Resource Assessments and Compliance may determine the application under the Minister's delegation of 11 October 2017, as there were fewer than 25 public objections, Muswellbrook Shire Council (Council) did not object to the proposal, and MACH has not disclosed any reportable political donations.

3.3 Environmental Planning Instruments

A number of environmental planning instruments apply to the modification, including:

- *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (the Mining SEPP);
- *State Environmental Planning Policy (Infrastructure) 2007;*
- *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55); and
- *Muswellbrook Local Environmental Plan 2009* (Muswellbrook LEP 2009).

The Department has considered the proposed modification against the relevant provisions of these instruments. The Department is satisfied that the proposed modification can be carried out in a manner that is generally consistent with the aims, objectives and provisions of these instruments.

3.4 Objects of the EP&A Act

The approval authority must consider the objects of the EP&A Act when making decisions under the Act. The objects of the EP&A Act changed on 1 March 2018. The Department has assessed the proposed modification against the current objects of the EP&A Act. The objects of most relevance to the decision on whether or not to approve the proposed modification are found in section 1.3 of the Act. They are:

- Object 1.3(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*;
- Object 1.3(b): *to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment*;
- Object 1.3(c): *to promote the orderly and economic use and development of land*;
- Object 1.3(e): *to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats*;
- Object 1.3(f): *to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage)*;
- Object 1.3(i): *to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State*; and
- Object 1.3(j): *to provide increased opportunity for community participation in environmental planning and assessment*.

The Department is satisfied that the proposed modification encourages the proper management and development of resources (Object 1.3(a)) and the promotion of the orderly and economic use of land (Object 1.3(c)). The proposal would resolve the existing conflict between Mount Pleasant and Bengalla and facilitate future mining operations at both sites.

The Department has considered the principles of ecologically sustainable development (ESD, Object 1.3(b)) in its assessment of the proposed modification. The Department considers that the proposed modification may be carried out in a manner that is consistent with the principles of ESD. The Department's assessment has sought to integrate all significant environmental, social and economic considerations.

The Department has carefully considered the environmental impacts of the proposal, including potential impacts on the natural, cultural and built environments (Object 1.3(e) and (f)). The key findings of the Department's assessment are summarised in **Section 5**.

The Department publicly exhibited the proposal and consulted with Council (Object 1.3(i) and (j)). The outcomes of the consultation process are outlined in **Section 4**.

3.5 Commonwealth Approval

DA 92/97 was determined prior to the commencement of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A separate Commonwealth approval was subsequently obtained for the project under the EPBC Act (EPBC 2011/5795).

The EA concludes that the proposed modification would not have a significant impact on matters of national environmental significance. On this basis, MACH has advised that the proposal does not require referral to the Commonwealth under the EPBC Act.

4. Engagement

After accepting the EA for the proposed modification, the Department exhibited the application from 18 January to 2 February 2018:

- on the Department's website;
- at the Department's offices;
- at Council's offices; and
- at the Nature Conservation Council's offices.

The modification application was advertised in the *Muswellbrook Chronicle* and *Hunter Valley News*. The modification application was also referred to relevant government agencies.

4.1 Summary of Submissions

The Department received 59 submissions during the exhibition period, comprising:

- 12 from government agencies;
- 44 public and Special Interest Group (SIG) submissions in support of the proposal; and
- 3 public and SIG submissions objecting to the proposal.

Copies of all submissions are included in **Appendix B.**

4.2 Key Issues – Government Agencies

The **ARTC** did not raise any objections, noting that the proposal would not affect the rail network capacity, and that MACH already has long term contractual arrangements in place for rail access.

Council did not object to the proposed modification. However, Council expressed concern that the relocated infrastructure would be closer to the Muswellbrook township, and require additional disturbance of the Hunter River floodplain.

Council raised concerns regarding potential noise impacts during both the construction and operation of the new rail infrastructure. Council expressed concern that the noise assessment was based on assumptions in the MOD 3 EA, as this application had not yet been determined. The Department notes that MOD 3 was determined on 24 August 2018.

Council also questioned the adequacy of the rail noise assessment and recommended that the Department impose a condition prohibiting MACH from emitting any brake squeal which is audible at any privately-owned receiver. MACH did not accept Council's recommendation. However, MACH supplied further clarification regarding the rail noise assessment, and further details regarding proposed brake squeal mitigation measures. These matters are discussed further in **Section 5.1**.

Council also raised concerns regarding the adequacy of the flood assessment. In particular, Council noted that the assessment appeared to be based on outdated information. Council also expressed concern that the proposed bridge openings could become blocked by debris and exacerbate potential flooding impacts. Following its

review of the Response To Submissions (RTS), Council advised that it was satisfied with the flood assessment and provided advice regarding recommended conditions. Flooding issues are discussed further in **Section 5.4**.

Council also provided recommendations regarding traffic and transport issues. Council noted that the Bengalla Link Road Bridge over the existing railway line would need to be demolished, and the road reserve reinstated, in order to allow stock and pedestrian access. The Department has recommended conditions in this regard. Council also requested that a Construction Traffic Management Plan be prepared for the MOD 4 construction works. This is also reflected in the Department's recommended conditions. Council also noted that the proposal would allow Wybong Road to remain open and requested that MACH contribute to future road upgrading and maintenance. This issue is discussed further in **Section 5.6**.

Council raised concerns regarding potential lighting impacts on Wybong Road, noting that train headlights could affect road safety. MACH subsequently provided further details with respect to potential mitigation measures and amended its Statement of Commitments to require the ongoing maintenance of visual screens. Visual impacts are discussed further in **Section 5.5**.

Council noted that a number of local heritage items are located close to the proposed rail corridor and recommended a range of conditions to mitigate potential damage during construction, including the preparation of a Heritage Management Plan. This is reflected in the Department's recommended conditions. Impacts on historic heritage are discussed further in **Section 5.7**.

Finally, Council expressed concern that MACH did not initially propose to rehabilitate the former rail corridor following the removal of the redundant infrastructure, noting that this may result in dust and sedimentation issues. MACH subsequently committed to stabilise this area, on an interim basis, prior to its relinquishment to BMC. Council accepted this response. Rehabilitation is discussed further in **Section 5.7**.

The **Department of Industry – Water** (DoI Water) did not raise any concerns regarding the proposed modification, and provided advice with respect to recommended conditions. DoI Water recommended that the existing Hunter River pump station be decommissioned within six months of the completion of the new pump station. DoI Water also requested notification following the completion of the new water infrastructure and the decommissioning of the existing pump station. The Department has included these requirements in its recommended conditions (**Appendix E**).

The **Division of Resources and Geoscience** (DRG) within the Department did not object to the proposed modification. While DRG noted that the establishment of the new rail infrastructure would temporarily sterilise some of the Mount Pleasant coal resource, the proposal would facilitate the westward continuation of mining operations at Bengalla. DRG also recommended that MACH give consideration to future access to the coal resource under the proposed rail loop as part of its long-term mine planning.

The **Environment Protection Authority** (EPA) expressed support for the modification, subject to recommended conditions with respect to construction noise. These recommendations are discussed further in **Section 5.1**. The EPA also noted that the proposed modification would require a variation of the site's Environmental Protection Licence (EPL).

Hunter New England Population Health (NSW Health) expressed concerns regarding air quality impacts and surface water management. NSW Health noted that while the air quality impacts of the proposal were predicted to be minimal, it is important that MACH implements all reasonable and feasible measures to minimise human

exposure to particulate matter. Air quality impacts and associated mitigation measures are discussed further in **Section 5.2**.

NSW Health also raised concerns regarding the proposed water offtake point from the Hunter River and its potential impacts on Muswellbrook's town water supply. In particular, NSW Health questioned whether the proposed pipeline was intended to be bi-directional (ie used for both supply and discharge purposes) and expressed concern regarding potential contamination of potable water supplies. NSW Health reiterated these concerns following the submission of the RTS.

On 14 August 2018, MACH provided additional information confirming that the proposed pipeline would be for supply purposes only, and that all proposed discharges would continue to occur via the mine's approved pipeline and licensed discharge point located several kilometres downstream of the offtake point for the Muswellbrook water supply. On this basis, NSW Health advised that the modification would pose a minimal risk to the town's water supply.

MACH also advised that in the event that water sourced from the Hunter River is used for potable purposes on site, it would be treated to meet the *Australian Drinking Water Guidelines*. NSW Health did not raise any further concerns in this regard.

The **Office of Environment and Heritage** (OEH) did not object to the proposed modification. However, OEH raised concerns with respect to impacts on biodiversity, flooding and Aboriginal cultural heritage.

In response to OEH concerns, MACH provided Biodiversity Development Assessment Reports (BDARs) for both the proposed infrastructure corridors, and for a portion of the South West OEA that it proposes to relinquish for offsetting purposes. OEH subsequently advised that it was satisfied with the supplementary biodiversity information, and no further assessment was required. Biodiversity impacts are discussed further in **Section 5.3**.

Following its review of supplementary flooding modelling provided in the RTS, OEH advised that flooding impacts had been satisfactorily assessed. Flooding impacts are discussed further in **Section 5.4**.

Following its review of the RTS, OEH advised that during a meeting held with MACH in June 2018, MACH indicated that the proposal would be amended in order to avoid three newly identified Aboriginal sites. On this basis, OEH advised that Aboriginal cultural heritage matters had been suitably addressed. Following further discussions between the Department and MACH, it appears that this information was incorrect, and MACH intends to disturb the three sites. As stated in the EA, MACH intends to obtain an Aboriginal Heritage Impact Permit (AHIP) for the additional disturbance area, and to update its existing Aboriginal Heritage Management Plan (AHMP) to include the rail and water infrastructure corridors. OEH subsequently advised that this approach is acceptable and provided advice regarding draft conditions. Aboriginal cultural heritage matters are addressed in **Section 5.7**.

Road and Maritime Service (RMS) raised no objections, noting that the proposed modification is unlikely to have any significant impact on the State road network.

Subsidence Advisory NSW (SA NSW) did not object to the proposed modification. However, SA NSW noted that the proposed rail spur would be located within a mine subsidence district, in close proximity to abandoned mine workings associated with the former Overton Colliery. On this basis, SA NSW recommended that

geotechnical investigations be undertaken in order to determine the extent of abandoned workings and to ensure that the proposed spur is constructed outside the area of influence.

In response, MACH noted that the proposed rail infrastructure largely avoids known mine workings. However, MACH acknowledged that there is potential for unknown workings in proximity to proposed rail corridor. Consequently, MACH has committed to undertake a detailed geotechnical investigation as part of the detailed engineering design of the rail spur.

The Department has recommended conditions requiring that MACH provide a detailed report outlining the conclusions of the investigation and providing recommendations to ensure the geotechnical stability of the rail spur. This report would be prepared in consultation with SA NSW and would be submitted to the Department for approval prior to the commencement of construction. The recommended conditions also note that a separate approval will be required under the *Coal Mine Subsidence Compensation Act 2017*, prior to commencing construction of the rail infrastructure.

The **Heritage Council of NSW**, the **Resources Regulator**, and **Transport for NSW** (TfNSW) advised that they had no comments regarding the proposed modification.

4.3 Key Issues – Community/SIGs

4.3.1 Objections

The Department received three submissions in the form of objection, including one submission from the general public and two from SIGs, representing the Hunter thoroughbred breeding industry.

Public Submission

A resident of Muswellbrook objected to the modification, on the basis that the separation of Mount Pleasant and Bengalla operations would be contrary to the intent of the original Mount Pleasant proposal, which was envisaged as a joint venture. The submission also raised concerns regarding the proposed relocation of the rail infrastructure onto the flood plain, noting that increased flood levels would lead to increased insurance costs for the community. The Department's assessment of potential flooding impacts is summarised in **Section 5.4**.

The submission also raises concerns regarding the clearing of vegetation, potential "heat bank" effects and localised climate change. The Department has assessed the biodiversity impacts of the proposed modification in **Section 5.3**. The Department notes that proposed vegetation clearing would be fully offset by the relinquishment of an approved disturbance area. Consequently, localised heat and climate changes have not been considered further in this report.

The submission also raised concerns regarding cumulative noise and air quality impacts on the Muswellbrook township, including the potential funnelling of noise, and the costs of dust mitigation for the community. Noise and air quality issues are considered in **Sections 5.1** and **5.2**, respectively.

Finally, the submission raised concerns regarding potential social impacts on the Muswellbrook township, including loss of amenity. The submission expressed concern that the potential benefits of the mine are not being felt within the township, as the majority of mine workers appear to reside outside of Muswellbrook. Social impacts are discussed further in **Section 5.7**.

Special Interest Groups

The Hunter Thoroughbred Breeders Association (HTBA) objected to the proposed modification, citing the cumulative impacts of mining operations on the character and reputation of the thoroughbred breeding industry in the Hunter Valley. The HTBA reiterated its previous objections with respect to MOD 3, including potential noise, air quality, heritage and visual impacts, impacts on water resources, as well as impacts on mapped Biophysical Strategic Agricultural Land (BSAL), the equine and viticulture Critical Industry Clusters (CICs), and regional tourism.

Godolphin Australia Pty Ltd (Godolphin) also objected to the proposal. Godolphin raised concerns regarding MODs 3 and 4 collectively, particularly with respect to impacts on the equine CIC, including damage to the reputation and economic viability of breeding operations, and the potential loss of BSAL. Godolphin also raised concerns regarding noise and air quality impacts, as well as potential impacts on biodiversity, water resources, heritage and the local landscape, and potential social impacts (including impacts on the health and wellbeing of residents in close proximity to the mine).

The Department's assessment of these impacts is discussed in **Section 5**. The Department notes that many of the issues raised in the SIG submissions relate to the assessment of MOD 3 and to the overall desirability of the Mount Pleasant development. The Department's assessment is limited to the consideration of the above issues, as they relate to MOD 4.

The SIGs also raised concerns regarding the length and timing of the exhibition period and expressed interest in providing supplementary submissions at a later date. It is the Department's practice to accept and consider any supplementary feedback provided following the conclusion of the formal exhibition period. However, it is noted that no further feedback was received in relation to MOD 4.

4.3.2 Support

The Department received 44 submissions in support of the proposal. Many of these submissions were provided by mine employees, contractors and associated local businesses. The Department also received expressions of support from the Muswellbrook Chamber of Commerce and Industry and from not-for-profit community organisations who receive sponsorship and assistance from MACH.

The submissions expressed support for the resolution of the long-standing conflict between Bengalla and Mount Pleasant, noting that the proposal would provide increased certainty for both operations. The submissions also highlighted the economic benefits of mining operations for the local community, including local employment opportunities, flow on effects for small businesses, continued support for local charitable organisations, as well as the wider benefits for NSW.

A number of submissions also observed that the rail relocation would allow Wybong Road to remain open. However, the Department notes the modification would not preclude the future closure of Wybong Road. This issue is discussed further in **Section 5.6**.

4.4 Response to Submissions

MACH provided an RTS on 25 June 2018. The RTS was subsequently made available on the Department's website. The document was also forwarded to relevant agencies for comment. A copy of the RTS is included in **Appendix C**.

5. Assessment

5.1 Noise and Vibration

The EA included a Noise Assessment (NA) prepared by Wilkinson Murray. The NA provided an assessment of the likely noise impacts of the proposal in accordance with the *Industrial Noise Policy* (INP)[1], the *Rail Infrastructure Noise Guideline* (RING) and the *Interim Construction Noise Guideline* (ICNG).

The RING provides that where rail-related activities (including loading and the movement of rolling stock) occur within the boundary of an industrial premises, they are to be assessed under the INP. As such, the NA considered the noise impacts of the rail spur, loop and loading facility within the Mount Pleasant mining lease areas in accordance with the INP (see **Section 5.1.1** below). The operation of the rail spur beyond the mining lease boundary was assessed in accordance with Appendix 3 of the RING (see **Section 5.1.2**) below.

The NA also included an assessment of construction noise and potential vibration impacts associated with the construction and operation of the rail infrastructure. These impacts are also discussed below.

5.1.1 Operational Noise

The NA utilised the same noise model previously developed for MOD 3. The MOD 3 NA assessed operational noise for three modelled years (2018, 2021 and 2025) under both calm and adverse meteorological conditions.[2] This NA re-assessed the impacts of the proposed modification for the year 2021 only, when the rail infrastructure is expected to be operational. This modelling involved a train approaching on the rail spur, within the mining lease area, loading and slowly moving around the rail loop. The modelled year (2021) also represents the peak of mining activity at Mount Pleasant. Consequently, the NA is considered to provide a worst-case assessment of operational noise impacts.[3]

Where exceedances of the noise criteria were identified during adverse conditions, the results were modelled again, to include the application of proactive and reactive mitigation measures previously identified in the MOD 3 NA, such as shutting down equipment and/or suspending activities, in order to maintain compliance with the existing noise criteria. This NA indicates that the proposed modification would increase operational noise levels at some privately-owned receivers by 1 dB(A). This increase would be imperceptible to the human ear. With mitigation measures in place, operational noise levels were predicted to comply with the existing criteria at all privately-owned receivers.

Operational noise levels during the night period were also predicted to comply with the sleep disturbance criterion (45 dB(A) $L_{A1(1\ min)}$) at all privately-owned receivers. The sleep disturbance assessment conservatively included potential bunching and stretching of trains travelling along the rail spur. However, the NA notes that bunching and stretching could be minimised through ongoing maintenance of rolling stock.

[1] As the modification application was submitted prior to the adoption of the *Noise Policy for Industry* (2017), the proposal has been assessed in accordance with the INP.
[2] Adverse conditions were determined by analysing local meteorological data (wind speed, direction and temperature inversion strength) to calculate a 10th percentile exceedance level (ie the level that is exceeded 10 percent of the time). The NA states that this provides a more rigorous assessment of potential noise impacts.
[3] The proposed pump station was not included in the modelling, on the basis that the components of the pump station would be either enclosed or submerged, and noise impacts are expected to be negligible.

Cumulative Noise Impacts

DA 92/97 establishes cumulative noise criteria for Mount Pleasant, due to its proximity to a number of other mining operations, including Mt Arthur and Bengalla. The NA included an assessment of cumulative noise levels for Noise Assessment Groups (NAGs) 8 and 9, which are located close to the proposed rail spur, and in close proximity to both Mt Arthur and Bengalla. The NA indicates that cumulative noise levels were predicted to comply with the existing criteria at all privately-owned receivers in NAGs 8 and 9.

5.1.2 Rail Noise

The RING establishes specific noise criteria for non-network rail lines, derived from the rural amenity criteria in the INP. The NA included an assessment of potential rail noise against the RING criteria for the night period, when the noise criteria are most stringent, and adverse meteorological conditions are most prevalent.

MACH is currently permitted to dispatch an average of three, and a maximum of nine, laden trains within a 24-hour period. The NA assumed that one train would enter and depart the site during the night period (between 10 pm and 7 am). The NA also provided noise predictions for rolling stock with low and medium wheel defects. These predictions are outlined in **Table 2** below.

Table 2 | Predicted exceedances of the Rail Noise Criteria (Night Period)

Receiver	Acceptable Noise Level dB(A) L_{Aeq}	Recommended Noise Level dB(A) L_{Aeq}	Predicted Noise Levels $L_{Aeq\ (9\ hours)}$	
			Low Wheel Defects	Medium Wheel Defects
19	40	45	40	43
20	40	45	42	45
21	40	45	42	45
23	40	45	53	56
207	40	45	40	43
221	40	45	38	41
222	40	45	38	41
223	40	45	39	42
224	40	45	39	42
225	40	45	37	41

Noise levels at Receiver 23 are predicted to significantly exceed the recommended maximum noise level for private rail lines during the night period under the RING. The *Voluntary Land Acquisition and Mitigation Policy* (VLAMP) provides voluntary acquisition and/or mitigation rights for the rail noise impacts on non-network rail lines. Receiver 23 would be afforded voluntary acquisition rights in accordance with the VLAMP. Rail noise is also predicted to exceed the acceptable noise level at Receivers 19, 20, 21 and 207 by 3 dB(A) or more. Consequently, these receivers would be afforded mitigation rights under the VLAMP.

These five properties already adjoin the main network line (see **Figure 4**), which is subject to higher noise limits under the RING. The Department also notes that the timing and frequency of train movements at Mount Pleasant would remain unchanged. As such, rail noise is unlikely to materially change at these receivers. It is therefore arguable that acquisition and/or mitigation rights would not be triggered under the VLAMP. However, MACH has agreed that acquisition and/or mitigation rights should be extended to the five affected receivers.

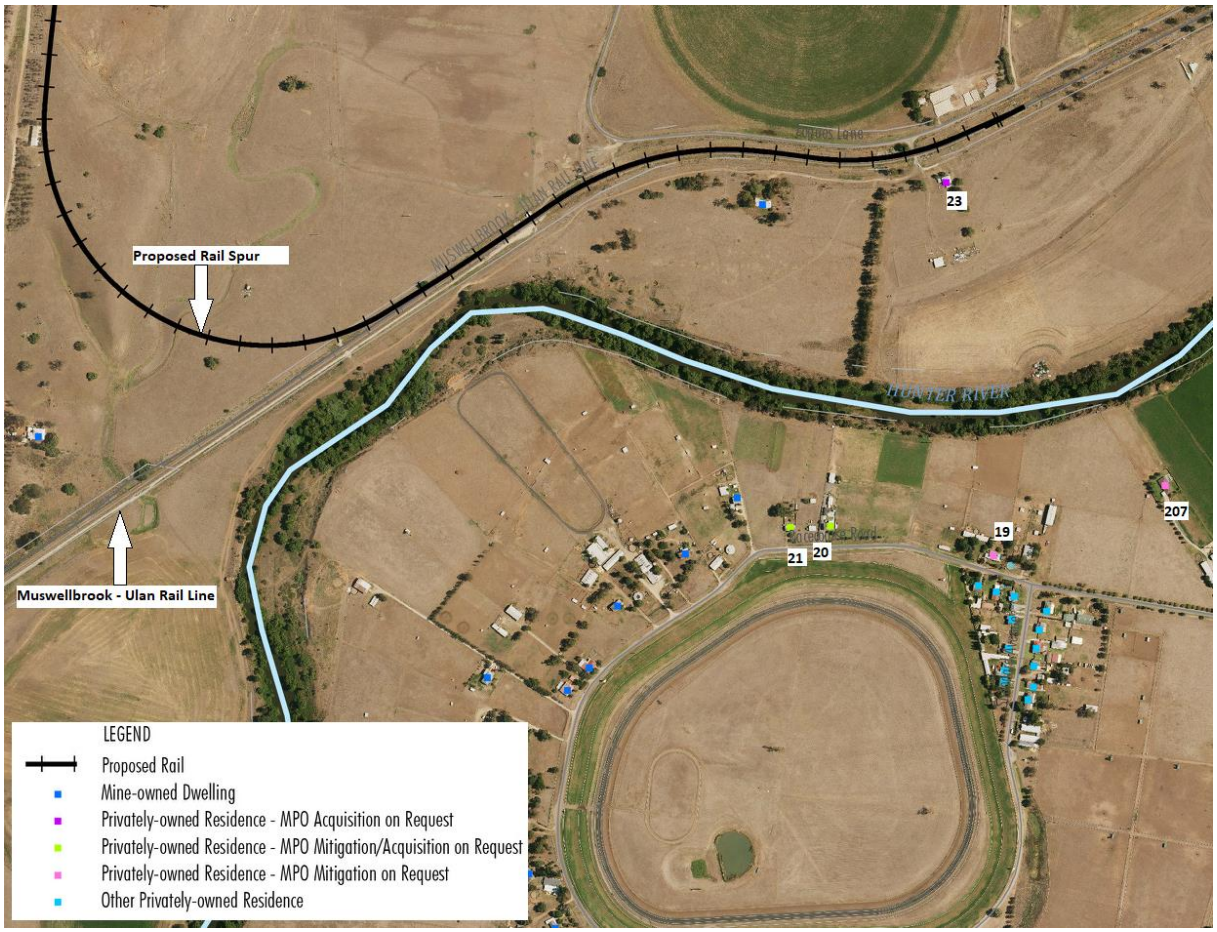

Figure 4 | Location of receivers affected by rail noise

Following its review of the RTS, Council advised that while it accepts that there would be no practical change in rail noise experienced by residents in the immediate vicinity of the rail spur junction, Council remains concerned about potential brake squeal and noise from the bunching and stretching of trains on the rail spur. In response to these concerns, MACH provided further details regarding proposed mitigation measures (see **Section 5.1.5** below).

5.1.3 Construction Noise

The NA identified equipment sound power levels (SWL) for the various construction components (including the construction of the conveyor and loading facility, the rail spur and the water supply infrastructure). The NA then deducted 5dB(A) from the total SWL, on the basis that the entire construction fleet would not operate concurrently.

Construction Noise Within Mining Lease Areas

While MACH proposes to carry out construction work within the mining lease areas 24 hours per day, 7 days per week, activities with the potential to impact on privately owned receivers would generally occur between the daytime hours of 7 am and 6 pm. As construction activities within the mining lease areas would be indistinguishable from mining operations, the NA assessed construction noise against the operational noise

criteria for the daytime period. This combined noise associated with both mining and construction activities was predicted to comply with the existing noise criteria at all privately-owned receivers.

Demolition noise associated with the removal of the redundant infrastructure was not modelled in the NA, on the basis that impacts would be of limited duration and would be indistinguishable from mining operations at Bengalla.

Construction Noise Outside Mining Lease Areas

Construction noise outside of the mining lease areas was assessed in accordance with the ICNG, which establishes noise management levels (NMLs) for activities conducted within, and outside of, standard construction hours (7 am to 6 pm Monday to Friday and 8 am to 1 pm Saturday). NMLs for standard and non-standard construction hours are set at 10 dB(A) and 5 dB(A) above the rating background level, respectively.

Construction of the rail spur was predicted to exceed the recommended NMLs during standard construction hours at 17 privately-owned receivers. Nine receivers (206, 215, 216, 217, 218, 219, 220, 221 and 225) were predicted to experience exceedances of 1 to 2 dB(A). Seven receivers (19, 20, 21, 207, 222, 223 and 224) were predicted to experience exceedances of 3 to 5 dB(A). One receiver (23) was predicted to experience an exceedance of more than 20 dB(A) under adverse conditions. Under the recommended conditions, this receiver would be entitled to both acquisition and mitigation rights, due to predicted rail noise.

Construction of the water supply infrastructure was predicted to exceed the NMLs at ten privately-owned receivers during standard construction hours. Two receivers (67 and 532) were predicted to experience exceedances of 1 to 2 dB(A). Four receivers (289, 530, 531 and 533) were predicted to experience exceedances to 3 to 5 dB(A). Exceedances of between 6 to 10 dB(A) were predicted at three receivers (527, 528 and 529). One receiver (68) was predicted to experience an exceedance of up to 12 dB(A) during adverse conditions. This receiver already has existing mitigation rights for operational noise.

The VLAMP does not provide acquisition or mitigation rights with respect to construction noise, on the basis that these impacts are shorter term, and can generally be controlled. The NA also notes that these impacts would diminish as construction progresses away from each affected receiver. All construction noise was predicted to remain below the highly noise-affected criterion of 75 dB(A) at privately-owned receivers.

MACH initially proposed to carry out construction work beyond the mining lease boundaries outside of standard construction hours, notwithstanding that further exceedances of the recommended NMLs would occur. The EPA and Council expressed concerns regarding the extended construction hours, and recommended that the Department impose conditions restricting all construction to standard hours, except emergency works or works that comply with specified noise criteria (ie no more than 5 dBA above the Rating Background Level), unless MACH obtains the written agreement of affected landowners. Recommended conditions are discussed further in **Section 5.1.6** below.

5.1.4 Vibration

The NA also included an assessment of vibration impacts, prepared in accordance with *Assessment Vibration: a technical guideline* (2006). This assessment included consideration of both construction and rail-related vibration. The assessment also considered both structural impacts and impacts on human health.

The main source of vibration impacts during the construction period would be a compactor, used during the establishment of the new rail spur. The *Construction Noise and Vibration Strategy* (CNVS, 2016) establishes safe working distances for various plant items in order to achieve the human response criteria under the technical guideline. A minimum setback distance of 100 m is recommended for the compactor. One receiver (23) is located

within 100 m of the proposed rail spur. However, the CNVS notes that these working distances are indicative only and relate to continuous vibration, and a shorter separation distance may be acceptable for intermittent activities. MACH also confirmed that potential exceedances of the human response criteria would only occur for a limited period, when construction occurs directly adjacent to the receiver. The Department also notes that this receiver would be eligible for voluntary acquisition under the recommended conditions.

The CNVS also establishes a minimum setback distance of 15 m for all built structures in order to avoid cosmetic damage during construction. As no structures are located less than 15 m from the proposed rail spur, no damage to nearby structures was predicted. The NA also included an assessment of vibration impacts on the Overdene Homestead, a local heritage item, located approximately 135 m from the proposed spur, based on a more stringent vibration criterion of 3 mm per second. The NA indicates that MACH would comply with this criterion and no adverse impacts were predicted.

Once the rail spur is operational, the NA indicates that vibration impacts would be negligible, as all nearby residences are located at least 50 m from the rail line.

5.1.5 Mitigation and Management

Existing conditions require MACH to implement a noise management system, employing a combination of real-time and supplementary attended noise monitoring and meteorological forecasting to manage day-to-day operations at the site. The conditions also require MACH to implement proactive and reactive management measures, in order to maintain compliance with the existing noise criteria.

The Department notes that the existing operational noise criteria would not apply to construction or rail noise outside of the mining lease areas, which are subject to different assessment criteria under the ICNG and RING, respectively. This is reflected in the modified conditions.

The Department has not imposed specific noise criteria for the operation of the rail spur, on the basis that rail operations on the main network line are subject to separate noise criteria under EPLs held by Sydney Trains and the ARTC. As rail noise generated on the private spur would be minor and indistinguishable from existing rail noise on the main line at affected receivers, separate noise limits would be of no benefit.

Instead, the Department considers that rail spur noise could be suitably managed by:

- extending voluntary acquisition and/or mitigation measures to the five receivers most affected by rail noise, as agreed by MACH; and
- developing a revised Noise Management Plan (NMP), which requires MACH to implement all reasonable and feasible rail noise mitigation measures.

MACH has committed to design the rail spur in accordance with best practice, with detailed consideration of potential brake squeal and bunching. MACH has also committed to engage a noise specialist to undertake trials and refine operational controls during the final commissioning of the rail spur, in order to minimise noise impacts. In the event that complaints are received, MACH would consult with its rail freight providers and investigate potential mitigation measures. These measures may include, for example, varying rail speeds, altering driver behaviour or improving stock maintenance.

Existing conditions require MACH to ensure that any locomotives operating on the rail spur are approved to operate on the NSW rail network. MACH is also required to ensure that its rail operations comply with existing noise limits under the respective EPLs held by Sydney Trains and the ARTC.

Vacant Holdings at Kayuga

The Department has also taken the opportunity to extend voluntary acquisition rights to seven vacant land holdings at Kayuga, north of Mount Pleasant. Properties 143c, 143d, 143e, 153b, 447, 448 and 449 were previously eligible for acquisition under MOD 3, in accordance with the VLAMP, but were omitted due to uncertainties regarding land ownership. No changes to existing noise impacts are predicted at these receivers as a result of MOD 4. MACH has agreed to the recommended changes.

Construction Noise & Vibration

The Department has recommended conditions limiting all construction works outside the mining lease areas to standard construction hours under the ICNG unless the works are authorised under an Out of Hours Work Protocol approved by the Department, in consultation with the EPA and affected landowners. Exceptions would also be made where emergency works are required, or where MACH obtains the written agreement of affected landowners. This would provide a degree of flexibility for MACH to carry out limited works during non-standard hours, provided that these works do not adversely impact nearby landowners.

The Department has recommended conditions requiring MACH to prepare a Construction Environmental Management Plan (CEMP) for the construction of the rail and water infrastructure. The CEMP would include detailed measures to manage noise and vibration impacts on nearby receivers throughout the construction period. The recommended conditions also require MACH to consult with affected landowners and to develop a complaints-handling procedure. The Department has also recommended specific construction noise criteria for works outside of the mining lease areas.

5.1.6 Conclusion

The Department has carefully assessed the potential noise and vibration impacts of the proposed modification. While the construction of the proposed infrastructure is expected to cause some disruption for nearby residents, these impacts are likely to be intermittent, of limited duration, and would be managed in accordance with a detailed CEMP and an Out of Hours Work Protocol (if required).

The proposal is also predicted to exceed the recommended noise criteria for private rail lines under the RING. However, as all affected private receivers are located immediately south (ie on the other side) of the main rail line, there would be no discernible change in rail noise experienced at these receivers. The worst affected receivers would also be afforded acquisition and/or mitigation rights, which would help to address legacy rail noise issues in this location.

Overall, the Department is satisfied that the construction and rail related noise and vibration impacts of the proposed modification would be suitably managed under modified conditions, an updated NMP and a detailed CEMP.

5.2 Air Quality

The EA included an Air Quality Impact Assessment (AQIA) prepared by Todoroski Air Sciences. The AQIA was prepared in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales 2016* (Approved Methods 2016).

5.2.1 Construction Impacts

The AQIA did not include dispersion modelling of construction-related dust impacts. The AQIA states that these impacts would be difficult to quantify, as dust generating activities are likely to occur sporadically during the construction of the new infrastructure and the demolition of the redundant infrastructure.

MACH notes that these impacts would be of a temporary nature, occurring intermittently over a period of up to 18 months. MACH has proposed a range of mitigation measures to manage dust emissions during this period, including use of water carts, staging of construction activities, locating stockpiles away from nearby receivers and modifying or ceasing construction activities during adverse weather conditions.

5.2.2 Operational Impacts

The AQIA utilised the same air quality model previously used in the assessment of MOD 3. Dispersion modelling was then updated to determine the incremental air quality impacts of MOD 4, based on modelled Scenario 2 from the MOD 3 AQIA (ie occurring in approximately 2021).

The AQIA indicates that the air quality impacts of the proposed modification would be negligible. The relocation of the rail loop would require additional transfer points and a slightly longer conveyor between the CHPP and the rail loading facility. These changes are expected to increase dust emissions from the site by 0.03 percent.

As such, the AQIA indicates that the proposed modification would not materially alter the particulate matter concentrations previously predicted in the MOD 3 AQIA, subject to some negligible variations to isopleth locations as shown in **Figures 5** and **6** below.

On this basis, the AQIA indicates that that the proposal is unlikely to alter the previously predicted incremental and cumulative air quality impacts of mining operations at Mount Pleasant. No additional privately-owned receivers are expected to exceed the existing performance criteria as a result of the proposed modification.

The EPA advised that it was satisfied with the AQIA and expressed support for the proposed modification. No changes to air quality conditions were recommended.

NSW Health did not raise any concerns regarding the AQIA. However, it was noted that all reasonable and feasible measures should be taken to minimise human exposure to particulate matter, even where assessment criteria are met. Air quality management and mitigation measures are discussed further in **Section 5.2.4** below.

5.2.3 Cumulative Air Quality Issues

Following its assessment of MOD 3, the Department identified the need for further cumulative air quality assessment for both the Mount Pleasant and Bengalla operations. The reasons for this additional modelling were two-fold.

Firstly, more stringent assessment criteria for particulate matter were imposed under the Approved Methods 2016. In September 2018, the VLAMP was revised to reflect these new criteria. In anticipation of the revised VLAMP, the Department reviewed the allocation of acquisition and mitigation rights under DA 92/97 in its assessment of MOD 3. Following this review, the Department recommended that voluntary acquisition rights be extended to two additional receivers (20 and 21), which were predicted to experience exceedances of the revised cumulative annual PM_{10} criterion. However, the Department noted that a coordinated approach would be required in order to re-evaluate the respective contributions of Mount Pleasant and Bengalla operations to air quality impacts in the locality, and to equitably allocate responsibilities under the VLAMP.

Secondly, discrepancies were identified between the air quality models developed for Mount Pleasant and Bengalla. As modification applications were under assessment by the Department for both mine sites in mid-2018, this represented an ideal opportunity to resolve these discrepancies.

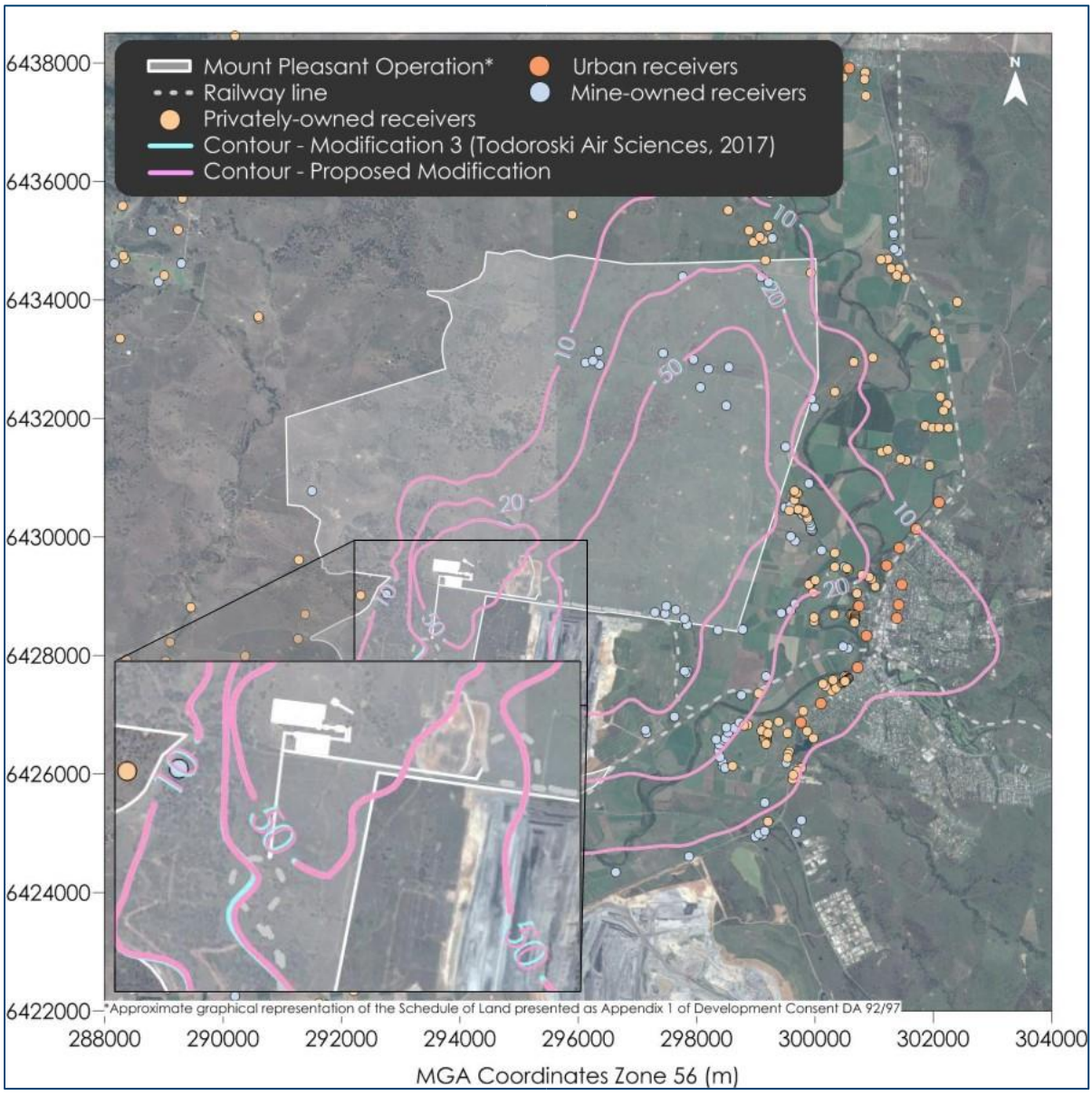

Figure 5 | Comparison of predicted incremental 24-hour average PM_{10} concentrations (µg/m^3) for Modifications 3 and 4

In June 2018, the Department requested that Mount Pleasant and Bengalla undertake a coordinated assessment of the proportionate air quality impacts of the two mining operations. This assessment was to include focused consideration of key receivers in close proximity to the mines, having regard to contemporary air quality standards. On 14 August 2018 and 7 September 2018, MACH provided supplementary AQIAs, also prepared by Todoroski Air Sciences.

The supplementary AQIAs conclude that the MOD 3 AQIA was overly conservative and tended to 'over-predict potential cumulative impacts on private vacant land in the vicinity of the Bengalla mine'. These conclusions are discussed below.

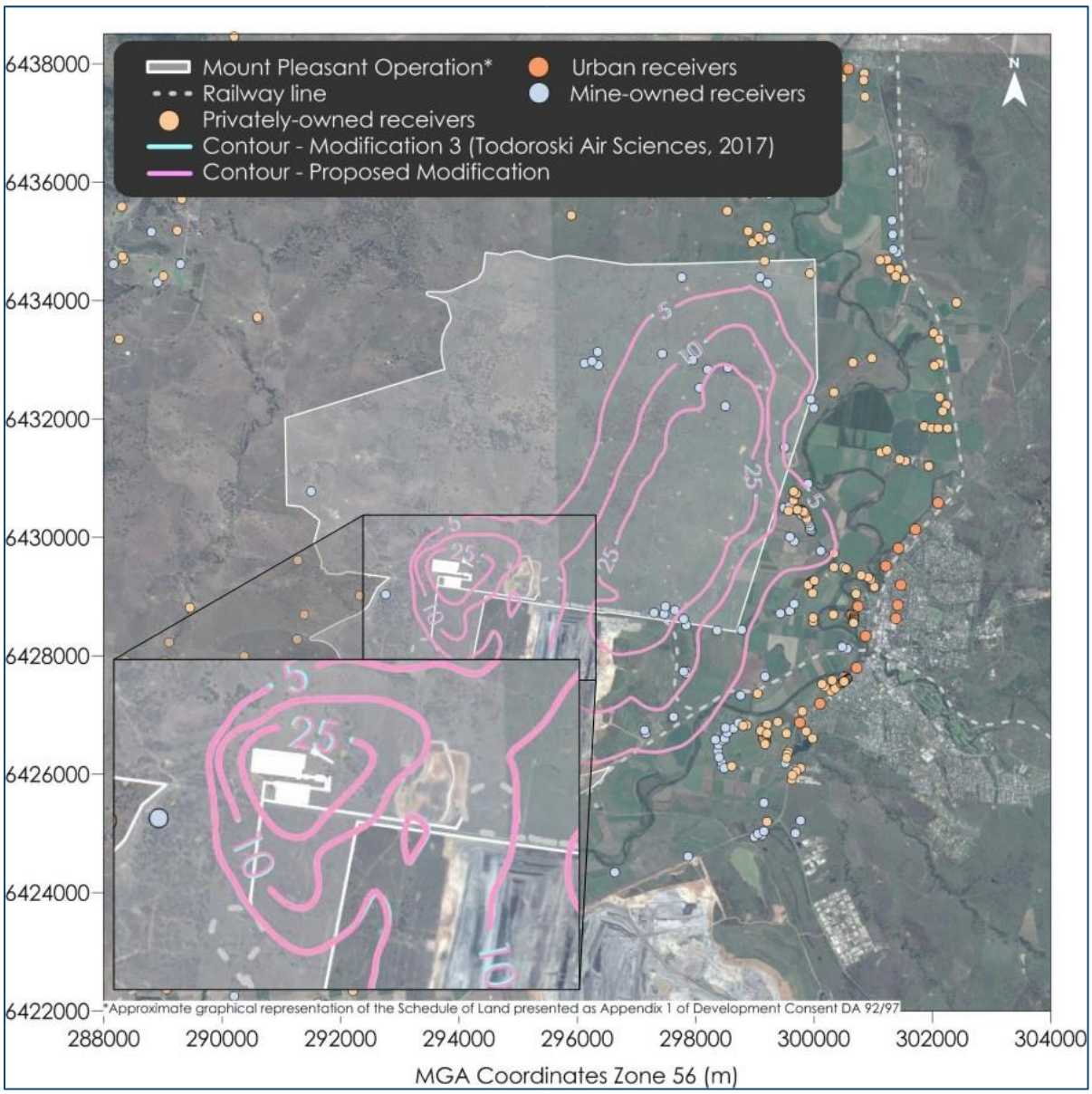

Figure 6 | Comparison of predicted incremental 24-hour average $PM_{2.5}$ concentrations (µg/m^3) for Modifications 3 and 4

MOD 3 Review of Voluntary Acquisition and Mitigation Rights

The MOD 3 AQIA predicted that nine receivers would experience exceedances of the revised cumulative annual average PM_{10} criterion (25 µg/m^3). Six of these receivers (4, 43, 487a, 487b, 488a and 488b) were already afforded voluntary acquisition rights under the Mount Pleasant consent, the Mount Arthur project approval, or the Bengalla consent. Receiver 6 (the Muswellbrook Race Club), is not a private residence and is therefore ineligible for acquisition rights under the VLAMP.

The two remaining receivers (20 and 21), which are located to the south-east of Mount Pleasant, were not previously subject to acquisition rights, based on the higher criterion of 30 µg/m^3. The MOD 3 AQIA predicted that Receivers 20 and 21 receivers would experience cumulative annual PM_{10} concentrations of 26 and 27 µg/m^3, respectively. On this basis, voluntary acquisition rights were extended to both receivers as part of MOD 3.

Supplementary AQIAs

The revised AQIAs incorporated updated emissions assumptions, drawn from the more contemporary air quality assessments prepared for Bengalla MODs 2 and 4. The supplementary AQIAs then provided revised predictions of cumulative annual average PM_{10} and $PM_{2.5}$ concentrations for all three scenarios previously modelled in the MOD 3 AQIA. No exceedances of the contemporary criteria were predicted at Receivers 20 or 21. Exceedances were still predicted at Receivers 43, 487a, 487b, 488a and 488b, however, as noted above, these properties had existing acquisition rights.

While the supplementary AQIA indicates that Receivers 20 and 21 should no longer be eligible for acquisition rights, it is recommended that these rights remain in place, out of consideration for the landowners. MACH has not raised any objections in this regard.

5.2.4 Mitigation and Management

Existing conditions require MACH to implement best practice air quality management on site, using real-time air quality monitoring and meteorological forecasting data to guide day-to-day operations and to avoid exceedances of the performance criteria. MACH must also coordinate with nearby mines, particularly Bengalla, to minimise the cumulative air quality impacts of mining operations.

Existing conditions also require MACH to minimise (where reasonable and feasible) the extent of exposed ground at all times, to minimise visible air pollution generated by the development, and to manage its operations during adverse meteorological conditions so as to minimise air quality impacts. These requirements would also extend to the construction of the proposed infrastructure.

The Department has recommended conditions requiring MACH to prepare a CEMP prior to commencing construction works. This CEMP would include detailed measures to manage air quality impacts for the duration of the construction and demolition period.

The Department considers that the existing conditions provide for effective best practice management of air quality impacts. Therefore, no changes to operational air quality conditions are recommended.

5.2.5 Conclusion

The Department is satisfied that the air quality impacts of the proposed modification would be minimal and would be suitably managed under existing and modified conditions, including a new requirement to prepare a CEMP.

5.3 Biodiversity Impacts

The EA included a Terrestrial Ecology Assessment prepared by Hunter ECO. In response to OEH's concerns regarding the adequacy of the assessment and the lack of a detailed offset strategy, MACH subsequently provided two Biodiversity Development Assessment Reports (BDARs), prepared in accordance with the *Biodiversity Assessment Method* (BAM). The first BDAR assessed the biodiversity values to be disturbed by the proposed modification. The second BDAR assessed the relative biodiversity values of a portion of the South West OEA, which MACH has offered to relinquish in lieu of providing a biodiversity offset. These two BDARs provide a like-for-like credit-based comparison of the proposed disturbance and relinquishment areas.

5.3.1 Impact Assessment

Terrestrial Ecology

The proposed modification would disturb an area of approximately 50 ha, comprising a mixture of derived native grassland, cleared agricultural land, and a riparian zone.

The proposed rail loop would disturb approximately 21 ha of derived native grassland, identified as *Narrow-leaved Iron Bark – Native Olive Shrubby Open Forest of the Central and Upper Hunter* (PCT 1605). The grassland form of this PCT is not a listed threatened community. The BDAR also indicates that this area is affected by weeds and is generally in poor condition. The rail loop area also contains six hollow bearing trees which provide potential habitat for threatened fauna species, particularly bats and birds.

The proposed rail spur corridor contains approximately 3 ha of previously rehabilitated land associated with the Bengalla Mine. The remainder of the rail corridor is identified as agricultural land, consisting of grazed pasture and crops.

The water pipeline corridor contains both agricultural land and a riparian zone located within the Hunter River flood plain. Vegetation within this riparian zone is identified as *River Oak – White Cedar grassy riparian forest of the Dungog area and Liverpool Ranges* (PCT 1714). This PCT is not listed as a threatened ecological community under either NSW or Commonwealth legislation.

No threatened flora species were recorded within the proposed modification area. During fauna surveys, several threated bird and bat species were identified in the locality, including the Eastern Bentwing-bat, Eastern Freetail-bat and Speckled Warbler, which are listed as vulnerable under the *Biodiversity Conservation Act 2016* (BC Act). While the proposed modification area contains potential foraging and roosting habitat for these species, this habitat is of a marginal nature and is not considered critical to the survival of any threatened species.

Aquatic Ecology

The EA also included an Aquatic Ecology Assessment (AQA) prepared by BIO-ANALYSIS. The AQA indicates that the impacts of the proposed rail infrastructure on aquatic ecology would be minimal. The proposed rail spur would be constructed over a section of the Hunter River flood plain, and an un-named ephemeral tributary with limited aquatic habitat value. The proposed spur would incorporate culverts to mitigate flood impacts and to minimise potential changes to flow regimes. Consequently, the AQA concludes that the proposed rail infrastructure is unlikely to affect aquatic biodiversity or ecological processes within the river system.

The proposed water pipeline and pump station would have a more direct impact on the Hunter River. While the proposed pump station would be primarily located above ground, it would require the installation of submerged pumps and a water inlet system adjacent to the Hunter River. The proposed pump system would not run continuously. It is estimated that the pump would need to run for approximately 40 days per year in order to meet the mine's water supply needs.

No aquatic species listed under the BC Act, *Fisheries Management Act 1994* (FM Act) or the EPBC Act were recorded within the modification area. However, the Southern Purple-Spotted Gudgeon and the Darling River Hardyhead are likely to occur within the wider Hunter River drainage system. Both are listed as endangered under the FM Act (as a species and population, respectively).

Without suitable mitigation, water extraction could reduce fish populations within the Hunter River, through incidental fish take and increased predation. However, it should be noted that the proposed modification would simply relocate existing infrastructure which already draws water from the Hunter River, several kilometres

downstream. As such, the net effect of the proposed modification on aquatic biodiversity is expected to be limited.

5.3.2 Avoidance, Mitigation and Management

MACH has proposed a range of measures to minimise the biodiversity impacts of the proposed modification. These include:

- minimising the clearing of native vegetation during the construction of the rail spur;
- avoiding mature River Oak and exotic trees during the construction of the pump station;
- implementing erosion and sediment controls during construction works;
- orienting the pump station inlet perpendicular to stream flow, to minimise accidental fish intake;
- gradually increasing and reducing velocity during the operation of the pump station; and
- ongoing monitoring of water quality and stream health for the duration of mining operations.

Existing conditions also require MACH to salvage and reuse cleared material, where possible, for habitat enhancement purposes elsewhere on site. This would include the hollow bearing trees within the rail loop area.

The Department is satisfied that the proposed modification avoids impacts on threatened species and communities and aquatic habitat to the greatest extent practicable. The Department considers that the proposed mitigation measures are acceptable.

5.3.3 Biodiversity Offsets

The proposed modification would require a total of 141 ecosystem credits, in accordance with the BAM. No species credits are required. To offset the biodiversity impacts of the proposed modification, MACH initially proposed to relinquish a 32 ha portion of the approved South West OEA. Following the preparation of the BDARs, MACH reduced the proposed relinquishment area to 12.7 ha, to more closely reflect the actual number of credits required for offsetting purposes (see **Figure 7** below).

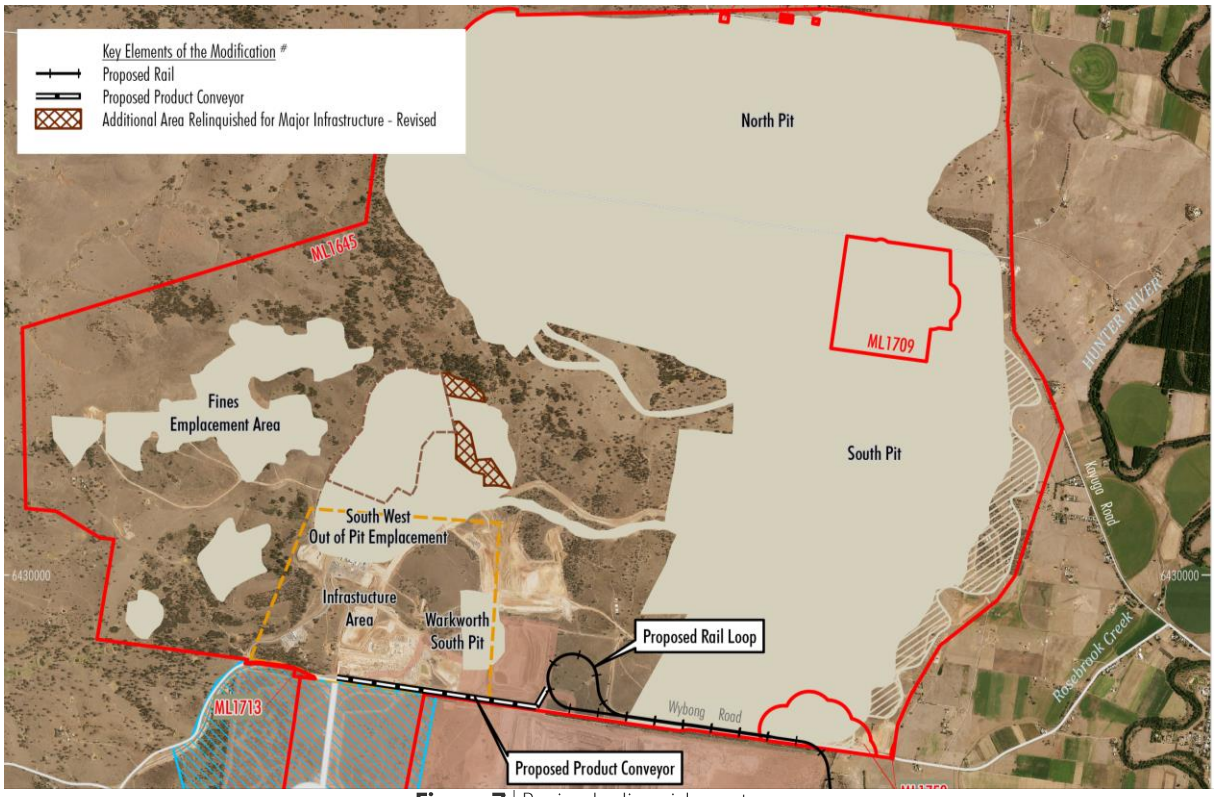

Figure 7 | Revised relinquishment areas

Table 3 provides a comparison of the respective credits for the proposed disturbance area and the revised relinquishment area.

Table 3 | Credit Comparison of Proposed Modification and Relinquishment Areas

Plant Community Type/Species Name	Credits Required for Modification	Credits Generated in Relinquishment Areas
Ecosystem Credits		
Grey Box x White Box Grassy Open Woodland on Basalt Hills in the Merriwa Region, Upper Hunter Valley (PCT 483)	0	27[1]
Narrow-leaved Iron Bark – Native Olive Shrubby Open Forest of the Central and Upper Hunter (PCT 1605)	141	51[2]
Spotted Gum – Narrow-leaved Ironbark Shrub – Grass Open Forest of the Central and Lower Hunter (PCT 1602)	0	79[2]
Subtotal	**141**	**157**
Species Credits		
Bush Stone-curlew	0	91
White-bellied Sea-Eagle	0	91
Little Eagle	0	139
Square-tailed Kite	0	139
Squirrel Glider	0	107
Brush-tailed Phascogale	0	107
Subtotal	**0**	**674**

Notes:
[1] PCT commensurate with *White Box - Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland*
[2] PCT commensurate with *Central Hunter Valley Eucalypt Forest and Woodland*

The revised relinquishment area contains 5.9 hectares of Endangered Ecological Community, comprising 3.9 ha of *Central Hunter Valley Eucalypt Forest and Woodland* and 2 ha of *White Box-Yellow Box-Blakely's Red Gum Woodland*. Both communities are listed as critically endangered under the EPBC Act.

The Department notes that the revised relinquishment area would be fragmented by the remaining OEA. While the Department has some concerns with respect to the desirability of this arrangement, OEH has not raised any objections in this regard.

Overall, the Department is satisfied that the proposal represents a net benefit with respect to biodiversity values. On this basis, the Department does not consider that any additional biodiversity offset is required for the proposed modification.

5.3.5 Conclusion

Overall, the Department is satisfied that the biodiversity impacts of the proposed modification would be minimal and would be adequately offset through the partial relinquishment of the South West OEA. The Department has recommended modified conditions which would require MACH to:

- revise the site's Biodiversity Management Plan (BMP) to include detailed measures to avoid and manage remnant vegetation and habitat within the relinquishment area; and
- include detailed measures to minimise biodiversity impacts in its CEMP.

The Department has also taken the opportunity to remove redundant conditions requiring a biodiversity offset for the establishment of the conveyor/service corridor which was approved under MOD 1. As the conveyor/service corridor option was not pursued, this requirement is no longer relevant.

The Department is satisfied that the biodiversity impacts of the modified development would be suitably managed under recommended conditions of consent, an updated BMP and a CEMP.

5.4 Water Resources

5.4.1 Surface Water Management

The proposed modification would increase the mine's approved disturbance area and require substantial construction activity within the Hunter River flood plain. As such, the proposal has the potential to impact on surface water resources.

Existing conditions require MACH to take all reasonable steps to minimise the extent of exposed ground at any time and to progressively rehabilitate disturbed areas as soon as practicable.

Existing conditions also require MACH to prepare a detailed Water Management Plan (WMP) for the site, incorporating an Erosion and Sediment Control Plan and Surface Water Management Plan. These plans must provide detailed measures to minimise soil erosion, control the downstream transportation of sediment and to monitor the downstream impacts of the development on water quality. This WMP would be updated to include the proposed modification area.

5.4.2 Flooding Impacts

The EA included a Flood Assessment (FA) prepared by WRM Water & Environment. The FA was developed using *TUFLOW* modelling, incorporating data from Council's *Hunter River Flood Study (Muswellbrook to Denman)*, prepared in 2014. The FA modelled the flooding impacts of the proposed modification for the 1% Annual Exceedance Probability (AEP) and 5% AEP design events (ie the 1 in 100-year and 1 in 20-year flood events, respectively). This included consideration of the proposed rail spur, associated earthworks and hydraulic structures, including two proposed bridge openings along the proposed spur, and extended culverts within the main rail line (see **Figure 8**). The FA assessed the likely flooding impacts in the vicinity of the proposed spur and on privately-owned receivers both upstream and downstream of the new infrastructure.

The FA concluded that the proposed rail spur would have no adverse flood impacts during the 5% AEP event. During the 1% AEP event, peak flood levels were predicted to increase immediately upstream of the proposed spur by up to 0.16 m, and at the main railway line, by approximately 0.05 m. No privately-owned receivers (either residential or commercial) were predicted to experience peak flood level increases of more than 0.01 m during the 1% AEP flood event. These impacts are considered negligible.

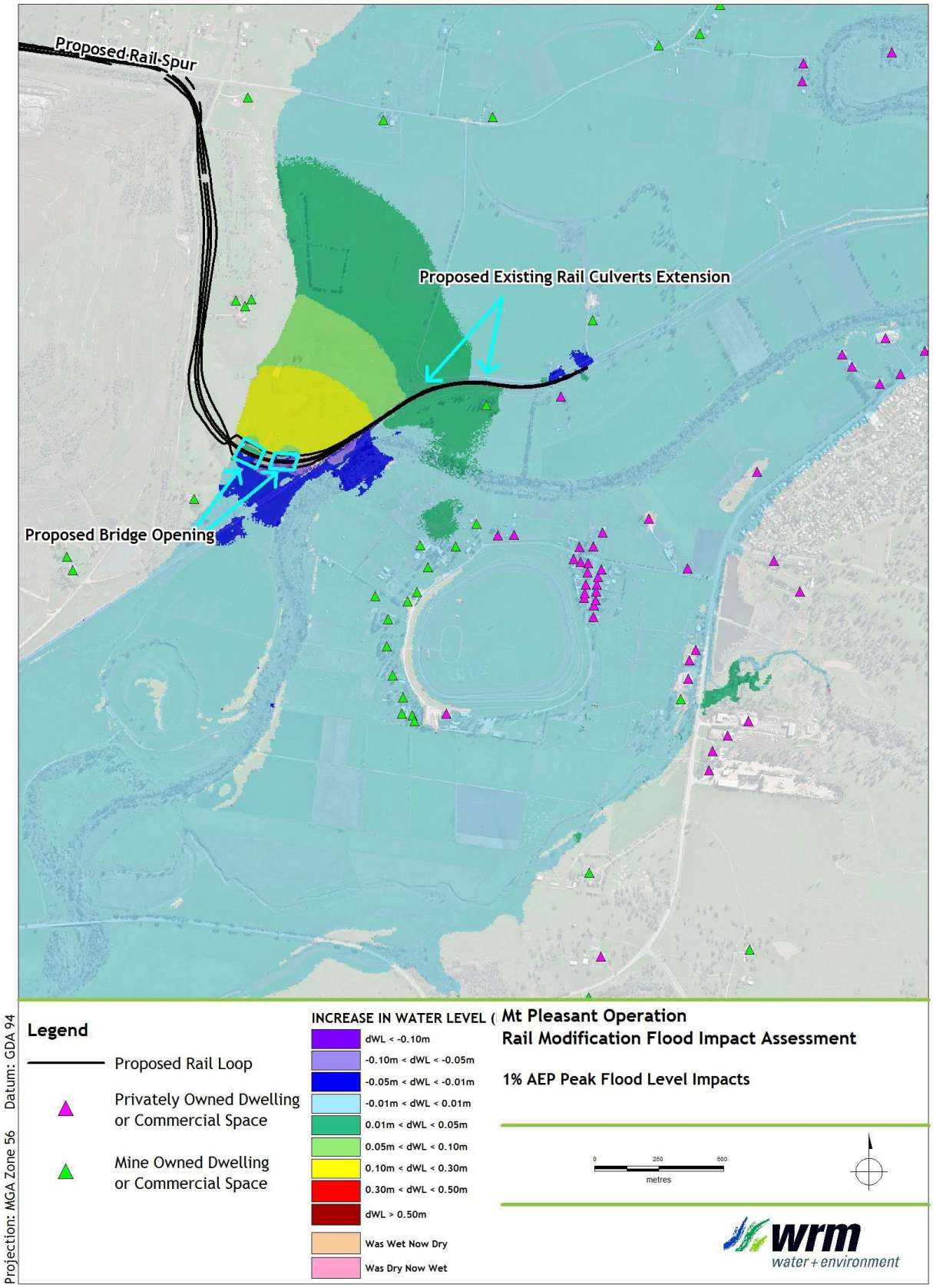

Figure 8| Predicted peak flood level impacts during 1% AEP flood event

During the 1% AEP event, flood velocities at the main railway line were predicted to increase by up to 0.5 metres per second (m/s). At the proposed culverts and bridge openings, flood velocities were predicted to increase by 0.8 m/s. No adverse flood velocity impacts were predicted at any privately-owned receivers.

Both Council and OEH raised concerns regarding the adequacy of the initial flooding assessment. In particular, Council noted that the assessment was based on Council's 2014 Flood Study, which is known to contain inaccurate information. Council therefore requested that MACH undertake supplementary assessment, in consultation with Council's consultants. OEH also requested that the FA include consideration of flood events greater than the 1% AEP event, including the Probable Maximum Flood (PMF), and the 0.5% AEP and 0.2% AEP events. Both Council and OEH also expressed concern that the proposed culverts and bridge crossings within the conceptual rail spur design could become blocked by debris and restrict the flow of flood water.

In response to these concerns, MACH engaged Council's flood consultants, Royal HaskoningDHV, to undertake a peer review of the FA. This review concluded that the WRM flood model is fit for purpose, and provides a conservative assessment of the likely flooding impacts of the proposal.

MACH also provided a supplementary FA, including additional flood modelling, in the RTS. This modelling predicted that during the PMF, peak flood levels at private residences south of the main rail line would increase by up to 0.11 m. These residences are already predicted to be inundated during the PMF, irrespective of the proposed modification. During the 0.5% AEP and 0.2% AEP events, peak flood levels at residences south of the rail line were predicted to increase by 0.01 m and 0.02 m, respectively, compared to existing conditions. These predictions align with the findings of the original FA, and the increases in flood levels are considered negligible.

The supplementary FA also included further consideration of potential blockages of the proposed bridge openings and culverts, noting that the surrounding landscape is dominated by well-maintained paddocks, containing little available debris, with low mobility potential. On this basis, the supplementary FA concluded that the risk of blockages would be low.

Following its review of the RTS, OEH advised its previous concerns had been satisfied and no further flooding assessment was required. Council accepted the conclusions of the peer review, and recommended a condition of consent requiring that the final rail spur design satisfy the following criteria for the 1% AEP flood event:

- no more than 0.1 m increase in flood levels on any privately-owned land;
- no more than 0.01 m increase in flood levels at any privately-owned receivers;
- no more than 0.01 m increase in flood levels at any public roads servicing privately owned properties; and
- no more than 0.1 metres per second (m/s) increase in flood velocities at any privately-owned receivers.

MACH has provided a revised Statement of Commitments for the modification, which includes a commitment to comply with the above performance criteria. The Department has also recommended conditions requiring MACH to meet the performance criteria specified.

5.4.3 Conclusion

The Department is satisfied that erosion and sedimentation risks associated with the proposal would be suitably managed under existing and modified conditions, and an updated WMP.

The Department is also satisfied that the flooding impacts of the proposal have been appropriately assessed. Overall, the Department considers that the proposal would have a relatively minor and acceptable impact on predicted flood levels and flow velocities in the vicinity of the rail spur. The Department also considers that the predicted impacts on privately-owned receivers would be negligible.

The recommended conditions would require MACH to engage a suitably qualified independent expert to review the final design of the proposal rail infrastructure against the criteria in **Section 5.4.2**, prior commencing construction.

The recommended conditions also require MACH to develop a monitoring and maintenance program for the proposed bridge openings and culverts, to ensure these structures remain free of debris and do not impede the flow of flood waters. This program would be documented in the updated WMP. The Department is satisfied that the flooding impacts of the proposed modification can be suitably managed under modified conditions of consent and an updated WMP.

5.5 Visual Impacts

The EA included a Visual Impact Assessment (VIA) prepared by VPA Visual Planning & Assessment. The VIA identified key vantage points likely to be affected by the proposed modification. Viewpoint 1 is located to the east of Mount Pleasant, at Wybong Road, approximately 0.66 km south of the proposed overpass. Viewpoint 2 is the nearest privately-owned rural residence on the flood plain with clear views of the proposed modification area. Viewpoint 3 is the Muswellbrook High School, which is located approximately 4.2 km east of the modification area, at an elevated position within the Muswellbrook township. These locations are shown in **Figure 9** below.

Visual impacts from other vantage points to the south, west and north were predicted to be minimal, due to intervening topography, established vegetation and separation distance.

The VIA included consideration of proposed visual impact mitigation measures, including light screens (see **Section 5.5.1** below), which would be constructed as part of the modification.

Visual Impacts of the Rail Infrastructure

At Viewpoint 1, on Wybong Road, rail spur cuttings and embankments would be visible, along with the proposed overpass and light screens. The above-ground section of the water pipeline may also be visible. However, these impacts would represent a relatively minor change to approved views of the mine.

At Viewpoint 2, views would be primarily limited to the proposed light screens and some segments of the rail spur not obscured by vegetation or topography. The VIA indicates that Viewpoint 2 is generally representative of other rural dwellings on the flood plain. The visible components of the proposed modification are predicted to occupy less than 10 percent of the total focal view area at this location.

At Viewpoint 3, some of the modification components would be visible, including the Wybong Road rail overpass and the proposed light screens. Other components, such as the water pipeline, transmission line and rail spur would be visible, but difficult to discern due to the separation distance. The VIA estimates that the components of the modification would occupy less than 1 percent of the total focal view area at this location.

Photomontages of predicted impacts at Viewpoints 2 and 3 are provided in **Figures 10** and **11**. These montages provide a comparison of approved visual impacts and proposed impacts. The Department notes that the dominant visual feature in each montage is the extended Eastern OEA, which was approved under MOD 3. The proposed components of MOD 4 represent a relatively minor change to the overall landscape.

Operational Lighting at the Rail Loading Facility

The proposed rail loading facility would be more visually prominent than the approved facility, which is largely shielded by operations at Bengalla. Night lighting at the facility would be visible from Muswellbrook, due to the lack of intervening topography. However, MACH notes that the change would be minor, relative to the total lighting generated by the Mount Pleasant operation and would have a negligible visual impact on the township.

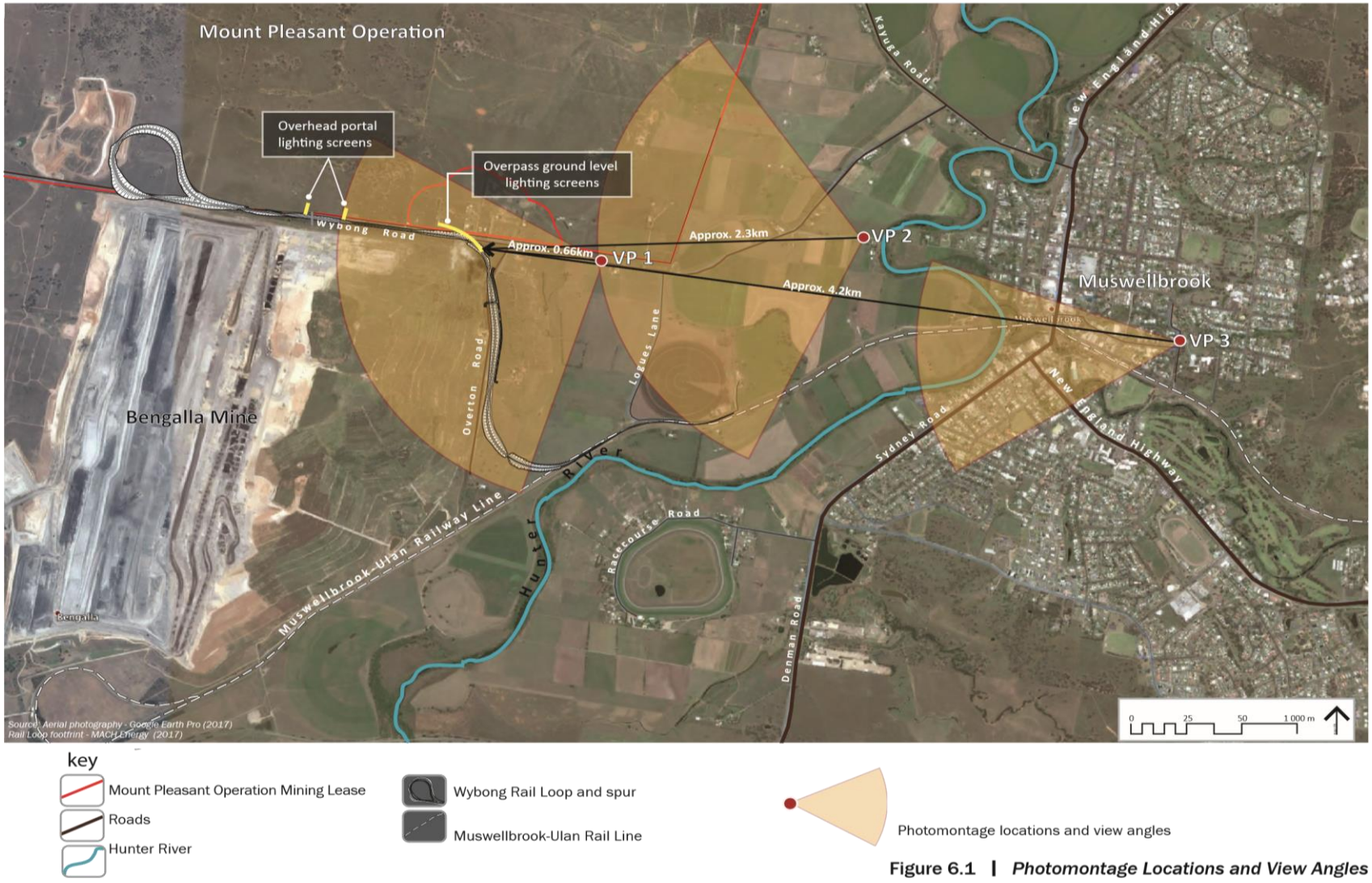

Figure 6.1 | *Photomontage Locations and View Angles*

Figure 9 | Location of viewpoints and proposed lighting screens

Figure 10 | Photomontages from Viewpoint 1 (rural dwelling on the flood plain)

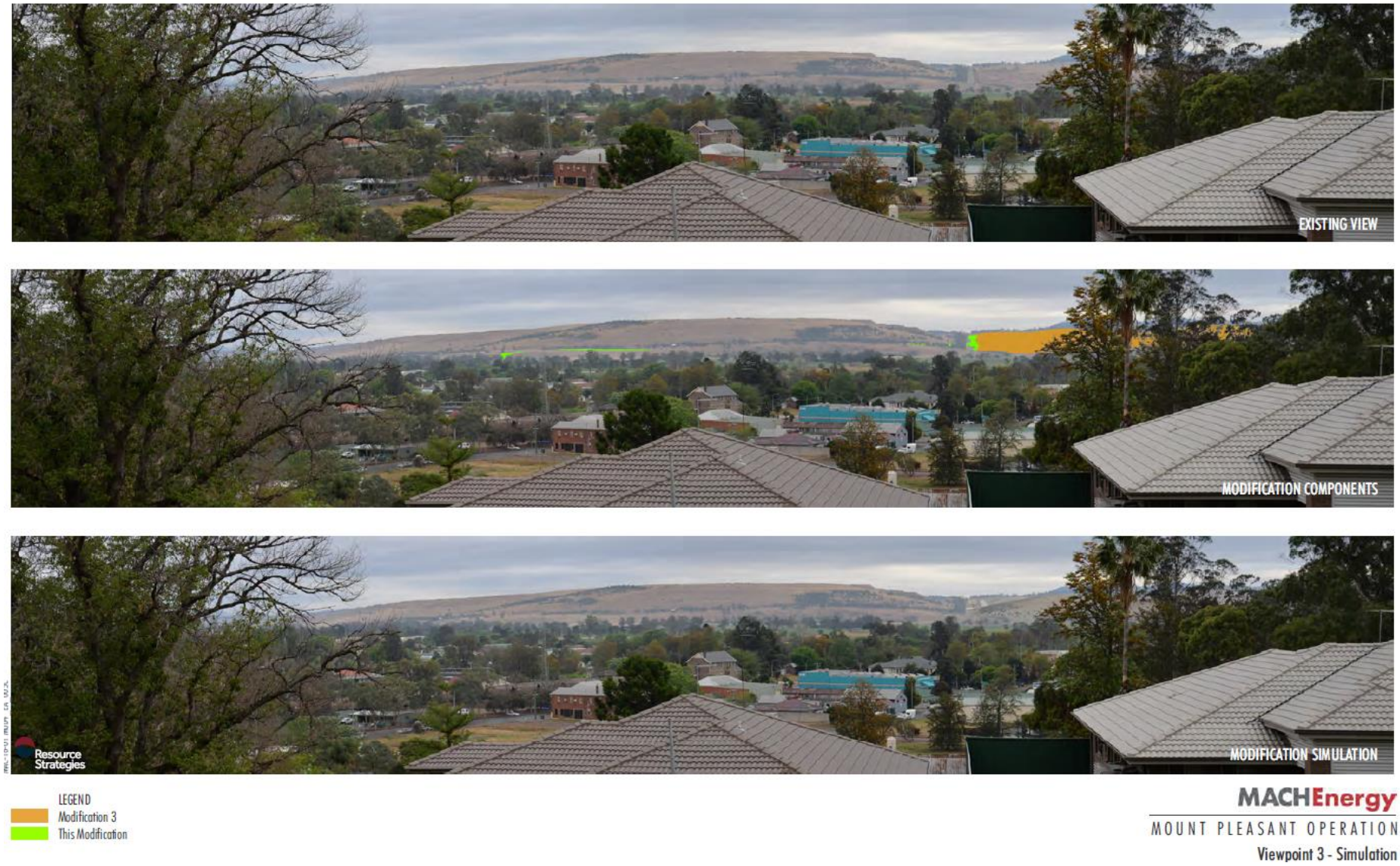

Figure 11 | Photomontages from Viewpoint 3 (Muswellbrook High School)

Train Lighting

Train lighting effects would be most significant on the section of the rail spur running parallel with Wybong Road, as outgoing train headlights would be directed towards the Muswellbrook township. As trains turn south, they would enter a cutting which would deflect the lights.

Council raised concerns regarding lighting impacts on Wybong Road, noting that train headlights may distract drivers. In response, MACH noted that it has previously committed to establish visual bunds and vegetative screens along the northern side of Wybong Road. This screening would follow the length of the rail spur, where it runs parallel to the road, and would substantially mitigate potential safety impacts. While Council accepted MACH's response, it stressed that vegetative screens need to be suitably maintained for the life of the development, particularly during periods of drought.

5.5.1 Mitigation and Management

MACH proposes to establish three train lighting screens. Two overhead screens would be located adjacent to Wybong Road, at different elevations along the rail spur, to deflect the direct lighting impacts of east-bound train headlights on the Muswellbrook township. The third screen would be located at ground level, in the location of the Wybong Road rail overpass. This screen would be located on the eastern side of the rail spur and would deflect lighting as trains turn south. The proposed screens would be up to 7 m high, and be constructed of steel, wire mesh and dark green shade cloth, to blend in with the surrounding landscape. The location of these screens is shown in **Figure 12**. This figure also shows the predicted extent of light deflection provided by the screens. With these measures in place, direct lighting impacts on the Muswellbrook township are expected to be largely avoided.

The Department has recommended conditions requiring MACH to prepare a Visual Impact Management Plan (VIMP) to manage the visual impacts of the modified development. The VIMP would include detailed plans for the proposed light screens, visual bunds and vegetative screens. These conditions also provide a degree of flexibility so that the Department may request additional screening, if needed.

Council recommended that the Department impose a condition requiring that MACH maintain its visual screening along Wybong Road to achieve a canopy density of 75 percent or more. MACH did not accept Council's recommendation, and instead provided a commitment to monitor the condition of visual screens on a quarterly basis. The Department agrees that regular monitoring and maintenance of visual screens would be sufficient and considers that specific performance criteria are not required. The Department has therefore recommended conditions requiring that MACH develop an appropriate maintenance program as part of its VIMP.

5.5.2 Conclusion

The Department is satisfied that the visual impacts of the proposed modification have been adequately assessed, and that the proposed mitigation measures are appropriate. The Department has recommended conditions requiring MACH to prepare a detailed VIMP for its operations. Existing conditions also provide a mechanism for further mitigation, if required, once the infrastructure is established. This may include, for example, further screen planting or adjustments to the proposed light screens.

The Department is satisfied that the visual impacts of the proposed modification would be suitably managed under modified conditions and a VIMP.

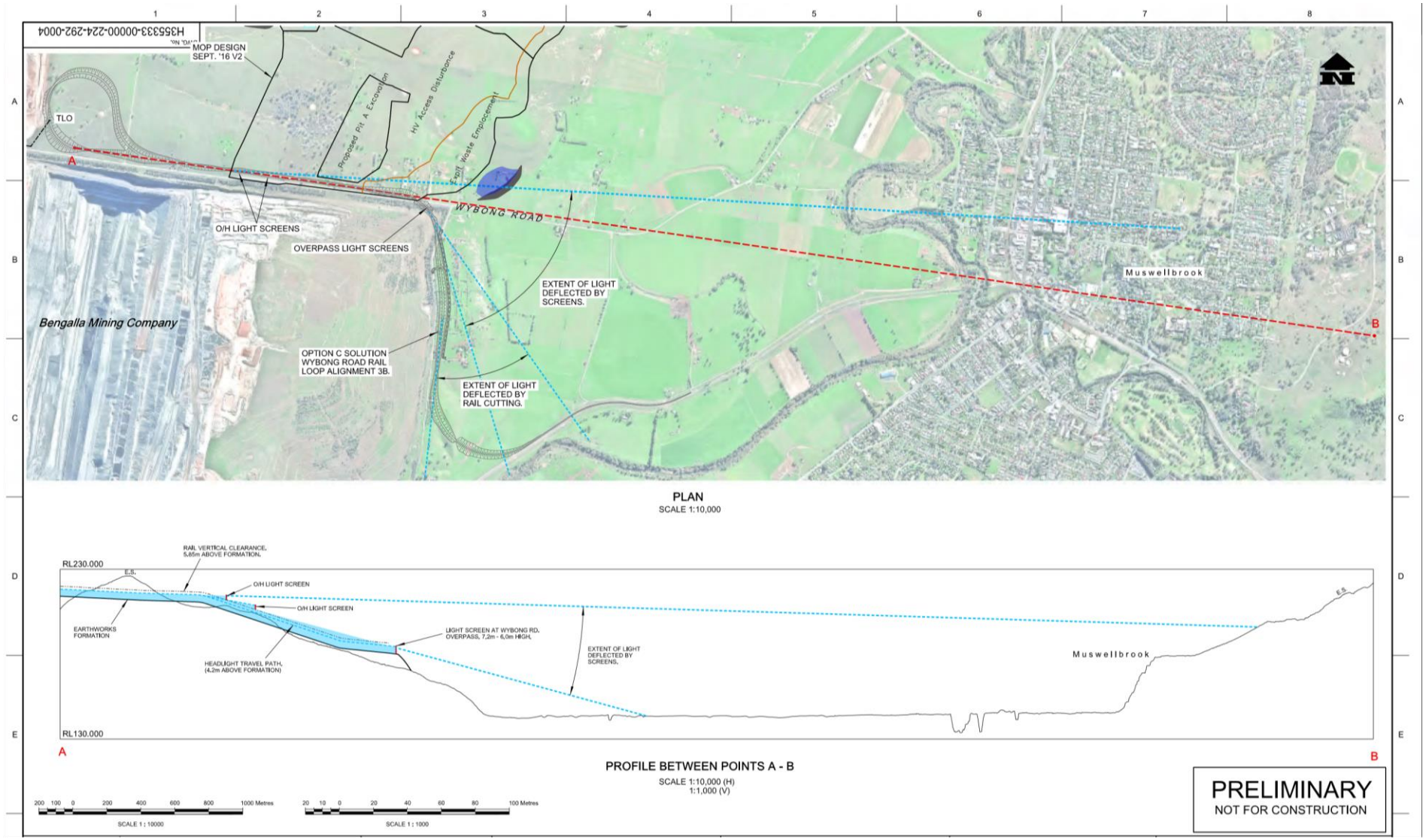

Figure 12 | Proposed light screens

5.6 Traffic and Transport

5.6.1 Construction Traffic Impacts

The construction of the proposed infrastructure is expected to require a workforce up to 60 people. Construction is expected to be completed before mining operations reach their peak in approximately 2021. Consequently, cumulative traffic impacts (including both construction and operational traffic) during the establishment of the new infrastructure would remain below the maximum approved traffic limits for the mine.

Council recommended that MACH prepare a Construction Traffic Management Plan (CTMP) prior to commencing construction of the new infrastructure. MACH accepted Council's recommendation. The Department has reflected this requirement in its recommended conditions.

Council has also requested that the Bengalla Link Road bridge over the redundant rail spur be demolished, and the road reserve reinstated, following the decommissioning of the existing rail infrastructure. The Department has included this requirement in its recommended conditions.

MACH has committed to maintain public road access for the duration of construction works. The Department considers that access issues can be suitably managed under the CTMP.

5.6.2 Proposed Road Works

The proposed modification would require some ancillary road works, including the:

- construction of a new rail bridge over Wybong Road (see **Figure 3**);
- a minor realignment of Overton Road and the construction of a single lane road bridge over the new rail cutting; and
- construction of a new private road on the eastern side of the proposed Overton Road bridge, providing access to the Overdene Homestead (see **Figure 3**).

Overton Road is a minor local road which provides access to a small number of BMC-owned properties.

The new bridges would require detailed engineering design, prior to construction. The Department has recommended conditions requiring that the road works be designed and constructed in accordance with the *Austroads Guide to Road Design*, and to the satisfaction of Council. MACH would also need to obtain all necessary approvals under the *Roads Act 1993* prior to commencing work.

The modification would also require the closure of Skippens Lane, a minor public road located within the approved disturbance boundary, in the vicinity of the proposed rail loop. Council did not raise any concerns in this regard.

5.6.3 Future Closure of Wybong Road

Under DA 92/97, MACH is permitted to close Wybong Road as future mining operations progress to the south. In order to maintain road connectivity, MACH is required to construct an alternate access road known as the Western Link Road, which connects Kayuga Road in the north-east to the Bengalla Link Road to the south (see **Figure 13**). For comparison purposes, the layout of the existing road network is shown in **Figure 14**.

The Road Transport Assessment (RTA) prepared for MOD 3 indicated that open cut mining is unlikely to progress to Wybong Road by 2026, when the current approved mine life expires. The MOD 4 EA also indicates that while MACH reserves the right to close Wybong Road in the future, this may not occur.

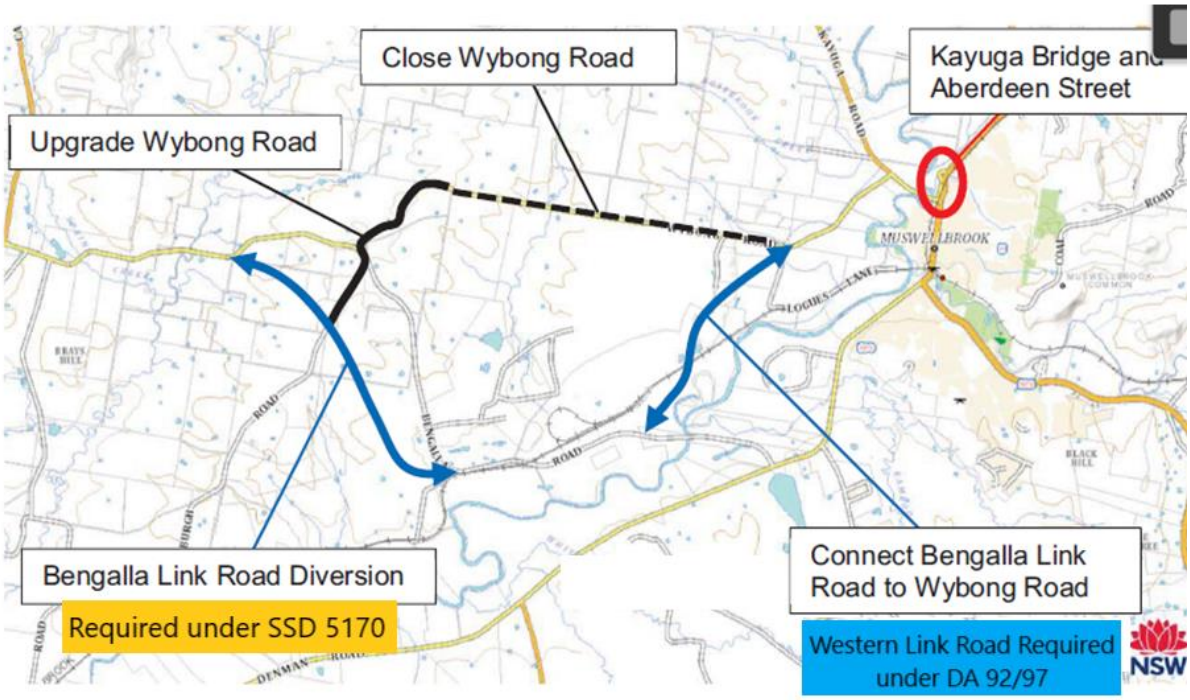

Figure 13: Potential future road network changes due to mining operations

Following its review of the RTS, Council expressed concern that if Wybong Road remains open, drivers may use the eastern section of the road to access the mine, thereby creating ongoing safety issues. Council noted that Wybong Road, in its current state, is not of a sufficient standard to accommodate mine-related traffic. Council therefore requested that Wybong Road be fully upgraded between the Bengalla Link Road and Kayuga Road, in accordance with Council's *Mine Affected Roads Strategy*.

The distribution of mine-related traffic was previously assessed in the MOD 3 RTA. The MOD 3 RTA provided an analysis of transport routes for operational traffic, based on the assumption that Wybong Road would remain open for the approved lifespan of the mine. The analysis indicates that 100 percent of heavy vehicle traffic would utilise the Bengalla Link Road and the western section of Wybong Road. The majority of light vehicles would also access the site via this route. Only 27 percent of light vehicle (employee-related) vehicles were predicted to travel along the eastern section of Wybong Road. This represents a 14 percent increase in total daily traffic volumes. Based on the low volume of traffic generation predicted, no additional requirements were imposed with respect to road upgrading or maintenance.

Existing conditions require MACH to ensure, as far as possible, that all light vehicles accessing the mine use the primary access route, thereby avoiding the eastern section of Wybong Road. MACH has also advised that it currently has management measures in place to prevent its employees and contractors deviating from the primary access route, including on-site signage and induction protocols.

Given that road traffic impacts associated with MOD 4 would be of a minor nature, and would be largely limited to the construction phase, the Department does not support the imposition of any further requirements with respect to road upgrading.

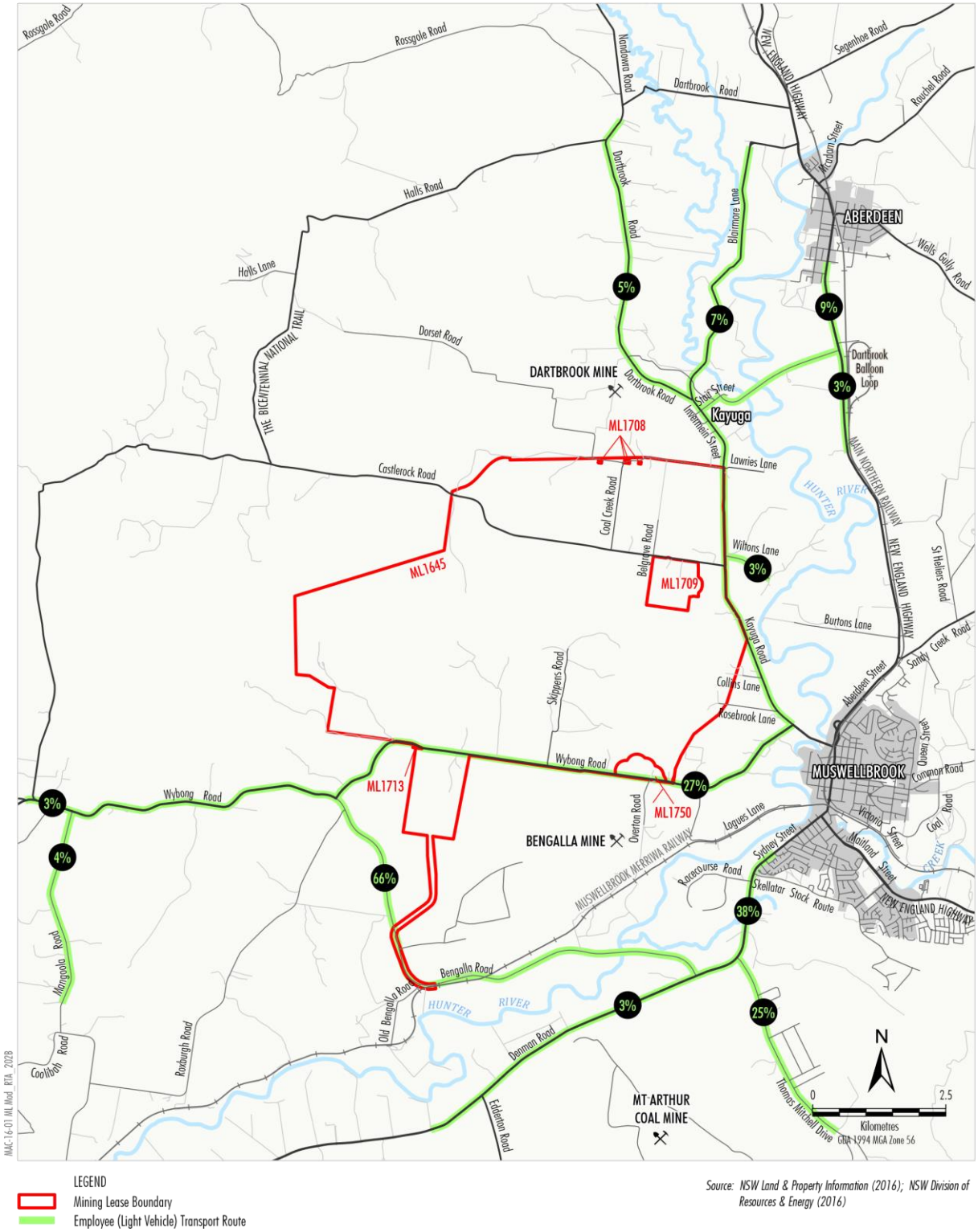

Figure 14: Distribution of operational light vehicle movements

Council also requested that MACH contribute to the ongoing maintenance of the eastern section of Wybong Road and Overton Road, on the basis that these roads would be utilised by construction traffic and for rail-related maintenance. Under existing conditions, MACH is required to develop a Maintenance Management Plan (MMP) for local roads affected by mine-related traffic, including the sections of Wybong Road and the Bengalla Link Road between the main entrances to Mount Pleasant and Bengalla, and the Western Link Road (once constructed). These sections of road form the primary access route for the mine (see **Figure 14**). Council has requested that MACH's existing MMP be extended to include the eastern section of Wybong Road and Overton Road.

As construction traffic impacts associated with MOD 4 would be relatively minor, and of a temporary nature, the Department does not consider that an ongoing maintenance contribution is warranted. Rather, the Department considers that potential impacts on the road network during the construction period could be appropriately managed under the CTMP.

MACH estimates that maintenance-related traffic on the local road network would equate to less than one vehicle movement per day, averaged over the course of a year. Given the infrequent nature of maintenance-related traffic, the Department considers that it is unlikely to necessitate regular road maintenance. On this basis, the Department does not recommend any changes to existing conditions regarding road maintenance.

5.6.4 Conclusion

The Department has recommended conditions requiring MACH to prepare a CTMP, as a component of its CEMP, prior to commencing works. The CTMP would include measures to manage localised traffic impacts for the duration of the construction period and would be prepared in consultation with Council.

The Department has also recommended conditions requiring MACH to undertake the ancillary road works, including the bridge construction, road realignment and demolition of the redundant bridge, in accordance with current engineering standards and in accordance with Council requirements.

Overall, the Department is satisfied that the traffic impacts of the proposed modification would be minor and could be suitably managed under modified conditions of consent and a CTMP.

5.7 Other Issues

Other issues associated with the modification include impacts on Strategic Agricultural Land, social impacts, impacts on both Aboriginal cultural and historic heritage, site contamination, rehabilitation and impacts on public infrastructure. The Department's assessment of these issues is summarised in **Table 4** below.

Table 4 | Summary of other issues raised

Issue	Findings	Recommended Condition
Strategic Agricultural Land	• The proposal would disturb land outside of the existing mining lease areas which is identified as Strategic Agricultural Land under the Mining SEPP. • The proposal would disturb approximately: - 16 ha of BSAL; and - 3 ha of equine and viticulture CIC. • The modification involves the construction of linear infrastructure outside of the Mount Pleasant mining area. Consequently, the proposal is not 'mining or petroleum development' under clause 17A of the Mining SEPP and does not require a Gateway Certificate or Site Verification Certificate. • The disturbance area equates to less than 0.001 percent of the total mapped Strategic Agricultural Land in NSW. • The proposal is unlikely to sterilise significant areas of productive farm land. The proposed rail spur would follow the boundary of the Bengalla Mine and connect with an established rail corridor. Where the proposed water infrastructure crosses mapped BSAL, the pipeline would be buried. The Department is therefore satisfied that the proposal limits, to the	No conditions considered necessary

	greatest extent practicable, loss of BSAL and CIC. • The Department recognises the importance of the equine and viticulture CICs within the Hunter Valley. The Department also understands that the cumulative noise, air quality and visual impacts of mining operations in the region are of great concern to the thoroughbred breeding industry. However, the Department's assessment in **Sections 5.1**, **5.2** and **5.5** above indicates that the impacts of the proposal would be suitably managed under modified conditions of consent. Consequently, the Department considers that the proposed modification is unlikely to have a significant impact on CICs.	
Social Impacts	• Three submissions raised concerns regarding the social impacts of the proposed modification, primarily with respect to the well-being of residents and potential loss of amenity. • The social impacts of the Mount Pleasant Mine were considered previously in Department's assessment of the original development application, and more recently in the assessment of MOD 3. Consequently, the Department's consideration of these matters is limited to the likely impacts of MOD 4. • The Department's assessment of noise, air quality, traffic and visual impacts indicates that the proposed modification would have minimal impacts on amenity and the wellbeing of nearby residents, subject to the implementation of suitable mitigation measures. Consequently, the social impacts of the proposal are expected to be negligible.	No conditions considered necessary
Aboriginal Cultural Heritage	• The EA included an Aboriginal Cultural Heritage Assessment (ACHA) prepared by Niche Environment and Heritage. • The proposed rail corridor is partially located within the approved disturbance boundary for the Mount Pleasant Mine. Aboriginal heritage sites within the approved disturbance area are managed under existing AHIPs. As such, the ACHA focused primarily on the proposed disturbance areas beyond the existing AHIP boundaries. • During field surveys, five new Aboriginal heritage sites were identified in the vicinity of the proposed disturbance area, comprising four isolated finds (MPO 1 to MPO 4) and one artefact scatter (MPO 5). These sites contain stone artefacts which were considered to be of low archaeological significance. • Two of the sites (MPO 1 and MPO 2) are located outside of the proposed disturbance area and are not expected to be impacted by the proposal. • The three remaining sites (MPO 3 to MPO 5) would be disturbed by the proposal. MPO 3 is located within the proposed water pipeline corridor. MPO 4 and MPO 5 are located in proximity to the proposed rail spur. • The ACHA recommended that MPO 3 be salvaged prior to any surface disturbance occurring. No specific recommendations were made with respect to MPO 4 or MPO 5.	• The Department has recommended conditions requiring MACH to update its AHMP prior to commencing construction works associated with Modification 4. • The Department is satisfied that the impacts of the proposed modification would be suitably managed under existing and modified conditions and an updated AHMP.

	• MACH has indicated that it will apply for a new AHIP, or seek a variation to its existing AHIP, to extend over the proposed modification area. • Existing conditions require MACH to obtain an AHIP prior to disturbing any Aboriginal sites or relics. MACH is also required to prepare a detailed Aboriginal Heritage Conservation Strategy and Aboriginal Heritage Management Plan (AHMP) for the development, in consultation with OEH and Registered Aboriginal Parties. This plan would be updated to include the additional disturbance area associated with the proposed modification. • OEH did not raise any objections regarding the proposal and recommended minor changes to the existing conditions, including a requirement for MACH to provide updated information on newly recorded and salvaged Aboriginal sites for inclusion in the Aboriginal Heritage Information Management System database. These changes have been reflected in the recommended conditions.	
Historic Heritage	• The EA included a Statement of Heritage Impact (SHI) prepared by Extent Heritage Pty Ltd. • No state-listed heritage items would be impacted by the proposal. • The SHI identified five items of local heritage significance that may be impacted by the proposed modification, including the Overdene Homestead, Overton Orchard, Overton Race Track, Bengalla Homestead and the ruins of the former Blunt's Butter Factory. These sites are locally-listed heritage items under the Muswellbrook LEP 2009. • Two places of local heritage interest were also identified, comprising the former Overton Colliery and a potential archeological site known as MP13. While MP13 was previously identified as potentially containing archaeological relics, the SHI determined that MP13 has low archaeological potential. • The proposal would have direct impacts on the Overton Orchard and Overton Race Track, which would be partially removed in order to construct the rail spur. MP13 would also be removed. • The SHI provided a series of recommendations for the management of historic heritage during construction, including: - preparing a photographic record of the areas to be destroyed; and - protecting historic sites adjacent to the disturbance area. • Council generally accepted the conclusions and recommendations of the SHI. Council also recommended that MACH prepare a Historic Heritage Management Plan (HHMP) and undertake consultation with Council with respect to historic heritage matters. • MACH has provided a revised Statement of Commitments for the project, which incorporates Council's recommendations.	• The Department has recommended conditions requiring MACH to prepare a HHMP as part of its CEMP. The plan would be prepared in consultation with Council and reflect the recommendations of the SHI. • The Department is satisfied that the impacts of the modification on local historic heritage would be minimal and would be suitably managed under modified conditions of consent and a HHMP.
Rehabilitation	• MACH did not initially propose to undertake any rehabilitation of the existing rail corridor, following the demolition and removal of the redundant infrastructure, as this area will be	• The Department has recommended conditions requiring MACH to stabilise and provide for the temporary vegetation of the

	subject to future mining by BMC. However, Council raised concerns regarding potential dust and sedimentation issues, and recommended that MACH be required to stabilise the area prior to its relinquishment. MACH has accepted Council's recommendation. The Department has recommended conditions to this effect. • Following the conclusion of mining operations at Mount Pleasant, MACH has committed to remove the new rail infrastructure and regrade the rail corridor to reflect its original landform. • Alternatively, MACH has indicated that the rail facilities could be retained, in order to service future development. However, this would be subject to further discussion with key agencies prior to the conclusion of mining.	redundant rail corridor following the removal of its infrastructure. • The recommended conditions would also require MACH to revise the site's Rehabilitation Strategy and Rehabilitation Management Plan (RMP) to include the additional disturbance area associated with MOD 4. • The Department is satisfied that rehabilitation of the site would continue to be suitably managed under modified conditions and an updated Rehabilitation Strategy and RMP.
Land Contamination	• The EA included an assessment of potential land contamination in accordance with the requirements of SEPP 55 and the relevant guidelines (*Managing Land Contamination – Planning Guidelines SEPP 55 – Remediation of Land*, 1998). • The proposed disturbance area is not identified as significantly contaminated land under the *Contaminated Land Management Act 2008* (CLM Act), and it is not subject to any management or maintenance orders under the CLM Act. • The proposal does involve a change of use (ie construction of new infrastructure) on land which has previously been subject to potentially contaminating activities (including agriculture and importation of fill). On this basis, MACH commissioned a preliminary site investigation, followed by a Tier 1 Detailed Site Investigation (DSI), in accordance with the Planning Guidelines. • The investigation identified bonded Asbestos Containing Material (ACM) fragments on surface soils within the proposed disturbance area. These fragments were identified at two locations (Features 18 and 22), where historical filling has occurred, and a third location (Feature 5), where a former structure appears to have been demolished. All three sites are expected to be disturbed during construction works. • Polycyclic aromatic hydrocarbons and total recoverable hydrocarbons were also identified at concentrations exceeding the Ecological Screening Levels (ESLs) for industrial sites under the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM). Elevated lead and nickel concentrations were also identified at levels above the General Solid Waste criteria under the EPA's *Waste Classification Guidelines*. However, all samples collected on site met the human health assessment criteria for industrial sites under NEPM. • The DSI recommended specific management measures only in relation to the bonded ACM fragments, noting that other contaminants present on site fall within acceptable health standards. • This investigation concluded that the site is suitable for the proposed modification, subject to the preparation of an Asbestos Management	• The Department has recommended conditions requiring MACH to ensure that any asbestos encountered during construction is handled, transported and disposed of by appropriately qualified contractors in accordance with the requirements of SafeWork NSW, relevant legislation and guidelines. • The recommended conditions also require MACH to prepare an Unexpected Contamination Protocol (UCP), as a component of its CEMP. The UCP would include detailed procedures for the testing, removal and disposal of any potentially contaminated material identified during construction works. • The Department is satisfied that potential land contamination issues could be suitably managed under modified conditions of consent, and a detailed UCP.

	Plan and a protocol for managing unexpected contamination, prior to the commencement of works. • The EPA did not provide any specific comments in relation to the DSI and did not raise any concerns regarding the recommended conditions.	
Public Utilities	• The proposed modification would require the relocation of key infrastructure, including electricity transmission lines, optical cable and water pipelines. • MACH has committed to maintain services to affected residences and the Bengalla Mine, to the satisfaction of the relevant service providers. • Existing conditions require MACH to bear the full cost of any infrastructure relocation work required under DA 92/97. Existing conditions also require MACH to repair or pay the full costs associated with the repair of any public infrastructure damaged by the development.	No additional conditions considered necessary.

6. Evaluation

The Department has assessed the modification application in accordance with the relevant requirements of the EP&A Act. The Department has carefully considered the potential impacts of the proposal on the natural and cultural environment, on nearby residents, and on key industries in the locality. The Department has concluded that these impacts can be appropriately managed under modified conditions and an updated suite of management plans, including a CEMP for construction works.

The proposed modification would facilitate the relocation of the mine's approved infrastructure, as required under existing conditions of consent and MACH's Deed of Undertaking with the Minister for Resources. This relocation is essential to facilitate future mining operations at Mount Pleasant and Bengalla.

On balance, the Department is satisfied that the proposed modification is in the public interest and should be approved, subject to conditions.

The Department has drafted a recommended Notice of Modification for DA 92/97 (see **Appendix E**) and a consolidated version of the development consent, as it is proposed to be modified (see **Appendix F**). The Department has also taken the opportunity to update various conditions, in order to correct minor drafting errors and to align with the Department's current drafting standards.

MACH has reviewed and accepted the recommended conditions.

7. Recommendation

It is recommended that the Executive Director, Resource Assessments and Compliance, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report;
- **determines** that the application DA 92/97 (MOD 4) falls within the scope of section 75W of the EP&A Act;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant approval to the application;
- **modifies** the consent DA 92/97; and
- **signs** the attached approval of the modification (**Appendix E**).

Recommended by:

9/11/18

Lauren Evans
Acting Team Leader
Resource Assessments

Recommended by:

J Evans 9/11/18

Jessie Evans
Acting Director
Resource Assessments

8. Determination

The recommendation is: **Adopted / Not adopted by:**

16.11.18

Ben Harrison
Acting Executive Director
Resource Assessments and Compliance

Appendices

Appendix A – Environmental Assessment

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8787

Appendix B – Submissions

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8787

Appendix C – Response to Submissions

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8787

Appendix D – Additional Information

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8787

Appendix E – Notice of Modification

Appendix F – Consolidated Consent